UNIVERSITI TEKNOLOGI MARA

GADGET USAGE BEHAVIOUR, PSYCHOSOCIAL WELL-BEING, MOTIVATION, AND ITS IMPACT ON SPORTS PARTICIPATION AMONG GENERATION Z

ENDANG SEPDANIUS

PhD

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ENDANG SEPDANIUS

Thesis submitted in fulfilment
of the requirements for the degree of
Doctor of Philosophy
(Sports Science and Recreation)

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CONFIRMATION BY PANEL OF EXAMINERS

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I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

Generation Z occupies a pivotal position in Indonesia's socio-cultural and economic landscape; however, the rapid expansion of digital technology and increasing dependence on screen-based activities have significantly reduced adolescents' engagement in physical activity and face-to-face social interaction. This growing imbalance has raised concerns regarding declining sport participation, diminished psychosocial well-being, and weakened motivation among Generation Z. This study aimed to examine the relationships between gadget-use behaviour (environment, perceived impact, intensity, and parental role), motivation, psychosocial well-being, and sport participation, while also testing selected demographic moderators. A quantitative correlational design was employed involving 672 students from urban and district schools in West Sumatra. Data were collected using validated instruments, including the Sport Motivation Scale II, the Psychosocial Well-Being, a Gadget-Use Behaviour questionnaire, and a Sport Participation index. The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) to evaluate both measurement and structural models. The findings show that motivation is the key driver of psychosocial well-being and sport participation, with well-being further supporting sustained physical activity. Environmental constraints, negative gadget effects, and excessive screen use reduce motivation and participation, while parental support enhances motivation. Demographic factors did not significantly affect the model, indicating stability across groups. By integrating digital-era risks with motivational and social support constructs, this study advances the understanding of adolescent sport behaviour. In conclussion, the findings provide evidence-based guidance for educators, parents, schools, and community stakeholders to design structured interventions that promote balanced digital habits, strengthen motivation, and encourage sustained participation in sport to enhance psychosocial well-being among Indonesian youth.

Keywords: Generation Z, gadget usage behaviour, psychosocial well-being, motivation, sport participation, Indonesia

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LIST OF SYMBOLS

Symbol	
Z	Generation Z (born ≈ 1997–2012)
&	Ampersand, Meaning "and"
β	Standardized Path Coefficient in Structural Path Analysis.
R	Total Variance Extracted (TVE).
∑	Summation Operator, Denoting the Aggregate of a Series (e.g., $\sum x_i$).
n	Sample Size for a Specific Analysis.
r	Correlation Coefficient (Pearson or Spearman).
α	Cronbach's Alpha—Internal Consistency Reliability of a Construct.
±	Plus–Minus.
< / >	"Less Than" and "Greater Than".
D	Kolmogorov–Smirnov (KS) Statistic for Testing Normality.
df	Degrees of Freedom in Statistical Tests (t, χ^2, F, etc.).
Q-Q	Quantile-Quantile Plot—a Diagnostic Graph Comparing Data Quantiles to a Theoretical Distribution.
P	Probability (p-value).
P-P	Probability-Probability Plot—an Alternative Normality Check Plotting Cumulative Probabilities.
t	t-statistic in t-tests or for Testing Individual Path Coefficients.
z-scores	Standard (z) Scores With $\mu = 0$ and $\sigma = 1$.
D^2	Squared Mahalanobis Distance.
N	Total Population Size.
%	Percentage.

LIST OF ABBREVIATIONS

Abbreviation	
AMOS	Analysis of Moment Structures (covariance-based SEM software)
apps	Mobile/Digital Applications
AVE	Average Variance Extracted
BK	*Bimbingan Konseling* (Guidance and Counseling)
BPS	Statistics Indonesia (Badan Pusat Statistik)
CFA	Confirmatory Factor Analysis
Chi-Square	Chi-Square Test Statistic
COVID-19	Coronavirus Disease 2019
CR	Composite Reliability
Dispora	*Dinas Pemuda dan Olahraga* (Youth and Sports Agency)
d_G	Geodesic Discrepancy (global fit index in PLS)
d_ULS	Unweighted Least-Squares Discrepancy
FJ	Father's Job
Gen Z	Generation Z
GU	Gadget-Use Behaviour
GYM	Gymnasium / Fitness Facility
HTMT	Heterotrait–Monotrait Ratio (discriminant-validity test)
IDN	Indonesia (ISO country code)
IT	Information Technology
KONI	*Komite Olahraga Nasional Indonesia* (Indonesian National Sports Committee)
LISREL	Linear Structural Relations (SEM software)

MGMP PJOK	*Musyawarah Guru Mata Pelajaran Pendidikan Jasmani, Olahraga, dan Kesehatan* (Subject Teacher Working Group for Physical Education, Sports, and Health)
MGA	Multi-Group Analysis
MJ	Mother's Job
MLE	Maximum Likelihood Estimation
MO	Motivation (construct)
NFI	Normed Fit Index
PE	Physical Education
PWB	Psychosocial Well-Being
PLS	Partial Least Squares
PS	Psychosocial Well-Being (Abbreviated Construct)
REC	Research Ethics Committee
RPE	Rating of Perceived Exertion
SDT	Self-Determination Theory
SEM	Structural Equation Modelling
Sig.	Significance (P-Value)
Sakernas	National Labour Force Survey (Survei Angkatan Kerja Nasional)
SK	Decree Letter (Surat Keputusan)
SMA	Senior High School (Sekolah Menengah Atas)
SP	Sport Participation (Construct)
SPSS	Statistical Package for the Social Sciences
SRMR	Standardised Root Mean Square Residual
SSE	Sum of Squares due to Error
SSO	Sum of Squares of Observations
UiTM	Universiti Teknologi MARA (Malaysia)
UMP	Provincial Minimum Wage (*Upah Minimum Provinsi*)

UNP	*Universitas Negeri Padang* (Padang State University)
Urban GDP	Urban Gross Domestic Product
VIF	Variance Inflation Factor
VR	Virtual Reality
WB	Well-Being

CHAPTER 1
INTRODUCTION

1.1. Introduction

This chapter consists of 13 sections. The first section begins with a general explanation of the chapter. It then explains the background of this research and continues with the problem statement, the purposes of the study, the research question, the research objective, and the research hypothesis. The next section explains the definition of operational words, study limitations, study significance, and study delimitation as support and clarification for this research proposal.

1.2. Background of the Study

Several experts and institutions with slight differences in the classification of birth years define Generation Z. Twenge (2017) conceptualizes Generation Z as iGen, namely individuals born between approximately 1995 and 2012, emphasizing that this generation is the first to have grown up with widespread access to smartphones and social media from adolescence onward, which has significantly influenced their psychological and social development. Meanwhile, definitions that focus more on demographic classification state that individuals born between mid-1997 and early 2012 fall into the Generation Z category (IDN Research Institute, 2024; Slepian et al., 2024). Although there are slight differences in the birth-year cutoff, both views affirm that Generation Z grew up and developed in the digital age. In this study, the classification used refers to the IDN Research Institute (2024) because the research focuses on Generation Z in Indonesia, so this demographic framework is considered more relevant to the context of the population being studied

This generation grew up in a time of high technology, in which easy access to social media, the internet, and technological gadgets has become necessary for daily life (Eynon, 2020). This generation is committed to diversity, inclusivity, and justice. It is also very interested in digital creativity and social activism (Anderson et al., 2022; Tyson et al., 2021). Additionally, Generation Z is frequently characterized as results-driven, flexible, open-minded, and multitasking. Though they have distinct obstacles

and demands in this constantly evolving environment, Generation Z is regarded as a prospective catalyst for transformation, as evidenced by their impact on cultural, commercial, and interpersonal dynamics.

It is challenging to pinpoint the percentage of Generation Z worldwide because the population of each generation varies across countries. It is anticipated that this generation will be the largest in history, with over 2 billion people worldwide (United, 2022). Large populations in some nations, like China and India, make a substantial contribution to the total number of Generation Z. Furthermore, developed countries like Indonesia are seeing an increase in the population of Generation Z. Based on statistical data, No. 07/01/Th. XXIV, January 21, 2021, Indonesia population, it is anticipated that approximately 70 million people, or approximately 25 % of the entire population, are members of Generation Z in Indonesia (*Badan Pusat Statistik Sumatera Barat*, 2021). Consequently, Indonesia's social, cultural, and economic dynamics heavily rely on Generation Z. In addition, this generation plays a critical role in encouraging technology use, following internet trends, and influencing the expansion of social media and other digital platforms.

The rapid pace of technological progress poses challenges for Generation Z regarding their personal growth. If there are no limitations on the appropriate use of technology, Generation Z may be impacted by two distinct factors. Among the issues that come up is the use of technology to access social interaction platforms and similar apps. According to several academics, heavy social media usage may impact Generation Z's behavior. Cyberbullying, trolling, and online insults are examples of hostile behaviors that can be sparked by the heavy usage of social media and the presence of frequently anonymous online environments (Lowry et al., 2016). Other viewpoints corroborate the study's findings. Interpersonal conflict is becoming more common in real life and can be driven by various factors, including social pressure, stressful circumstances, and an inability to manage conflict (O'Connor et al., 2018). According to a study, those who abuse gadgets are also subject to peer pressure, social media, and familial expectations, which can lead to societal pressure. Put another way, there is a negative correlation between work performance and reliance on gadgets and social media (Zivnuska et al., 2019). The previously mentioned rationale leads to the conclusion that the use of gadget technology also influences Generation Z's behavior in society. This indicates that excessive gadget use may influence social pressures that

affect Generation Z's personality, including concerns about physical appearance, social comparison, and the harmful effects of content consumption.

Uncontrolled and excessive screen usage can have detrimental effects, including addiction to gadgets, a decline in face-to-face social connections, sleep disturbances, and impaired attention. According to research, there is a higher chance of behavioral addiction to smartphone use when self-regulation is compromised (Liu & Ma, 2018). The results of earlier research indicating that unfettered exposure to digital content may affect Generation Z's cognitive and emotional development are further supported by other findings. According to these results, obsessive social media use is an attempt to repress low self-esteem and is a reflection of narcissistic personality traits and the drive for ego pleasure (Casale & Fioravanti, 2018). These descriptions suggest that increased sleep deficiency, reduced social engagement, and difficulty concentrating may be linked to the detrimental effects of gadget use on the cognitive and emotional development of Generation Z; furthermore, indiscriminately visiting websites results in a lack of control. With ease, Generation Z has access to a wide range of content that may not be suitable for their age and developmental stage. Uncontrolled content can seriously harm children's mental and emotional development, including violence, pornography, and insults.

There needs to be a balance in gadget use that is adaptive to physical movement activities. Sports participation is one way to balance this lifestyle. The findings demonstrated the beneficial effects of sports engagement on social elements (Bedard et al., 2020). According to another study, engaging in sports has been shown to strengthen social relationships across a variety of cultures (Cunningham et al., 2020). Nevertheless, according to other research, Generation Z is currently active in e-sports, and playing cooperative or immersive online competitive games affects social development (Kim et al., 2022). Still, some people in this age group are also very interested in sports such as running, yoga, rock climbing, basketball, volleyball, and soccer. They also want fun, flexible, and different games, and they know how important it is to be fit and healthy (Song & Shi, 2023). As the preceding description shows, two aspects are closely associated with Generation Z: sports involvement and gadget technology. Generation Z is predicted to use social media and technology to connect with the broader sports community, share their sporting accomplishments, and stay inspired.

Generation Z has to deal with a lot of mental and social health problems that affect their daily lives because of how quickly technology is changing. Psychosocial

well-being (PWB) includes both a person's financial health and their ability to face life's challenges without experiencing mental or social stress. Happiness and life satisfaction are the two main ideas that show well-being. Life satisfaction is a broad, long-term mental state reflected in how different a person thinks their real life is from the life they want to live. According to Diener et al. (2020) A comparison of positive impacts over negative impacts is considered a sign of well-being. In other words, the impact of experiences that include a good mood and emotions is an indicator of happiness. Thus, Psychosocial well-being is a measure of how happy and satisfied someone is with their life in psychological and social contexts.

More specifically, psychological well-being covers psychological factors that are important for human psychological development in the face of life's challenges. The eudaimonic tradition continues to follow Ryff's original definition of psychological well-being, which divides psychological well-being into six primary categories. The first five traits of a person are self-acceptance (having a good opinion of oneself, their traits, and their past life), autonomy (being able to make your own decisions and judging others based on your own standards), environmental mastery (being able to use your surroundings and surroundings to meet your own needs and values), purpose in life (having goals for your life) and personal growth (feeling like you're growing and becoming more fulfilled over time) (Sasaki et al., 2020; Stavraki et al., 2022; van Dierendonck & Lam, 2023).

Keyes countered that social variables should be considered when determining well-being. Social well-being (SWB) was defined as an individual's perceived success in social interactions and ability to operate in society. Social contribution, which is the optimistic belief that one's contribution to society is valuable and valued; social coherence, which is the belief that the social world is fascinating, logical, and predictable; social acceptance, which is the positive attitude and acknowledgment of others; social actualization, which is the positive attitude toward the world and the potential and development of society; and social integration, which is the feeling of being a part of society, comprised the construct (Hennicks et al., 2024; Min et al., 2022; Nemati Vakilabad et al., 2023). Therefore, a person's achievement and constructive role in their social or private life are the main concerns of PWB and SWB (Tugade et al., 2016). There are two schools of thought on well-being: hedonic and eudaimonic. Two components of subjective well-being—life satisfaction and long-term impact—are referred to as hedonic. Conversely, Eudaimonic is also divided into two categories:

psychological well-being (autonomy, positive relationships with others, purpose in life, personal development, and autonomy) and social well-being (social acceptance, social actualization, social contribution, social coherence, and social integration) (Huta & Ryan, 2021; Keyes & Westerhof, 2023).

Research shows that the use of devices and their users' mental health are related. This research acknowledges the benefits of advanced technology in the areas of time efficiency and rapid information availability, but it also highlights the possible loss of interpersonal relationships that can arise from excessive use of smart technology (Roblek et al., 2019). Another study goes on to illustrate how stress, anxiety, sadness, thoughts of self-murder, and other mental health issues can result from social pressure, academic pressure, and excessive social media use (Sadagheyani & Tatari, 2021). Then, additional research demonstrates that bullying and cyberbullying concerns affect Generation Z frequently as well, which may have a long-term negative effect on their well-being.

Generation Z also has to deal with social inequality problems like injustice, prejudice, and economic inequality. It causes juvenile delinquency rates in low-income neighborhoods, such as dropping out of elementary school, which is seen as a bad environment that might harm adolescent development (Abdullah et al., 2018). According to some of these views, psychosocial well-being is influenced by identifying markers that vary with personal and environmental circumstances and conditions, which may differ across people depending on their location.

One of the Indonesian provinces on the island of Sumatra is West Sumatra. Results from the 2020 Population Census show that Generation Z (born 1997–2012) already accounts for roughly 30.56% of West Sumatra's 5.3 million residents, making it the province's largest age cohort and a group now largely at senior-high-school age (Langgam.id, 2021). Global tracking in the Digital 2024 Statshot Report further reveals that Generation Z is the demographic most likely to go online to stay in touch, search for information, and socialize, outusing every other age group on search engines, social networks, and chat apps (Kemp, 2024). Taken together, the cohort's sheer numerical weight in West Sumatra and its pronounced affinity for connected technologies make Generation Z highly visible in everyday life—from smartphone-filled schoolyards to their dominance of local social-media trends—as they eagerly adopt and amplify each new wave of technological progress (Kemp, 2024; Langgam.id, 2021).

Recent local reports note a surge in rule-breaking behaviors among Generation Z students in West Sumatra—ranging from bullying and frequent absenteeism to inter-school brawls—suggesting that youth misconduct is becoming more visible in the province's schools (Zulfikar, 2024). At the same time, Indonesian media monitoring indicates that adolescents now spend about six hours per day on their smartphones, underscoring how deeply gadget use has permeated daily routines (Riyanto & Pratomo, 2024). Although researchers have begun to link high screen-time with lower physical-activity levels in students, raising concerns about their fitness and overall development (Prakoso et al., 2024)—Clear empirical evidence is still lacking on whether extended gadget use directly shapes psychosocial well-being, exercise motivation, or the propensity to engage in deviant behaviors.

This research on Generation Z's engagement patterns is particularly interesting, as it has not been extensively studied and is therefore highly innovative. The results of this study will serve as a theoretical model showing how Generation Z's life patterns relate to gadget use, motivation, psychological and social well-being, and sports participation.

1.3. Problem Statement

Compared to other generations, Generation Z has a distinct mindset and method of operation (Bencsik et al., 2017). Technological advancements are more prevalent among this generation. People who used technology more as children are more likely to spend their free time online than in person (BouMjahed & Mahmassani, 2023). It is crucial to remember that a generation that frequently uses technology without balancing it with physical activity may pose a major health risk. A generation that is inactive and has a higher risk of physical, mental, and social problems may result from this (Jennen et al., 2023).

Generation Z's engagement with digital devices has been shown to be influenced by sociodemographic and socioeconomic factors (Ankara & Baykal, 2022). Prior research suggests that problematic or excessive technology use is associated with diminished self-regulation and increased screen dependency among adolescents (Mason et al., 2022). High levels of screen exposure are often linked to prolonged sedentary behavior, which may reduce time allocated to physical activity. Empirical evidence indicates that sedentary lifestyles are associated with increased health risks, including

adverse metabolic and cognitive outcomes (Diniz et al., 2024; Park et al., 2020). Conversely, higher levels of leisure-time physical activity have been shown to improve perceived cognitive function and mitigate the negative effects of sedentary behavior and elevated body mass index (Bento et al., 2019). These findings suggest the importance of balancing digital engagement with regular physical activity to support the overall well-being of Generation Z.

Sports participation rates among Generation Z are likely to vary with contextual factors, personal preferences, accessibility, and cultural influences. Increases in moderate-to-high intensity physical activity and slower reductions in physical activity among younger age groups are associated with the presence of additional green spaces near residential areas (Poppe et al., 2022). Even in limited environments, Generation Z shows a strong interest in maintaining their health and fitness by exploring diverse forms of physical activity (Ellis et al., 2022). To achieve their fitness goals, they often rely on digital tools such as fitness apps and wearable devices, which allow them to conveniently monitor and manage their physical activity.

However, maintaining overall health requires more than just physical movement—it demands consistent commitment to an active lifestyle. Age has been found to directly influence physical function, with daily activity levels playing a critical role in sustaining it (Ravi et al., 2022). Engaging in sports as a routine part of life generates joy, motivation, and positive energy through social recognition and interaction, fostering participation in community spaces (‘Roth’ Smith, 2020). This communal engagement through sports significantly contributes to the formation of healthy social behavior and mental well-being. Studies have shown that sports and physical activity programs can enhance emotional, social, and mental health, boosting self-esteem, confidence, and a sense of cultural belonging (English et al., 2022). However, little is known about how technological advances influence the physical activity and psychosocial well-being of Generation Z in the specific cultural context of West Sumatra, Indonesia.

According to Clancy et al. (2022) Commitment is the enactment of values that guide one’s identity in initiating or sustaining a role; thus, a person will perform the role of an athlete when committed to physical activity. Among tech-savvy Generation Z, however, it warrants special attention whether commitment to sport is truly construed as a pathway to achievement, social connection, and health. A key constraint is limited time for sport due to packed schedules and high academic demands, so only a small

proportion still make room for activity beyond the physical education curriculum. Evidence shows that social ties influence youths' participation outside physical education (PE) (Su et al., 2023), that race- and language-related backgrounds shape high-school sport participation (Chang et al., 2021), and that specific components of physical-activity interventions can enhance psycho and social health and functioning (Su et al., 2023). However, in Indonesia, integrated evidence remains limited on how commitment to sport translates into extracurricular sport participation among tech-savvy Generation Z—amid academic time pressures and high screen time—and on how social ties, linguistic/cultural background, and targeted physical activity interventions jointly shape participation beyond the physical education curriculum.

It is important to clarify the distinction between motivation to exercise and participation in sport, as these constructs are related but conceptually distinct. Motivation refers to the psychological processes that energize and regulate physical activity behavior (Dunker et al., 2021; Ryan et al., 2022), whereas sport participation reflects the actual behavioral engagement in sport activities (Eime, R et al., 2020). Individuals may have strong motivation but fail to participate consistently due to contextual barriers such as academic pressure or excessive screen time. Conversely, participation may occur due to external requirements without strong intrinsic motivation. From the perspective of Self-Determination Theory, motivation represents the quality of behavioral regulation, while participation represents its observable outcome (Ryan & Deci, 2020). Therefore, distinguishing these constructs is essential to understanding whether gadget use influences psychological readiness, actual sport involvement, or both.

Generation Z's problems become more complex when they have excessive screen time and struggle to maintain healthy social communication. Based on the research result, only 392 (29%) of the 1,351 participants from West Sumatra who participated in sports were from the senior high school level (Sepdanius et al., 2024). This means that the number of Generation Z members is too low to participate in sports activities in West Sumatra. Despite indications that excessive screen time and weakened face-to-face communication coincide with low sports participation among West Sumatran Generation Z (only 392 of 1,351 senior-high respondents; 29%), there are no integrated studies in this context that examine how gadget use and motivation are jointly related to psychosocial well-being and actual sports participation in West Sumatra, Indonesia. Therefore, it is very interesting to conduct research on gadget use,

motivation, psychosocial well-being, and sports participation among Generation Z in West Sumatra to develop an appropriate structural model that clarifies the role of each variable.

1.4. Purposes of Study

This study aims to comprehensively map how gadget use behavior among Generation Z students influences exercise motivation, psychosocial well-being, and sport participation, while assessing the strength and direction of each direct-effect pathway. Two forms of moderation are also proposed: (1) continuous moderation through term interaction, and (2) categorical moderation through Multi-Group Analysis to compare path differences between groups. The results obtained are expected to not only confirm the causal patterns between gadget usage behavior, motivation, psychosocial well-being, and sports participation but also reveal when and in whom gadget usage risks reducing psychosocial quality, so that it can be the basis for recommendations for healthy digital literacy programs and more targeted school-based sports interventions. Figure 1.1. shows the model's structure and its interrelationships.

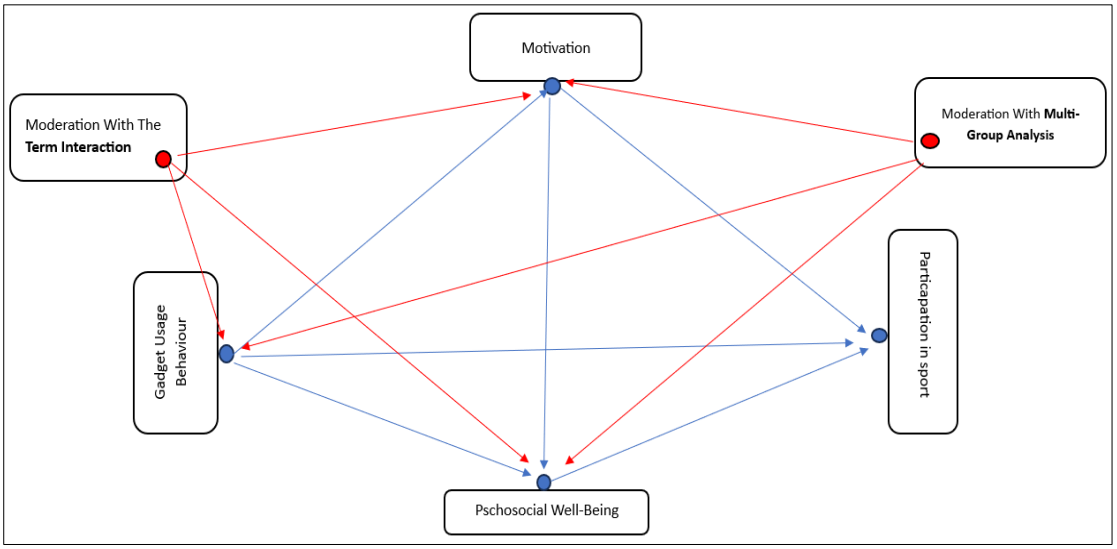

Figure 1.1 Structural Model of Generation Z's Gadget Usage and Its Relationship to Psychosocial Well-Being, Motivation, and Participation in Sports

1.5. Research Question

1) How does the influence of gadget usage behavior on psychosocial well-being, motivation, and participation in sports among Generation Z in West Sumatra, Indonesia?
2) How does psychosocial well-being influence sports participation among Generation Z in West Sumatra, Indonesia?
3) How does motivation influence sports participation among Generation Z in West Sumatra, Indonesia?
4) How does motivation influence psychosocial well-being among Generation Z in West Sumatra, Indonesia?
5) How do demographic factors as a moderation variable influence gadget usage behavior, psychosocial well-being, motivation, and sport participation among Generation Z in West Sumatra, Indonesia?

1.6. Research Objective

1) To discover the influence of gadget usage behavior on psychosocial well-being, motivation, and participation in sports among Generation Z in West Sumatra, Indonesia.
2) To identify the influence of psychosocial well-being on sports participation among Generation Z in West Sumatra, Indonesia.
3) To identify the influence of motivation on sports participation among Generation Z in West Sumatra, Indonesia.
4) To examine the influence of motivation on psychosocial well-being among Generation Z in West Sumatra, Indonesia.
5) To examine the influence of demographic factors as a moderating variable on gadget usage behavior, psychosocial well-being, motivation to do sport, and sport participation among Generation Z in West Sumatra, Indonesia.

1.7. Research Hypothesis

In quantitative research, formulating the hypothesis is an important stage that shapes the direction of data analysis and the basis for scientific decisions. Hypotheses are temporary statements about the relationship between variables, compiled on theoretical grounds and tested against empirical data. Hou et al. (2025) defines a

hypothesis as a temporary proposition about the relationship between two or more variables that can be tested empirically.

Furthermore, the hypothesis must be formulated logically, clearly, and testably. Hooff and Pater (2019) stated that a good hypothesis must fulfill the criteria of testability, theoretical relevance, and consistency with the framework built. Therefore, the formulation of hypotheses in this study is not only prepared based on the formulation of the problem, but also refers to the literature review and conceptual framework in Chapter II, which has been discussed:

Hypothesis 1: Gadget usage behavior (environment, intensity, impact, and parent role) has a significant effect on psychosocial well-being, motivation, and sport participation among Generation Z in West Sumatera, Indonesia.

Hypothesis 2: Psychosocial well-being has a significant effect on sport participation among Generation Z in West Sumatera, Indonesia

Hypothesis 3: Motivation has a significant effect on sport participation among Generation Z in West Sumatera, Indonesia.

Hypothesis 4: Motivation has a significant effect on psychosocial well-being among Generation Z in West Sumatera, Indonesia.

Hypothesis 5: Demographic factors significantly moderate the relationships in West Sumatera, Indonesia.

1.8.Delimitations of Study

Generation Z is the generation born between 1997 and 2012. This means that the Generation Z period is in the current educational stage. This study is restricted to members of Generation Z who are currently enrolled in senior high school and are aged 16 to 20. For teenagers, this is the most crucial time in their lives to figure out who they are through their actions. This age also indicates the capacity to make choices based on external factors.

Furthermore, this study restricts the planned research region to the province of West Sumatra. Due to the size of Indonesia's landmass, which comprises 33 provinces dispersed across numerous islands. As a result, while the study's findings may serve as a guide for decision-making in West Sumatra province, they cannot be applied universally to other Indonesian provinces.

1.9.Limitations of Study

The wide variety of other variables that can be used as manipulative elements is the study's weakness. However, it is restricted to two confounding factors—motivation and psychological well-being—due to the researcher's limited time and skill. Given advancements in information technology, this element is crucial to consider when analyzing the relationship between Generation Z's well-being and their dedication to sports participation.

1.10. Significance of the Study

This study is significant because it broadens our understanding of the relationships among psychological health, sports commitment, and motivation. The study aims to shed insight into important aspects of people's involvement in sports, their overall psychological well-being, and the underlying driving forces. The study also covers increased gadget use and its potential effects on motivation, well-being, and sports participation.

The results of this study can have various benefits for: 1) institutions that have an interest in Generation Z, such as schools. Schools can develop rules related to the use of gadgets and policies involving Generation Z to participate in sports activities, 2). Sports practitioners have new theories related to the motivation of generation Z in relation to commitment to exercise, 3) As a study material for sports psychology practitioners in applying theories related to psychological health for sports participants, especially for generation Z, 4) For the community, sports participants provide an understanding of how generation Z's social interaction patterns and help in forming rules in the community in inhibiting juvenile delinquency.

1.11. Definition of Operational Terms

Generation Z: Generation Z is the generation born from 1997 to 2021 (IDN Research Institute, 2024). On average, this generation is at the school level. In this research, Generation Z refers to individuals aged 16-20 who are in high school in the West Sumatra region. Another term used in this equivalent research is "teenagers".

Sports participation: Describes a person's commitment, allegiance, and engagement in sporting activities. It entails consistent work, devotion to athletic principles, and community identification (Scanlan et al., 2016). The instrument used to collect data was a 16-item sports participation instrument.

Motivation: It consists of two types of motivation: extrinsic (motivated by rewards or incentives from outside sources) and intrinsic (motivated by the desire to enjoy and satisfy oneself) (Ryan & Deci, 2020). Refers to the internal processes that initiate, guide, and sustain an individual's behavior and effort to achieve specific goals or outcomes. The instrument used is the Sport Motivation Scale II. This instrument was adopted in the Indonesia version with 16 items

Gadget use behavior: Young people's psychological moods tend to become more carried away and drawn to spending more time with gadgets (Mason et al., 2022). refers to the use of electronic gadgets, including tablets, smartphones, and other portable electronics. It includes things like using social media, playing games, browsing the internet, and using the various apps and features on devices.

Psychosocial well-being: Describes the general psychological and social functioning of an individual. It includes several things, including social interactions, self-worth, emotional stability, and life pleasure (Destyani et al., 2020). The instrument used to collect the data was the Physicosocial well-being instrument with 18 items.

1.12. Ethical Committee

This study obtained ethical clearance from the Ethics Committee of Universiti Teknologi MARA (UiTM), Malaysia (Reference No. REC/10/2024 (PG/MR/538), 29 October 2024), covering all respondent-recruitment and data-collection procedures. All activities adhered to the *Declaration of Helsinki* and Malaysia's Good Clinical Practice standards. Before participation, each respondent received an information sheet and signed written informed consent affirming the right to withdraw at any time without penalty. Data were coded anonymously, encrypted, and stored on institutional servers to guarantee confidentiality and prevent unauthorized access. Consequently, the study complies with the principles of beneficence, non-maleficence, autonomy, and justice, safeguarding both scientific integrity and participant welfare.

1.13. Summary

This chapter frames the problem of low sport participation among West Sumatran Generation Z amid rising screen exposure and uneven school environments. It identifies a gap: few studies integrate digital factors (perceived impact and screen intensity), environmental conditions, and parental support with motivation,

psychosocial well-being, and sport participation in an Indonesian provincial context. The chapter states the study's purpose, research questions/hypotheses, population (West Sumatran high school students), scope, and significance, arguing that clarifying the motivational mechanism linking digital habits and school ecology to well-being and behavior can inform actionable school policy. It closes by outlining the dissertation structure and leading to the literature review.

CHAPTER 2
LITERATURE REVIEW

2.1. Introduction

This chapter presents a comprehensive review of the literature underpinning the study. The main focus of this review is to examine the interrelationships among gadget usage behavior, motivation, psychosocial well-being, and sport participation among Generation Z. These constructs were selected due to the increasing prevalence of digital engagement in this generation and its potential implications for physical activity patterns and overall well-being.

The subtopics discussed in this chapter include: (1) theoretical foundations, particularly Self-Determination Theory as the guiding framework; (2) gadget usage behaviour and its psychological and behavioural consequences; (3) motivation in the context of sport participation; (4) psychosocial well-being; (5) sport participation patterns among Generation Z; and (6) the role of demographic factors as potential moderators. These components are reviewed to establish conceptual clarity and theoretical alignment with the proposed research model. The selection of these topics is grounded in empirical evidence suggesting that excessive digital engagement may influence motivational processes, psychosocial functioning, and physical activity participation. By critically synthesizing relevant studies, this review establishes the study's conceptual foundation, informs hypothesis development, and guides subsequent methodological design and data analysis.

2.2. Generation Z in Indonesia

Knowledge, attitudes, and behavior regarding social distancing policies are just a few of the aspects that influence the diverse traits and behaviors displayed by Indonesian Generation Z (Yanti et al., 2020). They use social media extensively; among Generation Z, Instagram is a major medium (Evita et al., 2023). Generation Z's identity is heavily influenced by the development of the internet and social media (Pahlevi et al., 2023). On the other hand, Generation Z might experience technostress, which could affect their willingness to use technology (Putriani & Apriani, 2022). Psychosocial

well-being is an important aspect for Generation Z. According to research, Generation Z in Indonesia primarily uses social media platforms such as Instagram for self-expression and communication (Evita et al., 2023). This implies that social media has a big influence on the mental health of this generation. In general, one factor influencing the psychosocial well-being of Indonesia's Generation Z is their usage of social media platforms.

Additionally, Indonesian Generation Z's involvement in sports affects the psychological environment. Numerous studies have shown how gender issues in Indonesia may be examined through sport, offering insights into the experiences of adolescent female athletes participating in weightlifting and judo (Berliana et al., 2021). Another study highlighted the role of sport in fostering solidarity by discussing the Islamic Solidarity Games (ISG) and the concept of solidarity in Islamic law (Sofyan et al., 2021). It also emphasized the connection between the COVID-19 pandemic's impact on Generation Z's degree of distress and life satisfaction, psychological well-being, and participation in sports communities (Park. J et al., 2022). According to data from earlier studies, sports engagement affects Indonesia's Generation Z in several ways.

2.3. Theoretical Foundation (Self-Determination Theory)

Self-Determination Theory (SDT), developed by Deci and Ryan in 1985, is a motivational theory that explains how individuals initiate, regulate, and maintain behavior (Ryan et al., 2022). In contrast to motivational theory, which only emphasizes the quantity of motivation, SDT focuses on the quality of motivation and distinguishes between intrinsic motivation and extrinsic motivation (Ryan & Deci, 2020). This theory is particularly relevant in the context of sports participation, as engagement in physical activity is heavily influenced by an individual's internal motivational processes.

The core of SDT lies in three basic psychological needs, namely autonomy, competence, and relatedness (Teixeira P. J et al., 2020). Autonomy refers to the feeling of having control and choice over one's actions. Competence refers to the feeling of being able and effective at performing an activity. Relatedness relates to the experience of feeling connected and having meaningful social relationships with others. According to SDT, when these three needs are met, individuals tend to develop stronger intrinsic motivation and experience higher psychological well-being (Ryan et al., 2022). Conversely, if these needs are thwarted, motivation can be constrained or even decline, ultimately reducing engagement in positive activities such as exercise.

SDT also explains that motivation is on a continuum, starting from amotivation (not motivated), external regulation, introjected regulation, identified regulation, integrated regulation, to intrinsic motivation (Ryan & Deci, 2020). Intrinsic motivation is the most autonomous form of motivation, where individuals engage in activities for personal enjoyment and satisfaction. Forms of regulation, such as identified and integrated regulation, fall into the more autonomous extrinsic motivation category, while external and introjected regulation are more controlled. This continuum aligns with the use of the Sport Motivation Scale II (SMS-II) in this study, which measures various dimensions of motivation according to the SDT framework.

In the context of sports participation, SDT explains that adolescents who have high intrinsic motivation tend to be more consistent and sustainable in participating in sports activities (Amaro et al., 2023; Carson et al., 2025). When students feel competent in sports, have freedom to choose activities, and experience social support through sports, their participation will be more stable and meaningful. Therefore, SDT provides a strong theoretical basis for the relationship between motivation and sports participation in this study.

Furthermore, SDT also explains the relationship between motivation and psychosocial well-being. Fulfilling the needs for autonomy, competence, and relatedness directly contributes to improved psychological well-being, such as self-confidence, life satisfaction, emotional stability, and social integration (D'Amours et al., 2025). A number of empirical studies also show that individuals with high intrinsic motivation tend to have better levels of psychological well-being than individuals who are driven by external pressures (Martela et al., 2022). Thus, the relationship pathway between motivation and psychosocial well-being in this study is strongly grounded in the SDT framework.

This theory is also relevant in explaining the behavioral effects of gadget use. Excessive and uncontrolled gadget use has the potential to reduce an individual's opportunity to fulfill basic psychological needs through physical activity and direct social interaction (Dose et al., 2019; Martela et al., 2022). For example, prolonged screen time can reduce face-to-face social interaction (relatedness), limit the development of physical skills (competence), and encourage passive behavior that undermines autonomy. This can decrease intrinsic motivation to exercise and impact psychosocial well-being. However, targeted and supportive use of technology can still have a positive effect if it strengthens a sense of competence or social connectedness.

Overall, Self-Determination Theory is the main theoretical foundation in this study because it is able to explain how gadget usage behavior can influence motivational processes, which in turn impact psychosocial well-being and sports participation in Generation Z. By integrating digital behavior, motivation, and well-being within the SDT framework, this study positions motivation as a key psychological mechanism that links environmental factors to adolescent sports involvement.

2.4. Gadget Usage on Sport Participation

The rapid development of digital technology has significantly influenced adolescents' daily activities, including their engagement in sports. Gadgets, such as virtual reality (VR), social media platforms, and wearable fitness technologies, present both opportunities and challenges for sport participation. On the positive side, technology can enhance motivation, skill development, and engagement in physical activities. For instance, virtual reality applications have been shown to improve technical skills and increase engagement among young athletes (Rusmanto et al., 2023). Similarly, social media has functioned as a motivational platform that promotes physical activity participation, particularly during restrictive periods such as the COVID-19 pandemic (Hayes, 2020). Wearable fitness technologies also support self-monitoring and goal-setting behaviors, which are associated with increased exercise adherence. These findings suggest that when used purposefully, digital technology can facilitate participation in sport and enrich the overall sport experience.

However, the impact of gadget use is not uniformly positive. Excessive and uncontrolled use of digital devices has been consistently associated with negative psychological and behavioral outcomes among adolescents. Studies indicate that gadget addiction contributes to increased stress, emotional instability, and disruptions in physical and psychological health (Tsania & Sulistyowati, 2023; Yunita et al., 2021). Furthermore, excessive screen time has been linked to impaired sleep quality (Niro et al., 2020), reduced academic performance (Zhang, L , 2023), and symptoms of depression and mental distress (Misirli, 2025; Patil, 2023). These negative consequences may indirectly reduce adolescents' time, energy, and motivation to engage in physical activities.

Taken together, the literature demonstrates a dual role of gadget usage in sport participation. While technology can serve as a facilitator of engagement when integrated

constructively, excessive and addictive use may displace physical activity and hinder sport involvement. Therefore, understanding how gadget usage influences sport participation requires a balanced perspective that considers both its motivational potential and its behavioral risks, particularly among Generation Z adolescents.

2.5. Gadget Usage on Psychosocial Well-Being

The growing reliance on digital devices has raised concerns regarding their impact on adolescents' psychosocial well-being. A substantial body of research indicates that excessive screen time is associated with decreased psychological functioning, including reduced emotional stability, self-control, curiosity, and interpersonal competence (Twenge & Campbell, 2018). Screen addiction has also been linked to diminished academic performance and broader psychological distress (Durak et al., 2022). During the COVID-19 pandemic, increased digital engagement further intensified concerns, as excessive screen use was found to correlate strongly with anxiety, depressive symptoms, and mental health difficulties (Wu, C. H. et al., 2023). Similarly, smartphone addiction has been consistently associated with lower levels of psychological well-being among university students (Zheng et al., 2022), as well as broader negative mental and physical health outcomes (Floros & Ioannidis, 2021).

Beyond individual psychological consequences, excessive gadget use also affects social well-being. Research has demonstrated that screen addiction is negatively associated with harmonious interpersonal relationships and social connectedness (Satıcı et al., 2021). Maladaptive gadget usage patterns may contribute to social withdrawal and reduced participation in community activities (Hagström & Kaldo, 2014). These findings suggest that excessive digital dependency may undermine adolescents' sense of belonging and social integration, both of which are central components of psychosocial well-being.

Psychosocial well-being, in turn, plays a critical role in shaping sport participation. Individuals experiencing low self-esteem, anxiety, stress, or emotional vulnerability may avoid physical activities due to fear of evaluation or social discomfort (Ping et al., 2022). Social anxiety and internalized media pressure have also been found to indirectly reduce sports engagement (Ouyang et al., 2021). Thus, diminished psychological and social well-being may act as a barrier to active participation in physical activities.

Conversely, positive psychosocial well-being is associated with higher levels of sport participation. Adolescents with better mental health tend to demonstrate stronger engagement in physical activities (Guddal et al., 2019). Furthermore, satisfaction of psychological needs such as competence has been shown to enhance sustained participation in sports (Sung-Un et al., 2020). Participation in sports itself can further strengthen social integration and psychological resilience (Webb & Forrester, 2015), suggesting a reciprocal relationship between well-being and physical activity.

Overall, the literature indicates that gadget use may indirectly influence sport participation by affecting psychosocial well-being. While excessive screen use may undermine psychological and social functioning, positive mental health and fulfilled psychological needs appear to promote greater engagement in sports. This relationship underscores the importance of examining psychosocial well-being as a key mechanism linking digital behavior and sport participation among adolescents.

2.6. Gadget Usage on Motivation to Participate in Sport

The influence of gadget usage on adolescents' motivation is multifaceted and context-dependent. A growing body of research indicates that excessive and uncontrolled gadget use may negatively affect motivational processes among Generation Z. Studies have shown that prolonged screen exposure is associated with decreased learning motivation, reduced concentration, and increased cognitive fatigue (Naryaning & Katmini, 2021; Porang, 2023). Such patterns often stem from difficulties in self-regulating device use, which may lead to behavioral dependence and reduced engagement in productive or physically active behaviors (Ibna, 2022). Furthermore, extended gadget use has been linked to disruptions in social development, which may indirectly weaken adolescents' drive to engage in outdoor and physical activities (Peni et al., 2022). These findings suggest that excessive gadget use can diminish intrinsic motivation by diverting time and psychological energy that could otherwise be directed toward participation in sport.

In the context of physical activity, excessive gadget use has been associated with decreased motivation to exercise and increased sedentary behavior. Device dependency may reduce awareness of surrounding environments and limit active engagement in physical movement (Wicaksono, 2023). When adolescents struggle to regulate screen time, their willingness to participate in sports and other forms of physical activity tends

to decline (Ibna, 2022). This indicates that uncontrolled gadget use may serve as a motivational barrier to participation in sport.

However, the relationship between gadget use and motivation is not entirely negative. When managed constructively, digital technology can serve as a motivational tool to enhance physical activity. Technology-based interventions, including fitness applications, digital monitoring systems, and gamified exercise platforms, have been shown to increase engagement in physical activities (Botagariyev, 2023; Zhao et al., 2023). Additionally, structured and time-regulated gadget use that supports enjoyable physical activities has been associated with improved fitness levels and higher activity participation among adolescents (Mujahid, 2023). These findings indicate that gadget usage may enhance motivation when it supports autonomy, competence, and goal-setting behaviors.

Overall, the literature suggests that gadget usage exerts a dual influence on motivation to participate in sport. Excessive and unregulated use may undermine intrinsic motivation and encourage sedentary habits, whereas purposeful and structured technology integration can enhance engagement in physical activity. Therefore, understanding the nature and patterns of gadget use is essential to explaining its impact on adolescents' sport motivation.

2.7. Motivation to Participate in Sport Participation

Motivation plays a central role in shaping individuals' engagement and persistence in sport participation. While motivation can be examined from various biological and psychological perspectives, in this study, it is best understood through Self-Determination Theory (SDT). SDT posits that human behavior is driven by different types of motivation that vary in their level of autonomy, ranging from amotivation to extrinsic regulation and intrinsic motivation (Ryan & Deci, 2020). This framework provides a clearer explanation of why some adolescents sustain long-term engagement in sports while others disengage.

According to SDT, intrinsic motivation—engaging in an activity for enjoyment, interest, or personal satisfaction—is the most self-determined form of motivation and is strongly associated with sustained behavioral commitment. When individuals experience autonomy (a sense of choice), competence (a sense of effectiveness), and relatedness (a sense of social connection), their intrinsic motivation increases. In the context of sport, adolescents who feel competent in their physical abilities, supported

by peers or coaches, and free to choose activities they enjoy are more likely to maintain consistent participation. Empirical evidence supports this theoretical proposition, showing that intrinsic motivation is positively associated with long-term exercise adherence and higher levels of physical activity (Colangelo & Weissbrod, 2019; Dickson et al., 2023; Teixeira et al., 2020).

Extrinsic motivation, on the other hand, involves engaging in sport due to external rewards, social recognition, or pressure. While extrinsic incentives may help initiate participation, SDT suggests that controlled forms of motivation (e.g., external regulation or introjected regulation) are less effective in sustaining long-term commitment. Research indicates that reliance solely on external rewards may lead to stress or reduced enjoyment, which can hinder sustained exercise behavior (Scioli-Salter et al., 2014). However, more autonomous forms of extrinsic motivation—such as identified or integrated regulation—can still support sport participation when individuals internalize the value of physical activity (Snyder et al., 2017).

Thus, from an SDT perspective, the quality of motivation is more important than its quantity. Adolescents with higher intrinsic or autonomous motivation are more likely to engage in consistent, self-regulated sport participation. Conversely, low or controlled motivation may lead to irregular engagement or withdrawal from sports. Therefore, motivation serves as a critical psychological mechanism linking environmental and personal factors to actual sport participation.

In summary, Self-Determination Theory provides a strong theoretical foundation for understanding how different types of motivation influence participation in sport. Intrinsic and autonomous motivation enhance long-term engagement, whereas controlled extrinsic motivation may only support short-term involvement. This theoretical perspective underpins the hypothesized positive relationship between motivation and sport participation in this study.

2.8. Psychological and Social Well-Being on Sport Participation

Psychological and social well-being are closely interconnected dimensions of overall individual functioning. Psychological well-being refers to emotional stability, self-esteem, resilience, and life satisfaction, while social well-being encompasses the quality of interpersonal relationships, social integration, and perceived social support. Although conceptually distinct, these two dimensions reinforce one another. Disruptions in social interaction patterns have been shown to increase stress and

psychological distress (Wang, L et al., 2022), whereas strong character traits and self-efficacy contribute positively to both psychological stability and effective social functioning (Xie et al., 2020). Thus, individuals who maintain healthy social relationships tend to experience better psychological health, and vice versa.

Several contextual factors contribute to the development of psychosocial well-being, including gender, parental occupation, income level, and living environment (Kurudirek et al., 2022). A supportive social environment enhances perceived social support and strengthens adolescents' psychological resilience (H. P. Guo et al., 2022). Access to recreational spaces and sports facilities also plays a critical role in fostering social interaction and active engagement within communities (Ruseski et al., 2014; Sánchez-Santos et al., 2022). Environments that encourage communication and shared physical activities help strengthen social bonds and reinforce positive psychological outcomes (Lin, 2022; Paldi et al., 2021). Therefore, psychosocial well-being is not only an individual attribute but is shaped by broader environmental and social contexts.

Importantly, psychosocial well-being has been identified as a significant predictor of sport participation. Individuals with higher levels of emotional stability, self-confidence, and social connectedness are more likely to engage in physical activity consistently. Conversely, adolescents experiencing anxiety, low self-esteem, or social withdrawal may avoid participation in sports due to fear of evaluation or lack of confidence. Empirical evidence suggests that participation in sports, particularly team sports, is associated with enhanced psychological health and social integration (Andersen et al., 2018; Blake et al., 2021; Daley et al., 2021). However, this relationship is reciprocal: while participation in sport improves well-being, pre-existing positive psychosocial conditions also increase the likelihood of engaging in sport.

From the perspective of Self-Determination Theory (SDT), psychosocial well-being is closely related to the satisfaction of the three basic psychological needs: autonomy, competence, and relatedness. Adolescents who experience strong relatedness (positive social bonds), competence (self-efficacy), and autonomy (a sense of personal control) are more likely to demonstrate intrinsic motivation toward physical activity. In this sense, psychosocial well-being not only reflects positive psychological functioning but also creates the motivational conditions necessary for sustained participation in sport. When these needs are unmet—due to social isolation, stress, or low self-worth—motivation to engage in sport may decline.

Overall, the literature suggests that psychological and social well-being play a crucial role in shaping adolescents' participation in sport. Higher levels of psychosocial well-being support autonomous motivation and increase the likelihood of sustained engagement in sports, whereas compromised well-being may act as a barrier to participation. Therefore, psychosocial well-being is positioned as an important determinant of sport participation within the theoretical framework of this study.

2.9. Participation in Sport Among Generation Z

Sport participation among Generation Z is influenced by a complex interaction of structural, social, and psychological factors. Several studies indicate that barriers such as economic inequality, racial discrimination, health limitations, injury, and disability can reduce access to and engagement in sports activities (Arshi et al., 2022; Jin et al., 2023; Yamakita et al., 2020). For adolescents growing up in urban or economically disadvantaged environments, limited facilities and financial constraints may further restrict opportunities for structured sport participation. These findings suggest that participation in sport is not solely an individual choice but is shaped by broader social and environmental conditions.

At the same time, supportive environments significantly increase the likelihood of engagement. Geographic accessibility to sports facilities, safe neighborhoods, and strong spatial clustering of recreational spaces are positively associated with higher participation rates (D. H. Kim et al., 2023). Habit formation also plays a crucial role. Adolescents who develop regular involvement in sport during childhood are more likely to maintain higher fitness levels into adulthood (Haynes et al., 2021). Gender differences are also evident, with boys generally demonstrating higher participation in team sports than girls, although this relationship may vary depending on contextual and body image factors (Heradstveit et al., 2020). These findings indicate that environmental exposure, early habits, and gender-related socialization influence participation patterns among Generation Z.

Sport participation is also associated with important psychosocial and behavioral outcomes. Research shows that adolescents involved in sports demonstrate better mental health, lower levels of risky behavior, and improved social integration (Adeoya et al., 2021; Murray et al., 2021; O'Reilly et al., 2022). Participation in team sports, in particular, has been linked to stronger social connectedness and psychological resilience (Andersen et al., 2018; Thompson et al., 2023). Conversely, low levels of

participation are associated with increased sedentary behavior and a higher risk of depressive symptoms (Matta et al., 2021; Shull et al., 2020). Thus, sustained sport engagement functions not only as physical activity but also as a protective factor for mental and social well-being.

From the perspective of Self-Determination Theory (SDT), sport participation among Generation Z can be understood in terms of the satisfaction of the needs for autonomy, competence, and relatedness. Environments that provide accessible facilities (supporting competence), positive peer interaction (supporting relatedness), and freedom of choice in activity selection (supporting autonomy) are more likely to foster intrinsic motivation and sustained engagement. Conversely, structural barriers, discrimination, or lack of social support may frustrate these psychological needs and reduce motivation to participate.

Overall, sport participation among Generation Z is shaped by a dynamic balance between barriers and enabling factors. Supportive social environments, early habit formation, and psychological need satisfaction promote sustained engagement, while economic, social, and health constraints may hinder it. Understanding these determinants is essential for explaining variations in sport participation behavior within this study's conceptual framework.

2.10. Relationships Among Constructs

Understanding sport participation among Generation Z requires examining how gadget usage, psychosocial well-being, and motivation interact within an integrated psychological and behavioral framework. These constructs do not operate independently; rather, they influence one another in a dynamic process that ultimately shapes sport participation behavior. Guided by Self-Determination Theory (SDT), which posits that human behavior is driven by the satisfaction of the needs for autonomy, competence, and relatedness (Ryan & Deci, 2020), this study conceptualizes sport participation as the outcome of motivational processes shaped by environmental exposure and psychological functioning.

Excessive gadget use has been consistently associated with reduced psychological well-being, including increased stress, lower emotional stability, sleep disturbances, and decreased social interaction (Durak et al., 2022; X. Liu et al., 2023; Twenge & Campbell, 2018). Screen addiction has also been linked to impaired social

connectedness and withdrawal from community engagement (Hagström & Kaldo, 2014; Satıcı et al., 2021). From an SDT perspective, problematic gadget behavior may frustrate autonomy (through dependency), competence (through reduced engagement in mastery-oriented activities), and relatedness (through limited face-to-face interaction), thereby weakening intrinsic motivation toward physical activity. Conversely, structured and purposeful technology use, such as fitness-based applications or digital interventions, has been shown to increase physical activity engagement (Botagariyev, 2023; F. Y. Liu et al., 2024). Thus, gadget use may either inhibit or support sports participation, depending on its intensity and regulation.

Psychosocial well-being is also closely associated with motivational processes. Adolescents with higher levels of emotional resilience and social support demonstrate stronger intrinsic motivation and greater behavioral consistency in physical activity (Guddal et al., 2019; Teixeira et al., 2020). Positive social environments enhance perceptions of social support, which indirectly improve psychological health and engagement in activities (J. Guo & Chen, 2022). SDT explains that satisfaction of competence and relatedness needs strengthens autonomous motivation, leading to sustained sport involvement. Conversely, low psychosocial well-being, characterized by anxiety, stress, or low self-esteem, may reduce participation due to avoidance tendencies or diminished self-efficacy (Ouyang et al., 2021; Ping et al., 2022).

Motivation itself has been widely recognized as a direct predictor of sustained participation in sport. Intrinsic motivation is strongly associated with long-term adherence to physical activity (Colangelo & Weissbrod, 2019; H. Teixeira et al., 2022). Engaging in sport for enjoyment and personal growth reinforces rewarding experiences and supports ongoing commitment (Dickson et al., 2023). While extrinsic motivation may initiate engagement, reliance solely on external rewards may not sustain long-term participation (Snyder et al., 2017). Within the SDT framework, the quality of motivation—rather than its quantity—is crucial for maintaining consistent sport behavior.

Psychosocial well-being may also directly influence sport participation. Research shows that adolescents involved in team sports demonstrate better psychological health and stronger social integration (Andersen et al., 2018; Blake et al., 2021; Daley et al., 2021). Participation in sports is associated with reduced depressive symptoms and lower engagement in risky behaviors (Matta et al., 2021; Murray et al., 2021). However, this relationship is reciprocal: while sport enhances well-being,

adolescents with higher baseline psychosocial health are also more likely to initiate and sustain participation. Thus, psychosocial well-being functions both as a predictor and an outcome, although in the present model it is positioned primarily as an antecedent.

Taken together, the relationships among constructs form an integrated pathway in which gadget use behavior influences psychosocial well-being and motivation, psychosocial well-being strengthens autonomous motivation, and motivation directly predicts sport participation. Self-Determination Theory provides the theoretical foundation for understanding how environmental conditions and behavioral patterns affect the satisfaction of psychological needs, which in turn shape motivational regulation and behavioral outcomes. Therefore, sport participation among Generation Z can be understood as the result of a broader motivational ecosystem in which digital behavior, psychosocial functioning, and internal regulation processes interact dynamically.

2.11. Demographic Factors as a Moderator of the Structural Model

Demographic factors serve as contextual moderators that shape how gadget use, psychosocial well-being, motivation, and sport participation interact. These variables influence access to resources, social expectations, environmental exposure, and psychological development. Within the framework of Self-Determination Theory (SDT), demographic characteristics may strengthen or weaken the satisfaction of the needs for autonomy, competence, and relatedness, thereby affecting motivational quality and behavioral outcomes.

2.11.1. Internet Connection as a Contextual Moderator

Internet connectivity influences both the intensity and quality of digital engagement. A stable connection increases exposure to online content, including sport-related media, fitness communities, and performance-tracking applications. Research indicates that digital media may either stimulate or suppress physical activity depending on usage patterns (Tian et al., 2023; Zhong, Zhou, et al., 2022). Constructive digital engagement can enhance perceived competence and relatedness through access to sport information and online peer networks. However, excessive, entertainment-oriented use may increase sedentary behavior and reduce time allocated to physical activity.

From an SDT perspective, internet access becomes beneficial when it supports autonomous engagement in sport-related content. When internet use shifts toward passive consumption, it may undermine autonomy and weaken intrinsic motivation. Therefore, internet connectivity serves as a contextual factor that may amplify or attenuate the influence of gadget behavior on motivation and sport participation.

2.11.2. Parents' Occupation as a Moderator

Parental occupation reflects socioeconomic stability, educational background, and time availability, all of which shape children's technology habits and sport opportunities. Studies show that parenting style and socioeconomic status significantly influence children's screen regulation and psychosocial development (Ginting, 2024; Rashid et al., 2021). Parents with greater economic resources and flexible work schedules are more likely to provide structured sport opportunities, supervise gadget use, and encourage balanced routines.

In contrast, parents working in labor-intensive or lower-income sectors may have limited time and financial capacity to monitor digital habits or enroll children in extracurricular activities (Calorina et al., 2021). Within SDT, parental involvement contributes directly to relatedness support and indirectly to competence development through access to structured activities. Thus, parental occupation moderates the ways in which gadget use and psychosocial conditions translate into sport participation behavior.

2.11.3. Gender Differences as Moderator

Gender shapes sport participation through socialization processes, cultural norms, and perceived competence. Research consistently shows higher participation rates among boys, particularly in team sports, while girls often face social expectations and stereotype-based barriers (Hopkins et al., 2022; Wicker & Cunningham, 2023). These social norms influence how adolescents internalize sport identities and evaluate their own competence.

From an SDT perspective, gender differences may reflect variations in need satisfaction. Boys may receive stronger reinforcement of competence and relatedness in competitive sports settings, while girls may encounter environments that limit autonomy or reduce perceived competence. Consequently, gender may moderate the

strength of the relationship between motivation and sport participation, not because of biological differences but because of differential social reinforcement.

2.11.4. Region of Origin (City/Regency in West Sumatra, Indonesia) as Moderator

Regional context affects access to sport facilities, digital infrastructure, and organized physical activity programs. Urban environments typically provide greater facility density and structured sport programs compared to rural areas (R. Eime et al., 2017; Hoekman et al., 2016). Accessibility to facilities has been consistently associated with higher participation rates, while limited infrastructure may increase sedentary behavior and reliance on digital entertainment (Farzaneh et al., 2021).

In West Sumatra, urban areas generally offer better access to sport ecosystems, whereas rural regencies may face limitations in infrastructure and organized programs. From an SDT standpoint, environmental accessibility supports competence development and social relatedness through structured activities. Therefore, regional differences may moderate the ways in which psychosocial well-being and motivation translate into actual sport participation.

2.11.5. Type of Physical Activity and Sport as Moderator

The type of sport a student is interested in can significantly moderate the relationship between motivation and participation, given that individual and team sports require different motivational structures and psychosocial supports. Understanding these differences is important because they play a significant role in shaping not only participation levels but also the overall experiences and outcomes of students involved in sports.

Team sports generally emphasize social interaction, collaboration, and shared goals, which may foster different motivations than individual sports. According to Clark et al., (2015) team involvement often leads to increased social connections and a sense of belonging, which may strengthen motivation to participate . This social aspect can significantly increase enjoyment and commitment to participation, especially for those who thrive on social validation and support.

In contrast, individual sports typically require intrinsic motivation driven by personal goals, self-discipline, and independence. Those involved in individual sports are often motivated by personal achievement, skill mastery, and overcoming personal challenges. Kellstedt et al. note that the motivations driving participation in individual

sports may focus on personal enhancement and intrinsic satisfaction rather than communal involvement (Kellstedt et al., 2021). This distinction becomes particularly relevant when considering interventions aimed at increasing participation in sport.

Motivation can also be influenced by the specific challenges associated with each type of sport. Individual athletes may face internal challenges that require strong personal commitment and mental toughness, while those in team sports often face interpersonal dynamics and the need to coordinate with teammates (Clark et al., 2015). These differences imply that motivational strategies should be tailored to the type of sport, reinforcing the need for a targeted approach that recognizes distinct motivational frameworks.

Additionally, the availability and nature of social support may differ between individual and team sports. Team sports typically provide built-in social networks that facilitate support mechanisms through teammates and coaches, which can be especially important for adolescents who may struggle with motivation due to psychological barriers or external pressures. In contrast, athletes in individual sports may need to seek motivation from outside sources, such as family or self-coaching, which may not always be available (Kellstedt et al., 2021).

In addition, the type of sport can influence how students perceive their own abilities, which in turn influences motivation and participation levels. Guo et al. emphasized the role of professional guidance and skill development in increasing participation in sport activities, showing that access to competent instructors significantly influenced student engagement, especially in environments where personalized instruction in individual sports was available (X. Guo et al., 2025). This illustrates how access to high-quality guidance and training can influence an individual's motivation to participate, depending on the type of sport.

In conclusion, the relationship between motivation and sport participation is moderated by sport type, as individual and team sports elicit different motivational dynamics and support structures. Understanding these differences is critical to promoting effective participation strategies that meet the unique needs and preferences of students involved in different sports. Tailoring motivational approaches to the sport's characteristics can increase participation rates and positively influence students' overall developmental experiences in sport.

2.12. Research Gap

Although previous studies have extensively examined gadget use, psychosocial well-being, motivation, and sport participation separately, a significant gap remains in understanding how these constructs interact within an integrated theoretical framework. Much of the existing literature focuses on bivariate relationships—for example, the association between screen time and mental health (Twenge & Campbell, 2018; Y. F. Wu & Liu, 2023), motivation and exercise adherence (Teixeira et al., 2020), or sport participation and psychological well-being (Andersen et al., 2018). However, limited research has simultaneously examined how gadget use behavior influences psychosocial well-being and motivation, and how these psychological mechanisms jointly predict sport participation among adolescents.

First, while studies acknowledge the dual role of digital technology—both as a risk factor for sedentary behavior and as a potential tool for promoting physical activity (Tian et al., 2023; Zhong, Xu, et al., 2022)—There is insufficient empirical evidence explaining the psychological processes underlying this relationship. Specifically, few studies have explored how gadget use behavior affects satisfaction or frustration with basic psychological needs (autonomy, competence, relatedness) and how this, in turn, shapes motivation for sport participation. Thus, the motivational pathway linking digital behavior to physical engagement remains under-theorized.

Second, previous research often treats psychosocial well-being as either an outcome of sport participation or an isolated predictor, without situating it within a broader motivational framework. Although reciprocal relationships between sport and well-being have been documented (Blake et al., 2021; Daley et al., 2021)Limited studies have examined psychosocial well-being as an antecedent that strengthens autonomous motivation and indirectly influences participation. This conceptual positioning is particularly important for understanding adolescents in digitally saturated environments.

Third, demographic factors such as internet access, parental occupation, gender, region, and type of sport have typically been examined as descriptive variables rather than as moderating factors within a structural model. Few empirical studies have tested whether these contextual characteristics alter the strength of relationships among gadget behavior, motivation, psychosocial well-being, and sport participation. Therefore, the

moderating role of demographic variables within an integrated behavioral model remains insufficiently explored.

Fourth, most prior studies have been conducted in Western or highly industrialized contexts, with limited evidence from Southeast Asian settings, particularly within provincial regions such as West Sumatra. Cultural, socioeconomic, and regional differences may influence digital habits, parental involvement, and sport ecosystems, suggesting that findings from other contexts cannot be fully generalized. There is a need for context-specific empirical investigation to better understand these dynamics in developing regions.

Finally, although Self-Determination Theory (SDT) has been widely applied to explain motivation in sport, its integration with digital behavior and psychosocial well-being within a unified structural model remains limited. Existing research often applies SDT only to motivation and participation, without extending it to explain how digital environments may satisfy or frustrate basic psychological needs. Thus, there is a theoretical gap in applying SDT as a comprehensive framework linking environmental exposure (gadget use), psychological functioning (well-being), motivational regulation, and behavioral outcomes (sport participation).

Based on these gaps, this study proposes an integrated structural model that examines the direct and indirect relationships among gadget use behavior, psychosocial well-being, motivation, and sport participation, while incorporating demographic moderators within a single analytical framework. By doing so, this research contributes theoretically by extending SDT into the digital context, methodologically by testing a comprehensive PLS-SEM model, and contextually by providing empirical evidence from Generation Z adolescents in West Sumatra.

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2.13. Conceptual Framework

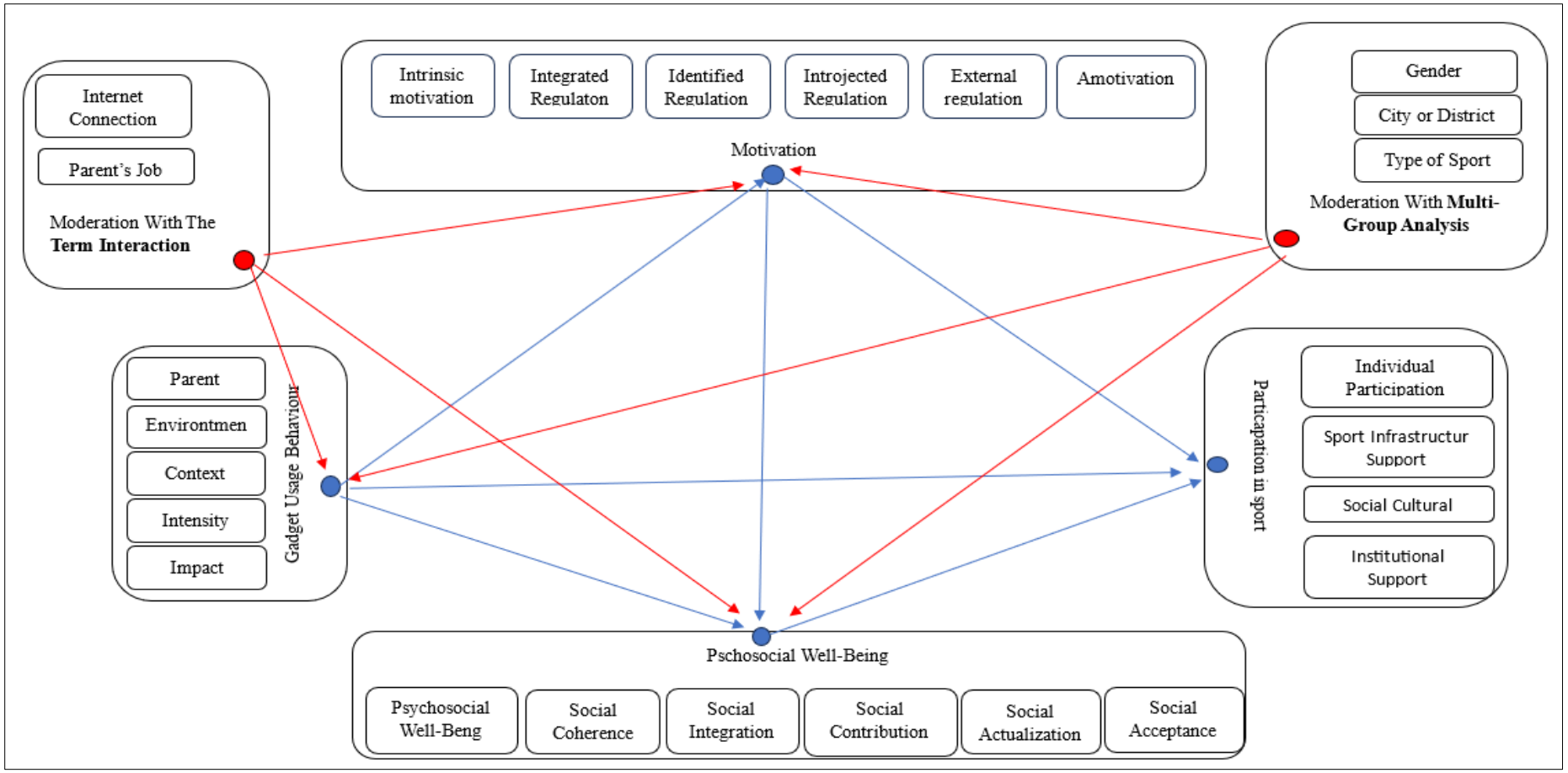


Figure 2.1 Conceptual framework

Figure 2.1. showed that this study was designed to investigate the relationship between gadget usage behavior and motivation, psychosocial well-being, and participation in sport, by considering moderating and mediating variables. Gadget usage behavior, which includes dimensions such as parental role, environment, usage context, intensity, and impact, is assumed to play an important role in shaping students' character and activities, especially in the context of their involvement in sports activities. Based on Bronfenbrenner's ecological theory (Rosa & Tudge, 2013). This behavior is influenced by micro- and meso-environmental factors, which in turn impact the individual's overall development.

In this model, gadget usage behavior is treated as an independent variable influencing three dependent variables: motivation, psychosocial well-being, and participation in sport. This concept of motivation is drawn from the Self-Determination Theory (SDT) framework, developed by Deci and Ryan in 1985 and further elaborated by Ryan and Deci (2020) which distinguishes motivation into six types, namely: intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation. SDT emphasizes that the quality of motivation will have a major impact on adaptive behavior and individual well-being. Therefore, when gadgets are used productively and in a controlled manner, they can encourage more adaptive motivation towards positive activities such as sports and social interaction, and vice versa.

In addition, psychosocial well-being is studied as an outcome of the motivational processes and behaviors associated with gadget use. This well-being encompasses social cohesion, social integration, social contribution, social actualization, and social acceptance. This aspect aligns with the multidimensional approach to well-being, as proposed by Keyes in 1998, and is reinforced by contemporary studies, including Cosma et al. (2022) which shows that social engagement and active participation can improve adolescent psychosocial well-being.

On the other hand, participation in sports is understood as an indicator of healthy, active behavior, supported by intrinsic motivation and adequate environmental facilities. This participation is examined from four dimensions: individual participation, sports infrastructure support, social and cultural values, and institutional support. Study by Eime et al. (2023) emphasized that social environment and community support play an important role in facilitating sports participation among adolescents.

This model also considers moderator variables, namely two forms of moderation used to analyze context effects: moderation with interaction terms and moderation with multi-group analysis. Moderation with interaction takes into account factors such as internet connection and parental occupation, which are assumed to influence the strength of the relationship between gadget use and motivation, well-being, and participation. Meanwhile, group moderation uses variables such as gender, region of origin (city/district), and type of sport to test cross-group differences in the influence of motivation on psychosocial well-being and sport participation. This approach is consistent with the moderation method in structural equation modeling as explained by Hair et al. (2022).

With this approach, the research framework not only tests the direct relationship between variables but also examines the mediating process and the moderating context, enriching understanding of the influence of digital technology use in adolescents' lives, especially in shaping motivation, well-being, and active behavior such as sports.

2.14. Summary

This chapter synthesizes Self-Determination Theory, the Job Demands–Resources perspective in youth sport, digital well-being/displacement research, and ecological models of physical activity. The review shows consensus that intrinsic motivation underpins mental health and sustained activity, while digital overuse can erode motivation or displace sport. Evidence from Indonesian provinces is limited, and boundary conditions (moderators) are under-tested. From these insights, the chapter develops a conceptual model that links the environment, parental support, perceived device impact, and screen intensity to motivation, psychosocial well-being, and sport participation. It derives testable paths and moderation propositions to guide the empirical work.

CHAPTER 3
RESEARCH METHODOLOGY

3.1. Introduction

In this Chapter, the study's methodology will be explained in detail, covering everything from the questionnaire design to data collection and analysis techniques. All Aspects, such as the sample population, research instrument, data collection procedure, and data analysis technique, will be thoroughly reviewed when developing a robust methodology. Understanding the methodology used in this study will help the researcher clarify how the researchers addressed the study's research questions and carried out the study validly and reliably. In this case, the inconsistent language and the warnings on the back of the used methodology will also be retracted, providing the reader with a strong foundation for understanding the nature of the study's work.

3.2. Research Strategy: Quantitative

Creswell claims that the ontology of objectivism, the epistemology of positivism, voluntarism/unbiased axiology, and deductive procedures form the foundation of quantitative methodology (Musa & Aldiabat, 2024; Onwuegbuzie, 2017; Tripathi et al., 2024). In the meantime, Bryman defines quantitative research strategy as a deductive method that typically describes the link between components of the phenomenon under study using scientific techniques and numerical analysis (Tripathi et al., 2024). This study is justified by the rationale for adopting a quantitative research strategy, as it is among the most advantageous methodologies in both the social and natural sciences. It assists researchers in evaluating and demonstrating the validity and reliability of theoretical claims and hypotheses that have been previously investigated but rely solely on experiments and measurement methods (Westerlund et al., 2023; Yévenes-Márquez et al., 2022). Additionally, when there is a dearth of prior research literature describing the constructs and their relationships, it is the most dependable research strategy (Hair, 2021b). However, this study, which aims to view the world objectively without the researcher's effect on the subject of study or the problem area, requires analyzing potential observations that develop in human behavior when using information technology (IT). Additionally, this study was developed using pertinent literature and demonstrated clear connections among constructs, which were required

to uncover relevant data using statistical tests (Tripathi et al., 2024). Furthermore, quantitative approaches that can be verified and understood quantitatively are necessary for the confirmation of theoretical propositions and generalizations in scientific endeavors, particularly in social and business studies(Yévenes-Márquez et al., 2022).

3.3. Selection of Survey Research Strategy

Selecting the right method or strategy is considered the most important part of conducting research. The purpose of selecting the method is to avoid decisions that can cause conflict. In the social sciences and humanities, several research approaches and methodologies have been developed, including field experiments, surveys, case studies, action research, grounded theory, ethnography, and phenomenology (Musa & Aldiabat, 2024). Of these approaches, survey research is the most appropriate for this research. There are two good reasons to strengthen survey research, as it is the most appropriate approach. First, the survey approach is the most similar to that used in previous literature to achieve the same objectives in the current research, and second, it is highly relevant to the context of the current research. So both of these reasons are briefly explained in the following subsections.

3.3.1. Reasons for Choosing a Survey as the Preferred Research Approach

Not only based on the literature presented, but survey research is also a fast, cheap, efficient, and accurate way to assess information about the targeted population (Paudel, 2020; Sanmargaraja et al., 2023). There are several purposes for a researcher to use the survey approach in a study. First, when a study needs to use a quantitative investigation approach with standardized data on a subject; second, when a study needs to collect data by asking questions with a structured instrument that has been predetermined; and third, when a study needs to use a small sample to generalize data about the attitudes, actions, or traits of the entire population (Paudel, 2020; Sanmargaraja et al., 2023).

This study is grounded in the positivist research paradigm, which assumes that social phenomena can be objectively measured and explained through empirical observation and statistical analysis. The focus of this study is to test hypotheses and describe the relationships between various constructs, including independent, dependent, and moderating variables, with a strong justification from previous research. In the context of the research subject, which involves groups within organisations, the

literature recommends using a case study strategy as an appropriate method of analysis (Prempeh & Dzansi, 2024). In this study, the unit of analysis used was high school students in the province of West Sumatra, Indonesia. Therefore, the survey approach is chosen as the most appropriate method, because surveys allow researchers to reach a large number of individuals spread across multiple locations more efficiently and at a lower cost (Maalouf, 2023).

The degree to which a researcher can participate in the situation under study is the subject of the second and third criteria put out (Prempeh & Dzansi, 2024). In this study, which explores gadget use behavior and participation in sports among Generation Z using a large sample, it is not practical for the researcher to be directly involved in the context. The use of methods such as interviews, ethnography, observation, and similar approaches, which are often used in interpretivist epistemology, is less effective in this context. In addition, this study aims to apply invariance analysis (or multiple group analysis) to evaluate the moderating effects of demographic variables. This method requires at least 100 samples in each group (Hair, 2021b). Therefore, when conducting random sampling from the population as a whole to generalize acceptance related to gadget use behavior, motivation, psychosocial well-being, and participation in sport, the survey method is considered more effective than other methods.

3.4. Research Design

Creswell stated that research design encompasses all procedures used to formulate research problems, determine data collection locations, meet ethical requirements when entering the field, and organize data collection and analysis, including the researcher's role throughout the process (Creswell, 2014). According to Sekaran and Bougie, the success of a study is largely determined by the selection of the right research process or steps in the research design (Sekaran & Bougie, 2016). Overall, research design can be seen as a series of interdependent processes, in which each step depends on the completion of the previous one. The main steps in the research design used to carry out this research are illustrated as a flow diagram in Figure 3.1.

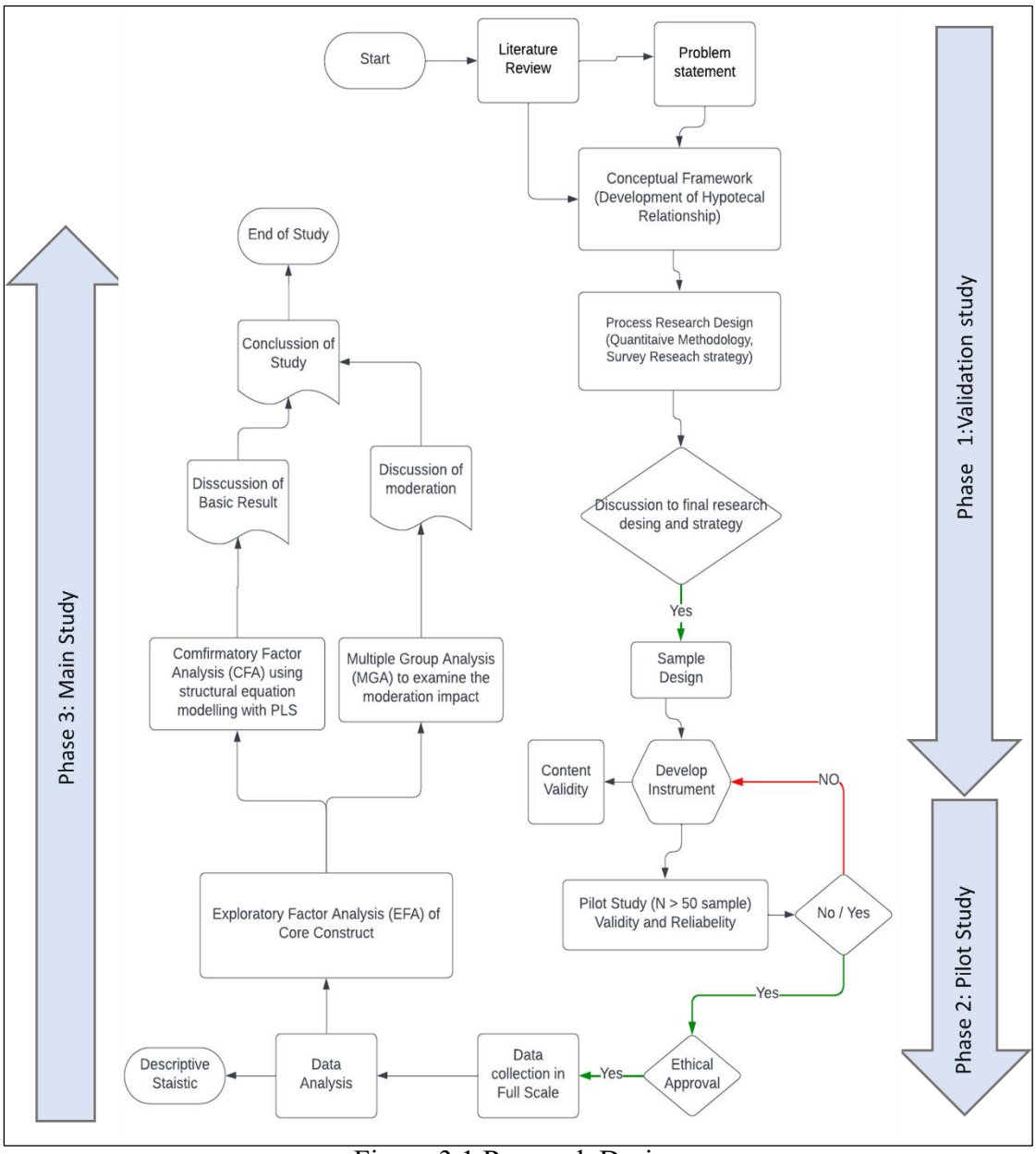


Figure 3.1 Research Design

3.4.1. Decision to Finalise Research Design

In chapters one, two, and three, the four main objectives of this study have been achieved (see Figure 3.1), namely exploring predictors of gadget use behaviour, motivation, psychosocial well-being, and participation in sports, and building a conceptual model with several hypotheses. This step guides researchers in adopting a positivist philosophy and a quantitative survey method for data collection. In chapter three, researchers complete the process and stages of achieving objectives using the six steps or guidelines suggested by Sekaran and Bougie (2016) namely, determining

research objectives, research location or background, type of research, researcher's scope, research period, and research analysis unit.

3.4.2. Research Objectives: Hypothesis Testing

According to their nature, Sekaran divides the study goals into three categories: exploratory, descriptive, and hypothesis testing (Sekaran & Bougie, 2016). The scope of the research objectives provides the depth of knowledge required to accomplish the study's goal. For example, when new dimensions need to be explored, the exploration stage is preferred; when certain aspects of the research need to be clarified, the descriptive stage is used; and when the nature of the problem has been explored and explained using hypotheses, hypothesis testing is highly appropriate to be used in this study (Sekaran & Bougie, 2016). As previously stated, this study is grounded in a positivist methodology, employing a survey method to gather data and investigate the variance between conceptually related independent and dependent variables. Thus, hypothesis testing is more suited to accomplishing this study's goals.

3.4.3. Type of Investigation: Correlational Study

The two types of research that examine the relationship between hypotheses from an investigative standpoint are causal and correlational (Sekaran & Bougie, 2016). Testing the most exact cause and effect of one variable, either directly or indirectly, on another is the goal of causal inquiry. The correlational study aims to identify significant constructs associated with specific issues within a single area (Sekaran & Bougie, 2019). In this study, which examines the exact relationship or describes the cause of one construct to another construct to examine the prominent relationship between the construct of gadget use behavior, motivation, psychosocial well-being and sports participation accompanied by demographic characteristics. In addition, this study also looks at the covariance nature of the research objectives determined from the constructs, namely the existence of relationships between constructs, so that changes in one construct tend to be accompanied by changes in other constructs (Hair, 2021b), and if there is a change, then determine the direction, variance, and form of the observed relationship. Furthermore, these paths are analyzed multivariately using structural equation modeling. So that the strength of the most prominent path can be explored (Hair, 2021b). Therefore, given the nature of this study, a correlational investigation is preferred over a causal one.

3.4.4. Level of Researcher Involvement in the Study: Minimal

A researcher must be able to be in the research context, which is the most important part of the research approach, such as case studies, survey approaches, etc. (Yin, 2018). The right approach has an impact on the type of investigation chosen, either causal or correlational (Sekaran & Bougie, 2016). The researcher has less intervention if the study is carried out in a natural environment, which is feasible with correlational research (Sekaran & Bougie, 2016). Conversely, the researcher's involvement is regarded as greater in causal studies, where the goal is to establish a cause-and-effect link through variable manipulation. In contrast to constructivism and critical theory, positivism was used in this study to prevent researcher bias toward the research object. The data gathered for this study is based on little to no direct interaction between the researcher and the respondents, as it is impractical to reach a large population in person.

3.4.5. Study Settings: Non-Contrived

According to Sekaran and Bougie (2019) Causal research, or laboratory experiments, is carried out in artificial environments, whereas correlational inquiry, or field studies, is generally carried out in non-contrived settings. The nature of this study is not fabricated because, as previously stated, the research design is correlational.

3.4.6. Unit of Analysis: Individual

Another important aspect to consider when formulating a problem statement or asking a research question is the selection of the unit of analysis (Sekaran & Bougie, 2019). This unit is vital considering that this study aims to examine psychosocial predictors of well-being, exercise motivation, exercise participation, and behavior of Generation Z, who are specifically high school students in the province of West Sumatra, Indonesia, with demographic factors as a moderator. Therefore, it is clear that the research question raised involves individuals as the unit of analysis.

3.4.7. Time horizon: Cross-sectional

A cross-sectional study is a research method that requires a single data collection event, although the data gathering process may extend over weeks or months (Sekaran & Bougie, 2016). The current research employed a cross-sectional design for data collection. This study aims to explore significant predictors of usage behavior through

multivariate analysis techniques. Additionally, a minimum sample size of 100 is necessary to achieve optimal results in a multivariate study employing structural equation modeling techniques (Hair et.al. 2017). Therefore, a cross-sectional study was chosen because it makes it easier to apply to large samples in a short time span, and researchers do not need to wait several years to examine changes in dependent variables (Setia, 2016). Figure 3.1 explains the specific research methodology in this study, namely: hypothesis testing, correlational, minimal researcher interference, non-contrived, individuals, cross-sectional.

Table 3.1
Research design steps

Steps in the research process recommended by Sekaran & Bougie (2016)	**This study employs a specific research methodology.**
The study's objectives are descriptive, exploratory, hypothesis testing, and case study analysis.	Hypothesis testing
Type of examination: correlational or causal	Correlational
The degree of researcher intervention in the research	Minimal interference of the researcher
Study settings: Contrived, Non-contrived	Non-contrived
Unit of analysis: Individuals, Dyads, Groups, Organisation, Culture	Individuals
Time horizon: Cross-sectional, Longitudinal studies	Cross-sectional

3.5. Population and Sampling

The next stage is selecting targeted samples after selecting the appropriate process for the study. The term 'sample' in research refers to a specifically chosen segment of a population, utilized to derive conclusions that can be generalized to the broader target population (Bryman, 2016; Sekaran & Bougie, 2016). This study's sample determination is grounded in the primary issues identified by Fowler (2014), as

follows: 1) Sample selection: Probability sampling or non-probability sampling. 2) Sampling frame: Identifiable units within the population that require sampling. 3) Sample size: The total number of subjects to be included. 4) Response rate: The percentage ratio of samples that were actually collected.

3.5.1. Sample Selection

Knowing the characteristics of respondents and the information they provide is vital in the data collection process. Then, determine the sampling method to be used. In general, there are two sampling methods, namely probability and non-probability (Bryman, 2016). In the probability method, subjects in the population have an equal chance of being selected, while in the second method, the elements do not have an equal chance of being selected (Bryman, 2016; Sekaran & Bougie, 2019).

In this research, the probability sampling method is used to collect samples. The reason for choosing this method is that the targeted population in this study is currently known as Generation Z and is on average at the high school education level, which is categorised demographically (age, gender, region, internet, and type of sport). All groups need to respond equally. When a study intends to generalize its findings to a specific population, such as exclusively male or female individuals in a given institution, non-probability sampling may be an option. Non-probability sampling is preferable over probability sampling, according to Sekaran, when there is a time element or other considerations that are more significant than the generalization problem (Sekaran & Bougie, 2019). Thus, the probability sampling strategy was selected for this investigation because the goal was to obtain a large sample in a short time (i.e., a cross-sectional study).

3.5.2. Target Population

One of the important parts of research is the selection of the target population (Creswell, 2014). The selection of the research setting realistically limits the extent to which the research results can be generalized, and this limitation also constrains the hypotheses built into the conceptual framework. Therefore, choosing an appropriate setting allows researchers to find the most effective way to test theories and hypotheses, so that they can conclude empirical findings with greater confidence (Babbie, 2021). Population is the totality of units from which a sample is selected (Bryman, 2016). A

population includes all elements that meet specific criteria that are the focus of the research, for example, a group of people, a company, a community, a hospital, a store, students, a country, a nation, or other entities that have similar characteristics (Sekaran & Bougie, 2019).

West Sumatra (Sumatera Barat) is a province on the western coast of the island of Sumatra, Indonesia, facing the Indian Ocean and anchored by the provincial capital, Padang. Figure 3.2 shows that the region stretches from the Bukit Barisan highlands to a broad coastal plain and includes the Mentawai Islands off the western shore. Administratively, it borders North Sumatra and Riau to the north–northeast, Jambi to the east–southeast, and Bengkulu to the south, with the ocean to the west. These geographic and administrative facts are summarized in *Figure 2025 for West Sumatra,* issued by Statistics Indonesia (BPS). Administratively, West Sumatra consists of 12 regencies and 7 cities, with Padang as the provincial capital. As of the 2024/2025 school year, official statistics indicate there are about 345 senior high schools (SMA) across the province (public and private).



Figure 3.2 West Sumatra Province on the Map of Indonesia
Source:
Note: *Daftar Kabupaten dan Kota di Sumatera Barat* (Wikipedia, 2025)

The target population for this study was students attending senior high schools across West Sumatra, Indonesia. The population in this study is limited to members of Generation Z, specifically individuals born between 2005 and 2009, who are currently in high school or college. Generation Z is known for their familiarity with digital technologies and active engagement in online environments, making them particularly relevant in studies involving gadget usage, motivation, psychosocial well-being, and

sport participation. Including high school students is deliberate and significant, as adolescence is widely recognised as a critical developmental phase characterised by identity exploration. According to Erikson's psychosocial development theory, adolescence is a period marked by the search for self-identity, where individuals begin to form a sense of who they are and where they belong. During this stage, behavioural patterns, motivations, and lifestyle choices begin to crystallise, making it an ideal period to examine how environmental, parental, and psychological factors influence long-term habits. By including high school students, this study aims to capture early behavioural dynamics and provide a more comprehensive understanding of the factors shaping sport participation and well-being within the Generation Z cohort.

3.5.3. Sample Frame

A sampling frame, also known as a 'working population', is a list of all units in the target population from which a sample will be selected (Bryman, 2016; Sekaran & Bougie, 2019). The following criteria proposed by Fowler, F. J., (2014) were used in this investigation to choose a suitable sampling frame: 1) Completeness of the frame, also known as accuracy, guarantees that all subjects in the sample drawn from the targeted population are relevant and handled correctly; 2) Relevance of the frame guarantees that the sampling framework has been updated recently to reflect the most recent changes in the entire targeted population; 3) Adequacy of the frame is synonymous with completeness and guarantees that the frame covers the entire population; and 4) Convenience guarantees that subjects in the sampling frame are easily accessible and reachable. 5) Non-duplication: a crucial requirement that guarantees the sample's subjects are carefully chosen and free of duplication (Fowler, 2014)

3.5.4. Sample Size

Determining the appropriate sample size is a complex task. If the sample size is smaller than the estimated size, there is an increased likelihood of failure to converge, the emergence of inappropriate solutions (such as negative error variance estimates for the measured variables), and reduced parameter accuracy (Hair, 2021b). Conversely, a sample size that is larger than needed will result in wasted time, cost, and process in obtaining respondents' responses (Bryman, 2016). Determining the appropriate sample size is crucial for ensuring that results are generalizable to the entire target population

and are reliable and trustworthy. This study selected the sample based on widely recognized guidelines in multivariate analysis and the prerequisites of data analysis techniques, specifically structured equation modeling (SEM), component-based or variance techniques (e.g., PLS), and general methodologies for model evaluation using SEM.

Before implementing the general method for determining sample size, it is essential to recognize that the target population for this study consisted of n = 151,309 senior high school students across 19 districts/cities in the province of West Sumatra. Two methods exist for estimating the sample size that accurately reflects the entire population: The selected sample will consist of a random subset of individuals from the total population, which encompasses both public and private senior high school students (n = 151,309). Krejcie and Morgan employed rigorous statistical methods to generate a comprehensive table of population-to-sample ratios (Sekaran & Bougie, 2016). The study's population size (n=151309) is not specified in the Krejcie & Morgan table; consequently, the mean of the two nearest population sizes provided by Krejcie & Morgan (15,000) was computed to determine the suitable sample size (Sekaran & Bougie, 2016).

Other techniques for determining sample size depend on the method and technique of data analysis (Fowler, 2014). Before discussing the 'rules of thumb' for checking sample size, it is important to note that the data analysis method in this study is based on structural equation modelling (SEM). It is closely related to multiple regression (multivariate analysis) and includes statistical techniques such as structural path analysis (β), total variance extracted (R), causal modeling with latent variables, analysis of variance, and multiple regression.

Roscoe (1975) Outlined four criteria for determining and establishing sample size: The sample size (n) should be between 30 and 500 for most studies. In cases where the sample must be segmented into subsamples (e.g., male/female, junior/senior), a minimum sample size of 30 per category is considered appropriate. In multivariate analysis, the sample size should ideally be at least 10 times the number of variables in the framework. For straightforward experimental studies that allow for complete control over respondent behavior, a sample size of 10 to 20 respondents is adequate.

Stevens (1996) posited that a minimum of 15 cases per construct is adequate for conducting least squares multiple regression analysis. The data sample for rigorous statistical analysis should exceed 300 respondents. Bentler and Chou (1987) It is

advisable to recommend a minimum of 5 cases per parameter when the data are fully normalized and distributed, with no missing values or outliers. Bentler and Chou's recommendation pertains to parameters, including regression paths between constructs and items, which typically outnumber variables in any framework. Loehlin (1992) employed confirmatory factor analysis (CFA) and indicated that a model with 2 or 4 factors necessitates a minimum of 100 cases, with 200 cases being preferable. Comrey and Lee (1992) Outline sample size guidelines: 50 is very poor, 100 is poor, 200 is fair, 300 is good, 500 is very good, and 1,000 is excellent.

This study primarily takes into account the standards proposed by Tabachnick & Fidell (2013) In addition to the aforementioned general guidelines. It is crucial to make sure that the sample size is sufficiently large because covariances, like correlations, are less stable when estimated from small sample sizes (Tabachnick & Fidell, 2013). According to the authors, a sample of roughly 150 instances is adequate for factor analysis if the factor loadings are greater than 0.80; however, it is generally convenient to have at least 300 examples. Hair (2021b) Highlight the following factors when choosing the appropriate sample size for SEM data analysis:

1) A multivariate data distribution is predicated on the idea that, in the event that the data deviates from the expected normalcy, the ratio of respondents should exceed the number of parameters; typically, 15 respondents are taken into account for each parameter that the model estimates.
2) Estimation methods: The most popular estimation method in SEM is maximum likelihood estimation (MLE), which is an iterative process. A sample size of 100 to 150 is recommended for reliable MLE results, while the ideal range is 150 to 400.
3) Model complexity: To estimate a model with a large number of constructs or variables, numerous parameters are needed. A sample size of 100 to 150 can be used to estimate a model with five or fewer constructs, whereas a sample size of more than 500 is needed for a model with six or more constructs, each with three measured items.
4) Average variance of indicator error: This is the average degree of variation among the variables being assessed, or the communality process. There is less communality when the sample size is bigger, and vice versa. For instance, a sufficient sample size of 100–150 is needed for a communality of 0.6, and 200 is needed for a communality of 0.45–0.55.

Furthermore, Memon et al. (2020) It stated that, to determine the target number of respondents, it is better to use a "sample-to-item ratio" of at least 5 to 1, meaning the number of questionnaire items is multiplied by 5. In this study, there were 69 items, and using a 5:1 ratio, the required sample size was 345 respondents.

Following the criteria of the ratio of variables to the number of cases. This study aimed to test 69 items in the basic model; therefore, the minimum required sample size was 345 (i.e., 69 × 5 = 345). However, based on calculations made using the Krejcie & Morgan (1970) Using formulas and other rules of thumb, this study aimed to achieve a sample size of at least 500 (after handling missing data) to test the proposed paths in the model with reliable estimates. Approximately 20% was added to the minimum sample size to avoid missing respondents. This means that if the minimum sample size is 500, then 20% of 500 is 100, so the sample requirement is 500 plus 100, for a total of 600 respondents.

After determining the target number of respondents, the process continues by calculating the proportion of the population in each regency/city. Table 3.2. shows the number of schools and students from 19 regencies/cities in West Sumatra Province, Indonesia.

Table 3.2
Number of Samples Based on Proportional Sampling

District	Senior High School			Student			n		
	Student								
	Public	**Private**	∑	**Male**	**Female**	∑	**Male**	**Female**	∑
Padang City	17	42	59	11587	13335	24922	46	53	99
Pesisir Selatan Regency	25	0	25	6,942	9503	16445	28	38	65
Pasaman Barat Regency	13	12	25	4096	5643	9739	16	22	39
Agam Regency	21	7	28	4356	6459	10815	17	26	43
Padang Pariaman Regency	20	4	24	5112	6879	11991	20	27	48
Solok Regency	19	3	22	3251	4618	7869	13	18	31
Lima Puluh Koto Regency	16	3	19	3226	4628	7854	13	18	31
Pasaman Regency	12	2	14	3157	4334	7491	13	17	30
Tanah Datar Regency	15	5	20	4008	5596	9604	16	22	38

Sijunjung Regency	13	2	15	2084	3165	5249	8	13	21
Dharmasraya Regency	16	1	17	2260	3125	5385	9	12	21
City of Payakumbuh	5	7	12	2937	3584	6521	12	14	26
City of Bukittinggi	5	6	11	3000	3211	6211	12	13	25
Solok Selatan Regency	11	0	11	1865	2531	4396	7	10	17
City of Pariaman	6	2	8	1843	2349	4192	7	9	17
Mentawai Islands Regency	11	2	13	1978	2064	4042	8	8	16
Solok City	4	3	7	1794	2217	4011	7	9	16
Padang Panjang City	4	3	7	1215	1858	3073	5	7	12
Sawah Lunto City	3	1	4	621	878	1499	2	3	6
Total	**236**	**105**	**34 1**	**65332**	**85977**	**151309**	**259**	**341**	**600**

Note: Ministry of Education and Culture Semester 2022/2023https://dapo.kemdikbud.go.id/sp

Table 3.2 presents the number of samples by population. The sample size was determined based on the total population ratio in West Sumatra, which comprises 19 districts/cities. Samples from each district/city represent the population in that district/city. The following are the sample sizes for each: 99 samples in Padang City, 65 samples in Pesisir Selatan Regency, 39 samples in Pasaman Barat Regency, 43 samples in Agam Regency, 48 samples in Padang Pariaman Regency, 31 samples in Solok Regency, 31 samples in Lima Puluh Kota Regency, 30 samples in Pasaman Regency, 38 samples in Tanah Datar Regency, 21 samples in Sijunjung Regency, 21 samples in Dharmasraya Regency, 26 samples in Payakumbuh City, 25 samples in Bukittinggi City, 17 samples in South Solok Regency, 17 samples in Pariaman City, 16 samples in Kepulauan Mentawai District, 16 samples in Solok City, 12 samples in Padang Panjang City, and 6 samples in Sawahlunto City. The number of samples is slightly larger than the number listed in Table 3.2, which was used to anticipate participants' filling errors.

Figure 3.3 shows how to determine the number of schools in each regency/city. The research location is in West Sumatra, which has 19 regencies/cities. From these 19 regencies/cities, the number of schools in each was determined, and then a draw was

made to select one school in each regency/city. These schools are SMA Pembangunan UNP in Padang City, SMA 1 Lengayang in Pesisir Selatan Regency, SMA N 1 Pasaman in Pasaman Barat Regency, SMA N 2 Lubuak Basung in Agam Regency, SMA N 1 Lubuk Alung in Padang Pariaman Regency, SMA N 2 SUMBAR in Solok Regency, State Senior High School 1 Payakumbuh District in Limo Puluh Kota Regency, State Senior High School 1 Bonjol in Pasaman Regency, State Senior High School 1 Pariangan in Tanah Datar Regency, State Senior High School 2 Sijunjung in Sijunjung Regency, State Senior High School Sikabu in Dharmasraya Regency, State Senior High School 4 Payakumbuh in Payakumbuh city, SMA N 5 Bukitinggi in Bukitinggi city, SMA N 10 South Solok in Solok Selatan Regency, SMA N 2 Pariaman in Pariaman city, SMA N 1 South Siberut in Mentawai Islands Regency, SMA N 2 Solok in Solok city, SMA N 3 Padang Panjang in Padang Panjang city, and SMA N 3 Sawahlunto in Sawahlunto city.

Sampling Procedure

Stratified by Regency/City. Simple Random Sampling (1 school per stratum). Total strata: 19

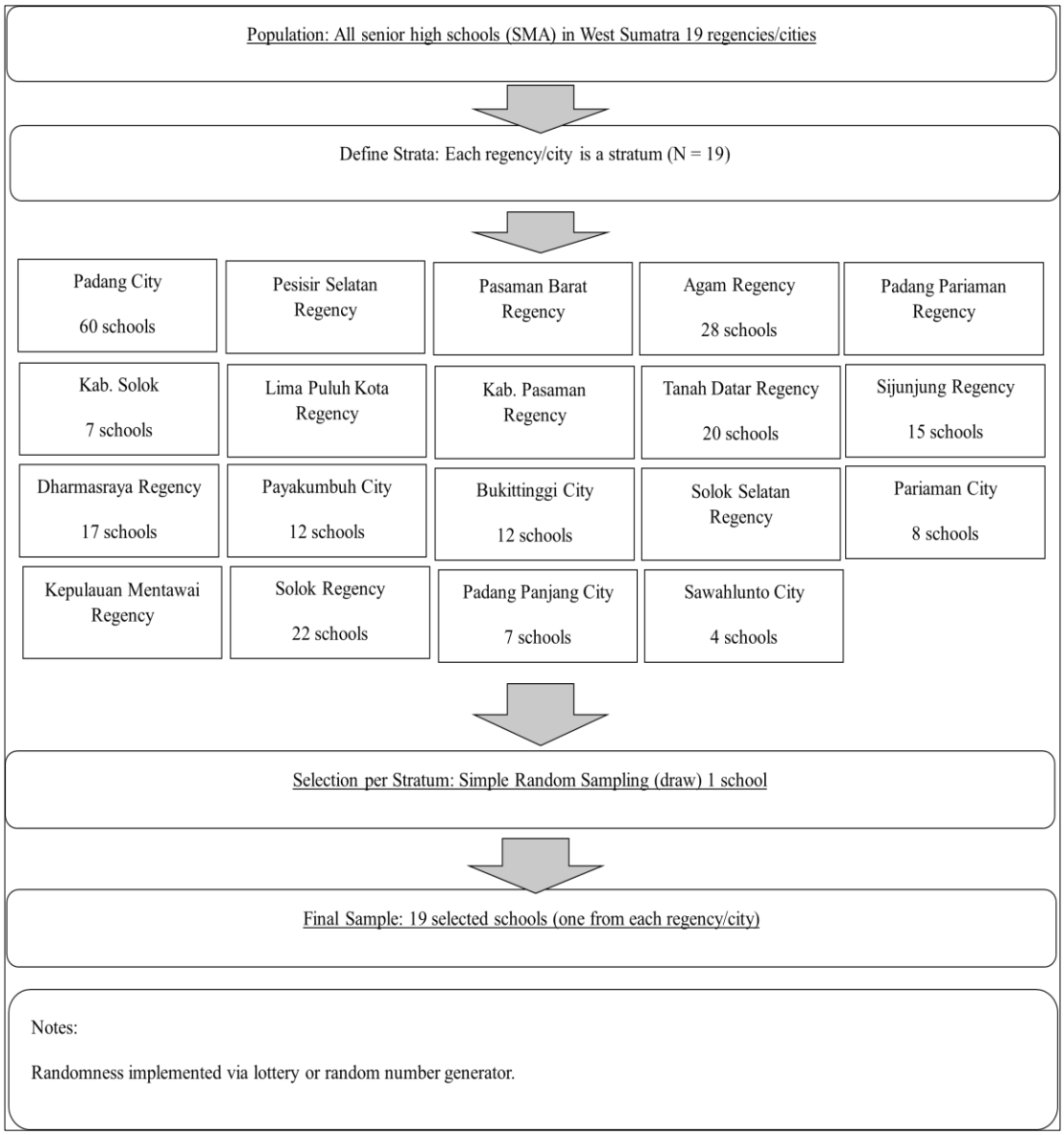


Figure 3.3 The Process of Determining the Schools Selected in the Study was Through a Draw

3.6. Instrument Development

After designing the sample and selecting a specific sample size, the next step in research design is establishing an instrument to collect data. Survey research to achieve the research objectives and goals, designing and selecting the right instrument with relevance and accuracy, is considered an important and complex process (Creswell, 2014). Specifically, the instrument must be able to answer the research questions about what to measure (construct validity) and how to measure it (construct reliability) (Creswell, 2014; Sekaran & Bougie, 2016). This study followed the procedures of Fink (2003) and Sekaran & Bougie (2019) to develop an appropriate instrument, which emphasises three stages: 1) developing the content of the instrument by solving the problems of item selection, categorisation, scaling, and coding (before analysis), 2) wording, and 3) the appearance or layout of the instrument in general.

3.6.1. Questionnaire Content Development and Operational Items

The study topic, which seeks to identify the behavioral determinants of gadget use and sports participation through motivation and psychosocial well-being, serves as the foundation for content development. In particular, high schools in Indonesia's West Sumatra Province serve as the research context. The sample for this study consists of individuals attending high school. Therefore, the content of the instrument's questions is adapted to the educational context. In addition, this instrument is intended to collect demographic data that are expected to have a moderating effect on the construct of individual gadget usage behaviour. Generally, the content designed in the instrument for this study can be categorised into four parts. This is briefly explained as follows: 1) Gadget usage behaviour, 2) Psychosocial well-being of sport participants, 3) Sport motivation scale II, and 4) Participation in sport.

3.6.2. Questionnaire Wording and Layout

Respondents' motivation to complete a questionnaire is influenced by its phrasing and design. Sekaran proposes five phrasing guidelines for questionnaire design: 1) subject appropriateness; 2) question structure and language proficiency; 3) question form and type; 4) question sequence; and 5) personal information that respondents are interested in knowing (Sekaran & Bougie, 2019).

The primary goal of the study's question content was to investigate students' objective feelings as assessed by Likert and Nominal scale methods. The wording of

the questions was simple and easy to understand; no jargon or technical terms related to sports or technology were used. Furthermore, all questions were structured as brief phrases so that respondents could complete them without focusing on the question's structure.

The type and form of the questionnaire, also referred to as the 'phrasing' of the questions, are mostly categorized as open-ended or closed-ended/fixed alternative questions (Sekaran & Bougie, 2019). Open-ended questions are well-suited to exploratory research, allowing respondents to freely express their opinions; closed-ended questions are best for explanatory or causal research. Considering the nature of this research, the closed-ended question format was chosen, which provides advantages in terms of the time required to complete it and makes it easier for respondents to answer. In addition, by using closed-ended questions, researchers can easily code and tabulate them for quantitative data analysis purposes (Sekaran & Bougie, 2019). Researchers have closely evaluated the bias impacts of the questions by eliminating ambiguity or leading replies in addition to the question phrasing.

Regarding layout or appearance, several researchers have proposed various suggestions. Sekaran suggested that personal information be placed at the beginning or end of the instrument, depending on the purpose of the study (Sekaran & Bougie, 2019). Dillman suggested that personal information questions not be placed at the beginning of the instrument because they are easy to answer and make respondents feel that the instrument is boring (Dillman et al., 2014). In this study, personal and demographic information are as important as the main construct of the study (testing the moderation effect), therefore, in designing the layout, the researcher still placed demographic information at the beginning of the instrument. One potential threat in the current instrument layout is its length (69 items). It is possible that the information at the end of the instrument may be incomplete or less interesting to respondents. To overcome this problem and ensure that there is no difference between the respondents' initial answers and their final answers, a Mann-Whitney U test will be conducted.

3.6.3. Scale Used

Sekaran & Bougie (2019) divided scales into two primary groups—rating and ranking scales—to gauge human sentiments. He established eleven more scaling techniques within the ranking scale. The items chosen for the different variables in this study were primarily based on the Likert scale (i.e., five-point) developed by Rensis

Likert in 1932, one of the forms described by Sekaran and Bougie (Sekaran & Bougie, 2019). The Likert scale was chosen for two reasons: first, it is the most popular and straightforward way to get input from survey participants. The published literature pertinent to the current study has made considerable use of this scale (either 5- or 7-point).

3.7. Content Validity by Expert

The instrument was translated from English into Indonesian by an English expert, Rini Afriani, M.Pd., an English lecturer at Padang State University. The instrument translated from English to Indonesian was the Sport Motivation Scale II. Meanwhile, the Sports Participation instrument, the Psychosocial Well-being Instrument of Sports Participants, and Gadget Use Behaviour were translated from Indonesian to English. This is intended to facilitate the validation of the questionnaire by experts who do not master Indonesian.

It was conducted by 13 experts in their respective fields to assess the instrument's content. Experts evaluated the validity of the content (three items), the clarity of the content (three items), and the feasibility (three items). The experts involved came from three countries: Malaysia, Indonesia, and Turkey. The experts came from several universities, namely Universiti Teknologi MARA Malaysia, University Malaya Malaysia, Istanbul Aydin University, Turkey, Universitas Negeri Yogyakarta of Indonesia, Universitas Negeri Padang of Indonesia, Paramadina University of Indonesia, and Adzkia University of Indonesia. Then the experts assess according to their respective willingness based on their fields of science. Table 3.3 is an explanation of the expertise, institution of origin, and experience of the experts.

Table 3.3
Material Experts to Determine Content Validity

No	Name	Expert	Institution of Origin	Description
1	Dr. Bekir Ekrhan Orhan	Physical Activity and Health	Istanbul Aydin University, Turkey	Has 14 years of experience in the field of Physical Activity and Health

2	Prof. Dr. Mohad Anizu Bin Mohd Nor	Sports Science and Health	MARA University of Technology	Having 35 years of experience in the field of Physical Activity and Health
3	Prof. Dr. Mohd Salleh Aman	Sport and Recreation Management	University of Malaya	Having 35 years of experience in the field Sport and Recreation Management
4	Prof. Dr. Novita Intan Arovah, MPH., Ph.D.	Sports Health	Yogyakarta State University	Having 20 years of experience in the field of Health
5	Amin Akbar. Ph.D	Sports Psychology	Padang State University	Having 8 years of experience in the field of Sports Psychology
6	Prima Aulia, S.Psi, M.Psi.	Psychologist Practitioner	Padang State University	Have 8 years of experience in the field of Sports Psychology as a Psychologist
7	Prof. Dr. Tjung Hauw Sin, M. Pd, Kons.	Sports Education Psychology / Counselor	Padang State University	Having 35 years of experience in the field of psychology of Sports Education and as a Professional Counselor in Indonesia
8	Dr. Muhammad Iqbal	Child Psychology	Paramadina University	Having 14 years of experience in the field of Psychology, He often speaks in forums related to child psychology in Indonesia. Currently, as a candidate for Mayor of Padang, Indonesia in 2024-2029
9	Dr. Zadrian Ardi, S.Pd., M.Pd., Kons	Counseling	Padang State University	Having 10 years of experience in the field of guidance and counseling, I am included in

				the list of the 500 best researchers in Indonesia.
10	Prof. Dr. H. Irwan Prayitno, M.Sc	Child Psychology	Adzkia University	Having 35 years of experience in the field of Child Psychology and having experience as the governor of West Sumatra Province for the 2010-2015 and 2016-2021 periods. Now, as the rector of Adzkia University
11	Prof. Dr. Phil Yanuar Kiram	Sociology of Sport	Padang State University	Having 35 years of experience in the field of Sociology of Sport
12	Prof. Dr. Bafirman HB, M. Kes, AIFO	Sports Health Education	Padang State University	Have 30 years of experience in the field of Sports Health Education
13	Prof. Dr. Muhamad Sazeli Rifki, S.Si, M.Pd	Sports Testing and Measurement	Padang State University	Have 20 years of experience in the field of Sports Testing and Measurement

3.7.1. Sport Motivation Scale II

The instrument was validated by several experts, including sports psychology expert Amin Akbar. PhD from Padang State University, Indonesia, Physical Activity and Health by Dr. Bekir Ekrhan Orhan from Istanbul Aydin University, Turkey, expert in Sport Science and Health by Prof. Dr Mohad Anizu Bin Mohd Nor from Universiti Teknologi MARA, Malaysia, expert in Sport and Recreation Management by Prof. Dr Mohd Salleh Aman from Universiti Malaya, Malaysia, Expert in sports psychology practice by Prima Aulia, S.Psi, M.Psi from Padang State University, Indonesia, Expert in sports Health by Prof. Dr. Novita Intan Arovah, MPH, Ph.D. from Yogyakarta State University, Indonesia. Sports Education Psychology Expert / Counselor by Prof. Dr. Tjung Hauw Sin, M. Pd, Kons. from Padang State University, Indonesia. Table 3.4

shows experts' assessments of the content validity of the Sport Motivation Scale II instrument.

Table 3.4
Expert Assessment of the Sport Motivation Scale II Instrument

Item	Expert 5	Expert 1	Expert 2	Expert 3	Expert 6	Expert 4	Expert 7
X1	5	5	5	5	5	5	5
X2	4	5	5	4	4	5	4
X3	5	5	5	5	5	5	5
X4	5	4	5	4	4	5	5
X5	5	5	5	4	5	5	5
X6	4	4	5	4	5	5	5
X7	5	5	5	5	5	5	5
X8	5	5	5	4	5	5	5
X9	5	5	5	4	4	5	5
r value	0.96	0.96	1.00	0.87	0.93	1.00	0.98

Note: Overall value r = 0.96

The table 3.4 shows the results of the assessment of material experts selected based on expertise in the field to assess the Sport Motivation II instrument, and the overall value obtained is 0.96. According to Tuckman 1999 as cited in Hair et al. (2022)The lower limit value recognised to state that it has reached a sound stage is 0.60. So, based on the assessment values of several experts, the Sport Motivation Scale II instrument has a high level of validity from experts.

However, some suggestions related to the writing need to be improved. The instrument is generally well-structured. Minor improvements in the wording of certain statements could improve clarity and prevent misinterpretation. Expanding the explanation of terms such as “instilled rules” or “motivation” in the instructions could also improve respondents’ understanding, especially for those who are less familiar with psychological terminology.

3.7.2. Psychosocial Well-Being of Sports Participants

The instrument was assessed by material experts, consisting of several parties with field experience. The psychosocial well-being instrument of sports participants was validated by several experts, namely sports psychology experts, by Amin Akbar. PhD from Padang State University, Indonesia, Counseling Guidance by Dr. Zadrian

Ardi, S.Pd., M.Pd., Kons from Padang State University, Indonesia, Sociology of Sport by Prof. Dr. Phil Yanuar Kiram from Padang State University, Indonesia, a, Physical Activity and Health by Dr. Bekir Ekrhan Orhan from Istanbul Aydin University, Turkey, expert in Sport Science and Health by Prof. Dr Mohad Anizu Bin Mohd Nor from Universiti Teknologi MARA, Malaysia, expert in Sport and Recreation Management by Prof. Dr Mohd Salleh Aman from Universiti Malaya, Malaysia, Child Psychology expert by Prof. Dr. H. Irwan Prayitno, M.Sc. from Adzkia University of Indonesia. The results of the experts' validation are shown in Table 3.5.

Table 3.5
Expert Assessment of the Psychosocial Well-Being Instrument of Sports Participants

	Expert	Expert	Expert	Expert	Expert	Expert	Expert
Item	5	9	11	1	2	3	10
X1	5	5	5	5	5	4	4
X2	4	5	5	4	5	4	4
X3	5	5	5	5	5	4	5
X4	5	4	5	4	5	5	4
X5	5	5	5	4	5	5	4
X6	4	4	5	4	5	4	4
X7	5	5	5	5	5	5	5
X8	5	5	5	4	5	4	5
X9	5	5	5	4	5	5	5
	43	43	45	39	45	40	40
r value	0.96	0.96	1.00	0.87	1.00	0.89	0.89

Note:Overall Value r = 0.94

Table 3.5 shows the results of the assessment by material experts selected for their expertise in the field to evaluate the Sport Motivation II instrument, and the overall value obtained is 0.94. According to Tuckman 1999 as cited in Hair et al. (2022)The lower limit value recognised that a good stage has been reached is 0.60. Based on the assessment values of several experts, the psychosocial well-being instrument for sports participants has a high level of expert validity.

3.7.3. Gadget Usage Behaviour

The instrument was assessed by material experts from several groups with experience in the field. The gadget usage behaviour instrument was validated by several experts, namely sports psychology expert Amin Akbar. PhD from Padang State University, Indonesia, Sport Science and Health expert by Prof. Dr. Mohad Anizu Bin Mohd Nor from Universiti Teknologi MARA Malaysia, Counselling Guidance by Dr. Zadrian Ardi, S.Pd.., M.Pd.., Kons from Padang State University, Indonesia, Child psychology expert by Prof. Dr. H. Irwan Prayitno, M.Sc from Adzkia University of Indonesia, sports psychology practitioner by Prima Aulia, S.Psi, M.Psi from Padang State University, Indonesia, Child psychology expert and practitioner by Dr. Muhammad Iqbal from Paramadina University. The results shown in Table 3.6 are obtained from expert validation.

Table 3.6
Expert Assessment of Gadget Usage Behavior Instruments

Item	Expert 5	Expert 2	Expert 9	Expert 10	Expert 5	Expert 6
X1	5	5	5	5	5	4
X2	4	5	5	4	4	4
X3	5	5	5	4	5	4
X4	5	5	5	4	4	4
X5	5	5	5	4	5	4
X6	4	5	5	4	5	4
X7	5	5	5	5	5	4
X8	5	5	5	4	5	4
X9	5	5	5	5	4	5
	43	45	45	39	42	37
r value	0.96	1.00	1.00	0.87	0.93	0.82

Note: Overall Value r = 0.93

Table 3.6 shows the results of the assessment by material experts selected for their expertise in the field, and the overall value obtained is 0.93. According to Tuckman 1999 as cited in Hair et al.(2022)The lower limit value recognised to state that a good stage has been reached is 0.60. Based on the assessment values of several experts, the gadget usage behaviour instrument has a high level of expert validity.

3.7.4. Sports Participation

The instruments are assessed by a panel of materials experts with experience in the field. Sports participation instruments are assessed by several experts, namely Sports Health Education experts, Prof. Dr. Bafirman HB, M. Kes, AIFO from Padang State University. Expert Sports Health by Prof. Dr. Novita Intan Arovah, MPH, Ph.D**.**from Yogyakarta State University. Expert in Sports Testing and Measurement by Prof. Dr. Muhamad Sazeli Rifki, S.Si, M.Pd from Padang State University, Expert in sports sociology by Prof. Dr. Phil Yanuar Kiram from Padang State University, Indonesia. Physical Activity and Health by Dr. Bekir Ekrhan Orhan from Istanbul Aydin University, Turkey, expert in Sport Science and Health, by Prof. Dr Mohad Anizu Bin Mohd Nor from Universiti Teknologi MARA, Malaysia, expert in Sport and Recreation Management, by Prof. Dr. Mohd Salleh Aman from Universiti Malaya, Malaysia. From the experts' assessment, the overall r value was obtained, namely r = 0.95; for more details, see Table 3.7.

Table 3.7
Expert Assessment of Sports Participation Instruments

Item	Expert 12	Expert 4	Expert 13	Expert 11	Expert 1	Expert 2	Expert 3
X1	5	5	5	5	5	5	4
X2	4	5	5	4	5	5	4
X3	5	5	5	5	5	5	4
X4	5	5	5	4	5	5	4
X5	5	5	5	4	5	5	4
X6	4	5	5	4	5	5	4
X7	5	5	5	5	5	5	4
X8	5	5	5	4	5	5	4
X9	5	5	5	4	5	5	4
	43	45	45	39	45	45	36
r value	0.96	1.00	1.00	0.87	1.00	1.00	0.80

Overall Value r = 0.95

Table 3.7 shows the results of the assessment of the selected material experts, based on their expertise in the field, of the Sport Motivation II instrument, and the

overall value obtained is 0.95. According to Tuckman 1999 as cited in Hair et al.(2022) The lower limit value recognised to state that a good stage has been reached is 0.60. Based on the assessment values of several experts, the gadget usage behaviour instrument has a high level of expert validity.

After the instrument was revised according to the expert's advice, it was validated by an Indonesian-language expert, Dr. Zulfadhli, SS, MA, from the Department of Indonesian Language and Literature, Padang State University, who specialises in news writing. The Sport Motivation Scale II instrument has an r value = 0.96. The psychosocial well-being instrument of sports participants has an r value = 0.93. The gadget use behavior instrument has an r value = 0.98, and the sports participation instrument has an r value = 0.93. After conducting validation by a language expert, the next stage is to conduct a trial to obtain item validation and instrument reliability.

3.8. Pilot Study

The next step in the research design process is to refine the survey instrument's questions after creating the first version. Prior to the primary data collection procedure, a feasibility study or pilot test is typically carried out to assess the instrument's viability in terms of validity and reliability in order to enhance its design (Westerlund et al., 2023). A pilot test is crucial to removing the survey instrument's flaws and shortcomings, according to McCarrier et al (2014). Testing the question structure, sequencing, layout, respondents' familiarity, response rate, time required to complete the questionnaire, and the analytic procedure can help identify this. For a pilot study, a sample of 10 to 30 people from the relevant demographic is typically advised (Westerlund et al., 2023). Furthermore, Bujang et al. (2024) explained that 30 respondents for a pilot study were sufficient to assess the reliability of the questionnaire

In implementing the pilot study, emphasis should be placed on the measured values, namely coding variables, item validity, and test-retest reliability. Table 3.8 outlines the requirements an instrument must meet.

Table 3.8
Validity and Reliability Assessment of the Instrument

Pilot Study				
Purpose	**Analytical technique**	**Tool**	**Reference**	**Required value**

Assigning numbers to each potential response and defining the labels for each variable	Variable coding	Excel	Hair et al. (2017)	NA
To guarantee that measurements are error-free and produce consistent outcomes	Item-to-total correlation	SPSS	Koo and Li (2016)	Value>0.266 Tabel signifikansi 55 responden
	Cronbach's α	SPSS	Taber (2018)	α> 0.6
	Test Retest	SPSS	Koo and Li (2016)	Standar Atas : 0.90 (subjek < 100) Standar bawah : 0.70 (Subjek > 100)

3.8.1. Pilot Study; Validity of Instrument Items

The pilot study was conducted at State Senior High School No. 3, Bukittinggi, with 55 participants, consisting of 19 females and 36 males, with an average age of 15 years, 7 months. A test-retest was used in phase 2 to determine the reliability of this instrument. This means there were two data collections on the same sample, with approximately 9 days between the first and second collections, namely on September 9, 2024, and September 18, 2024. Data (test) from the first collection were used to determine the validity of the items, including 16 items of the sports participation instrument, with a calculated r value > the r table value (0.266). Then, out of 18 items of the Sport Motivation Scale II instrument, two items had calculated r values < r table (0.266), namely items no. 16 and no. 17, with calculated r values of -0.125 and calculated r = 0.138, so that there were 16 valid items. Furthermore, 18 items of the psychosocial well-being instrument for sports participants have a calculated r value > 0.266 (from the r table). Finally, from the 22 items of the gadget usage behavior instrument, two items have calculated r values < r table (0.266): item no. 1 (r =- 0.151) and item no. 13 r = 0.194). So, the gadget usage behavior instrument in the first test has 20 valid items. In the second data collection stage (retest), the validity of the items was

tested again, so one item in the gadget usage behavior was invalid, namely item no. 10, with a calculated r value = 0.245, smaller than the r table = 0.266. For more details, see tables 3.9, 3.10, 3.11, and 3.12.

3.8.1.1. Instrumen Sport Motivation Scale II

Table 3.9
Item Validity for Sport Motivation Scale II

Item	Statement	Pearson Correlation		r table	Criteria
		(Test)	(reTest)		
Intrinsic Motivation					
MO1	Because it gives me pleasure to learn more about my sport.	0.635	0.698	0.266	Valid
MO2	Because I find it enjoyable to discover new performance strategies.	0.653	0.748	0.266	Valid
MO3	Because it is very interesting to learn how I can improve.	0.569	0.704	0.266	Valid
Integrated Regulation					
MO4	Because practicing sports reflects the essence of whom I am.	0.808	0.853	0.266	Valid
MO5	Because participating in sport is an integral part of my life.	0.770	0.815	0.266	Valid
MO6	Because through sport, I am living in line with my deepest principles.	0.822	0.860	0.266	Valid
Identified Regulation					
MO7	Because I have chosen this sport as a way to develop myself.	0.762	0.852	0.266	Valid
MO8	Because I found it is a good way to develop aspects of myself that I value.	0.699	0.743	0.266	Valid

MO9	Because it is one of the best ways I have chosen to develop other aspects of myself.	0.732	0.779	0.266	Valid
Introjected Regulation					
MO10	Because I would feel bad about myself if I did not take the time to do it.	0.713	0.726	0.266	Valid
MO11	Because I feel better about myself when I do.	0.740	0.759	0.266	Valid
MO12	Because I would not feel worthwhile if I did not.	0.684	0.691	0.266	Valid
External Regulation					
MO13	Because people I care about would be upset with me if I didn't.	0.465	0.535	0.266	Valid
MO14	Because I think others would disapprove of me if I did not.	0.515	0.559	0.266	Valid
MO15	Because people around me reward me when I do.	0.506	0.562	0.266	Valid
Amotivation					
MO16	I used to have good reasons for doing sports, but now I am asking myself if I should continue.	0.125	-	0.266	Not
MO17	So that others will praise me for what I do.	0.138	-	0.266	Not
MO18	It is not clear to me anymore; I don't really think my place is in sports.	0.497	0.377	0.266	Valid

3.8.1.2. Psychosocial Well-being Instrument

Table 3.10
Item Validation for the Sport Participant Psychosocial Well-Being Instrument

Item	Statement	Pearson Correlation		r table	Criteria
		(Test)	(reTest)		
Psychosocial well-being					
PPO1	I feel like I have better relationships with my friends since I started participating in sports.	0.687	0.727	0.266	Valid
PPO2	I find it easier to build new relationships when I participate in sports activities.	0.576	0.626	0.266	Valid
PPO3	I receive emotional support from my teammates while participating in sports.	0.609	0.687	0.266	Valid
Social Integration					
PPO4	I feel like I am part of a particular community or group through participation in sports.	0.673	0.669	0.266	Valid
PPO5	Sports activities help me feel more connected to my social environment.	0.615	0.758	0.266	Valid
PPO6	Participating in sports strengthens team members' sense of community and mutual support.	0.621	0.700	0.266	Valid
Social Contribution					
PPO7	Through sports, I can contribute to the success of my team or community.	0.684	0.771	0.266	Valid

PPO8	Participation in sports makes me feel more meaningful and useful socially.	0.794	0.816	0.266	Valid
PPO9	Active participation in sports allows me to contribute to creating a more harmonious environment in society.	0.701	0.721	0.266	Valid
Social Actualization					
PPO10	I feel that I can realize my potential through participation in sports.	0.661	0.710	0.266	Valid
PPO11	I feel satisfied with my achievements in sports.	0.715	0.731	0.266	Valid
PPO12	I feel that participating in sports has taught me to communicate well in conveying my goals.	0.684	0.715	0.266	Valid
Social Coherence					
PPO13	Sports activities provide structure and routine that helps me feel more connected to society.	0.672	0.720	0.266	Valid
PPO14	Participation in sports in the community helps me develop a sense of mutual trust.	0.674	0.742	0.266	Valid
PPO15	Participating in sports helps me build a sense of community and cohesiveness	0.724	0.745	0.266	Valid
Social Acceptance					
PPO16	I feel accepted by my teammates in sports activities.	0.753	0.772	0.266	Valid

PPO17	Sports give me the opportunity to feel valued in my community.	0.691	0.678	0.266	Valid
PPO18	I feel open to interacting with people while participating in sports	0.667	0.638	0.266	Valid

3.8.1.3. Sports Participation Instrument

Table 3.11
Validity Items for the Sports Participation Instrument

Code	Items	Pearson Correlation		r table	Criteria
		(Test)	(reTest)		
Individual Participation					
POR1	I participate in sports activities at least three times a week.	0.782	0.785	0.266	Valid
POR2	I spend at least 30 minutes every time	0.660	0.841	0.266	Valid
POR 3	I consistently do this sport every week	0.593	0.639	0.266	Valid
POR 4	I still exercise, whether in a group or individually	0.633	0.771	0.266	Valid
POR 5	With my exercise, I feel my physical fitness is improving.	0.616	0.796	0.266	Valid
Sports Infrastructure					
POR 6	The infrastructure related to sports in my area is very supportive.	0.695	0.760	0.266	Valid
POR 7	The open space surrounding allows me to do sports.	0.580	0.748	0.266	Valid
POR 8	The infrastructure and open spaces related to sports in my place is well managed.	0.733	0.775	0.266	Valid

POR 9	It is very easy for me to access infrastructure and open spaces for exercise.	0.584	0.697	0.266	Valid
Socio-cultural					
POR 10	In the community, exercising is an important part of maintaining health.	0.505	0.624	0.266	Valid
POR 11	In the neighborhood where I am now, providing particular time to exercise	0.653	0.647	0.266	Valid
POR 12	I (female/male) do not feel isolated when participating in sports in my environment.	0.620	0.687	0.266	Valid
Institutional					
POR 13	My school has a budget for a program to increase sports participation.	0.464	0.507	0.266	Valid
POR 14	Having a program coordinator makes sports participation run well at my school	0.334	0.352	0.266	Valid
POR 15	Various innovative programs are provided in schools to increase sports participation.	0.632	0.626	0.266	Valid
POR 16	There is cross-sector support in an effort to increase participation in sports at my school	0.600	0.631	0.266	Valid

3.8.1.4. Gadget Usage Behavior Instrument

Table 3.12
Validation of Gadget Usage Behavior Instrument Items

Item	**Statement**	**Pearson Correlation**		**r table**	**Criteria**
		(Test)	**(reTest)**		
Role of Parents					

GU1	My parents gave me gadgets for my personal use.	0.151	-	0.266	Not
Gu2	My parents lent me the gadget for a long time.	0.498	0.511	0.266	Valid
GU3	My parents are happy to see me playing with gadgets rather than being involved in sports.	0.674	0.694	0.266	Valid
GU4	My parents do not give me any restrictions on using gadgets.	0.672	0.657	0.266	Valid
GU5	There are no rules from my parents about using gadgets.	0.661	0.688	0.266	Valid
Residential environment					
GU6	I am free to use gadgets at home.	0.649	0.659	0.266	Valid
GU7	Schools provide freedom to use gadgets at school.	0.602	0.582	0.266	Valid
GU8	I am in a daily environment that makes me use gadgets rather than get involved in sports.	0.638	0.638	0.266	Valid
GU9	I play with gadgets because I enjoy free internet access in the area where I live.	0.520	0.489	0.266	Valid
Context					
GU10	For me, the function of gadgets is only a small part for communication.	0.290	0.245	0.266	Not
GU11	I only use a small part of my gadget's functions for learning purposes.	0.475	0.487	0.266	Valid
GU12	I only use gadgets to enjoy entertainment services such as playing games, watching	0.359	0.375	0.266	Valid

	videos, social media, or browsing the internet.				
GU13	I use gadgets to develop my career in social media.	0.194	-	0.266	Not
Intensity					
GU14	I use gadgets repeatedly every day.	0.579	0.566	0.266	Valid
GU15	I can spend hours at a time using gadgets.	0.668	0.634	0.266	Valid
GU16	I often sleep late at night because I play with gadgets.	0.677	0.684	0.266	Valid
GU17	I feel restless if I don't use my gadget for more than an hour.	0.539	0.507	0.266	Valid
	Impact				
GU18	Sometimes I forget to do my schoolwork because I'm busy playing with my gadgets.	0.641	0.684	0.266	Valid
GU19	I have difficulty sleeping at night which makes me feel anxious.	0.621	0.604	0.266	Valid
GU20	I feel like I have problems with my family because of playing with gadgets.	0.652	0.659	0.266	Valid
GU21	I often procrastinate on work/school assignments because I play with gadgets.	0.689	0.715	0.266	Valid
GU22	I prefer playing with gadgets than exercising	0.623	0.634	0.266	Valid

3.8.2. Cronbach's Alpha of Each Test and Retest Instrument

To see whether this instrument has reliability from the relationship between items in each instrument, Cronbach's alpha testing is carried out for test and retest values. The following results are shown in the table 3.13.

Table 3. 13
Instrument Reliability Value Using Cronbach's Alpha.

Instrument	Cronbach's α		Criteria
	Test	Retest	
Sport Motivation Scale II	0.912	0.925	Reliable
Psychosocial well-being of sports participants	0.929	0.924	Reliable
Sports Participation	0.8884	0.923	Reliable
Gadget Usage Behavior	0.902	0.905	Reliable

3.8.3. Reliability Using Test Retest

Next, the average of each instrument was sought from the first data (test) and the second data (retest). After that, the data was processed using SPSS 27. Table 3.14 shows the data obtained: 1) Sport Motivation Scale II has a reliability value of 0.960. 2) Psychosocial well-being has a reliability value of 0.944. 3) Sports participation has a reliability value of 0.957. 4) Gadget usage behavior has a reliability value of 0.980. (Appendix).

Table 3.14
Instrument Reliability Using Test Retest

Instrument	Intraclass Correlation	Kriteria
Sport Motivation Scale II	0.960	Reliable
Psychosocial well-being of sports participants	0.944	Reliable
Sports Participation	0.957	Reliable
Gadget Usage Behavior	0.980	Reliable

Based on the results of the trial of this instrument, it was found to have validity and reliability. This instrument is ready to be used for actual study, namely 1) Sport motivation scale II instrument (16 Items) with a reliability of 0.960. 2) Sport participant Psychosocial well-being instrument (18 Items) with a reliability of 0.944. 3) Gadget use

behavior instrument (19 Items) with a reliability of 0.980, and 4) Sports participation instrument (16 Items) with a reliability of 0.957. In total, the questionnaire comprised 69 items adapted from validated instruments. Although relatively extensive, the number of items was necessary to ensure comprehensive construct coverage, strong content validity, and reliable measurement across multiple dimensions.

3.9. Data Collection Procedure and Quality Control

Data was collected using an online questionnaire distributed via Google Forms. The survey link was shared with students through their physical education teachers, and respondents were required to complete all items before submission to prevent data loss. At the beginning of the questionnaire, instructions for completion and consent to participate were provided. The questionnaire was completed under the supervision of teachers to ensure independent, serious responses, with an average completion time of 15–20 minutes, considered appropriate for adolescent participants.

Prior to the main study, a pilot test was conducted to evaluate the clarity and comprehensibility of the items, and minor adjustments were made to ensure suitability for students aged 15–17 years. Participation was voluntary, and participants could withdraw at any time. Furthermore, no monetary or material incentives were provided. This procedure was implemented to ensure data quality, respondent understanding, and ethical transparency throughout the data collection process.

3.10. Data Analysis Process

The data analysis in this study was conducted in two major stages: preliminary data screening and structural model evaluation. The initial stage involved preliminary data examination and descriptive statistical analysis to ensure the dataset's accuracy and suitability prior to hypothesis testing. This stage summarized respondents' demographic characteristics and their responses to the survey instrument. SPSS version 27.0 was used for data coding, editing, detection of missing values, and assessment of statistical assumptions, including normality, linearity, homoscedasticity, multicollinearity, and outliers. Missing data were examined using Expectation Maximisation (EM) and Little's MCAR test, while univariate and multivariate outliers were assessed through standardized z-scores, Mahalanobis distance, and boxplot analysis. The normality assumption was evaluated using Q–Q plots, the Kolmogorov–Smirnov and Shapiro–Wilk tests, and skewness and kurtosis statistics. Although PLS-SEM does not require

strict multivariate normality, these procedures were conducted to transparently report data characteristics and justify the choice of variance-based SEM. Multicollinearity was assessed using Pearson correlations, tolerance values, and variance inflation factors (VIFs), while homoscedasticity was examined using Levene's test. Non-response bias was evaluated using the Mann–Whitney U-test to compare early and late respondents.

Following data screening, the structural relationships among constructs were tested using Structural Equation Modeling (SEM). SEM enables the simultaneous examination of multiple relationships among latent constructs and is categorized into covariance-based SEM and variance-based SEM. In this study, Partial Least Squares Structural Equation Modeling (PLS-SEM) was adopted using SmartPLS Version 2.0.3 due to its suitability for complex predictive models, its robustness to non-normal data, and its ability to estimate measurement and structural models concurrently (Hair et al., 2024; Hair et al., 2022). The evaluation followed the hierarchical two-step approach proposed by Lohmöller (2023), whereby the measurement model was assessed prior to structural model evaluation.

The measurement model was evaluated for construct reliability and validity. Internal consistency reliability was assessed using Cronbach's alpha and composite reliability, while indicator reliability was examined through outer loadings. Convergent validity was evaluated using Average Variance Extracted (AVE), and discriminant validity was assessed using both construct-level and item-level criteria, including cross-loadings. Only constructs meeting the recommended threshold values were retained for structural analysis.

After establishing measurement validity and reliability, the structural model was evaluated to test the proposed hypotheses. The following hypotheses were examined:

a. H1: Gadget usage behaviour (Environment, intensity, impact, and parent role) significantly influences psychosocial well-being, motivation, and sport participation among Generation Z in West Sumatera, Indonesia.
b. H2: Psychosocial well-being significantly influences sport participation among Generation Zin West Sumatera, Indonesia.
c. H3: Motivation significantly influences sport participation among Generation Zin West Sumatera, Indonesia.
d. H4: Motivation significantly influences psychosocial well-being among Generation Zin West Sumatera, Indonesia.

e. H5: Demographic factors significantly moderate the relationships between gadget usage behaviour and psychosocial well-being, motivation, and sport participation among Generation Zin West Sumatera, Indonesia.

The significance of structural paths was assessed using the bootstrapping procedure with resampling techniques to generate standard errors and t-values. Hypotheses were considered supported when the t-value met the recommended critical values ($t \geq 1.96$ for $p < .05$; $t \geq 2.58$ for $p < .01$). In addition to examining path coefficients (β), the coefficient of determination (R^2) was evaluated to assess the explanatory power of endogenous constructs. Effect size (f^2) was calculated to determine the substantive impact of each predictor variable, and predictive relevance (q^2) was assessed to evaluate the model's predictive capability. The overall model quality was further examined using goodness-of-fit indicators.

To assess the moderating role of demographic factors, Multiple Group Analysis (MGA) was conducted. This approach, conceptually similar to hierarchical multiple regression, enabled comparison of path coefficients across demographic groups to determine whether structural relationships differ significantly. Through this comprehensive analytical procedure, the study ensures that both measurement adequacy and structural relationships are rigorously tested in alignment with the theoretical framework.

For a detailed summary of analytical techniques, tools, references, and threshold criteria, refer to Table 3.15.

Table 3.15
Stages of Data Analysis

Mean Study

	Purpose	Analytical technique	Tool	Reference	Required value
Missing data examination	Analysis of missing data and potential solutions.	Expectation maximisation (EM) with Little's MCAR test	SPSS	Enders (2022)	p>0.05 missing patterns are completely at random
Univariate outliers	To determine when a single variable has an extreme value	Standardised score (z-scores)	SPSS	Hair et al. (2019)	Value <± 3.0
Multivariate outliers	To determine when two or more variables have an odd combination of extreme values	Mahalanobis D2	SPSS	Hair et al. (2019)	D 2/df< 3, or p<0.05
		Box Plot	SPSS	Hair et al. (2019)	IQR < 3.0
Univariate normality	To guarantee a linear and properly distributed distribution of scores at the item level	Q-Q plot	SPSS	Kline (2023)	straight line
		Kolmogorov-Smirnov and Shapiro-Wilk (K-S) test,	SPSS	Ghasemi and Zahediasl (2012)	P>0.05
		Skewness and kurtosis	SPSS	Field (2018)	Value < ±2.58
Multivariate normality	To guarantee a linear and regularly distributed data distribution of scores	P-P plot,	SPSS	Field (2018)	straight line

	within a combination of two or more items				
Homoscedasticity	In order to guarantee that the dependent variable or variables exhibit an identical variation across the number of independent variables,	Levene's test	SPSS	Z. Wang et al (2021)	$p<0.05$
Multicollinearity	To guarantee that three or more independent variables in a correlation matrix have a poor relationship with one another (<0.90)	Pearson's correlation,	SPSS	Z. Wang et al (2021)	<0.8
		VIF and Tolerance effect using linear regression	SPSS	Z. Wang et al (2021)	VIF<10, and tolerance >0.1
Non-response bias	To ensure that the sample represent whole data without the inequality between early and late respondents	Mann-Whitney-U-test	SPSS	Field (2018)	$p>0.05$ indicate no difference

Demographics	To examine the Background information of respondents	Mean, standard deviation, frequency, cross-tabulations	SPSS	Na	Na
Measurement model evaluation	Construct reliability	Composite reliability	PLS	Hair et al. (2024)	Value > 0.6
	Construct reliability	Cronbach's α		Hair et al. (2024)	Value > 0.6 and value > 0.8 or 0.9 is better
	Indicator reliability	outer loading		Hair et al. (2024)	Value > 0.7(, √0.5) is better value > 0.4 is acceptable
	Convergent validity	AVE		Hair et al. (2024)	Value > 0.5
	Discriminant validity	Construct-level		Hair et al. (2024)	√-./>latent variable Correlatio
	Discriminant validity	Item-level		Hair et al. (2024)	Loading of each indicator > cross loadings Cross loading <0.4

Structural model evaluation: The structural model was evaluated to test the proposed research objectives and hypotheses. Specifically, the direct effects related to **Research Objectives 1 to 4** were examined using the **path coefficient (β)** to determine the strength and significance of the relationships between the exogenous and endogenous	R^2 of endogenous dependent) latent variable	is the coefficient of determination, which quantifies the extent to which exogenous (independent) observable variables explain for result variability (Tabachnick & Fidell, 2007; Hair et al., 2006). It is comparable to the covariance-based approach's squared multiple correlation (SMC) coefficient.	PLS	Hair et al. (2024)	Value 0.67, 0.33, 0.19 are substantial, moderate, and weak respectively
	β coefficient	represents a number of correlation coefficients between endogenous and exogenous variables (Tabachnick & Fidell, 2007). Sign, size, and significance of the value are assessed (t test).	PLS	Hair et al. (2024)	Value t=2.58 p<0.01, t=1.96 p<0.05, and t=1.64 p<0.10)
	Effect size f^2	Is measure of representing the ratio of the improvement in prediction that results from the	PLS	Hair and Sarstedt, et al. (2022)	Value 0.02,0.15, and 0.35 are weak, medium and large effect respectively

constructs. Furthermore, **Research Objective 5** was analyzed through the **moderating effect analysis**, where the interaction term between the independent and moderating variables was assessed to test **Hypothesis 5**.		fitting the model (Tabachnick & Fidell, 2007). It is calculated by f2 = (R^2incl – R^2excl)/(1- R^2incl)			
	Prediction relevance q^2	Is an assessment of model's capability to predict $R^2$2 through sample reuse/cross-validation	PLS	Hair et al. (2024)	Value 0.02,0.15, and 0.35 are weak, medium and large effect respectively
	Moderating effect (Interaction effect)	Examines whether a moderator variable influences the strength or direction of the relationship between an independent variable and a dependent variable. its path coefficient using bootstrapping.	PLS	Hair et al. (2024)	Significant if **$t \geq 1.96$ ($p < 0.05$)**. The sign of the interaction coefficient indicates whether the moderator **strengthens or weakens** the relationship.
	Effect size of moderating impact (f^2 moderation)	Assesses the magnitude of the moderation effect by comparing the **R^2 of the model with and without the interaction term**	PLS	Hair et al. (2024)	**0.02 (small), 0.15 (moderate), 0.35 (large)** moderation effect.
	Goodness of fit (GoF)	It is the global goodness of fit criterion, which is calculated using the geometric mean of the	PLS	Hair et al. (2024)	Value closer to 1 is better

average R^2 and average communality.

3.11. Basic Concepts of Structural Equation Modelling (SEM)

3.11.1. Introduction

Structural Equation Modeling (SEM) is a multivariate statistical approach used to analyze the structural relationship between latent variables (concepts that cannot be measured directly) and indicator variables (measurable variables). SEM combines two main models, namely the measurement and structural models, in one complete analytical framework. The measurement model explains how indicators (questionnaire items) reflect latent constructs, while the structural model explains the causal relationships among latent constructs through paths. In SEM, the relationships among variables are tested using path coefficients that describe the strength and direction of influence among constructs. SEM is rooted in Wright's theory of path analysis in 1921 and was further developed in psychology and social sciences by experts such as Jöreskog and Bentler(Hair, 2021b). In its application, SEM allows researchers to: 1) Test the validity and reliability of latent constructs through Confirmatory Factor Analysis (CFA), 2) Test the hypothesis of causal relationships between constructs simultaneously, 3) Identify the theoretical model that best fits the empirical data (Kline, 2016).

SEM is divided into two main approaches: 1) Covariance-Based SEM (CB-SEM): Focuses on the overall model fit and is usually used in established theories. Software examples: AMOS, LISREL. 2) Partial Least Squares SEM (PLS-SEM): Focuses more on predicting and exploring relationships between constructs, suitable for complex models and non-normally distributed data. Software examples: SmartPLS (Hair G. et. al., 2017; Schumacker Richard G., 2016). In Hair et al (2021a)'s theory, SEM is a powerful method because it can handle complex models, measure variables that are not directly measurable, and control measurement errors in one integrated analysis.

3.11.2. Types of Models in SEM

In Structural Equation Modeling (SEM), several models are used to analyze the relationship between latent and measured variables. The first type is a measurement model, which explains the relationship between latent constructs and their indicators. This model is tested using Confirmatory Factor Analysis (CFA) to ensure that the indicators validly represent the construct. Constructs in a measurement model can be

reflective (indicators reflect the construct) or formative (indicators shape the construct). The second type is a structural model, which depicts the causal relationships among latent constructs as influence paths (Hair, 2021a). This model is used to test hypotheses about cause-and-effect relationships between constructs, such as the influence of motivation on participation or of parental support on psychosocial well-being.

Another model is the mediation model, which tests the indirect influence of one construct on another construct through a third construct as a mediator (Kline, 2016). For example, the effect of parental support on sports participation is mediated by demographics. Conversely, the moderation model is used to examine whether a third variable (moderator) influences the relationship between constructs, which can be tested using interaction terms or, for categorical variables, with Multi-Group Analysis (MGA).

SEM also recognizes higher-order models (second-order models), namely when a construct consists of several dimensions, each of which is also a latent construct (Hair, 2021a). For example, the construct in this case is gadget-use behavior, consisting of the gadget user environment, the impact of use, the intensity of use, and the role of parents towards children. These models can be combined in a single SEM analysis, making SEM a compelling method for testing complex theoretical relationships that involve many constructs simultaneously.

3.11.3. Practical Considerations for SEM

When applying Structural Equation Modeling (SEM), several practical considerations are necessary to ensure that the analysis's results are not only statistically valid but also substantively relevant to the research objectives. According to Hair et al., the initial step that needs to be clarified is whether the research is exploratory or confirmatory (Hair, Risher, et al., 2019). For exploratory studies that aim to develop theory, the PLS-SEM (Partial Least Squares SEM) approach is more recommended because it is more flexible in dealing with sample size limitations and data distribution (Hair, 2021a).

Sample size is also a critical aspect in SEM. Hair et al. (2021a) suggest a minimum of 200 respondents for CB-SEM, whereas for PLS-SEM, the sample size can be smaller, provided it follows the rule of 10 times the number of the densest indicators in a construct or path (Hair, 2021a). In addition, data distribution also needs to be considered. PLS-SEM does not impose a normality assumption, so it is more tolerant of ordinal data, such as Likert-scale data (Hair, 2021a). In terms of measurement scale,

SEM is generally used on ordinal or interval data and requires reliable and valid indicators (Kline, 2016).

Another aspect is the type of construct in the model: reflective or formative. According to Sarstedt et al. (2019) Reflective constructs have indicators that manifest the latent construct, whereas formative constructs have indicators that form the construct. Therefore, the measurement model validation approach for each construct type is also different. For reflective constructs, convergent validity (AVE $\geq$ 0.5), discriminant validity (HTMT $\leq$ 0.90), and composite reliability (CR $\geq$ 0.7) are important. Formative constructs need to be tested by looking at multicollinearity between indicators (VIF < 5) and the significance of their contribution to the construct (Hair, 2021a).

Once the measurement model is validated, structural model analysis can be performed. Here, researchers evaluate the significance of the relationship between constructs through bootstrapping (to obtain t and p values), and assess the strength of the model by looking at the R^2 (coefficient of determination), f^2 (local effect size), and Q^2 (predictive relevance) values (Hair, 2021a). Therefore, PLS-SEM's main focus is on prediction. The evaluation of the model fit can be seen from the SRMR (Standardized Root Mean Square Residual) value (Hair, 2021a).

Finally, SEM also allows for the analysis of complex relationships such as mediation and moderation. Mediation is analyzed by comparing direct and indirect paths. At the same time, moderation can be tested by forming interaction terms (for numeric variables) or using Multi-Group Analysis (MGA) for categorical variables (Hair, Hult, et al., 2022). By considering all of these aspects—the purpose of the analysis, the type of construct, the characteristics of the data, the choice of approach, and the testing of the model—researchers can ensure that the use of SEM in research produces results that are strong, valid, and by the theoretical context in which they are developed.

3.11.4. Rationale for Selecting SEM with PLS Approach

The selection of the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach in this study is based on the purpose of the analysis, the complexity of the model, and the characteristics of the data. PLS-SEM is more recommended when the research is exploratory, the theory is still in development, or the model is very complex. According to Vargör and Öğretmen (2024). PLS-SEM is variance-based,

more tolerant of non-normal data distributions, ordinal Likert scales, and can be used for small to medium samples. This makes it especially useful in social and behavioral research where ideal data are often difficult to obtain.

PLS-SEM is also more flexible in handling formative constructs, where indicators form a construct (Sarstedt et al. 2016). In addition, PLS-SEM focuses more on the predictive power of the model rather than on the statistical fit of the model (Hair et al. 2017). This makes PLS-SEM very useful when the study's primary purpose is to evaluate the effects and predict the dependent variable, rather than merely confirming an established theoretical model.

Hair also stated that PLS-SEM is an appropriate choice when the model includes many latent constructs and complex influence paths and involves mediation or moderation relationships, especially when data availability or measurement quality is not entirely ideal (Hair et al. 2017). The PLS-SEM approach generally allows researchers to obtain stable and accurate estimates even under methodological limitations. Thus, the rationale for choosing PLS-SEM lies in its greater adaptability to real-world conditions in the field: limited sample size, non-normal data, and exploratory models. This approach is also well-suited to researchers who want to develop or refine theories by testing complex, applicable relationships among constructs.

3.12. Ethical Considerations

Ethical concerns are a significant issue in social science research when a study examines human behavior. According to Sekaran and Bougie (2019), respondents may not cooperate (comply) if ethical considerations are not taken into account before or during data collection. This could hinder the gathering of the required amount of data. To put it another way, ethically sound informed consent is required for any research involving identifiable people, unless the ethics committee determines that such consent is not feasible or not worthwhile given the research's benefits and harms. To protect human rights, researchers must take into account ethical considerations, including: 1) ensuring that respondents' information is kept private; 2) ensuring that respondents' personal information will not be requested; 3) ensuring that respondents' information will not be misunderstood or distorted during the study; 4) clearly defining the study's purpose without misrepresenting it; 5) ensuring that respondents' dignity and honor are not violated; and 6) obtaining consent prior to data collection and refraining from coercing respondents to participate in the survey (Sekaran & Bougie, 2019).

In addition to Sekaran's suggestions, the ethics committee's rules at Universiti Teknologi MARA were also adhered to when collecting data for this study. The researcher had to draft a consent form that guaranteed participants that their involvement in the study was entirely voluntary and that they could withdraw at any moment if needed, in accordance with the ethical guidelines set by the Universiti Teknologi MARA ethics committee. The participants were also made aware of their freedom to decline to answer questions via the consent form. Last but not least, the participants received assurances that the researcher would prioritize their privacy and confidentiality and that the information gathered would not be shared or used for any other study. After completing all requirements from the Universiti Teknologi MARA ethics committee and creating a consent form, the research supervisor and ethics committee approved the collection of data under the number REC/10/2024 (PG/MR/538), 29 October 2024.

The education and culture office, which is the authorizing authority for research proposals, received a cover letter attached to each instrument during the data collection procedure. This letter contained the research title and ethical consideration requirements. Participants were also made aware that their completion of the survey and its return to the researcher constituted their consent to participate. The appendix contains copies of the cover letter and referral letters.

3.13. Summary

This chapter justifies a quantitative design using Consistent PLS-SEM to estimate direct pathways and test moderation. It describes the West Sumatra setting, sampling of high-school students, operationalization of constructs, instruments, data collection, and ethics. The analysis plan covers measurement validation, structural testing, and two moderation approaches: interaction terms for numeric moderators (internet connection, parental occupation) and Multi-Group Analysis for categorical moderators (gender, school type, sport type). The choice of PLS-SEM is motivated by model complexity and distributional concerns; criteria for reliability, validity, and significance are specified, along with anticipated limitations.

CHAPTER 4

RESULT

4.1. Introduction

This chapter presents the results of the data analysis conducted to address the research objectives and test the hypotheses formulated in the previous chapters. The analysis was carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the SmartPLS 3.2.9 software. The chapter includes several key sections: descriptive statistics; an evaluation of the measurement model (outer model); and the structural model (inner model), including effect size (f^2), predictive relevance (Q^2), and hypothesis testing via bootstrapping. In addition, moderation analysis—both with interaction terms and with Multi-Group Analysis (MGA)—is reported to explore the moderating effects of categorical and continuous variables. Prior to the main analysis, preliminary tests such as outlier detection, normality assessment, multicollinearity assessment, and data quality checks (e.g., missing values, homoscedasticity) were performed to ensure the robustness of the model and the validity of the results. The results are interpreted based on empirical data collected from Generation Z respondents via online surveys administered through Google Forms, which minimized missing data. Overall, this chapter provides a comprehensive overview of the empirical findings and their implications, serving as the foundation for further discussion in the following chapter.

4.2. Pilot Study

A pilot study was conducted during August 2024. This was done to evaluate key requirements during instrument refinement, such as testing question wording, order, and layout; respondents' familiarity; response rates; questionnaire completion time; and the ease of the analysis process. According to Jang et al (2019), a pilot study plays an important role in ensuring that the developed instrument is linguistically and cognitively appropriate to the characteristics of the target population and can be used to detect potential barriers before the main study is implemented. In addition, Prasanna et al. (2024) emphasize that the initial trial of the instrument allows researchers to assess the

instrument's reliability, the effectiveness of the administration procedure, and the clarity of the questionnaire structure.

In the context of quantitative research, a pilot study is the basis for making more precise scale modifications, including identifying confusing, redundant, or irrelevant items (Hair, Black, et al., 2019; Jr et al., 2019). The results of the pilot study also provide initial data for estimating respondents' average filling time and the effectiveness of instrument distribution, both online and offline. Thus, the implementation of the pilot study serves not only as a technical step but also as an integral part of the initial validation of the instrument, contributing to the content validity and reliability of the developed measuring instrument before it is used in full-scale data collection.

The pilot study was conducted by distributing via WhatsApp to school students through physical education teachers. As many as 4 instruments, totaling 74 statement items, were distributed to students. The pilot study was conducted at State Senior High School No. 3, Bukittingi, with 55 participants, comprising 19 females and 36 males, with an average age of 15 years, 7 months. A test-retest was used in phase 2 to determine the reliability of this instrument. This means there were two data collections on the same sample, with approximately 9 days between the first and second collections, namely on September 9, 2024, and September 18, 2024. Data (test) from the first collection were used to determine the validity of the items, including 16 items of the sports participation instrument, with a calculated r value > the r table value (0.266). Then, out of 18 items of the Sport Motivation Scale II instrument, two items had calculated r values < r table (0.266), namely items no. 16 and no. 17, with calculated r values of -0.125 and calculated r = 0.138, so that there were 16 valid items. Furthermore, 18 items of the psychosocial well-being instrument for sports participants have a calculated r value > 0.266 (from the r table). Finally, from the 22 items of the gadget usage behaviour instrument, two items have calculated r values < r table (0.266): item no. 1 (r =- 0.151) and item no. 13 r = 0.194). So, the gadget usage behaviour instrument in the first test has 20 valid items. In the second data collection stage (retest), the validity of the items was tested again, and one item in the gadget usage behaviour was found to be invalid, namely item no. 10, with a calculated r value = 0.245 smaller than r table = 0.266. Furthermore, Table 4.1 shows the number of items from each instrument that are valid and reliable based on the test–retest results. The Sport Motivation Scale II consists of 16 valid and reliable items, the psychosocial well-being of Sports Participants instrument includes 18 valid and reliable items, the Sports Participation instrument has

16 valid and reliable items, and the Gadget Usage Behavior instrument contains 19 valid and reliable items. This indicates that all instruments used in the study have items that are both valid and reliable.

Table 4.1 presents the summary of valid items and the reliability coefficients obtained using the Intraclass Correlation Coefficient (ICC) from the test–retest analysis.

Table 4.1
Instrument Items Validity and Reliability Using Test Retest

Instrument	Valid	Intraclass Correlation	Kriteria
Sport Motivation Scale II	16 Items	0.960	Reliable
Psychosocial well-being of sports participants	18 Items	0.944	Reliable
Sports Participation	16 Items	0.957	Reliable
Gadget Usage Behavior	19 Items	0.980	Reliable

As shown in Table 4.1, all instruments demonstrated excellent reliability, with ICC values exceeding 0.90. These results indicate a high degree of measurement stability over time, confirming that the refined instruments are both valid and reliable for use in the main study. The pilot testing process, therefore, ensured that only statistically sound items were retained, strengthening the overall measurement quality of the research model.

4.3. Main Research

Primary research refers to the main stage in the research process after the pilot study. The purpose of the main research is to thoroughly test the relationship between variables formulated in the conceptual framework, involving a larger sample so that the results obtained can be generalised. In this study, the main research was conducted after the instrument went through the validation stage in the pilot study, including testing the clarity of items, structure, and initial reliability.

Before entering the structural analysis, a series of data requirement tests was conducted to ensure that the data met the basic assumptions of multivariate analysis. The tests conducted included: data normality test (using Q-Q Plot, Shapiro-Wilk, and Skewness-Kurtosis), outlier test (using Mahalanobis Distance), variance homogeneity test (with Levene's Test), and multicollinearity test (through VIF and Tolerance values). After the data met the analysis criteria, the Structural Equation Modelling (SEM) approach based on Partial Least Squares (PLS-SEM) was used to test the relationship between latent constructs, direct, indirect effects, and moderation effects.

Testing was conducted using SmartPLS software version 3.2.9, starting with testing the measurement model (outer model) to evaluate construct validity and indicator reliability, followed by testing the structural model (inner model) through the path coefficient, R^2, f^2, and Q^2 values. In addition, interaction term analysis and Multi-Group Analysis (MGA) were used to moderate variables as an approach to categorical moderators. With this approach, this study provides comprehensive results in evaluating the relationship model between variables in the Generation Z population.

In quantitative data analysis, missing data is a common problem that can affect the validity of research results. Handling missing data is important because it can interfere with parameter estimates, reduce statistical power, and cause interpretation bias (Allison, 2002). However, in this study, data collection was conducted online using Google Forms, which provides a required field setting feature for each question item. This minimises the possibility of missing data because respondents cannot proceed to the next section without completing all answers. Therefore, all data collected can be ensured to be complete and does not require special treatment related to missing data. This approach supports data quality and integrity and strengthens the validity of further analysis results.

Outlier examination identifies data with extreme values and is far from the centre of the other data distribution. In quantitative research, outliers are defined as values that deviate significantly from the general distribution and can affect the average, standard deviation, and relationships between variables in statistical analysis (Barnett & Lewis, 1994). Therefore, outlier detection is an important step in data pre-analysis to ensure model validity and a more accurate interpretation of results. One of the most common approaches to detecting outliers univariately is calculating the z-score. This standard value indicates how far the data is from the average in standard-deviation units. According to Hair, Risher et al. (2019), in a normal distribution, z-scores exceeding

±3.0 are considered outliers because only 0.3% of the data theoretically fall outside these limits. Thus, early identification of these extreme values is necessary to determine whether the data should be removed, transformed, or further substantively examined. Table 4.2 presents the summary of cases identified as outliers across all measured constructs.

Table 4.2
Outlier Examination

Variabel	No	Sub Varibel		Case of outlier	standardised values i.e. z-scores >3.0
Participation in Sport	1	Individual Participation	ZSP1	64	-3.09384
				133	-3.09384
				304	-3.09384
				332	-3.09384
				448	-3.09384
				533	-3.09384
				646	-3.09384
				728	-3.09384
			ZSP2	382	-4.01375
			ZSP3	100	-3.14601
			ZSP4	493	-3.91455
				73	-3.91455
			ZSP5	571	-5.39788
				249	-5.39788
				117	-5.39788
				617	-3.73943
				258	-3.73943
				496	-3.73943
	2	Sports Infrastructure	ZSP6	344	-3.02406
				91	-3.02406
				298	-3.02406
				632	-3.02406
				780	-3.02406
				336	-3.02406
				201	-3.02406
			ZSP7	165	-3.68606
				87	-3.68606
				215	-3.68606
			ZSP8	680	-3.23056
				406	-3.23056
				568	-3.23056
				158	-3.23056
			ZSP9	261	-3.49628
				440	-3.49628
				402	-3.49628
	3	Socio-cultural	ZSP10	706	-3.87325
			ZSP11	No Case	---

			ZSP12	437	-3.81992
				442	-3.81992
	4	Institutional		768	-3.42823
				529	-3.42823
				453	-3.42823
			ZSP13	634	-3.42823
				54	-3.42823
				273	-3.42823
				283	-3.42823
			ZSP14	No Case	---
			ZSP15	770	-4.17234
				693	-4.17234
			ZSP16	58	-3.88039
Motivation	5	Intrinsic Motivation	ZMO1	515	-4.36135
			ZMO2	138	-3.33517
				241	-3.33517
				767	-3.33517
				245	-3.33517
				567	-3.33517
				695	-3.33517
				408	-3.33517
				719	-3.33517
				764	-3.33517
				775	-3.33517
				454	-3.33517
			ZMO3	247	-3.7261
				452	-3.7261
				504	-3.7261
				315	-3.7261
	6	Integrated Regulation	ZMO4	772	-3.93625
			ZMO5	755	-3.38533
				349	-3.38533
				616	-3.38533
			ZMO6	No Case	---
	7	Identified Regulation	ZMO7	No Case	-3.32715
			ZMO8	No Case	---
			ZMO9	No Case	---
	8	Introjected Regulation	ZMO10	113	-3.32715
				104	-3.32715
				413	-3.32715
				383	-3.32715
			ZMO11	331	-3.13753
				641	-3.13753
				390	-3.13753
				185	-3.13753
				422	-3.13753
				238	-3.13753
				378	-3.13753

				123	-3.13753
			ZMO12	No Case	---
	9	External Regulation	ZMO13	No Case	---
			ZMO14	No Case	---
			ZMO15	No Case	---
	10	Amotivation	ZMO16	No Case	---
Psychosocial well-being	11	Psychosocial well-being	ZPS1	610	-3.6633
				703	-3.6633
			ZPS2	275	-3.70458
			ZPS3	No Case	---
	12	Social integration	ZPS4	596	-3.3685
			ZPS5	718	-4.42667
			ZPS6	737	-4.55566
				416	-3.00012
				266	-3.00012
				217	-3.00012
				756	-3.00012
				74	-3.00012
				134	-3.00012
				109	-3.00012
	13	Social contribution	ZPS7	No Case	---
			ZPS8	168	-4.11847
			ZPS9	No Case	---
	14	Social actualization	ZPS10	114	-4.84236
				259	-4.84236
				389	-3.18315
				359	-3.18315
				434	-3.04367
			ZPS11	No Case	---
			ZPS12	464	-3.04367
				197	-3.04367
				288	-3.04367
				489	-4.85465
	15	Social coherence	ZPS13	107	-3.83438
			ZPS14	No Case	---
			ZPS15	489	-4.85465
				244	-3.20133
	16	Social acceptance	ZPS16		---
			ZPS17	34	-3.97804
				744	-3.97804
				657	-3.97804
			ZPS18	No Case	---
Gadget used behavior	17	Role of parents	ZGU1	No Case	---
			ZGU2	No Case	---
			ZGU3	No Case	---
			ZGU4	No Case	---
	18	Residential environment	ZGU5	No Case	---
			ZGU6	No Case	---

			ZGU7	No Case	---
	19	Context	ZGU8	No Case	---
			ZGU9	No Case	---
	20	Intensity	ZGU10	No Case	---
			ZGU11	No Case	---
			ZGU12	No Case	---
			ZGU13	No Case	---
			ZGU14	No Case	---
	21	Impact	ZGU15	No Case	---
			ZGU16	No Case	---
			ZGU17	No Case	---
			ZGU18	No Case	---
			ZGU19	No Case	---

Based on the test results in Table 4.2, 110 outlier data points were identified from 785 data points. The outlier-checking process was carried out on quantitative data for several main constructs, namely participation in sport, motivation, psychosocial well-being, and gadget use behavior. The analysis showed that outliers were mainly found in the first three constructs. In the participation in sport construct, there were 48 outlier cases across almost all subvariables, including individual participation (ZSP1–ZSP5), sports infrastructure (ZSP6–ZSP9), socio-cultural (ZSP10–ZSP12), and institutional participation (ZSP13–ZSP16). The motivation construct contributed 33 outlier cases, dominated by the intrinsic motivation and introjected regulation subvariables. Meanwhile, 29 outlier cases were identified within the psychosocial well-being construct, particularly in the social integration, social actualisation, and social acceptance subvariables. In contrast, no single outlier case was found in the gadget use behavior construct, indicating a relatively homogeneous data distribution.

Outliers can be viewed from various perspectives. Statistically, outliers can cause parameter estimation bias, larger type I and II errors, and damage the assumption of data normality (Tabachnick & Fidell, 2013). Substantively, outliers can also indicate groups of respondents with unique characteristics, such as very low exercise behavior or extreme psychosocial conditions, which are relevant for further qualitative analysis. Therefore, Hair et al. (2024) suggest not automatically removing outliers, but considering the theoretical context and purpose of the analysis. The next step is to identify multivariate outliers. The Mahalanobis Distance approach is used to identify combinations of values across variables that collectively deviate.

In the context of SEM or other multivariate analysis, the primary focus lies on multivariate outliers, which are cases that deviate from the joint distribution of several

variables simultaneously. One standard method to detect them is the Mahalanobis Distance (D^2). According to Kline (2016) Mahalanobis Distance measures the distance of each data point from the centre of the multivariate distribution and accounts for the covariance between variables. Observations with very high D^2 values and low significance values (p-values) (e.g., $p < 0.001$) are considered multivariate outliers.

Hair (2021) suggested that for studies with large amounts of data, using conservative thresholds (such as $p < 0.001$) is more advisable to avoid removing analytically relevant data. Detection of multivariate outliers is important because their presence can violate the assumption of multivariate normality, increase standard errors, and interfere with the estimation of the structural model. In this study, multivariate outliers were identified using Mahalanobis Distance, and cases with low probability were excluded to ensure the integrity and reliability of the developed SEM model.

In data analysis, the choice of the significance level (p-value) for detecting outliers should be adjusted to the purpose of the analysis. Suppose outliers are considered to have the potential to significantly interfere with the analysis results. Using a stricter significance level, such as $p < 0.001$, is a more conservative and safe choice. This approach minimises the risk of errors when identifying extreme data that need to be removed from the analysis. However, suppose researchers want to capture more outliers for further exploration or analysis as a special phenomenon. In that case, a threshold of $p < 0.01$ can be accepted as a slightly looser but still valid approach. In the context of this study, with a large dataset of 675 respondents, using $p < 0.001$ will provide tighter control over the risk of type I errors. However, $p < 0.01$ is still appropriate if the main purpose is exploration or adjustment to context variations.

Table 4.3 presents the cases identified as multivariate outliers based on the Mahalanobis Distance criterion.

Table 4.3
Multivariate Outliers Based on Mahalanobis Distance ($p < 0.001$)

Count	Case of Outlier	Mahalanobis (D2)	Probability_MD	outlier
1	623	31.83424	0.00000	1
2	618	19.00985	0.00027	1
3	650	17.83459	0.00048	1

As shown in Table 4.3, three observations were identified as multivariate outliers because their p-values were below the conservative threshold of 0.001. These cases represent statistically extreme observations within the dataset's multivariate

distribution. Given the large sample size (n = 675 prior to screening), applying a stricter significance level ensured tighter control over potential distortions in structural model estimation.

After careful evaluation, the three identified outlier cases were removed from the dataset. Consequently, the final sample for subsequent analysis comprised 672 valid responses. This refinement step enhanced the robustness of the data and ensured that the structural equation modelling results were not influenced by extreme multivariate deviations.

4.3.1. Normality, Homoscedasticity and Non-Response Bias of Data

4.3.1.1. Normality

Normality assessment was conducted to examine the distributional characteristics of the observed variables prior to structural modeling. In covariance-based Structural Equation Modeling (CB-SEM), multivariate normality is a critical assumption because parameter estimation relies on maximum-likelihood procedures that are sensitive to deviations from a normal distribution. However, this study employs Partial Least Squares Structural Equation Modeling (PLS-SEM), a variance-based approach that does not require multivariate normality and is generally robust to non-normal data distributions. Nevertheless, assessing normality remains important to identify extreme skewness, kurtosis, or outliers that may influence parameter estimation.

Statistical normality was evaluated using the Kolmogorov–Smirnov and Shapiro–Wilk tests, as well as skewness and kurtosis statistics. Although both normality tests yielded significant results ($p < 0.05$) for all variables, this finding must be interpreted with caution, given the large sample size (n = 672), which increases the sensitivity of these tests and often leads to rejection of normality even for trivial deviations. Therefore, interpretation was based primarily on the magnitude of skewness and kurtosis rather than on statistical significance alone.

The skewness values ranged from 0.111 to 0.351, while kurtosis values ranged from –0.271 to 0.796. All values fall within the commonly accepted ±1 threshold in social science research, indicating only minor deviations from normality. These results suggest that the distributions are approximately symmetrical and do not exhibit extreme peakedness or heavy tails. Visual inspection through Q–Q plots further confirmed that

most data points followed the diagonal reference line, with only mild deviations at the distribution tails.

Importantly, even if moderate non-normality were present, PLS-SEM relies on non-parametric bootstrapping procedures to estimate standard errors and significance levels, thereby reducing concerns regarding distributional assumptions (Hair, Hult, et al., 2022; Kock, 2015). Empirical simulation studies have demonstrated that PLS-SEM maintains stable parameter estimates and statistical power under non-normal conditions, particularly when sample sizes exceed recommended thresholds. Given the adequate sample size and acceptable skewness–kurtosis values observed in this study, the data are considered suitable for subsequent structural model analysis. The normality assessment is reported to transparently describe the data characteristics and to justify the methodological choice of PLS-SEM over CB-SEM.

4.3.1.2. Homoscedasticity

Homogeneity of variance refers to the condition in which the groups being compared have similar variances or are not significantly different (Hair, 2021b). One of the most common methods to test this assumption is Levene's Test for Equality of Variances. According to Levene, this test is designed to test whether the population variances of several groups are equal, without relying on the assumption of normality. Levene's Test is essential because unequal variances (heteroscedasticity) can bias parameter estimates and reduce the validity of statistical results. In this context, Levene's Test offers several approaches based on the mean, median, and trimmed mean to improve the reliability of the test, especially for non-normal data. The results of this test are expressed in p-values (Sig.), and the interpretation of decisions is based on a particular threshold value (usually 0.05). By understanding the importance of homogeneity of variance and using Levene's Test as a verification tool, researchers can ensure that subsequent statistical analysis is built on valid assumptions.

Table 4.4 presents the results of Levene's Test for the four main research variables: sport participation (SP), motivation (MO), psychosocial well-being (PS), and gadget usage behavior (GU).

Table 4.4
Levene's Test for Equality of Variances

		Levene Statistic	df1	df2	Sig.
SP	Based on Mean	1.541	1	670	.215

	Based on Median	1.612	1	670	.205
	Based on Median and with adjusted df	1.612	1	662.591	.205
	Based on trimmed mean	1.509	1	670	.220
MO	Based on Mean	.615	1	670	.433
	Based on Median	.464	1	670	.496
	Based on Median and with adjusted df	.464	1	643.671	.496
	Based on trimmed mean	.644	1	670	.422
PS	Based on Mean	.147	1	670	.701
	Based on Median	.384	1	670	.536
	Based on Median and with adjusted df	.384	1	662.426	.536
	Based on trimmed mean	.157	1	670	.692
GU	Based on Mean	2.661	1	670	.103
	Based on Median	2.606	1	670	.107
	Based on Median and with adjusted df	2.606	1	666.978	.107
	Based on trimmed mean	2.676	1	670	.102

As shown in Table 4.4, all significance values exceed the 0.05 threshold across the different estimation approaches (mean, median, adjusted median, and trimmed mean). For sport participation, the p-values range from 0.205 to 0.220, indicating no significant differences in variance between groups. Similarly, motivation and psychosocial well-being show consistent non-significant results, with p-values well above 0.05. Although the gadget usage variable yields p-values close to the threshold (ranging from 0.102 to 0.107), these remain non-significant, indicating that the assumption of equal variances is still satisfied.

The consistency of results across multiple estimation approaches further strengthens the robustness of this finding. Overall, the homogeneity of variance assumption is met for all variables, supporting the appropriateness of subsequent parametric and structural analyses.

4.3.1.3. Multicollinearity

Before conducting further regression analysis, it is important to ensure that there is no multicollinearity among the independent variables in the model. High multicollinearity can affect the stability of regression coefficient estimates and the validity of the analysis results. Therefore, a correlation test between the independent variables was conducted to assess the possibility of a strong relationship between them. The results of the pearson correlation test between the variables motivation (MO), psychosocial well-being (PS), and gadget use (GU) are shown in the following table.

Table 4.5 presents the pearson correlation coefficients among the three constructs.

Table 4.5
Multicollinearity Test (Pearson Correlation Matrix)

Correlations				
		MO	PS	GU
MO	Pearson Correlation	1	.743**	-.016
	Sig. (2-tailed)		.000	.679
	N	672	672	672
PS	Pearson Correlation	.743**	1	-.085*
	Sig. (2-tailed)	.000		.028
	N	672	672	672
GU	Pearson Correlation	-.016	-.085*	1
	Sig. (2-tailed)	.679	.028	
	N	672	672	672
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

As shown in Table 4.5 motivation and psychosocial well-being are strongly and positively correlated ($r = 0.743$, $p < 0.01$). Although this indicates a substantial association, the value remains below the commonly accepted multicollinearity threshold of 0.80. The relationship between motivation and gadget usage is negligible and non-significant ($r = -0.016$, $p = 0.679$), indicating no meaningful linear association. Similarly, the correlation between Psychosocial Well-Being and Gadget Usage is weak ($r = -0.085$) despite being statistically significant, suggesting a minimal practical relationship.

Overall, no pair of variables exceeds the critical threshold indicating severe multicollinearity. While the correlation between motivation and psychosocial well-being is relatively strong, it remains within acceptable limits for structural modelling. To further confirm the absence of multicollinearity, the Variance Inflation Factor (VIF) values were examined in the structural model analysis. These preliminary results indicate that multicollinearity does not pose a significant concern in the present study.

4.3.1.4. VIF Test

To further confirm the absence of multicollinearity, the Variance Inflation Factor (VIF) values were examined. VIF assesses the extent to which the variance of regression coefficients is inflated due to correlations among independent variables. Excessively high VIF values indicate redundancy among predictors and may compromise the stability of parameter estimates. In general, VIF values below 3 are considered acceptable and suggest that multicollinearity does not pose a serious concern (Hair et al., 2019).

Table 4.6 presents the collinearity statistics for the independent variables in the regression model, with sport participation (SP) as the dependent variable.

Table 4.6
Variance Inflation Factor (VIF) Results

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	MO	0.445	2.247
	PS	0.442	2.262
	GU	0.988	1.012

a. Dependent Variable: SP

As shown in Table 4.6, the VIF values for motivation (2.247) and psychosocial well-being (2.262) remain well below the commonly accepted threshold. Although these two variables are moderately correlated, their VIF values indicate that they still contribute unique explanatory variance to the model. The gadget usage variable shows a VIF value close to 1 (1.012), suggesting virtually no multicollinearity with other

predictors. Similarly, all tolerance values exceed the recommended minimum, further confirming the absence of multicollinearity.

Overall, the results demonstrate that multicollinearity is not a significant concern in this regression model. The independent variables provide distinct contributions to the prediction of Sport Participation, and the parameter estimates can therefore be interpreted with confidence in subsequent structural analyses.

4.3.1.5. Non-Response Bias

The Mann-Whitney U test is used to test whether there is a significant difference between two independent groups, in this case between early respondents and late respondents, as an indicator of non-response bias.

Table 4.7 presents the results of the Mann–Whitney U test for the four main variables: sport participation (SP), motivation (MO), psychosocial well-being (PS), and gadget usage behavior (GU).

Table 4.7
Mann–Whitney U Test for Non-Response Bias

	SP	**MO**	**PS**	**GU**
Mann-Whitney U	1022.500	1212.500	1155.500	858.000
Wilcoxon W	2297.500	2487.500	2430.500	2133.000
Z	-1.571	-.259	-.657	-2.705
Asymp. Sig. (2-tailed)	.116	.796	.511	.007
a. Grouping Variable: table				

Table 4.7 shows the results of the analysis using the Mann-Whitney U Test were conducted to test for the possibility of non-response bias in the variables sport participation (SP), motivation (MO), psychosocial well-being (PS), and gadget usage behavior (GU). This test compares the differences in distribution between two groups, namely the early and late respondent groups, based on the predetermined grouping variables. Based on the test results, the Asymp. Sig. (2-tailed) values for the SP variables ($p = 0.116$), MO ($p = 0.796$), and PS ($p = 0.511$) were all above the significance limit of 0.05. This indicates no significant difference between the early and late respondent groups in the three variables, so it can be concluded that non-response bias does not occur in the SP, MO, and PS variables.

However, for the GU variable, the Asymp. Sig. value of 0.007, which is smaller than 0.05, indicates a significant difference between the early and late groups on this

variable. This indicates the possibility of nonresponse bias that should be considered in Gadget Usage Behavior. However, given that only one variable showed bias among the four variables analyzed, the level of non-response bias in this study was relatively small and did not threaten the validity of the research results. However, it is advisable to mention this potential bias in the discussion to maintain the transparency of the research report.

4.3.2. Demographic Details of the Respondents

This section presents the demographic profile of the respondents involved in the study. The analysis of demographic characteristics is essential for providing a contextual understanding of the sample and describing the background composition of participants. Variables such as age, gender, parental occupation, family income, type of sport, and internet-related factors are reported to illustrate the data's distribution and representativeness. This information supports the interpretation of subsequent statistical analyses by clarifying the socio-demographic context in which the study was conducted.

4.3.2.1. Age

Age is an important demographic variable in this study, considering that developmental stage may influence gadget use behavior, motivation, psychosocial well-being, and sport participation. Therefore, the age distribution of respondents is presented to provide a clear description of the sample characteristics.

Table 4.8 presents the distribution of participants' ages.

Table 4.8
Age Distribution of Participants

	Age	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15.00	84	12.5	12.5	12.5
	16.00	275	40.9	40.9	53.4
	17.00	208	31.0	31.0	84.4
	18.00	96	14.3	14.3	98.7
	19.00	7	1.0	1.0	99.7
	20.00	2	.3	.3	100.0
	Total	672	100.0	100.0	

As shown in Table 4.8, the respondents ranged in age from 15 to 20 years. The majority of participants were 16 years old (40.9%), followed by 17-year-old students (31.0%). Together, these two age groups account for 71.9% of the total sample, indicating that most respondents are in mid-adolescence. Participants aged 15 years comprised 12.5% of the sample, while those aged 18 years represented 14.3%. In contrast, respondents aged 19 and 20 years constituted only a very small proportion (1.3% combined).

This distribution reflects that the sample is largely composed of students in the typical senior high school age range. The predominance of participants aged 16–17 years suggests relative homogeneity in developmental stage, which may reduce variability due to large age differences. Such homogeneity is advantageous for structural modeling, as it limits potential confounding effects related to differences in maturity level or life stage.

Figure 4.5 further illustrates the age distribution graphically.

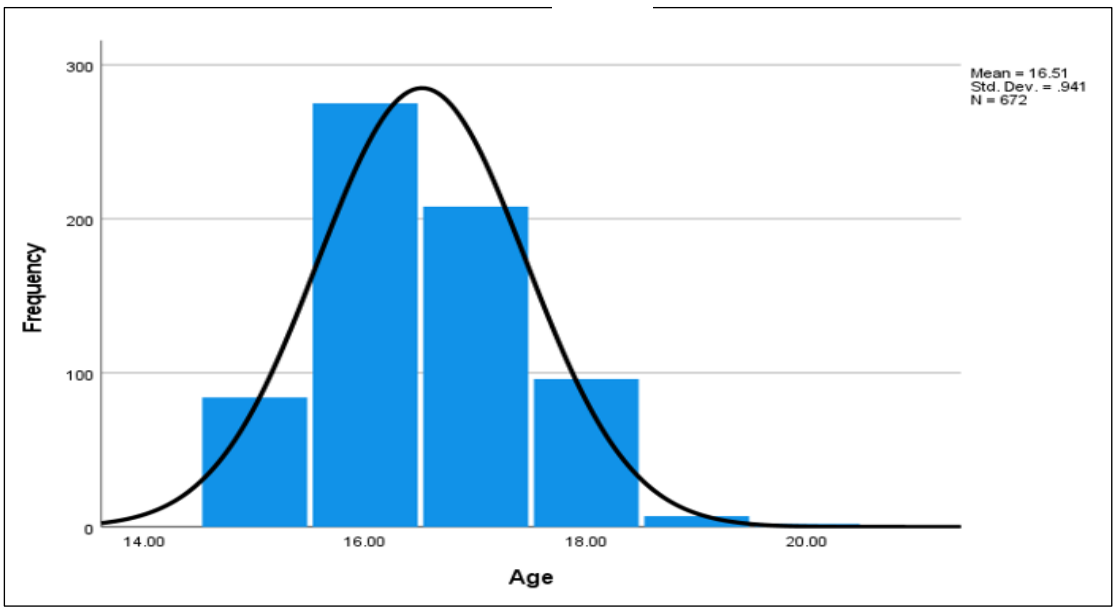


Figure 4.1 Age Distribution of Participants

The graphical representation confirms that the age distribution is concentrated in the middle adolescent range, with a clear peak at 16 years. Although the distribution is slightly skewed toward younger ages, it remains appropriate for subsequent statistical analysis. Overall, the data indicate that the study's findings primarily represent Generation Z adolescents in senior high school settings.

4.3.2.2. Gender

Gender is included as an important demographic characteristic, considering its potential influence on motivation, psychosocial well-being, and sport participation patterns among adolescents. The distribution of respondents based on gender is presented in Table 4.9.

Table 4.9
Distribution of Participant Data by Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	229	34.1	34.1	34.1
	Female	443	65.9	65.9	100.0
	Total	672	100.0	100.0	

As shown in Table 4.9, the majority of respondents were female (65.9%), while male participants accounted for 34.1% of the total sample. This indicates an unbalanced gender distribution, with female students representing nearly two-thirds of respondents. Although the proportion differs from the initial target distribution, the total number of respondents remains consistent with the required sample size (N = 672), ensuring adequate statistical power for subsequent analysis.

The dominance of female participants may reflect the actual gender composition in the participating schools or differential response rates between male and female students. While the unequal distribution should be acknowledged, it does not compromise the overall validity of the structural model, particularly since gender differences were subsequently examined using Multi-Group Analysis (PLS-MGA) in the moderation test.

Figure 4.6 provides a graphical representation of the gender distribution.

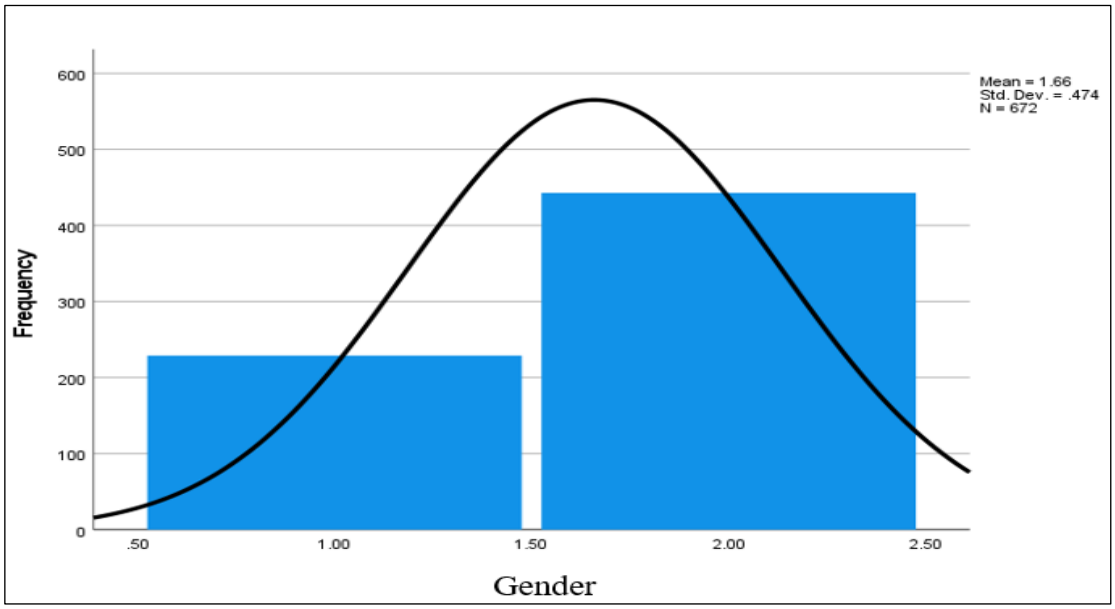


Figure 4.2 Distribution of Data Based on Gender

Figure 4.2 confirms the predominance of female respondents in the sample. This demographic profile should be considered when interpreting the findings, especially in relation to sport participation patterns, as previous research suggests that gender may influence motivational orientation and engagement in physical activity. However, within the context of this study, the structural relationships were tested across gender groups to ensure robustness.

4.3.2.3. Father Job

Father's occupation is presented as an indicator of family socio-economic background. The distribution of respondents based on their fathers' occupations is shown in Table 4.10.

Table 4.10
Distribution of Data Based on the Father's Occupation

	Father Job	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	State Civil Apparatus	82	12.2	12.2	12.2
	Education Services	3	.4	.4	12.6
	Wholesale & Retail Trade	244	36.3	36.3	49.0
	Agriculture and Forestry	262	39.0	39.0	87.9
	Fishing	17	2.5	2.5	90.5

Religious Leader	1	.1	.1	90.6
Healthcare Worker	3	.4	.4	91.1
Pensioner	20	3.0	3.0	94.0
Not Working	40	6.0	6.0	100.0
Total	672	100.0	100.0	

As shown in Table 4.10, the majority of fathers work in Agriculture and Forestry (39.0%) and Wholesale and Retail Trade (36.3%). Together, these two sectors account for 75.3% of the total sample, indicating that most respondents come from families engaged in primary and trade-based economic activities. Public sector employment, represented by the State Civil Apparatus, accounts for 12.2%, while smaller proportions are observed among fishermen (2.5%), pensioners (3.0%), and fathers who are not working (6.0%). Occupations in education, healthcare, and religious leadership are minimally represented.

This distribution suggests that the socio-economic background of respondents is predominantly rooted in traditional and small- to medium-sized economic sectors. Such a profile is consistent with the regional socio-economic characteristics of West Sumatra, where agriculture and trade remain significant sources of livelihood. From a research perspective, this demographic composition provides important contextual information, as family economic structure may be indirectly related to access to sports facilities, digital technology, and lifestyle patterns.

Figure 4.3 Presents the graphical representation of this occupational distribution

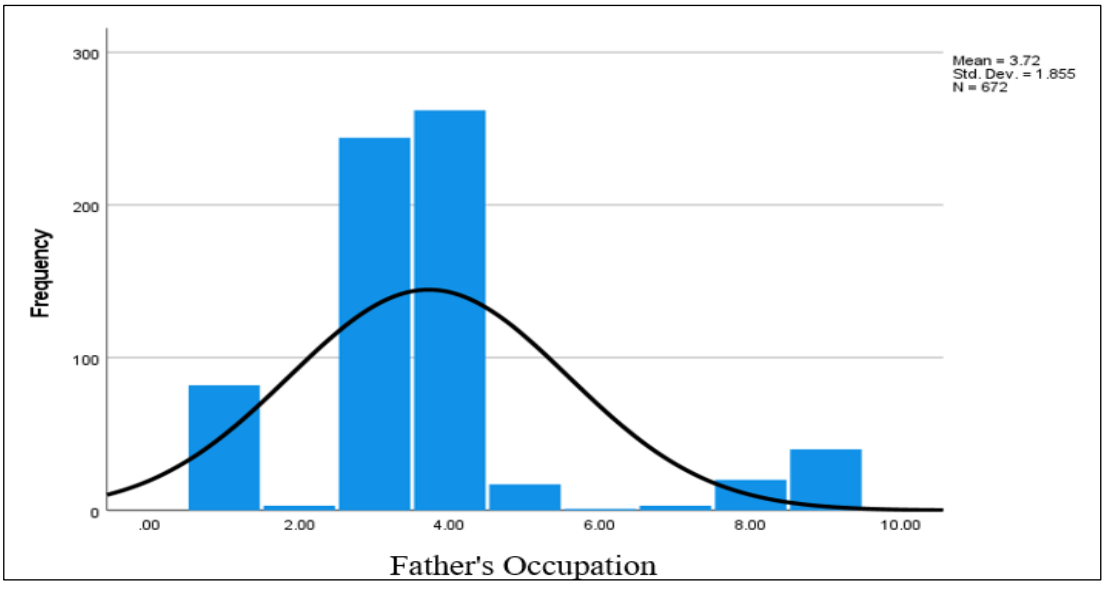


Figure 4.3 Distribution of Data on Respondents' Father from Occupation

Figure 4.3. confirms the concentration of respondents' fathers in agriculture and trade sectors, with relatively limited representation in professional or service-based occupations. Although the distribution is uneven across categories, it reflects the actual socio-economic profile of the study population. This demographic information is particularly relevant when interpreting findings on sport participation and gadget use, as family background may shape adolescents' exposure to opportunities for physical activity and digital environments.

4.3.2.4. Mother Job

Mather's occupation is presented as an indicator of family socio-economic background. The distribution of respondents based on their fathers' occupations is shown in Table 4.11.

Table 4.11
Distribution of Data Based on Mother's Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	State Civil Apparatus	103	15.3	15.3	15.3
	Education Services	19	2.8	2.8	18.2
	Wholesale & Retail Trade	73	10.9	10.9	29.0
	Agriculture, Forestry &	60	8.9	8.9	37.9
	Fishing	2	.3	.3	38.2
	Religious Leader	6	.9	.9	39.1
	Healthcare Worker	7	1.0	1.0	40.2
	Pensioner	402	59.8	59.8	100.0
	Total	672	100.0	100.0	

Table 4.11 summarizes employment status for 672 respondents. Pensioners far outweigh all other categories, totaling 402 individuals (59.8%), meaning nearly three-fifths of the sample is no longer in active employment. The next-largest group is State Civil Apparatus (public servants), with 103 respondents (15.3 %), followed by wholesale and retail trade, with 73 respondents (10.9 %), and agriculture and forestry, with 60 respondents (8.9 %). Together, these four categories already account for roughly 95 % of the entire sample. The remaining sectors are only lightly represented: education

services (19; 2.8 %), healthcare workers (7; 1.0 %), religious leaders (6; 0.9 %), and fishing (2; 0.3 %). Overall, the distribution reveals a population dominated by retirees, with active employment concentrated mainly in government service, trade, and resource-based occupations, while participation in education, health, religious leadership, and fishing is minimal. To see the distribution of mothers' jobs, it can be seen in the following graph;

Figure 4.4 presents the graphical representation of this occupational distribution

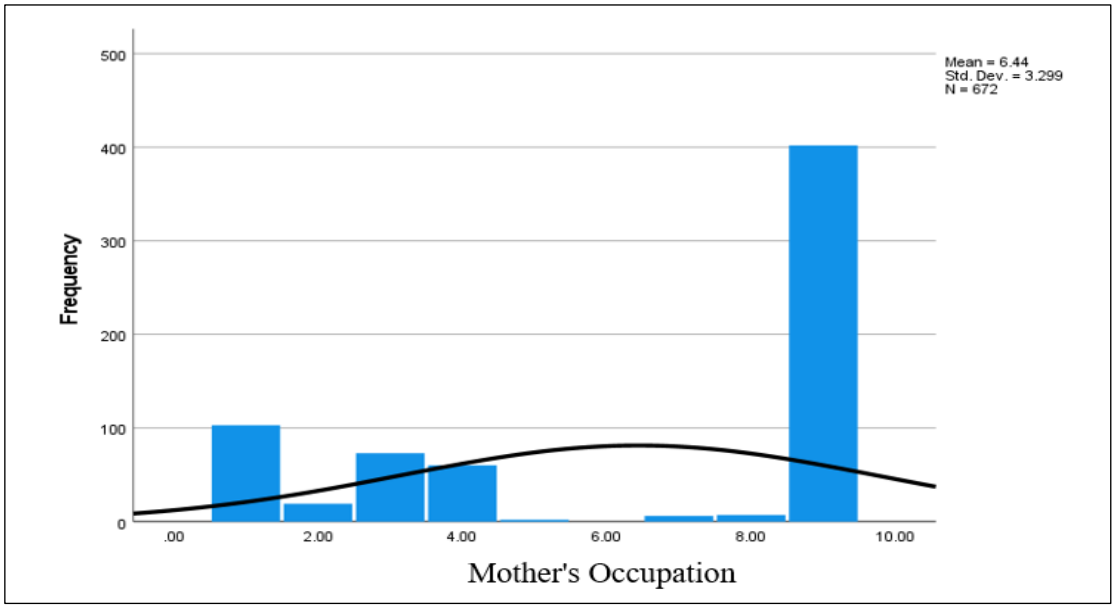


Figure 4.4 Distribution of mother's occupation data from respondents

Figure 4.4 illustrates the frequency distribution graph of mothers' occupations (MJ) from 672 respondents. The data distribution is highly uneven and right-skewed (positive skew). This is indicated by the very high peak of the histogram in the category with a value of 10, which most likely represents the category "Not Working". This category accounts for the largest number of respondents, reaching almost 400, and is consistent with the data in the previous table, which shows that as many as 59.8% of respondent mothers do not have formal jobs.

Descriptive statistics from the graph show that the mean value of mothers' work is 6.44 with a standard deviation of 3.299. This fairly high mean value is influenced by the large concentration of respondents in the "Not Working" category, which has a high code value. Meanwhile, other job categories, such as state civil apparatus, education services, wholesale & retail trade, and agriculture, have a much lower frequency and are evenly distributed in small numbers.

4.3.2.5. Salary

Family monthly income is presented as an indicator of socio-economic status. The distribution of respondents by combined monthly parental income is shown in Table 4.12.

Table 4.12
Distribution of Data Based on Family Income for One Month

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< Less than Rp. 1.500.000	281	41.8	41.8	41.8
	Rp. 1.500.000 to Rp. 3.500.000	223	33.2	33.2	75.0
	Rp. 3.500.000 to Rp. 6.000.000	121	18.0	18.0	93.0
	Rp. 6.000.000 to Rp. 10.000.000	29	4.3	4.3	97.3
	> Greater than Rp. 10.000.000	18	2.7	2.7	100.0
	Total	672	100.0	100.0	

Table 4.12 shows that, based on the frequency distribution of the combined income of fathers and mothers in one month among 672 respondents, the majority of families have incomes below Rp1,500,000, namely 281 families, or 41.8% of the total respondents. This group is the most dominant and indicates that most respondents come from low-income families. Furthermore, 223 families (33.2%) have monthly incomes between Rp1,500,000 and Rp3,500,000. If these two groups are combined, then 75% of respondents come from families with incomes below Rp3,500,000 per month.

Meanwhile, the middle-income group, namely IDR 3,500,000 to IDR 6,000,000, includes 121 families or 18% of the total respondents. The higher-income group, namely IDR 6,000,000 to IDR 10,000,000, accounts for only 4.3% (29 families), and respondents with incomes of more than IDR 10,000,000 per month are the fewest, at only 2.7% (18 families). To see the distribution of family income for one month, see the graph below.

Figure 4.5 illustrates this distribution graphically.

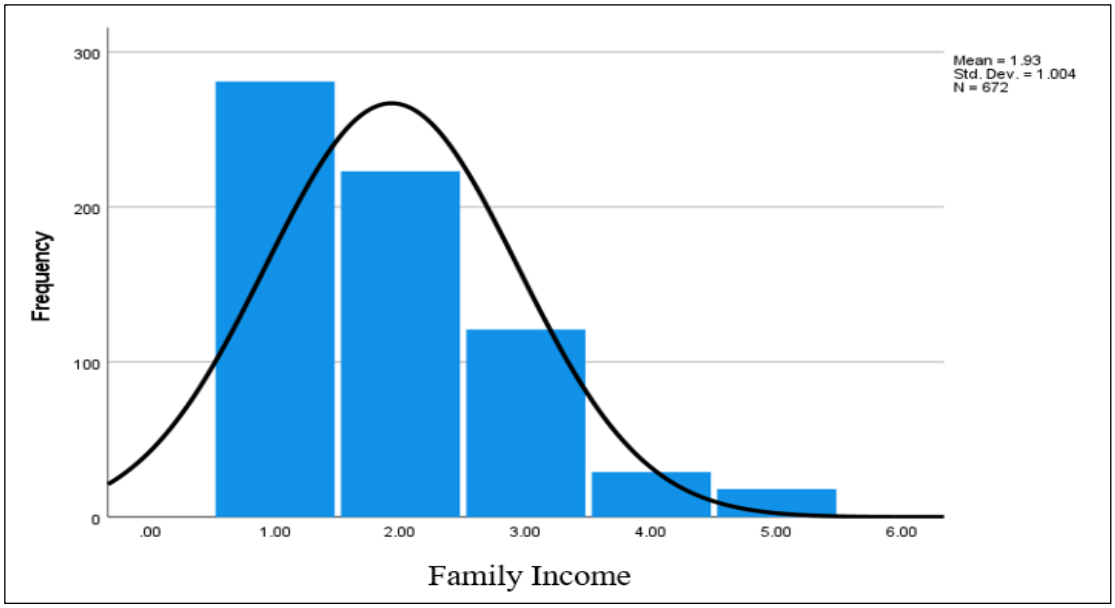


Figure 4.5 Data Distribution Based on Family Income for One Month

Figure 4.5 above shows the frequency distribution of the combined income of fathers and mothers over one month, coded numerically. Based on the histogram, the income distribution is right-skewed (positively skewed), with the largest concentration in the low-income category. The category with code 1, representing income of less than IDR 1,500,000, has the highest frequency among all respondents. Followed by category code 2 (IDR 1,500,000 - IDR 3,500,000), which also includes a large portion of respondents. Meanwhile, the number of families with middle- to high-income (codes 3 to 6) decreased sharply, indicating that only a small proportion of respondents came from high-income families.

The mean income value is 1.93 with a standard deviation of 1.004, and the total number of respondents is 672. The average approaching 2 reinforces the finding that most respondents come from families with low-to-lower-middle incomes. This distribution pattern is consistent with the data in the previous table, where approximately 75% of families earn below Rp3,500,000 per month.

4.3.2.6. School in Regency or City

Table 4.13 presents the distribution of research data by district or city school areas.

Table 4.13
Distribution of Data Based on Regency or City School Areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SMA N 1 Pasaman, Pasaman Barat (regency)	38	5.7	5.7	5.7
	SMA N 2 Lubuak Basung in Agam (regency)	34	5.1	5.1	10.7
	SMA N 1 Lubuk Alung, Padang Pariaman (regency)	40	6.0	6.0	16.7
	SMA N 2 SUMBAR, Kab. Solok (regency)	34	5.1	5.1	21.7
	SMA N 1 Kecamatan Payakumbuh, limo Puluh Kota (regency)	71	10.6	10.6	32.3
	SMA N 1 Bonjol, Pasaman (regency)	46	6.8	6.8	39.1
	SMA N 1 Pariangan, Tanah Datar (regency)	42	6.3	6.3	45.4
	SMA N 2 Sijunjung, Sijunjung (regency)	24	3.6	3.6	49.0
	SMA N Sikabu, Dharmasraya (regency)	18	2.7	2.7	51.6
	SMA N 4 Payakumbuh, Kota Payakumbuh (City)	17	2.5	2.5	54.2
	SMA N 5 Bukitinggi, Kota Bukitinggi (City)	38	5.7	5.7	59.8
	SMA N 1 Solok Selatan, Solok Selatan (regency)	23	3.4	3.4	63.2
	SMA N 2 Pariaman, Kota Pariaman (City)	16	2.4	2.4	65.6

SMA N 1 Siberut Selatan, Kepulauan Mentawai (regency)	18	2.7	2.7	68.3
SMA N 2 Solok, Kota Solok (City)	55	8.2	8.2	76.5
SMA N 3 Padang Panjang. Kota Padang Panjang(City)	15	2.2	2.2	78.7
SMA N 3 Sawahlunto, Kota Sawahlunto (City)	16	2.4	2.4	81.1
SMA Pembangunan UNP, Kota Padang(City)	80	11.9	11.9	93.0
SMA Negeri 1 Lengayang Pesisir Selatan (Regency)	47	7.0	7.0	100.0
Total	672	100.0	100.0	

Table 4.13 shows that, based on participant distribution data from 672 respondents across various schools in West Sumatra province, student participation came from a combination of districts and cities. The school with the largest number of participants came from SMA Pembangunan UNP, Padang City, with 80 students (11.9%), followed by SMA Negeri 1 Payakumbuh District, Lima Puluh Kota Regency, with 71 students (10.6%), and SMA Negeri 2 Solok, Solok City, with 55 students (8.2%). These three schools contributed the most to the total number of participants.

In general, the majority of participants came from schools located in districts, such as West Pasaman, Padang Pariaman, Tanah Datar, South Solok, and South Pesisir. For example, Lengayang 1 Senior High School, Pesisir Selatan Regency contributed 47 students (7.0%), and Bonjol 1 Senior High School, Pasaman Regency contributed 46 students (6.8%). Meanwhile, participation from schools in the city, although not as many as from districts, still made a significant contribution, including Bukittinggi 5 Senior High School (5.7%), Payakumbuh 4 Senior High School (2.5%), and Pariaman 2 Senior High School (2.4%).

This distribution shows a wide geographical coverage in data collection, reflecting good representation between schools from urban and rural/district areas. The dominance of participants from the district area also provides an important picture of the social and educational characteristics of students in the area. The involvement of various schools adds validity and diversity of backgrounds to the study. For more details on the distribution of participants, see the graph below:

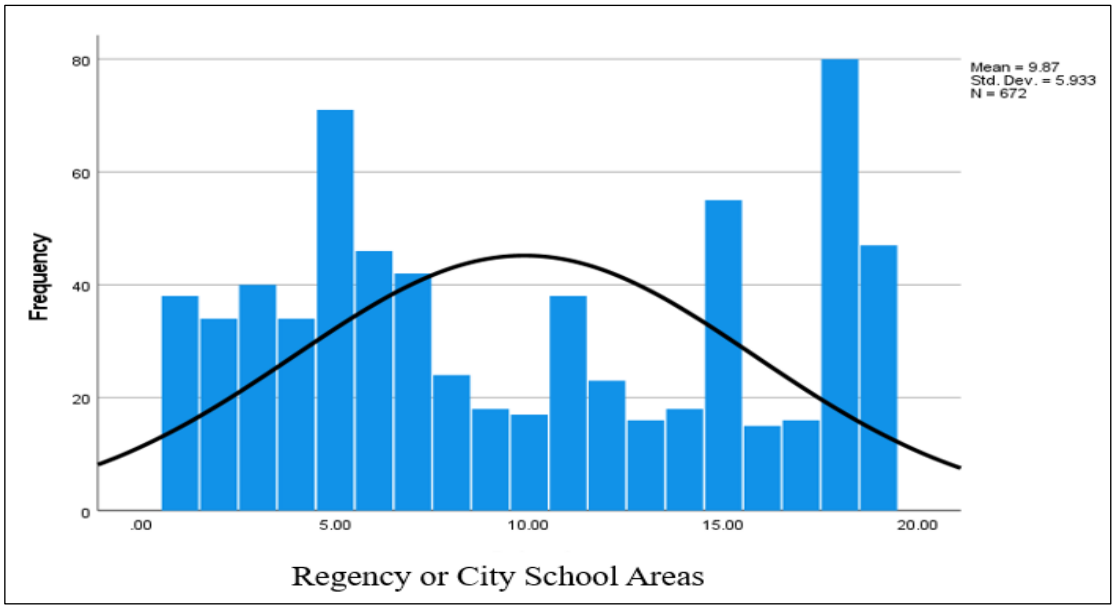


Figure 4.6 Distribution of data based on regency or city school areas

Figure 4.6 above shows the frequency distribution of participants by school, coded as 1 to 19. Of the 672 participants, the numbers from each school vary, with some schools contributing more than others.

The histogram shows that the two schools with the highest frequencies are codes 5 and 18, each with more than 70 participants; code 18 has the highest frequency, approaching 80 students. Meanwhile, there are several schools with relatively few participants, namely fewer than 30 students, such as those around codes 9 to 13.

The mean is 9.87, and the standard deviation (SD) is 5.933, indicating that the distribution of participants across schools is quite spread out but not evenly distributed. This graph does not form a symmetrical normal curve but instead appears to fluctuate with many peaks (multimodal), indicating a significant difference in the number of participants between schools.

Overall, this graph shows that school involvement in the research is quite broad and diverse, but not all schools contribute an equal number of participants. This is in line with the sampling technique, which is adjusted to different population sizes. So that

the number of participants is proportional to the population in the district or city. For more details, the following is attached: the number of participants in the city and district in Table 4.14 below.

Table 4.14
Distribution of the Number of Respondents Whose Schools are in the City or in the Regency.

	School	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Regency	435	64.7	64.7	64.7
	City	237	35.3	35.3	100.0
	Total	672	100.0	100.0	

Based on the participant distribution table 4.14, based on the school's area of origin, it can be seen that the number of participants from the district was 435 people (64.7%) and from the city was 237 people (35.3%). This number shows that participation between schools in the district and city areas has been in line with the proportion planned in the research methodology, where it was previously designed so that the majority of respondents came from schools in the district, considering the distribution and number of high schools in the area are greater than in the city.

This percentage also shows a fairly proportional representation between city and district areas, so that the data obtained reflects the diversity of the participants' geographic backgrounds. This balance is important to maintain the external validity of the research results because it allows researchers to compare or analyze data based on regional characteristics with adequate coverage.

4.3.2.7. Type of Sport Preferred

Participants were asked to indicate the type of sport they most frequently engage in or prefer. This information provides insight into adolescents' patterns of sport participation and the dominant forms of physical activity in the study context. The distribution of respondents' preferred sports is presented in Table 4.15.

Table 4.15
Distribution of Data Based on Respondents' Interest in Types of Sports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Basketball	40	6.0	6.0	6.0
	Walk	30	4.5	4.5	10.4
	Jogging	87	12.9	12.9	23.4
	Bicycle	47	7.0	7.0	30.4
	Badminton	178	26.5	26.5	56.8
	Volleyball	60	8.9	8.9	65.8
	Sepak takraw	1	.1	.1	65.9
	Karate	8	1.2	1.2	67.1
	Taekwondo	5	.7	.7	67.9
	Swim	61	9.1	9.1	76.9
	Exercise	30	4.5	4.5	81.4
	Martial arts	10	1.5	1.5	82.9
	Football	63	9.4	9.4	92.3
	GYM/Weightlifting	17	2.5	2.5	94.8
	Treadmill	35	5.2	5.2	100.0
	Total	672	100.0	100.0	

Based on distribution table 4.15 of the types of sports preferred by 672 participants, badminton is the most popular sport, with 178 respondents (26.5%). This shows that badminton is the leading choice for more than a quarter of respondents who exercise. In second place is jogging, with 87 respondents (12.9%), followed by futsal (9.4%), swimming (9.1%), and volleyball (8.9%), all of which are also quite popular among participants.

Sports such as cycling (7.0%), basketball (6.0%), and treadmill (5.2%) are also popular, although in smaller numbers. Meanwhile, 30 respondents (4.5%) prefer sports

such as walking and gymnastics, indicating an interest in light, easily accessible activities.

The less popular sports include sepaktakraw (0.1%), taekwondo (0.7%), karate (1.2%), pencak silat (1.5%), and GYM/weightlifting (2.5%). This number shows that equipment-based martial arts and fitness sports have far fewer fans than recreational or game sports. To see the distribution of this data, see Figure 4.7:

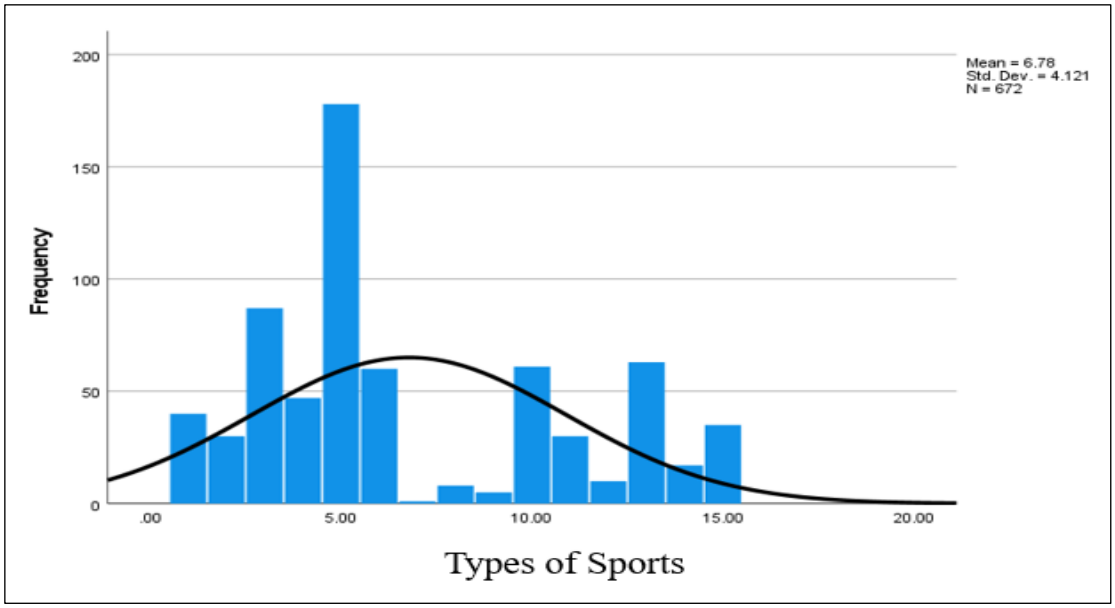


Figure 4.7 Distribution of data based on respondents' interest in types of sports

Figure 4.7 above shows the distribution of sports types preferred by 672 participants and supports the previous table on sports preferences. It can be seen that most participants choose sports coded at low numbers, especially code 6, which represents badminton, with the highest frequency approaching 180 people. This is in line with the table results, which show that badminton is the most preferred sport (26.5%). In addition, sports such as jogging, cycling, and volleyball also show quite high frequencies.

In contrast, sports with higher codes, such as karate, taekwondo, pencak silat, and GYM, have a much lower frequency of participation, indicating that these sports are less popular among participants. This results in a graph with an uneven distribution that tends to be right-skewed. The average value (mean) is 6.78, with a standard deviation of 4.121, which supports the finding that most respondents choose common, easily accessible, recreational sports. However, to see how individual and team sports differ, you can see Table 4.16.

Table 4.16
Distribution of Data Based on Type of Sport Individual or Team

Sport		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Team	342	50.9	50.9	50.9
	Individual	330	49.1	49.1	100.0
	Total	672	100.0	100.0	

Table 4.16 above shows the distribution of sport type preferences based on the form of activity, namely team sports and individual sports, from 672 participants. The data show that 342 participants (50.9%) prefer group or team sports, while 330 (49.1%) prefer individual sports. This percentage indicates that preferences for team and individual sports are nearly balanced, although team sports are slightly more dominant.

This finding is consistent with previous data and graphs, in which sports such as badminton, futsal, volleyball, and basketball—generally played by teams—occupy the top positions in terms of the number of enthusiasts. Meanwhile, individual sports such as jogging, swimming, treadmill running, and cycling are also widely chosen but slightly less so overall. This distribution reflects that participants have an almost even tendency between social and cooperative physical activities (teams), and independent activities (individuals).

4.3.2.8. Internet Connection

Access to the internet is an important contextual variable in this study. Therefore, respondents were asked to report the quality of the internet connection in their residential area. The distribution of responses is presented in Table 4.17.

Table 4.17
Data Distribution Based on Respondents' Responses to Internet Connections in their Area.

Internet Connection		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very Poor	26	3.9	3.9	3.9
	Poor	153	22.8	22.8	26.6

Moderate	118	17.6	17.6	44.2
Good	315	46.9	46.9	91.1
Very Good	60	8.9	8.9	100.0
Total	672	100.0	100.0	

Table 4.17 above shows the distribution of participants by the quality of their internet connection, rated on a scale of 1 to 5. A value of 1 indicates an inferior internet connection, while a value of 5 reflects a very good one.

Based on the data, most participants were in category 4, namely 315 people (46.9%), which shows that almost half of the respondents have a good internet connection. Furthermore, 153 participants (22.8%) gave a fairly good rating (value 2), and 118 people (17.6%) rated their internet connection as moderate (value 3). On the other hand, only 26 participants (3.9%) rated their internet connection as very bad (value 1), and 60 participants (8.9%) rated it as very good (value 5). To see the distribution of data, see Figure 4.8;

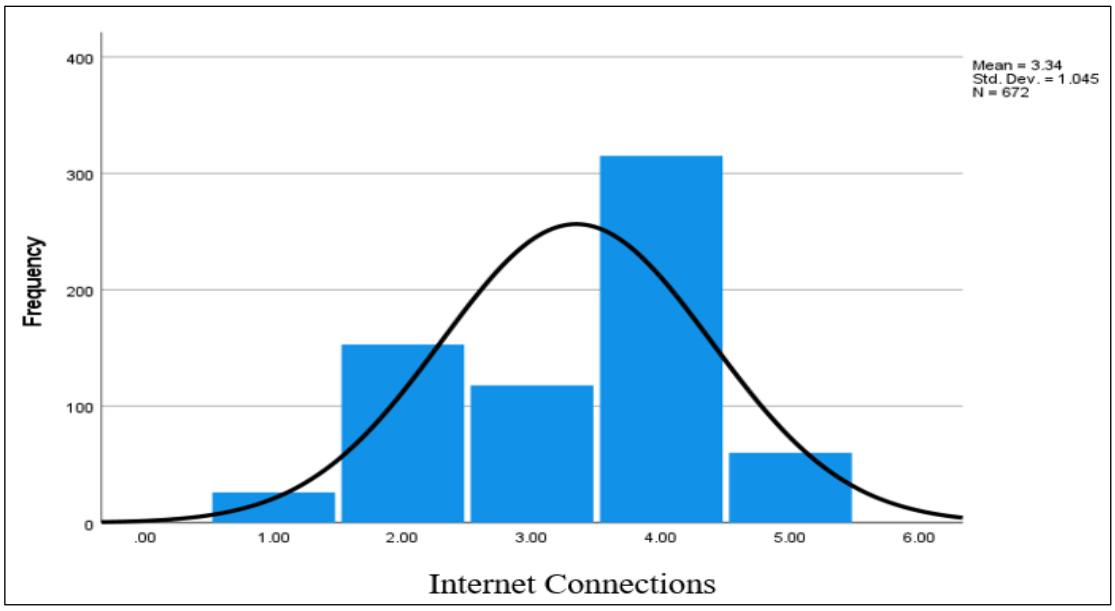


Figure 4.8 Data Distribution Based on Respondents' Responses to Internet Connections in Their Area

Figure 4.8 shows that the data distribution tends to be normal, with a slight leftward (negative) skew. The peak of the distribution is in the value category 4, which

has the highest frequency, with more than 300 participants. This shows that most respondents feel their internet connection is in the good category. Furthermore, value categories 2 and 3 are also quite high, each with a frequency of more than 100 participants, indicating that some others consider their connection to be quite good to moderate.

Meanwhile, the value categories 5 (very good) and 1 (very bad) have a much lower frequency, each under 100 respondents. This indicates that very good or very bad internet connections are only experienced by a small number of respondents. The descriptive statistics in the graph show that the mean is 3.34 and the standard deviation is 1.045, indicating that most of the data is distributed around the moderate-to-good range. Overall, this graph shows that the majority of participants have adequate internet access, and very few face extreme connectivity constraints.

4.3.2.9. Limitation of Internet Connection

In addition to assessing general internet availability, this study also examined perceived limitations in internet connection experienced by respondents. The distribution of respondents based on perceived internet connection barriers is presented in Table 4.18.

Table 4.18
Data Distribution Based on Respondents' Responses to Internet Connection Barriers in Their Area.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 (strongly disagree)	18	2.7	2.7	2.7
	2.00 (Disagree)	102	15.2	15.2	17.9
	3.00 (Undecided)	158	23.5	23.5	41.4
	4.00 (Agree)	356	53.0	53.0	94.3
	5.00 (Strongly Agree)	38	5.7	5.7	100.0
	Total	672	100.0	100.0	

Table 4.18 above shows the distribution of participants' answers to the statement "I feel there are no restrictions in accessing the internet and technology in my area", which is rated on a Likert scale of 1 to 5. A scale of 1 indicates strongly disagree, while a scale of 5 indicates strongly agree.

Of the 672 participants, the majority responded positively to the statement. As many as 356 people (53.0%) agreed (score 4) that they did not feel any limitations in accessing the internet and technology in their area. Furthermore, 158 people (23.5%) gave a neutral answer (score 3), and 38 people (5.7%) strongly agreed (score 5). Combined, 59.7% of participants had a positive perception of internet access and technology in their area.

Meanwhile, 102 participants (15.2%) stated that they disagreed (score 2), and only 18 (2.7%) strongly disagreed (score 1), indicating that only a small portion truly felt they had limited access. Overall, these data indicate that most participants felt quite free in accessing the internet and technology in their residential areas. For more details, the distribution of data can be seen in Figure 4.9:

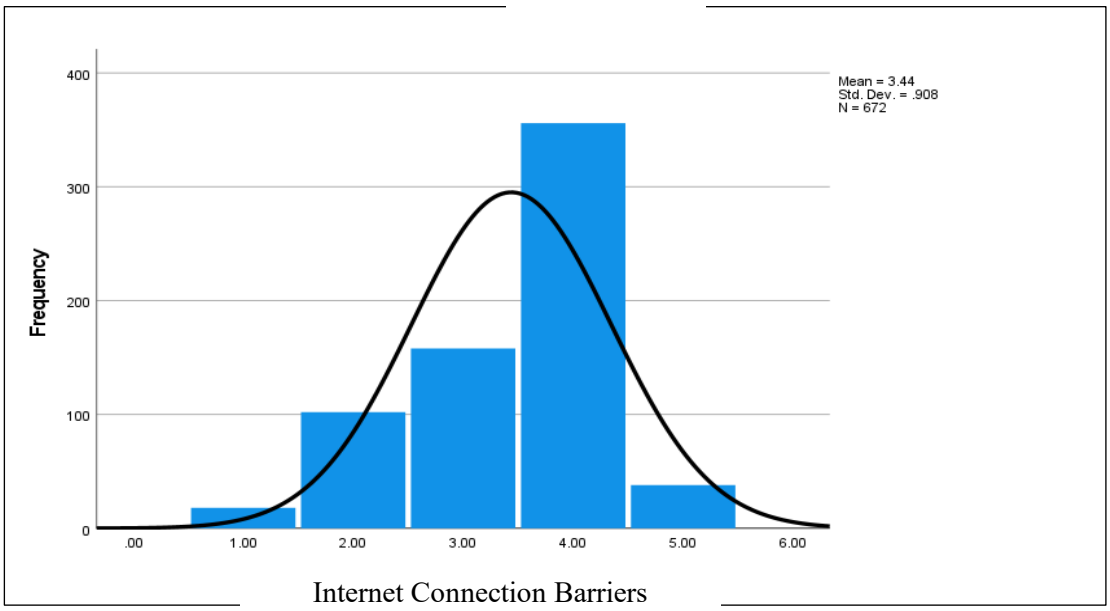


Figure 4.9 Distribution of Data Based on Respondents' Responses to Internet Connection Barriers in Their Area.

Figure 4.9 above illustrates the distribution of participants' answers to the statement "I feel there are no restrictions in accessing the internet and technology in my area", which is assessed using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). This graph reinforces the results of the previous table. It can be seen that the majority of respondents chose a score of 4, with a frequency of more than 300, indicating that most agree that internet and technology access in their area does not face many obstacles. Followed by scores 3 (neutral) and 2 (disagree), each of which also has a significant number of participants. Only a small number of respondents chose a score of 1 (strongly disagree) or 5 (strongly agree).

The mean value in this graph is 3.44, with a standard deviation of 0.908, indicating that the data distribution is quite concentrated around the middle to positive values, with the majority of respondents giving neutral-to-agree responses. The distribution of the graph forms a curve that is close to normal, though slightly left-skewed, indicating that the general perception of internet and technology access is relatively positive but not extreme. Overall, the graph confirms that access to the internet and technology is perceived as quite open by the majority of participants, and only a small number report significant limitations.

4.3.2.10. Descriptive Statistics

To provide an overall picture of respondents' responses across the main constructs, descriptive statistics were calculated for Sport Participation (SP), Motivation (MO), Psychosocial Well-Being (PS), and Gadget Use Behavior (GU). These statistics include minimum and maximum scores, mean values, and standard deviations, which help describe the central tendency and variability of each variable. The results are presented in Table 4.19.

Table 4.19
Distribution of Data Based on Respondents' Responses Based on Each Variable

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
SP	672	39.00	80.00	40586.00	60.3958	6.48174	42.013
MO	672	42.00	79.00	39343.00	58.5461	6.50995	42.379
PS	672	50.00	90.00	46561.00	69.2872	7.51884	56.533
GU	672	19.00	95.00	35842.00	53.3363	13.62791	185.720
Valid N (listwise)	672						

Table 4. 19 shows that descriptive analysis of the research data consisting of four main variables, namely sport participation (SP), motivation (MO), psychosocial well-being (PS), and gadget usage behavior (GU), provides an overview of the characteristics of the data distribution. For the SP variable, across 672 respondents, the minimum value is 39, the maximum is 80, and the total overall score is 40,586. The

average (mean) for SP is 60.3958 with a standard deviation of 6.48174, indicating that the majority of respondents have a fairly high level of sports participation and a relatively homogeneous data distribution, as reflected in the variance value of 42.013.

In the MO variable, the minimum is 42, the maximum is 79, the average is 58.5461, and the standard deviation is 6.50995. This indicates that the level of respondent motivation is also relatively high and stable, with variation in the data similar to that of the SP variable. Meanwhile, the PS variable ranges from 50 to 90, with an average of 69.2872 and a standard deviation of 7.51884, indicating a higher level of psychosocial well-being than other variables but with slightly greater variation, as reflected in a variance of 56.533.

Unlike the previous three variables, the GU variable shows a wider distribution, with a minimum of 19 and a maximum of 95. The average GU is 53.3363, with a standard deviation of 13.62791, which is relatively higher than that of other variables. The GU variance of 185.720 indicates that gadget use among respondents has a very large range, suggesting a fairly sharp difference in gadget-use behavior.

Overall, the data from these four variables show a distribution sufficient for further analysis, with the caveat that the higher variability in the GU variable should be considered when interpreting the results.

4.3.2.11. Interval Class Frequency Distribution

To determine the interval class of each variable based on the minimum and maximum values that have been explained previously, the interval class is obtained in three categories, namely good, moderate, and poor. For more details, see Table 4.20 below:

Table 4.20
Determination of Interval Class

Variabel	Min–Max	Range	Class Length	Poor	Moderate	Good
SP	39–80	41	14	39 – 52	53 – 66	67 – 80
MO	42–79	37	13	42 – 54	55 – 67	68 – 80
PS	50–90	40	14	50 – 63	64 – 77	78 – 91
Variabel	Min–Max	Range	Class Length	Good	Moderate	Poor
GU	19–95	76	26	19 – 44	45 – 70	71 – 96

In Table 4.20, three variables have positive values; the higher the value, the more likely it is to fall into the good category. However, in the GU variable, a higher value indicates inclusion in the poor category. The following are the results for each variable:

To provide a clearer interpretation of respondents' levels of sport participation, total scores were categorized into three levels: poor, moderate, and good. This categorization allows for a more meaningful understanding of participation intensity beyond raw mean scores. The distribution of sport participation levels is presented in Table 4.21.

Table 4.21
Frequency Distribution for Sport Participation Variables

Category	Interval	Frequency	Percentage
Poor	39 - 52	69	10%
Moderate	53 - 66	505	75%
Good	67 - 80	98	15%
Total		672	100%

From Table 4.21, it is seen that 75% of high school students in West Sumatra have moderate participation in sports activities, 15% have good participation, and only about 10% have low participation. For more details, see Figure 4.10 below.

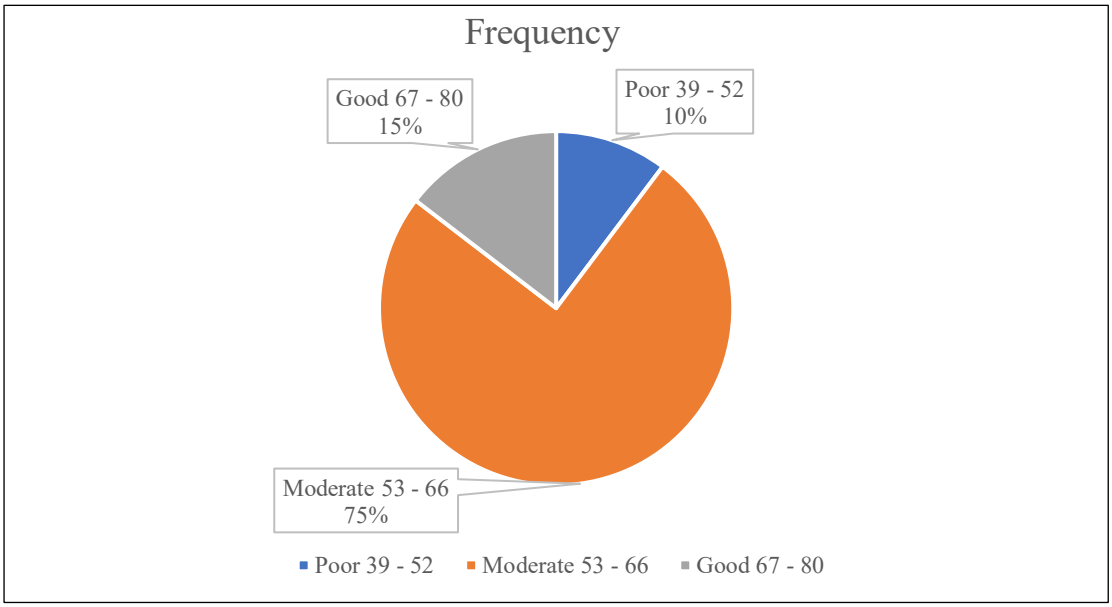


Figure 4.10 Frequency Distribution for the Sport Participation Variable

To provide a clearer understanding of respondents' motivational levels, total motivation scores were categorized into three levels: poor, moderate, and good. This

categorization facilitates the interpretation of the motivational tendencies within the sample. The distribution of exercise motivation levels is presented in Table 4.22.

Table 4.22
Frequency Distribution of Exercise Motivation

Category	Interval	Frequency	Percentage
Poor	42 - 54	189	28%
Moderate	55 - 67	430	64%
Good	68 - 80	53	8%
Total		672	100%

In the frequency distribution table 4.22 of sports motivation in high school students in West Sumatra, it was found that 64% of students had a moderate level of motivation to exercise, and only 8% of students had good motivation. However, around 28% of students in West Sumatra had low motivation to participate in sports activities. For more details, see Figure 4.11 below.

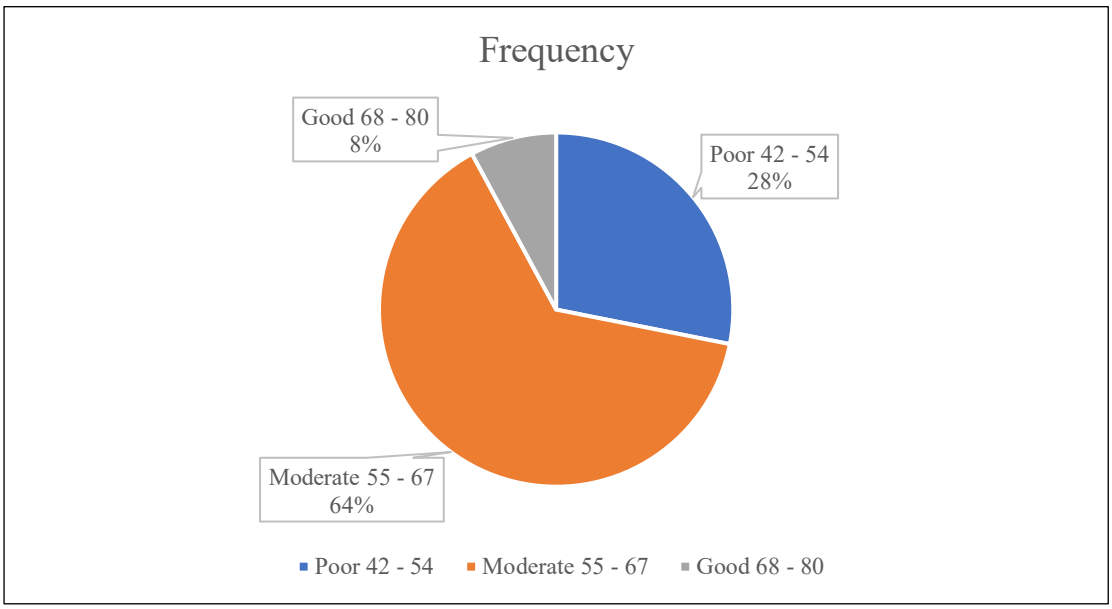


Figure 4.11 Distribution of Exercise Motivation Frequency

To provide a clearer interpretation of respondents' psychosocial conditions, total scores were categorized into three levels: low, moderate, and good. This categorization enables a more practical understanding of students' psychosocial functioning beyond descriptive mean values. The frequency distribution of psychosocial well-being is presented in Table 4.23.

Table 4.23
Frequency Distribution of Psychosocial Well-Being Variables

Category	Interval	Frequency	Percentage
Low	50 - 63	129	19%
Moderate	64 - 77	479	71%
Good	78 - 91	64	10%
		672	100%

Table 4.23 shows that 71% of high school students in West Sumatra have a moderate level of psychosocial well-being, and only 10% of the total participants have conditions above moderate, which is good. However, there are around 19% of students in high school who have psychosocial well-being conditions below moderate conditions. For more details, see Figure 4.12 below.

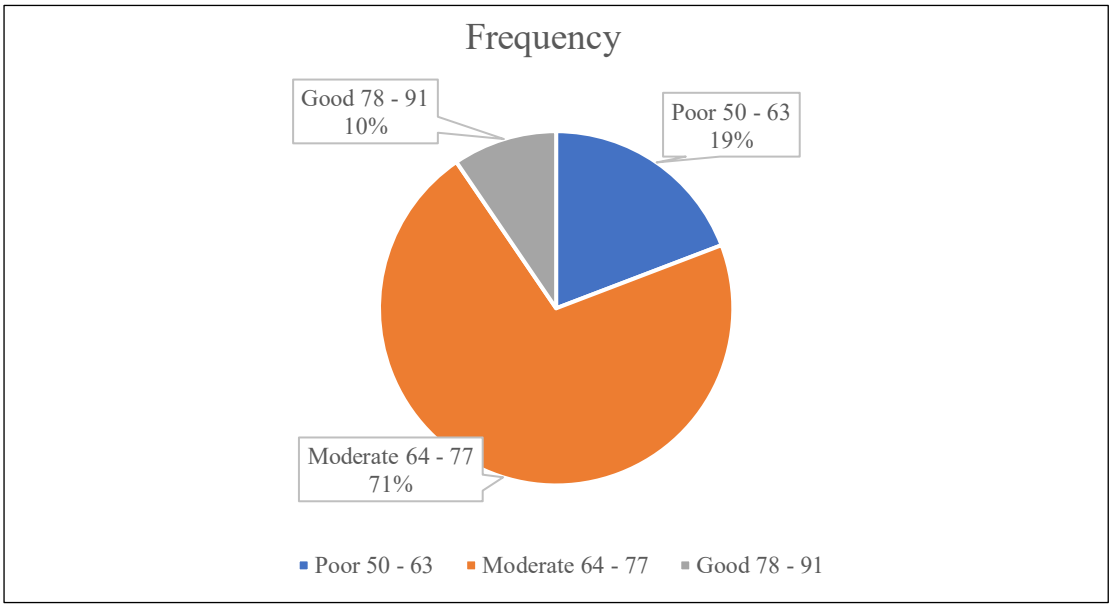


Figure 4.12 Frequency Distribution Image of Psychosocial Well-Being Variables

To facilitate interpretation of respondents' digital engagement patterns, total gadget-use behavior scores were categorized into three levels: good, moderate, and poor. In this study, lower scores indicate more regulated and healthier gadget-use patterns, whereas higher scores reflect more intensive or potentially excessive usage. The frequency distribution of gadget use behavior is presented in Table 4.24.

Table 4.24
Frequency Distribution of Gadget Use Behavior Variables

Category	Interval	Frequency	Percentage

Good	19 - 44	175	26%
Moderate	45 - 70	405	60%
Poor	71 - 96	92	14%
		672	100%

Table 4.24 shows the frequency distribution data, and it can be seen that 60% of high school students in West Sumatra are in the moderate category in using gadgets, and around 26% are in the good category. This shows that more than 86% of high school teenagers in West Sumatra use gadgets at a reasonable to good stage. While those who use gadgets excessively are only 14%. More details are shown in Figure 4.13 below.

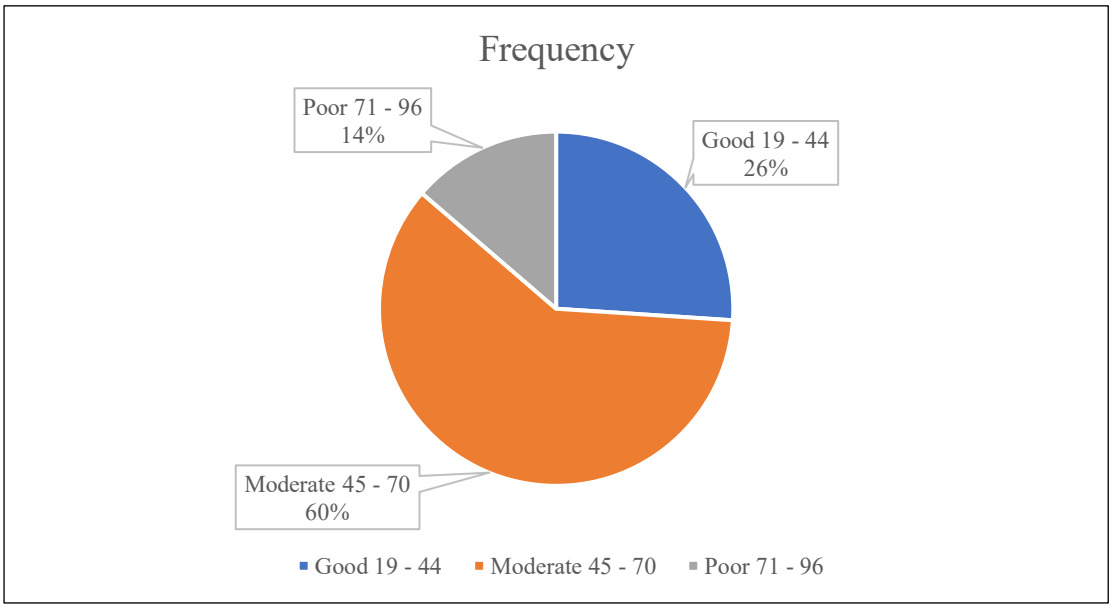


Figure 4.13 Frequency Distribution of Gadget Use Behavior Variables

4.3.3. Measurement Model Evaluation

The measurement model evaluation was conducted to ensure that all constructs met the required standards of reliability and validity before proceeding to structural model analysis. In PLS-SEM, the assessment of reflective constructs follows the procedures recommended by Hair et al. (2024).

First, indicator reliability was assessed using outer loadings (≥ 0.70). Second, internal consistency reliability was assessed through Cronbach's Alpha, rho_A, and Composite Reliability (≥ 0.70). Third, convergent validity was evaluated using the Average Variance Extracted (AVE ≥ 0.50). Finally, discriminant validity was tested to ensure that each construct was empirically distinct from the others.

These steps were conducted systematically and iteratively to ensure that the measurement model met methodological standards before evaluating the structural relationships.

4.3.3.1. Outerloading

The following table presents the outer loading for each indicator relative to the construct it measures. The outer loading value shows how strongly the indicator represents the latent construct. In general, a value above 0.70 is considered very good, but a value between 0.40 and 0.70 can still be acceptable if it does not compromise the construct's reliability and validity. In the first consistency test, all constructs were evaluated using Consistent PLS (PLSc) before indicator removal, and the results showed that the Outer Loadings of some indicators were <0.40. Based on the criteria of Hair et al. (2024), these low-loading indicators were eliminated to improve construct clarity and reduce attenuation bias. The results of the first test are shown in Table 4.25.

Table 4.25
Outerloading Value Firts Test

	Context	Environment	Impact	Intensity	Motivation	Parent	Psychosocial WB	Sport Participation
GU1						0.930		
GU10	n/a							
GU11				0.730				
GU12				0.933				
GU13				0.583				
GU14				-0.010				
GU15			0.197					
GU16			0.291					
GU17			-0.136					
GU18			0.393					
GU19			1.375					
GU2						0.110		
GU3						0.667		
GU4						0.700		
GU5		0.514						
GU6		-0.039						
GU7		1.190						

GU8	0.196		
GU9	n/a		
MO1		0.603	
MO10		0.583	
MO11		0.666	
MO12		0.519	
MO13		0.420	
MO14		0.379	
MO15		0.567	
MO16		0.184	
MO2		0.549	
MO3		0.547	
MO4		0.693	
MO5		0.728	
MO6		0.708	
MO7		0.723	
MO8		0.721	
MO9		0.662	
PS1			0.705
PS10			0.685
PS11			0.727
PS12			0.757
PS13			0.715
PS14			0.701
PS15			0.642
PS16			0.643
PS17			0.696
PS18			0.716
PS2			0.740
PS3			0.577
PS4			0.730
PS5			0.705
PS6			0.631
PS7			0.692
PS8			0.712
PS9			0.689

SP1	0.641
SP10	0.615
SP11	0.561
SP12	0.510
SP13	0.430
SP14	0.481
SP15	0.503
SP16	0.532
SP2	0.543
SP3	0.645
SP4	0.642
SP5	0.540
SP6	0.502
SP7	0.511
SP8	0.502
SP9	0.546

After deletion, a second consistency test was conducted. There were no indicators below <0.4. Thus, the cycle of removing indicators below 0.4 ensures that only the most representative indicators remain and that the resulting reflective estimates are consistent. The results of the second test are shown in Table 4.26.

Table 4.26
Outerloading Value Second Test

	Environtment	**Impact**	**Intensity**	**Motivation**	**Parent**	**Psycosocial Well Being**	**Sport Participation**
GU1					0.892		
GU11			0.726				
GU12			0.931				
GU13			0.602				
GU19		0.999					
GU3					0.626		
GU4					0.650		
GU5	0.472						
GU7	0.998						
MO1				0.607			
MO10				0.595			
MO11				0.678			
MO12				0.515			
MO13				0.407			
MO15				0.555			
MO2				0.556			

MO3	0.553		
MO4	0.686		
MO5	0.725		
MO6	0.703		
MO7	0.728		
MO8	0.723		
MO9	0.656		
PS1		0.704	
PS10		0.688	
PS11		0.725	
PS12		0.759	
PS13		0.712	
PS14		0.700	
PS15		0.644	
PS16		0.645	
PS17		0.697	
PS18		0.719	
PS2		0.740	
PS3		0.574	
PS4		0.726	
PS5		0.705	
PS6		0.632	
PS7		0.690	
PS8		0.711	
PS9		0.691	
SP1			0.637
SP10			0.618
SP11			0.560
SP12			0.508
SP13			0.431
SP14			0.482
SP15			0.502
SP16			0.532
SP2			0.542
SP3			0.643
SP4			0.643
SP5			0.544
SP6			0.502
SP7			0.511
SP8			0.504
SP9			0.549

The results of the outer loading analysis show the strength of the relationship between the indicators and the latent constructs measured in the model. Outer loading is used to assess convergent validity, where the ideal value of outer loading is above 0.7, although values between 0.5 and 0.7 are still acceptable in exploratory research (Hair et al., 2019). Based on the results of the outer loading in the measurement model, it can be seen that most of the indicators have made a fairly good contribution to their respective constructs, although there are several indicators with low values. For example, in the environment construct, the GU7 indicator has a very high loading (0.998), indicating a very strong representation of the construct. However, GU5 only has a loading of 0.472, which is classified as weak but still acceptable because it is not less than 0.4.

In the Impact construct, there is only one indicator, namely GU19 with a very high loading (0.999). For the Intensity construct, the GU12 indicator shows a very good contribution (0.931), GU11 is quite good (0.726), and GU13 is relatively low (0.602) but can still be maintained if the AVE value and overall reliability of the construct are good. The motivation construct has many indicators with variations in loading values. Several indicators such as MO5, MO7, and MO8 have values above 0.7 which indicate strong validity, but some such as MO12 (0.515) and MO13 (0.407) are quite low and need to be considered for removal if they interfere with the validity of the construct. The Parent construct also shows good strength, especially in the GU1 indicator (0.892), while GU3 and GU4 are still within acceptable limits.

The psychosocial well-being construct generally shows stability, with the majority of outer loading values above 0.7 and no indicators below 0.5. This indicates that the construct has adequate convergent validity. In contrast, the sport participation construct has many indicators with low loadings, such as SP13 (0.431) and SP14 (0.482), which indicate a weak contribution to the construct and have the potential to reduce the reliability of the model if not evaluated or simplified. Theoretically, according to Hair J. F. (2021), the ideal outer loading value is above 0.70, although values between 0.40–0.69 can still be maintained if they do not reduce the AVE and the overall reliability of the construct.

4.3.3.2. Construct Reliability (Composite Reliability, Cronbach's α, AVE)

The following table presents the results of the construct reliability test, including the values of cronbach's alpha, rho_A, composite reliability, and average variance

extracted (AVE). This test ensures that each construct in the model has adequate internal consistency and convergent validity. Tabel 4.27 shows the values of composite reliability, cronbach's α, and AVE.

Table 4.27
Value Composite Reliability, Cronbach's α, AVE

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Environtment	0.672	1.000	0.792	0.687
Impact	1.000	1.000	1.000	1.000
Intensity	0.789	0.838	0.804	0.585
Motivation	0.897	0.905	0.899	0.594
Parent	0.781	0.801	0.772	0.537
Psychosocial Well Being	0.943	0.944	0.943	0.581
Sport Participation	0.873	0.875	0.871	0.580

Based on Table 4.27 above containing the cronbach's alpha, rho_A, composite reliability (CR), and average variance extracted (AVE) values for each construct, it can be concluded that, in general, all constructs in the model have met the eligibility standards in measuring reliability and convergent validity.

The composite reliability (CR) values for all constructs are above the minimum threshold of 0.70 (Hair J. F., 2021), indicating that the internal consistency between indicators in each construct is perfect. For example, the motivation construct has a CR of 0.899, and psychosocial well-being has a CR of 0.943. Although the Parent construct shows a lower CR value (0.772), it remains above the minimum threshold and is considered reliable.

In terms of AVE, all constructs have met the minimum criterion of ≥ 0.50, indicating sufficient convergent validity, with the average variance explained by the indicators exceeding 50%. For example, the Intensity construct has an AVE of 0.585 and Sport Participation has an AVE of 0.580, both indicating that more than half of the indicator variance is explained by the constructs.

Related to the previous statement that indicators with outer loading between 0.40 to 0.69 can still be maintained if they do not reduce the AVE and CR values, this finding supports that indicators with moderate loading (eg GU5, MO13, SP13, SP14, etc.) can still be maintained in the model. This is because, even though some indicators have loading values below 0.70, the AVE and CR values for each construct remain high

and meet the standards, so the validity and reliability of the construct as a whole are not compromised.

4.3.3.3. Discriminant Validity (Construct-Level)

Discriminant validity is an important aspect of evaluating a measurement model, indicating the extent to which a construct is distinct from other constructs in the model. One of the most common methods for testing discriminant validity is the Fornell-Larcker Criterion. According to this approach, the square root of the average variance extracted (AVE) value of a construct must be greater than the correlation of the construct with other constructs. This means that the construct must explain more variance in its own indicators than the variance explained by other constructs in the model.

If the value on the main diagonal (i.e. the AVE root of each construct) is higher than the correlation values in the same row and column, then the discriminant validity is met. Table 4.28 presents the results of the discriminant validity test between constructs in the model using the Fornell–Larcker criterion:

Table 4.28
Fornell-Larcker Criterion

	Environtment	Impact	Intensity	Motivation	Parent	Psychosocial Well Being	Sport Participation
Environtment	0.829						
Impact	0.623	1.000					
Intensity	0.688	0.578	0.765				
Motivation	-0.177	-0.285	-0.096	0.627			
Parent	0.764	0.596	0.733	-0.045	0.733		
Psychosocial Well Being	-0.184	-0.271	-0.096	0.826	-0.092	0.694	
Sport Participation	-0.162	-0.229	-0.154	0.781	-0.064	0.711	0.548

Based on Table 4.28, all constructs meet the criteria. This can be seen in the Environment construct having an AVE of 0.829, which is higher than its correlations with other constructs, such as Parent (0.764), Intensity (0.688), and Impact (0.623). Similar patterns are observed in other constructs, such as motivation (0.627), which is higher than the correlations among related constructs. Thus, it can be concluded that the discriminant validity for all constructs in the model has been met properly.

In terms of the relationship between constructs, several high correlations are theoretically supported, such as the relationship between motivation and sport participation (0.781), which shows that the higher a person's motivation, the higher their participation in sports, likewise with the relationship between parent and environment (0.764), and parent and intensity (0.733), which indicates that the role of parents is

closely related to the creation of a child's environment in the child's behavior of using gadgets. However, there are also several negative relationships, such as between motivation and impact (-0.285) and psycosocial well-being and impact (-0.271). This negative correlation can be interpreted as follows: the higher the motivation and psychosocial condition of students, the smaller the negative impact that children experience from gadget use. Other negative correlations, such as between motivation and environment (-0.177) may also indicate that motivation to exercise does not solely depend on the child's physical environmental conditions, but may also come from internal factors or forms of compensation for an environment that is less supportive of good behavior in the use of gadgets by children.

Overall, this table shows that the model has strong discriminant validity and that the relationships between constructs are logical and theoretically justified. There was no correlation between constructs that was too high (for example, above 0.90), which could cause multicollinearity problems. Therefore, the model structure can be considered stable and supported both statistically and conceptually.

4.3.4. Structural Model Evaluation for Examining Research Objectives 1–4 and Hypotheses 1–4

After confirming the adequacy of the measurement model, the next stage was to evaluate the structural model to assess the hypothesized relationships among constructs. The structural model evaluation aims to examine the predictive accuracy and explanatory power of the proposed framework, as well as the strength and significance of the relationships between exogenous and endogenous variables.

4.3.4.1. Analysis of Determination Coefficient (R^2)

The coefficient of determination (R^2) was examined to assess the explanatory power of the structural model. R^2 indicates the proportion of variance in each endogenous construct that can be explained by its predictor variables. Table 4.29 presents the R^2 and adjusted R^2 values for the model's endogenous constructs.

Table 4.29
Value of Determination Coefficient (R Square)

	R Square	**R Square Adjusted**	**Interprestasi**
Motivation	0.121	0.116	Weak (12.1%)
Psychosocial Well- Being	0.687	0.685	Strong(68.7%)

Sport Participation	0.635	0.631	Moderat-Strong(63.5%)

The results of the structural model evaluation show that the sport participation construct has an R^2 of 0.635, indicating that 63.5% of the variability in sport participation is explained by the construct in the model. The psychosocial well-being construct also has strong explanatory power (R^2 = 0.687). However, the Motivation construct has an R^2 of 0.121, indicating that the independent variables in the model explain only a small portion of the variation in respondents' motivation.

4.3.4.2. Multicollinearity Analysis (Outer VIF Value)

In the measurement model, multicollinearity analysis is performed to ensure that there is no high correlation among indicators within a construct, which can affect the stability of model estimation. One of the indicators used to detect multicollinearity is the Variance Inflation Factor (VIF). Table 4.30 shows that result Outer VIF Values.

Table 4.30
Outer VIF Values

	VIF
GU1	1.352
GU11	1.906
GU12	2.360
GU13	1.481
GU19	1.000
GU3	2.020
GU4	2.003
GU5	1.345
GU7	1.345
MO1	1.636
MO10	1.746
MO11	1.762
MO12	2.070
MO13	2.140
MO15	1.629
MO2	1.547
MO3	1.674
MO4	2.015
MO5	2.261
MO6	2.108

MO7	2.250
MO8	2.385
MO9	2.063
PS1	1.916
PS10	1.930
PS11	1.776
PS12	2.251
PS13	2.160
PS14	2.250
PS15	2.168
PS16	2.534
PS17	3.019
PS18	2.631
PS2	2.149
PS3	1.577
PS4	2.073
PS5	1.972
PS6	2.122
PS7	2.199
PS8	2.151
PS9	2.340
SP1	1.649
SP10	1.535
SP11	1.588
SP12	1.283
SP13	1.596
SP14	2.088
SP15	1.935
SP16	1.821
SP2	1.550
SP3	1.704
SP4	1.582
SP5	1.370
SP6	2.042
SP7	1.757
SP8	2.200
SP9	1.951

The Variance Inflation Factor (VIF) is used to assess multicollinearity among indicators. Table 4.30 shows that all indicators have VIF values below 3.3, indicating no multicollinearity in the measurement model. Thus, the indicators are statistically independent, and the measurement model is valid and reliable for further analysis.

4.3.4.3. Analysis of Structural Relationships Between Constructs Using Path Coefficients (β) for Hypothesis Testing

Path coefficient analysis in structural equation modeling (SEM) assesses the strength and direction of relationships among constructs in a structural model. Each path shows the direct influence of one construct on another. The β (beta) value indicates the magnitude of the influence, while the T-value and P-value are used to test its significance. The following data are shown in Table 4.31.

Table 4.31
Value Path Coefficient – β Coefficient

Path	β (Original Sample)	T-Value	P-Value	Significant	Description
Environtment → Motivation	**-0.136**	2.315	0.021	Yes	Significant negative effect
Environtment → Pschosocial	-0.025	0.643	0.521	Not	Not significant
Environment → Sport Participation	0.011	0.222	0.824	Not	Not significant
Impact → Motivation	**-0.334**	6.532	0.000	Yes	Significant & strong negative effect
Impact → Psychosocial	-0.035	1.056	0.291	Not	Not significant
Impact → Sport Participation	0.029	0.668	0.505	Not	Not significant
Intensity → Motivation	0.064	1.159	0.247	Not	Not significant
Intensity → Psychosocial	0.032	0.901	0.368	Not	Not significant

Intensity → Sport Participation	**-0.108**	2.871	0.004	Yes	Significant negative effect
Motivation → Psychosocial	**0.750**	29.402	0.000	Yes	Very strong positive influence
Motivation → Sport Participation	**0.469**	11.191	0.000	Yes	Strong and significant positive effect
Parent → Motivation	**0.178**	2.533	0.012	Yes	Significant positive effect
Parent → Psychosocial	-0.023	0.621	0.535	Not	Not significant
Parent → Sport Participation	0.037	0.770	0.442	Not	Not significant
Psychosocial → Sport Participation	**0.291**	6.450	0.000	Yes	Significant positive effect

Table 4.31 The path coefficient analysis indicates several significant relationships among the constructs in the model. First, the environment construct negatively affected motivation ($\beta = -0.136$, $T = 2.315$, $p = 0.021$), indicating that perceived unsupportive environmental conditions can reduce students' motivation to participate in sports activities. However, the effect of the environment on psychosocial well-being and sport participation was insignificant, and there was no strong direct relationship between the environment and either outcome in this context.

The Impact construct also showed a significant negative influence on Motivation ($\beta = -0.334$, $T = 6.532$, $p < 0.001$). This suggests that perceptions of specific impacts can reduce students' motivation and that this influence is significant. However, Impact did not significantly influence psychosocial well being or sport participation.

Next, Intensity has a significant negative effect on sport participation ($\beta = -0.108$, $T = 2.871$, $p = 0.004$). This means that a certain intensity in the experience or exposure to screen time may have an impact on students' involvement in sports, possibly

due to pressure or fatigue. However, intensity does not have a significant effect on Motivation or Psychosocial well-being.

The construct of motivation plays a vital and strategic role in this model. Motivation has been shown to have a powerful positive influence on psychosocial well-being ($\beta = 0.750$, $T = 29.402$, $p < 0.001$), indicating that the higher the students' motivation, the better their psychosocial well-being. In addition, motivation also has a positive and significant influence on sport participation ($\beta = 0.469$, $T = 11.191$, $p < 0.001$), indicating that motivation contributes directly to involvement in sports activities.

Furthermore, support from parents (parent) showed a significant positive influence on motivation ($\beta = 0.178$, $T = 2.533$, $p = 0.012$). This indicates that parents' role in controlling their child's gadget usage can increase students' motivation to exercise. However, the influence of parents on psychosocial well-being and sport participation is not significant.

Finally, the construct of psychosocial well Being has a positive and significant influence on sport participation ($\beta = 0.291$, $T = 6.450$, $p < 0.001$). Students with good psychosocial well-being are more likely to actively participate in sports activities.

4.3.4.4. Effect Size Analysis (f^2)

Effect size (f^2) analysis determines how each exogenous construct influences the endogenous construct in the SEM model. The f^2 value indicates the strength of the effect of a path after a particular exogenous construct is removed from the model. Hair suggests interpreting the f^2 value as follows: 0.02 = small, 0.15 = medium, and 0.35 = large. An f^2 value below 0.02 is considered insignificant or weak in its contribution to the model (Hair, 2021b). Table 4.32 presents the f^2 values for each path in the model, along with an interpretation of the level of their effects on the endogenous construct:

Table 4.32
Value Effect Size – f^2 and its Interpretation

Path	f^2 Value	Interpretation
Environtment → Motivation	0.018	Not significant
Environment → Sport Participation	0.001	Not significant
Impact → Motivation	0.079	Small effect

Impact → Sport Participation	0.003	Not significant
Intensity → Psychosocial Well-Being	0.004	Not significant
Intensity → Sport Participation	0.027	Small effect
Parent → Motivation	0.034	Small effect
Parent → Psychosocial Well-Being	0.007	Not significant
Parent → Sport Participation	0.002	Not significant
Motivation → Psychosocial Well-Being	1.900	Large effect
Motivation → Sport Participation	0.309	Medium effect
Psychosocial → Sport Participation	0.039	Small effect

Table 4.32 shows that the results of the effect size analysis (f^2) in the structural model indicate that the strongest path is the relationship between motivation and psychosocial well-being, with an f^2 of 1.900, corresponding to a very large effect according to the effect size interpretation criteria. In addition, the path from motivation to sport participation shows a fairly strong influence, with an f^2 value of 0.309, which falls within the moderate influence category.

Meanwhile, several other pathways showed small but significant effects, including the relationships between parent and motivation, intensity and sport participation, and psychosocial well-being and sport participation. Although their contributions to the dependent variable were not as large as those of the main pathway involving Motivation, these three pathways still significantly contributed to the model.

On the other hand, most of the paths involving the environment, impact, and parent constructs directly towards sport participation do not show a strong influence, with very small f^2 values, such as the environment to sport participation path, which only has an f^2 of 0.001.

4.3.4.5. Prediction Relevance Analysis (Q^2)

A prediction relevance analysis evaluates the model's ability to predict endogenous constructs, measured by the Q^2 value. The Q^2 value is calculated based on the blindfolding approach with the formula $Q^2 = 1 - (SSE / SSO)$, where SSO is the number of observations, and SSE is the number of prediction errors. The higher the Q^2 value, the better the model's predictive ability for the construct.

According to Hair et al, a Q^2 value > 0 indicates that the model has predictive ability, with the general interpretation: $Q^2 > 0.35$ = large, around 0.15 = medium, and around 0.02 = small. A Q^2 value ≤ 0 indicates that the model does not have predictive ability for the construct in question (Hair, 2021b).

Table 4.33 presents the SSO, SSE, and Q^2 values for each construct in the model along with their interpretations:

Table 4.33
Value Prediction Relevance – Q^2

	SSO	**SSE**	**Q^2 (=1-SSE/SSO)**	**Interprestasi**
Environtment	1344.000	1344.000		
Impact	672.000	672.000		
Intensity	2016.000	2016.000		
Motivation	8736.000	8327.082	0.047	Small → weak prediction
Parent	2016.000	2016.000		
Psychosocial	12096.000	8533.903	0.294	Medium–high → prediction is quite strong
Sport Participation	10752.000	8919.758	0.170	Medium → The model has predictive capabilities

Table 4.33 shows that, based on the results of the Blindfolding analysis in the PLS-SEM model, Q^2 values were obtained for three primary constructs: motivation, psychosocial well-being, and sport participation. in the sport participation construct, the Q^2 value of 0.170 indicates that the model has moderate predictive ability, meaning the independent constructs explain some of the variance in sport participation. Meanwhile, the psychosocial well-being construct has a Q^2 value of 0.294, which falls within the high predictive ability category, indicating that the model has a reasonably strong ability to predict respondents' psychosocial well-being.

In contrast, the motivation construct has a Q^2 value of 0.047, which, although it is in the category of weak predictive ability, still shows that the model has a minimal

predictive contribution to motivation, because it still exceeds the minimum threshold of 0.02. Thus, these results indicate that the model generally has varying predictive power for each construct, with the strongest for psychosocial well-being and the weakest for motivation.

4.3.4.6. Model Fit Evaluation

The evaluation of the fit model aims to assess the extent to which the built structural model is appropriate and matches the empirical data. In the partial least squares structural equation modeling (PLS-SEM) approach, several fit indicators are used, including standardized root mean square residual (SRMR), d_ULS, d_G, Chi-Square, and Normed Fit Index (NFI). The SRMR indicator is the primary measure for evaluating the fit of a model in PLS-SEM, with a value below 0.08 considered to indicate a good fit (Hair, 2021b). Table 4.34 presents the model fit values of the saturated model and estimated model, as well as the interpretation of the fit of the constructed models:

Table 4.34
Values from Model Fit

Indicator	Saturated Model	Estimated Model	Interpretation
SRMR	0.065	**0.065**	**Good fit (below 0.08)**
d_ULS	6.980	6.980	
d_G	1.937	1.937	
Chi-Square	6930.945	6930.945	
NFI	0.679	0.679	

Table 4.34 shows that, based on the results of the model fit calculation in SmartPLS, the SRMR is 0.065, indicating a good fit because it is below the threshold of 0.08. Although the NFI value of 0.679 is still below the ideal threshold (> 0.90), the SRMR indicates that the model is overall quite feasible.

4.3.5. Moderating Effect Analysis for Research Objective 5 and Hypothesis Testing (H5)

In addition to examining direct structural relationships, moderation analysis was conducted to assess whether certain demographic and contextual variables influence the strength or direction of the relationships within the model. Specifically, this analysis

evaluates whether the structural pathways linking gadget use behavior, motivation, psychosocial well-being, and sport participation vary across different respondent characteristics.

Two approaches were applied within the PLS-SEM framework: the interaction term method for numeric moderators (internet connection and parental occupation) and multi-group analysis (MGA) for categorical moderators (gender, school location, and type of sport). This procedure allows for a comprehensive assessment of the stability and generalizability of the structural model.

4.3.5.1. Moderation Test with Interaction Term (For Numeric Moderator)

To test whether the numeric variables, namely internet connection and parental work (Job), moderate the relationships between constructs in the model, the interaction-term moderation approach is used in SmartPLS 3. The method chosen to form the interaction construct is Two-Stage because it is recommended for data with medium sample sizes and tends to yield more stable results. The moderation effect is evaluated by examining the T-statistic and P-value for each interaction path. Based on the Hair et al. guidelines, a path is considered statistically significant if the T value is≥ 1.96 and P < 0.05. If one of these conditions is not met, then the moderation path is considered insignificant (Hair, 2021b).

Moderation analysis is conducted to determine whether a variable strengthens or weakens the relationship between two other constructs. In this context, internet connection is tested as a moderator variable that has the potential to influence the relationship between several constructs (such as environment, impact, intensity, motivation, parent, and psychosocial well-being) on sport participation. The test is conducted by forming an interaction term between the predictor construct and internet connection, and then analyzing it using the Partial Least Squares-SEM method. The moderation relationship is declared significant if the p value <0.05 and the T-statistic> 1.96. Table 4.35 presents the results of the moderation analysis showing the T-statistic value, P-value, and significance status for each interaction path involving the internet connection variable:

Table 4.35
Moderation Effect by Internet Connection Variable

Moderation Path	T Statistics	P Value	Significant

Environtment-Internet → Sport Participation	0.392	0.695	Not
Impact-Internet → Sport Participation	1.088	0.277	Not
Intensity-Internet → Sport Participation	1.171	0.242	Not
Motivation-Internet → Sport Participation	0.156	0.876	Not
Parent-Internet → Sport Participation	0.133	0.894	Not
Psychosocial WB-Internet → Sport Participation	0.980	0.328	Not

Table 4.35 shows that the moderation analysis indicates that internet connection does not have a significant moderating effect on the relationship between the predictor constructs (environment, impact, intensity, motivation, parent, and psychosocial well-being) and sport participation. This is indicated by all interaction paths with T-statistics <1.96 and P-values>0.05, meaning none of the interactions meet the significance criteria at the 95% confidence level.

Thus, it can be concluded that internet connection does not moderate the relationship between internal and external factors with students' sports participation in the context of this study. This may indicate that students' internet connection quality does not sufficiently influence the strengthening or weakening of other factors' influence on their involvement in sports activities.

Moderation analysis is used to evaluate whether a variable can affect the strength or direction of the relationship between two other constructs. In this context, parental employment is tested as a potential moderator of the relationship between the main constructs (environment, impact, intensity, motivation, parent, and psychosocial well-being) and sport participation. Table 4.36 presents the results of the moderation test of parental employment on the relationship of the constructs in the model on sport participation.

Table 4.36
Moderation Effect by Parental Occupation Variable

Moderation Path	T Statistik	P Value	Significant
Environment-Job → Sport Participation	0.404	0.687	Not
Impact-Job → Sport Participation	0.809	0.419	Not
Intensity-Job → Sport Participation	0.176	0.860	Not
Motivation-Job → Sport Participation	0.555	0.579	Not
Parent-Job → Sport Participation	0.749	0.454	Not
Psychosocial WB-Job → Sport Participation	0.068	0.946	Not

Table 4.36 shows that parental occupation did not have a significant moderating effect on the relationships between the main constructs (environment, impact, intensity, motivation, parent, and psychosocial well-being) and sport participation. All moderation paths had T-statistics <1.96 and P-values > 0.05, indicating that none of the interaction effects were statistically significant at the 95% confidence level. This finding indicates that parental occupation does not act as a moderator in this model. In other words, differences in parental occupation types do not affect the strength or direction of the relationship between psychosocial and environmental constructs with students' sport participation. This may be due to the homogeneity of students' perceptions of parental support or influence, regardless of the type of occupation of their parents.

4.3.5.2. Moderation Test With Multi-Group Analysis (MGA) (For Categorical Moderators)

Multi-Group Analysis (MGA) is a method in the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, which is used to test whether there are significant differences in the relationships between constructs in a structural model between two or more groups based on categorical variables (Hair et al. 2014). MGA

allows researchers to determine whether moderator variables such as gender, preferred sport type or regency or city area can affect the strength and direction of the relationship between constructs. Unlike the interaction term-based moderation approach used for numeric variables, MGA is used when the moderator is categorical (discrete), such as male vs. female or team vs. individual sports.

Interpretation is based on the p-value for each path. If the p-value < 0.05 or > 0.95, then there is a significant difference in the path between groups, indicating a moderating effect of the categorical variable. Theoretically, MGA is in line with the moderation approach in classical regression, but PLS-MGA has the advantage of being able to handle non-normal data and test differences across structural paths at once (Hair, 2021b). Hair et al (2021b) emphasized that MGA in PLS-SEM is very useful in exploring how the characteristics of the respondent group can affect the research results, and is therefore highly recommended in social and behavioral research involving demographic or other categorical variables.

Multi-group analysis (MGA) is a form of category-based moderation analysis used to test whether there are significant differences in the relationship paths between constructs between two or more groups. In this study, the gender variable (male and female) is used as a comparison group to identify whether the relationships in the structural model differ significantly between genders.

Interpretation of differences is done by looking at the value of the difference in path coefficients between groups, the p-value (new) of the permutation or bootstrapping test results, and the significance status based on the p-value <0.05. If the p-value is below the threshold, it can be concluded that there is a significant difference between genders for the path being tested. Table 4.37 presents the MGA results by gender for all paths in the model:

Table 4.37
MGA Interpretation Based on Gender Variable

Track	**Coefficient Difference**	**P-Value (New)**	**Significant**	**Interpretation**
Environtment → Motivation	-0.023	0.838	Not	No difference between genders

Environment → Psychosocial WB	-0.017	0.825	Not	No difference between genders
Environment → Sport Participation	0.199	0.074	almost	There may be differences, but not significant
Impact → Motivation	0.149	0.185	Not	No difference between genders
Impact → Psychosocial WB	0.044	0.513	Not	No difference between genders
Impact → Sport Participation	0.077	0.354	Not	No difference between genders
Intensity → Motivation	-0.133	0.271	Not	No difference between genders
Intensity → Psychosocial WB	-0.051	0.487	Not	No difference between genders
Intensity → Sport Participation	-0.107	0.149	Not	No difference between genders
Motivation → Psychosocial WB	-0.009	0.852	Not	No difference between genders
Motivation → Sport Participation	-0.053	0.521	Not	No difference between genders

Parent → Motivation	0.026	0.865	Not	No difference between genders
Parent → Psychosocial WB	-0.067	0.388	Not	No difference between genders
Parent → Sport Participation	-0.1`49	0.162	Not	No difference between genders
Psychosocial WB → Sport Participation	0.088	0.320	Not	No difference between genders

Table 4.37 shows that the Multi-Group Analysis (MGA) based on gender variables indicates no significant differences between male and female groups in the relationship paths among constructs in the model. All tested paths yield p-values above 0.05, so it cannot be concluded statistically that there is a difference in the influence of structural paths by gender.

Overall, these results indicate that the relationships between the constructs in the structural model are consistent for both males and females. That is, both male and female students experience similar psychosocial and motivational processes in the context of sports participation, without being significantly influenced by gender differences.

Multi-Group Analysis (MGA) is used to assess whether there are differences in the relationships among constructs in the structural model by school type (urban vs. district). In this context, each structural path is tested to see if its coefficients differ significantly between the two groups.

Testing is done by comparing the differences in coefficient values between groups and the p-value (new) bootstrapping results. If the p-value <0.05, then the difference between groups is considered significant. Conversely, if p>0.05, then there is no significant difference, and the relationship between constructs is considered consistent across groups. Table 4.38 presents the results of the MGA analysis based on school type across all pathways in the model:

Table 4.38
MGA Values Based on School Type

Path	Coefficient Difference	P-Value (New) (GROUP_School_City vs GROUP_School_Regency)	Significant	Interpretation
Environtment → Motivation	0.000	1.000	Not	Exactly the same between schools
Environment → Psychosocial WB	0.062	0.403	Not	No difference
Environment → Sport Participation	-0.001	0.971	Not	Almost the same (opposite but not significant)
Impact → Motivation	0.042	0.688	Not	No difference
Impact → Psychosocial WB	-0.054	0.429	Not	No difference
Impact → Sport Participation	0.011	0.898	Not	No difference
Intensity → Motivation	-0.123	0.372	Not	No difference
Intensity → Psychosocial WB	-0.085	0.229	Not	No difference
Intensity → Sport Participation	0.010	0.894	Not	No difference
Motivation → Psychosocial WB	0.052	0.267	Not	No difference
Motivation → Sport Participation	-0.062	0.536	Not	No difference
Parent → Motivation	-0.064	0.677	Not	No difference
Parent → Psychosocial WB	0.094	0.253	Not	No difference

Parent → Sport Participation	-0.086	0.413	Not	No difference
Psychosocial WB → Sport Participation	0.003	0.980	Not	Almost the same value, not significant

Multi-Group Analysis (MGA) was conducted to evaluate whether there were differences in the relationships among constructs in the structural model by school type category, namely, schools located in urban and district areas. The results of the analysis showed that no single path showed significant differences between school types. Most of the p-values were well above the significance threshold of 0.05, indicating that the relationships between constructs in the model were stable and consistent across both regency and city schools.

Multi-Group Analysis (MGA) is used to test whether there are differences in the influence of the relationship paths between constructs in the structural model based on the category of sports types followed by respondents. In this context, the types of sports are grouped and compared to assess whether the model's relationship structure differs significantly. MGA with the PLS-SEM approach allows testing differences between groups without assuming a normal distribution, making it suitable for socio-empirical data such as this.

The significance of the difference is determined based on the p-value (new) from the bootstrapping results. If $p < 0.05$, then there is a significant difference between the sports groups. Conversely, if $p > 0.05$, the path is considered consistent across the sports being compared. Table 4.39 presents the results of the MGA analysis by sport type across all model paths.

Table 4.39
MGA Value Based on Sport Type

Path	Coefficient Difference	P-Value (New)	Significant	Interpretation
Environtment → Motivation	0.114	0.334	Not	No significant difference
Environment → Psychosocial WB	-0.015	0.857	Not	No significant difference
Environment → Sport Participation	-0.005	0.963	Not	No significant difference
Impact → Motivation	-0.028	0.781	Not	No significant difference
Impact → Psychosocial WB	-0.108	0.135	Not	No significant difference

Impact → Sport Participation	-0.027	0.738	Not	No significant difference
Intensity → Motivation	0.221	0.094	Not	Near-significant difference
Intensity → Psychosocial WB	0.047	0.516	Not	No significant difference
Intensity → Sport Participation	-0.018	0.819	Not	No significant difference
Motivation → Psychosocial WB	-0.065	0.169	Not	No significant difference
Motivation → Sport Participation	-0.105	0.193	Not	No significant difference
Parent → Motivation	-0.178	0.217	Not	No significant difference
Parent → Psychosocial WB	0.005	0.932	Not	No significant difference
Parent → Sport Participation	0.088	0.371	Not	No significant difference
Psychosocial WB → Sport Participation	0.105	0.229	Not	No significant difference

Table 4.39 shows that, based on the analysis, no significant differences were found in the relationship paths among constructs by the type of sport students followed. All p-values are above the significance limit of 0.05, indicating that the influence of the variables in the model is consistent among the sports groups analyzed. Overall, these results indicate that the type of sport, whether individual or team, followed by students, does not moderate the relationship between constructs in this model. In other words, the influence of the environment, impact, intensity, motivation, parental support, and psychosocial conditions on sports participation runs uniformly across various types of sports.

4.4.Structural Model

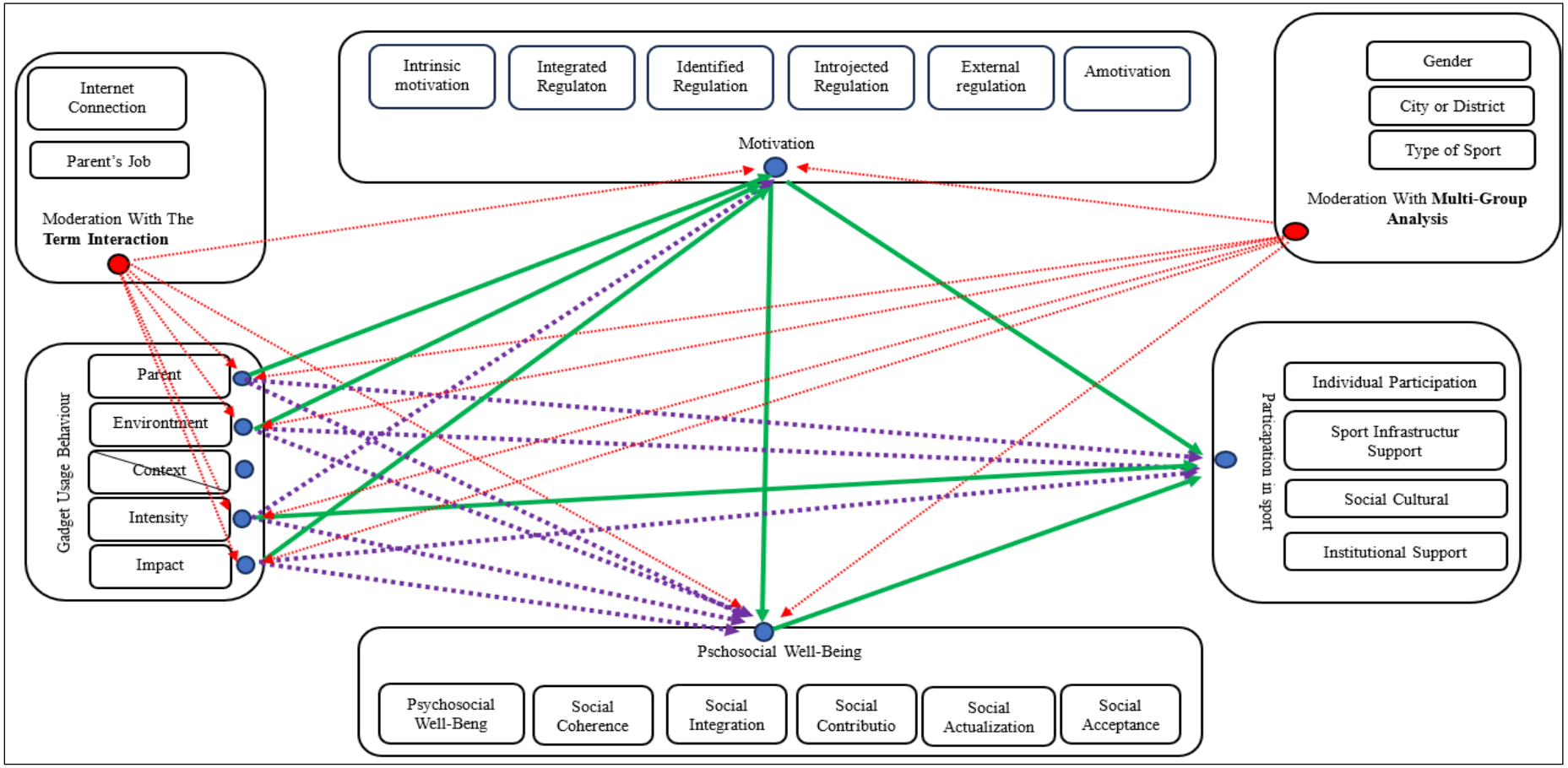
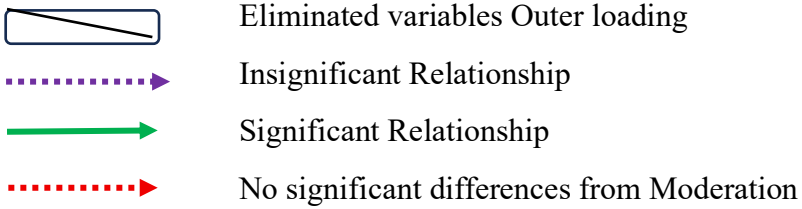


Figure 4.14. Structural Model With Truly Integrated Novelty

Note



Description of Figure 4.14 Based on Line Colors

1) Green solid lines (significant relationship): Indicate strong and statistically significant relationships. Several indicators of gadget usage behavior, such as impact and parent, have significant effects on motivation, which in turn influence psychosocial well-being and sport participation. These significant paths highlight the central role of motivation as the main connecting factor in the model.
2) Purple dotted lines (insignificant relationship): Represent statistically insignificant paths, whether toward motivation, sport participation, or psychosocial well-being. For example, environment and intensity indicators do not show significant direct effects on motivation or psychosocial well-being, suggesting that their contributions are weaker than those of other indicators.
3) Red dashed lines (no significant differences from moderation): Show the results of moderation tests (such as gender, city/district, type of sport, internet connection, and parents' jobs) where no significant differences were found. This suggests that the structural model remains consistent across different respondent groups.
4) Blue-crossed indicators (eliminated variables): Some indicators were removed due to low outer loading values, ensuring that only valid constructs were retained in the final measurement model.

Figure 4.14 summarises the main statistically significant pathways found in this study and highlights where this study extends previous research:

1) Dual negative antecedents of motivation

   Environmental barriers (e.g., lack of safe space, peer climate) and students' own perceptions of the impact of gadgets both suppress exercise motivation. While each has been studied separately, showing them operating in parallel, and with Impact twice as strong, demonstrates a compounded deterrent effect that has not been integrated before.

2) Parental support as a direct counter-force

   In the same model, Parent support offsets those deterrents, restoring motivation. Positioning parents as the only positive direct antecedent of motivation stands in sharp contrast to the predominantly negative environmental factors.

3) Motivation as a high-leverage pivot

   Once activated, motivation drives two outcomes simultaneously:

   a. Very large positive effect on psychosocial well-being, and
   b. Strong direct boost to sport participation. This dual-role mediation clarifies how psychological energy translates into both feeling better and doing more—an insight that many earlier models tested separately.

4) Intensity's direct, independent brake on behavior

   High Intensity of gadget use bypasses motivation entirely and directly lowers sport participation ($\beta = -0.108$). Showing this behavioral shortcut resolves mixed findings in the literature about whether screen time matters only through attitudinal change or also through time-budget displacement.

5) Well-being as a secondary driver of participation

   Enhanced Psychosocial Well-being ($\beta = +0.291$) still adds incremental variance to participation even after accounting for motivation, demonstrating a two-step cascade. (environmental factors, impact (e.g., gadget use), and parental support influence motivation, which in turn affects well-being, and ultimately leads to participation). that is rarely mapped in a single empirical model.

The model's novelty stems from its truly integrated lens: it threads together environmental constraints, digital use patterns, family support, motivational psychology, mental health, and overt behavior into a single structural chain, something rarely achieved in youth-sport research. By estimating the strength of every link, the analysis reveals an asymmetrical landscape in which intrinsic motivation emerges as

the dominant leverage point, screen-time intensity exerts a direct brake on participation, and certain environmental effects prove marginal—insights that pinpoint where interventions will be most cost-effective. Moreover, the framework balances explanation and prediction: it explains 68.7% of the variance in psychosocial well-being and 63.5 of the variance in sport participation, while still delivering positive Q^2 values that signal out-of-sample usefulness. In essence, the study connects digital-era risk factors and classic social resources via motivation to twin outcomes—well-being and sustained physical activity—within an empirically validated SEM-PLS model, offering both theoretical advancement and actionable guidance for schools and community programs.

4.5.Summary

Findings reveal a coherent mechanism: unsupportive school environments reduce motivation; perceived negative impact of devices also lowers motivation; higher screen-time intensity directly suppresses sport participation. Parental emotional support increases motivation, though not participation directly. Intrinsic motivation emerges as the pivotal driver—strongly associated with better psychosocial well-being and greater sport involvement—while psychosocial well-being further facilitates participation, forming a positive cycle between feeling better and being more active. Moderation tests indicate stability: neither internet connection nor parental occupation moderates the structural links, and MGA shows no meaningful path differences across gender, school type, or sport type. Overall, the model maps robust, broadly applicable pathways.

CHAPTER 5
DISCUSSION

5.1. Introduction

This chapter discusses the main findings of the research based on the developed theoretical model. The main focus of this chapter is the analysis of the relationships among latent variables in the structural model, the significance of the influence path based on bootstrapping results, and the interpretation of the predictive power of endogenous constructs using R^2 and Q^2 values. In addition, this chapter reviews the role of moderating variables, both through the interaction term approach and multi-group analysis (MGA), to evaluate whether the influence between constructs differs significantly across certain demographic characteristics. The discussion is conducted by drawing on relevant theories and comparing this study's results with previous findings to strengthen the scientific interpretation.

5.2. Discussion of Path Significance and Relationships Between Variables (Bootstrapping)

This section discusses the significance of relationships between variables based on the structural model's bootstrapping results. It focuses on the strength, direction, and meaning of causal relationships among constructs, providing a deeper understanding of the mechanisms underlying adolescents' sport participation behavior in the digital era.

5.2.1. The Influence of Gadget-Use Behaviour on Motivation, Psychosocial Well-Being, and Sport Participation.

This section discusses the role of gadget usage behavior as an initial determinant in the research structural model. The analysis focuses on how the dimensions of gadget use shape motivation, psychosocial well-being, and sports participation among adolescents in the context of rapidly advancing digital development.

5.2.1.1. The Negative Influence of Gadget-Use Environment on Sport Motivation

Research findings indicate that the environment in which gadgets are used significantly influences adolescent motivation, with a negative relationship. This

indicates that unstructured, overly stimulating, or passive digital environments can undermine adolescents' intrinsic motivation to participate in sports. In this context, gadgets are no longer neutral; they shape adolescents' daily attention patterns and behavioral priorities.

These results align with the findings of Twenge and Campbell (2018), who stated that increased digital media exposure correlates with decreased physical activity engagement and increased social isolation in adolescents. Similarly, Gansner et al. (2021) demonstrated that social media is often used as a primary coping mechanism, ultimately reinforcing dependence on digital environments and reducing physical activity participation. A study by Erez and Ağirkan (2024) Also confirmed an increase in sedentary behavior due to high-intensity digital device use.

However, the findings of this study provide a deeper explanation of the mechanisms involved. The digital environment not only reduces time spent on physical activity but also affects adolescents' reward systems. In line with Self-Determination Theory (Deci and Ryan, 2000)Intrinsic motivation develops when individuals feel a sense of autonomy, competence, and social connectedness. A digital environment dominated by instant feedback and rapid social validation can shift motivational orientation away from activities that require long-term effort, such as exercise, toward activities that provide immediate gratification.

Furthermore, excessive digital media use has been shown to correlate with disrupted sleep patterns (Lund et al., 2021), which ultimately reduces energy and physical readiness for exercise. Lederer-Hutsteiner et al. (2024) Also emphasize that poor sleep quality impacts cognitive and physical performance in adolescents. Furthermore, although fitness content is quite popular on digital platforms, Gazibara et al. (2024) found that exposure to such content does not always lead to increased actual physical activity. In fact, Bi et al. (2020) Caution that exposure to certain digital content can create a false perception of a healthy lifestyle without being accompanied by actual behavior.

The primary contribution of this research lies in positioning the gadget-use environment as a structural antecedent in the motivational chain that influences psychosocial well-being and sports participation. Beyond being merely an external factor, the digital environment is positioned as an element that systematically influences motivational dynamics. In the context of Indonesian adolescents, particularly in urban areas and districts of West Sumatra, these findings underscore the importance of a more

strategic approach to digital management. Interventions should not simply limit gadget use but also focus on creating a digital environment that fosters intrinsic motivation and sustained physical engagement.

5.2.1.2. The Absence of a Direct Relationship Between Gadget-Use Environment and Psychosocial Well-Being

The results of this study indicate that the gadget-use environment is negatively associated with psychosocial well-being, but this effect is not statistically significant. Therefore, Hypothesis H1b is not supported in the context of this study. This finding indicates that although there is a tendency for a less conducive digital environment to be associated with decreased psychosocial well-being, the relationship is not strong enough to constitute a direct influence.

These findings provide important insights: adolescents' psychosocial well-being is likely influenced more by interpersonal and intrapersonal factors than by the environments in which they use their devices. Consistent with the findings of James et al. (2023) The impact of the digital environment on well-being is often indirect and depends on the type of use, duration, and quality of social interactions facilitated by digital devices. In other words, it is not the presence of technology that determines well-being, but rather how it is used and the social context in which it operates.

Cao and Li's (2023) research also confirmed that individual characteristics, such as emotional state and social context, moderate the relationship between digital experiences and well-being. Adolescents with certain psychological vulnerabilities, such as a tendency toward depression or anxiety, may be more susceptible to the negative impacts of digital environments. Conversely, constructive use can contribute to improved quality of life and sleep satisfaction (Guza et al., 2022). This suggests that digital experiences do not stand alone but are integrated with pre-existing psychological and social conditions.

Furthermore, research by Guo et al. (2022) shows that internet use can improve well-being by increasing social capital and communication networks, ultimately reducing psychological distress. Meanwhile, Pénard et al. (2013) note that internet access can increase life satisfaction when used appropriately, but disproportionate use can actually reduce the quality of social relationships and trust. This complexity

emphasizes that the relationship between the digital environment and well-being is multidimensional and not always linear.

The main contribution of these findings lies in clarifying that the gadget use environment does not have a direct influence on psychosocial well-being in the tested structural model. In the context of Indonesian adolescents, these results strengthen the argument that interventions to improve well-being cannot focus solely on limiting gadget use. A more comprehensive approach is needed, encompassing strengthening face-to-face social relationships, family support, and the development of sustainable intrinsic motivation. Thus, this study positions psychosocial well-being as the result of a complex interaction between digital, psychological, and social factors, rather than solely the result of exposure to the digital environment.

5.2.1.3. The Absence of a Direct Relationship Between Gadget-Use Environment and Sport Participation

The results of this study indicate that the gadget use environment does not have a significant direct influence on adolescent sports participation. Although the direction of the relationship was positive, the strength of the effect was not sufficient to establish a meaningful structural relationship. Therefore, the hypothesis stating a direct influence of the gadget use environment on sports participation was not supported in this study.

These findings suggest that the presence or characteristics of digital environments in adolescents' daily lives do not automatically determine their involvement in sports activities. The digital environment appears to function more as a complementary space than as a primary determinant of physical behavior. Consistent with Hou et al. (2020)Technology-based environmental factors do not always directly influence an active lifestyle unless supported by internal factors such as intrinsic motivation or self-efficacy.

Qian and Kim (2025) also emphasized that technology use in a sports context is strongly influenced by individual self-efficacy. Adolescents with high levels of confidence in their physical abilities tend to utilize technology as a means of supporting sports activities. Conversely, without strong self-efficacy, the presence of technology is insufficient to encourage active engagement. This suggests that technology is not a direct trigger for behavioral change, but rather a tool whose effectiveness depends on the individual's psychological readiness.

Furthermore, Glebova et al. (2022) show that digitalization has changed more how individuals consume sports than how they actively participate in them. Exposure to sports content through digital media does not always translate into actual physical engagement. In other words, digital sports consumption is not synonymous with in-person sports participation.

The contribution of these findings lies in clarifying that the gadget use environment does not have a direct structural influence on sports participation in the tested model. Its influence is likely indirect and operates through motivational or psychosocial pathways. In the context of Indonesian adolescents, these results emphasize that strategies to increase sports participation cannot focus solely on managing the digital environment but must also emphasize strengthening intrinsic motivation, self-efficacy, and ongoing social support.

5.2.1.4. The Negative Influence of Perceived Gadget-Use Impact on Sport Motivation

The results of the study indicate that the negative impact of gadget use significantly influences exercise motivation, with a negative relationship. This means that the greater the perceived negative impact of gadget use, the lower the individual's motivation to engage in physical activity. Therefore, the hypothesis that gadget use influences motivation is supported in this study.

These findings reinforce the view that excessive gadget use, particularly for passive activities such as social media consumption or digital entertainment, can shift adolescents' behavioral orientation away from physical activity toward sedentary activities. Twenge and Campbell (2018) showed that increased intensity of interaction with digital media correlates with decreased engagement in physical activity and a weakening of psychological motivation to be active. From the perspective of Self-Determination Theory, intrinsic motivation develops when individuals feel autonomy, competence, and genuine involvement in meaningful activities (Ryan & Deci, 2020). Passive gadget use can diminish these experiences and gradually diminish the intrinsic drive to exercise.

Other research also shows that excessive screen time is associated with increased sedentary behavior and decreased physical activity (Piores et al., 2024). Reliance on the instant gratification of digital content can alter an individual's reward

system, making activities that require physical effort and long-term commitment less appealing than digital entertainment that provides quick gratification.

The main contribution of these findings is the confirmation that the impact of gadget use is not only a matter of duration, but also related to changes in adolescents' motivational orientation. In the context of Indonesian adolescents, these findings suggest that managing gadget use needs to be directed not only at limiting screen time but also at strengthening physical activity experiences that can meet adolescents' basic psychological needs. Therefore, effective intervention strategies should focus on restoring intrinsic motivation, not solely on reducing gadget use.

5.2.1.5. The Absence of a Direct Relationship Between Perceived Gadget-Use Impact and Psychosocial Well-Being

The analysis results indicate that gadget use has a negative relationship with psychosocial well-being, but this effect is not statistically significant. Therefore, the hypothesis stating a direct effect of gadget use on psychosocial well-being is not supported in this study. This finding indicates that although unhealthy gadget use can theoretically reduce social and emotional well-being, in the tested model, this effect is not strong enough to be considered a direct relationship.

These findings emphasize that the relationship between gadget use and psychosocial well-being is complex and non-linear. Verner-Filion et al. (2017) stated that the effects of technology on well-being are highly dependent on the context of use, goals, and individual characteristics. Similarly, Panova and Carbonell (2018) showed that the negative impact of smartphone use on mental health is not universal, but rather influenced by the intensity, motivation for use, and the individual's psychological state. This suggests that the impact of gadgets cannot be understood as a direct cause of decreased well-being, but rather as part of a broader dynamic.

Furthermore, several studies have shown that gadget use can also provide social benefits under certain conditions. Seabrook et al. (2016) emphasized that social media can increase social connections and emotional support when used actively and interactively. Thus, the impact of gadgets on psychosocial well-being can be ambivalent—both positive and negative—depending on how and in what context the technology is used.

The contribution of these findings lies in clarifying that the impact of gadget use does not have a direct structural influence on psychosocial well-being in this research model. This suggests that adolescents' psychosocial well-being is more influenced by other mediating or moderating factors, such as the quality of social relationships, family support, and individual psychological well-being. In the context of Indonesian adolescents, these findings emphasize that efforts to improve well-being cannot focus solely on limiting gadget use but must consider more comprehensive social and emotional dimensions.

5.2.1.6. The Absence of a Direct Relationship Between Perceived Gadget-Use Impact and Sport Participation

The results of the study indicate that the impact of gadget use does not have a significant direct effect on adolescent sports participation. Although theoretically, the negative impacts of gadgets—such as increased sedentary behavior or screen dependence—could be assumed to decrease physical activity, the structural model tested did not prove significant. Therefore, the hypothesis stating a direct effect of gadget use on sports participation is not supported.

These findings suggest that the impact of gadgets on exercise participation may not be direct, but rather through specific psychological or social mechanisms. Lyons et al. (2017) in their systematic review showed that the use of wearable devices or digital technology does not automatically increase physical activity, especially when user engagement is passive. Hartwig et al. (2019) also emphasized that changes in physical behavior depend more on individual commitment than on the technology itself. In other words, digital devices do not inherently change behavior, but merely provide a tool whose effectiveness depends on the individual's readiness and motivation.

Research by Nguyen et al. (2023) shows that technology can increase awareness of physical activity, but this increased awareness is not always followed by actual behavioral changes. This indicates a gap between exposure to information and actual action. Yen and Chiu (2019) also emphasize that technology is more effective when combined with other interventions, such as social support or motivational strategies.

The contribution of these findings lies in confirming that the impact of gadget use does not have a direct effect on sports participation in the context of the adolescents studied. This suggests that the relationship between gadgets and physical activity is not

simple and requires a mediation or moderation approach to be comprehensively understood. In the context of Indonesian adolescents, these results emphasize that increasing sports participation cannot be achieved simply by reducing the negative impacts of gadgets, but rather requires a focus on strengthening intrinsic motivation, self-efficacy, and providing a supportive social environment.

5.2.1.7. The Absence of a Direct Relationship Between Gadget-Use Intensity and Sport Motivation

The results of the study indicate that the intensity of gadget use does not have a significant direct effect on adolescents' exercise motivation. Therefore, the hypothesis that higher gadget use intensity lowers exercise motivation is not supported in this study. This finding indicates that the frequency or duration of gadget use alone is insufficient to explain the dynamics of adolescents' physical motivation.

These results confirm that exercise motivation is more influenced by the quality of the experience and the meaning of the activity than by the quantity of screen time. Zhang (2020) emphasized that the type of content accessed has a more significant influence than the duration of use. Adolescents who use gadgets for educational or productive purposes do not necessarily experience a decrease in motivation, while passive and consumptive use is more likely to weaken intrinsic motivation.

Furthermore, research on wearable device use shows that technology is only effective in increasing motivation when accompanied by external support such as a facilitator, coach, or mentoring system (R. H. Kim & Patel, 2018). Without this supportive context, activity tracking data or features do not automatically increase the desire to exercise. This is reinforced by Lyons et al. (2017), who showed that awareness generated by digital devices is not always followed by sustained increases in motivation.

These findings suggest that the intensity of gadget use is not a direct determinant of exercise motivation. Instead, motivation is more closely related to psychological factors such as the need for competence, autonomy, and social connectedness, as explained in Self-Determination Theory (Ryan & Deci, 2020). In the context of Indonesian adolescents, these results emphasize that strategies to increase exercise motivation cannot solely focus on reducing screen time but also need to be directed at strengthening positive experiences in physical activity and creating a supportive social environment.

The contribution of this study is to clarify that the quantity of gadget use does not directly determine the level of motivation, so a more comprehensive approach is needed to understand the relationship between digital behavior and exercise motivation.

5.2.1.8. The Absence of a Direct Relationship Between Gadget-Use Intensity and Psychosocial Well-Being

The results of the study indicate that the intensity of gadget use does not have a significant direct impact on adolescents' psychosocial well-being. Therefore, the hypothesis that higher gadget use intensity leads to lower psychosocial well-being is not supported in this study. This finding indicates that the duration or frequency of gadget use alone is not sufficient to explain adolescents' social and emotional well-being.

These findings align with the view that the relationship between screen time and well-being is contextual and non-linear. Stiglic and Viner (2019) emphasized that the impact of screen time on mental health is strongly influenced by the quality of the content and the social context of use. This means that using devices for active communication and social support can produce different experiences than passive use, such as scrolling without interaction. Twenge and Campbell (2018) also demonstrated that the negative impacts of screen time are not universal, but rather depend on usage patterns and purposes.

Panova and Carbonell (2018) added that while high-intensity smartphone use is often associated with symptoms of anxiety or depression, this relationship is mediated by individual psychological factors and motivations for use. In other words, adolescents with vulnerable emotional states may be more affected by gadget use than those with strong social support systems.

The contribution of these findings lies in confirming that the intensity of gadget use is not the sole factor directly determining psychosocial well-being. In this research model, well-being appears to be more influenced by the quality of social interactions, family support, and internal psychological factors than simply the duration of digital device use. In the context of Indonesian adolescents, these results underscore the importance of a more comprehensive approach to understanding the impact of digitalization on well-being, taking into account the dimensions of quality, purpose of use, and the accompanying social dynamics.

Thus, this study makes it clear that the duration of gadget use is not automatically detrimental to psychosocial well-being, but rather depends on how and in what context the technology is used.

5.2.1.9. The Negative Influence of Gadget-Use Intensity on Sport Participation

The results of the study showed that the intensity of gadget use significantly influenced sports participation, with a negative relationship. This means that the higher the intensity of gadget use, the lower the level of adolescent participation in sports activities. Therefore, the hypothesis that gadget use intensity influences sports participation is supported in this study.

This finding can be explained through the concept of the screen time displacement effect, a condition where time spent on screen-based activities displaces time that could otherwise be allocated for physical activity (Hoffmann et al., 2022). When adolescents spend more time using gadgets—especially for passive activities like watching videos or playing games—the time and energy available for exercise decreases. As a result, engagement in physical activity tends to decline.

Several studies support these findings. Alotaibi et al. (2020) found a negative relationship between the duration of technology use and physical activity levels in school-aged children. Kenney and Gortmaker (2017) also showed that high screen time correlated with lower participation in organized physical activity and an increased risk of a sedentary lifestyle. These findings confirm that the intensity of gadget use plays a role in shaping adolescents' physical behavior patterns.

Psychologically, intense gadget use can shift adolescents' activity preferences. Screen-based activities often provide instant gratification and quick visual stimulation, while exercise requires physical effort, commitment, and perseverance. These differences in characteristics can make digital activities seem more appealing than physical activities, especially for adolescents who lack strong intrinsic motivation.

The primary contribution of these findings is the confirmation that it is not simply the presence of gadgets, but the intensity of their use that has direct implications for sports participation. In the context of Indonesian adolescents, these results demonstrate the importance of managing the duration of gadget use as part of a strategy to increase physical activity. However, reducing screen time needs to be balanced with providing engaging and meaningful alternative physical activities to ensure sustainable behavior change.

5.2.1.10 The Positive Influence of Parental Mediation in Gadget Use on Sport Motivation

The results of the study indicate that parents' role in guiding and supervising gadget use has a significant and positive influence on adolescents' motivation to exercise. This means that the greater parental involvement in managing their children's gadget use, the higher the children's motivation to engage in sports activities. Therefore, this study supports the hypothesis that parental roles influence motivation.

These findings emphasize the importance of family social support in shaping adolescents' motivational orientation. From the perspective of social support theory, emotional, instrumental, and regulatory support from parents are important factors in encouraging children's involvement in physical activity. Moraes (2022) showed that supportive parental behaviors—such as providing appreciation, guidance, and positive reinforcement—correlate with increased motivation in children for sports activities. Similarly, Sari (2022) emphasized that parental involvement in creating a positive motivational climate can increase children's intrinsic motivation to participate in physical activity.

In the context of gadget use, parents' role is not limited to limiting screen time, but also includes providing guidance on the type of content consumed and instilling the value of physical activity as part of a healthy lifestyle. Andayani et al. (2023) showed that communicative and educational regulation of gadget use can help children develop a balance between digital and physical activity. Thus, parents' role serves as a protective factor against the potential negative impacts of gadget use.

Theoretically, this finding can also be explained through Self-Determination Theory, which states that parental support can strengthen adolescents' basic psychological needs, particularly the need for relatedness (Ryan & Deci, 2020). When adolescents perceive parental support and involvement, they tend to be more motivated to engage in positive activities, including sports.

The main contribution of these findings is the confirmation that parental involvement is a significant factor in shaping exercise motivation in adolescent gadget users. In the context of Indonesian adolescents, these results suggest that strategies to increase exercise motivation need to involve families as key actors. Interventions that focus on educating parents about managing gadget use and the importance of physical

activity have the potential to have a more sustainable impact than approaches that only target adolescents individually.

5.2.1.11. The Absence of a Direct Relationship Between Parental Mediation in Gadget Use and Psychosocial Well-Being

The results of this study indicate that parents' role in directing gadget use does not have a significant direct influence on adolescents' psychosocial well-being. Therefore, the hypothesis stating a direct influence of parental role on psychosocial well-being was not supported in this study. This finding indicates that although parental involvement is important in parenting, in the context of the model tested, this influence does not directly determine the level of adolescents' social and emotional well-being.

Theoretically, Bronfenbrenner, through his developmental ecology theory, positions the family as a microsystem that has a significant influence on individual development (Navarro & Tudge, 2023). However, in the context of adolescent gadget use, psychosocial well-being appears to be influenced by a more complex interaction between family factors, peers, and the digital experience itself. Qu et al., (2025) show that the effectiveness of parental mediation on technology use is highly dependent on the quality of family relationships. This means that it is not simply supervision or control that is decisive, but rather the dynamics of the relationship between parents and children.

Several studies have also shown mixed results regarding the influence of parental roles on psychosocial well-being in the digital context. Peebles and Chen (2023) emphasized that overly restrictive mediation strategies can trigger resistance in adolescents, especially during a developmental phase marked by an increasing need for autonomy. This may explain why the direct effect was not found to be significant in this research model. Adolescents in the independence-seeking stage may interpret intense supervision as restrictive, thus not directly improving their perceived well-being.

These findings make an important contribution by confirming that parental involvement in gadget use does not automatically translate into improved psychosocial well-being. The effect is likely indirect and operates through other pathways, such as the formation of healthy habits, family communication, or broader emotional support. In the context of Indonesian adolescents, these results suggest that efforts to improve psychosocial well-being cannot rely solely on parental regulation of gadget use but

rather require consideration of the quality of family relationships and the adolescent's overall social dynamics.

Thus, adolescent psychosocial well-being is understood as the result of multidimensional interactions involving family, social, and psychological factors, not simply the result of the level of parental control over gadget use.

5.2.1.12. The Absence of a Direct Relationship Between Parental Mediation in Gadget Use and Sport Participation

The results of the study indicate that parents' role in supervising and directing gadget use does not have a significant direct influence on adolescent sports participation. Therefore, the hypothesis stating a direct influence of parental role on sports participation is not supported in this study. This finding suggests that parental regulation of gadget use does not automatically increase adolescents' involvement in sports activities.

Theoretically, various studies have emphasized the importance of parental support in increasing physical activity in children and adolescents (Yu et al., 2024). This support can take the form of emotional encouragement, logistical support, or modeling active behavior. However, in the context of gadget use, these influences do not appear to be directly effective. This indicates that monitoring gadget use alone is insufficient to encourage sports participation without active parental involvement in children's physical activity.

Doggui et al. (2021) emphasize that parental influence on physical behavior tends to weaken as adolescents age and autonomy increase. During this phase, the decision to participate in sports is more influenced by internal motivation, peer relationships, and personal interests than by family control. Furthermore, Vollmer et al. (2019) show that socioeconomic factors and family cultural capital also influence adolescents' opportunities to engage in sports, so the role of parents cannot be understood separately from the broader social context.

These findings make an important contribution by demonstrating that in the context of increasingly digitalized environments, the dynamics of adolescent sports participation are becoming increasingly complex. Parents' role in regulating gadget use likely serves as a protective factor against the risk of sedentary behavior, but is not a

direct determinant of sports engagement. In other words, gadget supervision is not synonymous with encouraging physical activity.

In the context of Indonesian adolescents, these results suggest that increasing sports participation requires a more comprehensive approach, including strengthening intrinsic motivation, peer support, and creating a school and community environment that supports physical activity. Parents' roles remain crucial, but their influence on sports participation appears to be indirect and needs to be understood within the broader social ecosystem.

Thus, adolescent sports participation is not only determined by parental control over gadget use, but by a complex interaction between family, social, and psychological factors.

5.2.1.13. Summary of Findings for Hypothesis 1

Overall, the findings of Hypothesis 1 indicate that the relationship between gadget use behavior and youth sports participation dynamics is neither simple nor linear. Of the twelve pathways tested, only a few relationships proved directly significant, while most showed insignificant effects. This pattern provides a deeper understanding that digital behavior does not automatically determine psychosocial well-being or sports participation, but rather operates through more complex mechanisms.

First, the environmental dimension of gadget use did not show a significant direct effect on psychosocial well-being and sports participation, although it had a negative effect on motivation. This suggests that the digital context alone is insufficient to explain adolescents' physical behavior. The digital environment appears to function as a setting that influences motivational orientation, but not as a direct determinant of action. Thus, the influence of the digital environment is more indirect and dependent on internal psychological factors.

Second, the impact dimension of gadget use shows a clearer pattern on motivation. The negative impact of gadgets was shown to significantly reduce exercise motivation, but had no direct impact on psychosocial well-being or exercise participation. This finding confirms that motivation plays a key role in bridging the influence of digital technology on physical behavior. This means that the impact of gadgets does not directly reduce exercise participation, but rather first weakens intrinsic motivation, which ultimately influences physical engagement.

Third, the intensity of gadget use showed a differential pattern. Intensity had no significant effect on motivation or psychosocial well-being, but had a direct negative effect on sports participation. This finding supports the concept of the screen time displacement effect, where the duration of gadget use displaces time spent on physical activity. However, intensity alone is not sufficient to explain psychological aspects such as motivation and well-being, so the quantity of use does not always equate to psychosocial impacts.

Fourth, parental involvement demonstrated a significant positive effect on motivation, but not on psychosocial well-being or sports participation. This suggests that parental support is more effective in strengthening adolescents' internal drives than directly changing physical behavior. In the context of increasingly autonomous adolescent development, parental influence appears to operate through the formation of values and orientations, rather than direct control of behavior.

Integratively, the synthesis of Hypothesis 1 findings shows that motivation is a central variable in this model. Digital influences—whether through the environment, impact, or parental role—tend to operate through motivational pathways before affecting sports participation and psychosocial well-being. In other words, technology is not a deterministic factor, but rather a contextual element whose interaction with psychological and social factors determines the final outcome.

The primary contribution of this synthesis is the confirmation that the relationship between gadget use and sports participation among Indonesian adolescents is multidimensional. Not all aspects of gadget use directly impact well-being or physical participation. Instead, the model suggests indirect pathways and a more complex interaction between digital, motivational, and social factors. These findings expand the literature by demonstrating that in the digital age, interventions to increase physical activity need not simply limit gadget use but must also strengthen intrinsic motivation, self-efficacy, and ongoing social support.

Thus, Hypothesis 1 generally asserts that gadget use behavior plays a role in shaping youth sports dynamics, but its influence depends on internal psychological mechanisms and the accompanying social context. This model provides a more comprehensive conceptual framework for understanding Generation Z's sports engagement amidst the intensifying digital transformation.

5.3. The Influence of Psychosocial Well-Being on Sport Participation

This hypothesis examines the influence of psychosocial well-being on adolescent sports participation. The analysis found that this hypothesis was significantly supported. This means that the better the adolescents' psychosocial well-being, the higher their likelihood of participating in sports activities. These findings suggest that positive mental and social well-being are important factors in fostering sustained physical engagement.

These results align with various studies showing a positive relationship between mental health and sports participation, particularly among adolescents. Eather et al. (2023) found that individuals who actively participate in sports exhibit higher levels of psychological well-being than those who do not participate. Similarly, Graupensperger et al. (2021) showed that adolescents who consistently engage in sports activities have better mental health scores and lower levels of anxiety.

However, the findings of this study not only confirm a correlational relationship but also demonstrate the role of psychosocial well-being as a motivating factor for participation. Adolescents with good psychosocial well-being tend to have more stable emotional energy, higher self-esteem, and more positive social engagement, all of which support participation in sports activities. In the context of team sports, social interaction and a sense of community also reinforce positive psychological experiences (Guddal et al., 2019).

Theoretically, these findings are consistent with Self-Determination Theory, which states that individuals with good psychological well-being are better able to fulfill their needs for autonomy, competence, and social connectedness, thus being more motivated to engage in meaningful activities such as exercise (Ryan et al., 2022). Good well-being provides a psychological foundation that allows individuals to maintain commitment and consistency in physical activity.

The key contribution of these findings is the affirmation that psychosocial well-being is not only a result of sports participation but also a crucial prerequisite for such engagement. In the context of Generation Z in West Sumatra, these results suggest that efforts to increase sports participation need to consider the mental and social well-being dimensions as strategic factors. Physical activity programs that focus solely on the physical aspects without addressing the psychosocial well-being of adolescents are likely to be suboptimal.

Thus, the relationship between psychosocial well-being and sport participation can be understood as a mutually reinforcing one, where good well-being encourages participation, and continued participation has the potential to further enhance well-being.

5.4. The Influence of Motivation on Sport Participation

This hypothesis examines the influence of motivation on adolescent sports participation levels. The analysis found that motivation has a strong and highly significant influence on sports participation. Thus, this hypothesis is empirically supported. These findings indicate that motivation is a major determinant in adolescents' decisions to engage in and persist in sports activities.

These results align with Self-Determination Theory, which asserts that motivation—especially autonomous or intrinsic motivation—is the primary basis for individual engagement in physical activity (Ryan & Deci, 2020). Adolescents who are motivated by enjoyment, personal interest, and awareness of health benefits tend to demonstrate more consistent participation than those who are driven solely by external factors such as rewards or social recognition.

Various studies support these findings. Nielsen et al. (2024) showed that autonomous motivation is the strongest predictor of sports participation in adolescent girls. Liu et al. (2023) also emphasized that perceived intrinsic usefulness and enjoyment play a significant role in increasing sports engagement in adolescents. Meanwhile, Kovács et al. (2022) showed that long-term sports involvement actually strengthens intrinsic motivation, creating a positive cycle between motivation and participation.

In contrast, extrinsic motivation, which is solely based on external rewards, tends to be less effective in sustaining long-term participation (Bovenko, 2021). This suggests that the sustainability of sports participation is determined more by the quality of motivation than simply the presence of external incentives.

In the context of this research, motivation serves not only as a predictor variable but also as a central mechanism bridging the influence of digital and social factors on sports participation. This finding reinforces motivation's position as the core of the developed structural model. This means that despite the influence of the digital environment, the intensity of gadget use, and the role of parents, the final decision to

participate in sports is largely determined by the strength of adolescents' internal motivation.

The primary contribution of these findings is the confirmation that, in the context of Generation Z in West Sumatra, increased sports participation cannot be achieved without strengthening intrinsic motivation. Intervention programs that focus solely on limiting gadgets or providing sports facilities without creating enjoyable, meaningful, and competent experiences are unlikely to result in sustained engagement.

Thus, motivation proved to be the most strategic factor in explaining youth sports participation. This strong and significant relationship suggests that developing psychological and social support systems capable of nurturing intrinsic motivation is key to encouraging sustained sports participation.

5.5. The Influence of Motivation on Psychosocial Well-Being

This hypothesis examines the influence of motivation on psychosocial well-being. The analysis found that motivation has a very strong and significant effect on improving psychosocial well-being. Thus, this hypothesis is empirically supported. These findings suggest that adolescents who are highly motivated in sports activities tend to have better psychological and social well-being.

These results confirm that motivation is not only a driving factor for sports participation but also plays a direct role in shaping psychosocial well-being. Adolescents who are intrinsically motivated to exercise—out of enjoyment, personal interest, or awareness of health benefits—tend to experience increased self-confidence, self-control, and life satisfaction. These findings align with Biddle et al. (2018), who stated that engagement in internally motivated physical activity is positively correlated with emotional and social health.

Theoretically, Self-Determination Theory explains that intrinsic motivation contributes to the fulfillment of basic psychological needs, namely autonomy, competence, and social connectedness (Ryan & Deci, 2020). When these needs are met through physical activity, individuals tend to experience improved psychological well-being. Schnohr et al. (2021) also showed that consistent physical activity can reduce psychosocial stress and improve quality of life. In other words, motivation to exercise becomes a gateway to improving mental and emotional well-being.

Research by Z Liu et al. (2023) shows that physical activity of adequate duration contributes to improved psychosocial functioning in adolescents. This reinforces the

study's finding that strong motivation drives consistent engagement, which ultimately has a positive impact on well-being. Reigal et al. (2020) also confirmed that a challenging and enjoyable exercise environment can strengthen motivation while improving psychological functioning.

The primary contribution of these findings is the confirmation that motivation is a central variable that not only explains sports participation (as stated in Hypothesis 3) but is also a key determinant of psychosocial well-being. In this research model, motivation serves as the primary driver linking physical activity to psychological outcomes. Therefore, improving adolescent well-being is inextricably linked to efforts to strengthen their intrinsic motivation for sports.

In the context of Generation Z in West Sumatra, these results suggest that strategies to improve psychosocial well-being need to focus on developing enjoyable, meaningful, and competent sporting experiences. Interventions that solely emphasize external obligations or demands without building internal motivation are unlikely to deliver optimal psychosocial impact.

Thus, motivation is proven to be a key factor in improving the psychosocial well-being of adolescents, while strengthening the position of motivation as the core of the overall structural model of this study.

5.6. Moderation Analysis: Interaction Effects and Multi-Group Differences

This hypothesis tests whether demographic factors—including internet connection, parental occupation, gender, school region (city/district), and preferred sport—moderate the relationship between gadget use behavior, motivation, psychosocial well-being, and sports participation. Based on the results of interaction term testing and multi-group analysis, no significant moderating effect was found across all structural paths analyzed. Therefore, the hypothesis that demographic factors moderate the relationship between variables in this model is not supported.

These findings indicate that the relationships between gadget use, motivation, psychosocial well-being, and sports participation are relatively consistent across demographic groups. This means that the strength and direction of the influence between the key variables in the model do not change significantly based on differences in respondent characteristics.

5.6.1. Model Stability Across Levels of Internet Connection

The results of the moderation test indicate that internet connection level does not moderate the relationship between gadget use behavior, motivation, psychosocial well-being, and sports participation. In other words, the strength and direction of the relationships between the variables in the model remain consistent, regardless of differences in the quality of internet access respondents have.

Conceptually, internet connection is often assumed to play a crucial role in shaping adolescents' digital behavior patterns. Faster and more stable access can increase exposure to digital content, including passive entertainment and sports and fitness-related content. However, this study's findings suggest that differences in access are not strong enough to alter the psychological mechanisms linking device use to sports motivation and participation.

From the perspective of Media Displacement Theory, time spent on screen-based activities tends to displace physical activity (Hall & Liu, 2022). However, in the context of Generation Z in West Sumatra, internet connection appears to function more as a general and relatively homogeneous means of access, rather than as a differentiating factor in exercise behavior. This is likely due to the increasingly widespread internet access among adolescents, so that variations in connection quality no longer create significant differences in motivational patterns or psychosocial well-being.

Furthermore, the type of internet use is also an important factor. Good access does not automatically lead to engagement in digital-based physical activities, such as fitness apps or online exercise content. Adolescents tend to use the internet for social interaction and passive entertainment, so internet connection does not directly strengthen or weaken the relationship between motivation and exercise participation.

These findings indicate that internal psychological factors, such as intrinsic motivation and perceived well-being, have a more dominant influence than digital infrastructure factors. Therefore, improving internet connection quality alone is insufficient to change the dynamics of youth sports participation without interventions that address motivational and psychosocial aspects.

Overall, the lack of a moderating effect of internet connection strengthens the stability of the developed structural model. The relationships between gadget use, motivation, psychosocial well-being, and sports participation were found to be consistent across different levels of internet access, suggesting that the primary

determinants of Generation Z's sports participation are psychological rather than technological.

5.6.2. Model Stability Across Parental Occupation Backgrounds

The results of the moderation test indicate that parental occupational background does not moderate the relationship between gadget use behavior, motivation, psychosocial well-being, and sports participation. Thus, the structural relationships in this research model remain consistent regardless of the variation in the respondents' parental occupational status.

Theoretically, parental employment is often associated with economic support capacity, parenting patterns, and family values, which can influence children's habits and lifestyles. Within the Ecological Systems Theory framework Bronfenbrenner, parents are part of the microsystem environment that has a direct influence on children's development, including the formation of physical activity habits (Navarro & Tudge, 2023). However, the findings of this study indicate that in the context of Generation Z, the influence of parental employment is not strong enough to change the relationship between motivation, psychosocial well-being, and sports participation.

This can be explained by the increasing autonomy of adolescents in making decisions regarding lifestyle and physical activity. Generation Z grew up in a more open and digitalized environment, where peer influences, social media, and personal preferences often outweigh parental occupational background. In other words, while parental occupation may shape the overall family environment, it does not directly strengthen or weaken psychological relationships in this model.

Furthermore, parental employment does not always reflect the quality of emotional support or involvement in children's activities. Previous research suggests that the quality of parental interaction and support is more influential than employment status itself (Qu et al., 2025). Therefore, the insignificant moderating effect indicates that relational and psychological aspects within the family may be more influential than formal employment status.

These findings also confirm that the primary determinants of adolescent sports participation in this study were internal and psychological, particularly motivation and well-being. Therefore, intervention approaches based on socioeconomic category or parental occupation are likely less effective than strategies focused on strengthening intrinsic motivation and providing meaningful social support.

Overall, the lack of a moderating effect of parental occupation strengthens the stability of the structural model. The relationships between gadget use, motivation, psychosocial well-being, and sports participation proved relatively consistent across different parental occupational backgrounds, suggesting that Generation Z's sports participation dynamics are more influenced by psychological factors than by family socioeconomic characteristics.

5.6.3. Gender Invariance in the Structural Relationships

The results of the multi-group analysis showed no significant differences in the relationships between variables between male and female respondents. Thus, gender did not moderate the relationship between gadget use behavior, motivation, psychosocial well-being, and sports participation in the tested model. This finding indicates that the strength and direction of influence between the main variables in this study were relatively consistent across both gender groups.

Theoretically, various studies have shown differences in sports participation based on gender, particularly in terms of intensity, type of sport chosen, and social factors influencing engagement (Guddal et al., 2019). However, the findings of this study suggest that despite possible descriptive differences in participation levels, the psychological mechanisms underlying sports participation—such as the role of motivation and psychosocial well-being—are similar in both men and women.

Within the framework of Self-Determination Theory, basic psychological needs such as autonomy, competence, and social connectedness are universal and not limited by gender differences (Ryan & Deci, 2020). This may explain why the structural pathways in this model show no significant variation between male and female groups. Intrinsic motivation, as the primary determinant of sports participation, appears to operate through relatively similar psychological mechanisms in both groups.

Furthermore, in the context of Generation Z growing up in an increasingly homogenous digital environment, access to information, sports content, and physical activity opportunities is relatively equal between men and women. This situation may reduce traditional gender-based disparities in sports engagement patterns. Therefore, any biological or social differences that may exist are not strong enough to alter the structural relationships between the variables in this research model.

The primary contribution of these findings is the confirmation that the developed model of sports participation is stable and applicable across genders. This suggests that

interventions to enhance motivation and psychosocial well-being to promote sports participation can be designed without the need for specific gender-based strategies. Focusing on strengthening intrinsic motivation and social support is likely more effective than approaches that solely emphasize gender-based differences.

Thus, the absence of a gender moderating effect actually strengthens the robustness of the model, as it shows that the psychological mechanisms in Generation Z's sports participation are relatively universal.

5.6.4. Structural Consistency Across Urban and Regency School Contexts

The results of the multi-group analysis showed no significant differences in the relationships between variables between respondents from schools in urban and district areas. Thus, school location did not moderate the relationship between gadget use behavior, motivation, psychosocial well-being, and sports participation. This finding indicates that the developed structural model has stability across geographic contexts.

Conceptually, regional differences—particularly between cities and districts—are often assumed to influence access to sports facilities, exposure to technology, and opportunities for physical participation. However, in this study, these differences were not strong enough to alter the underlying psychological patterns of sports participation. This indicates that internal factors such as motivation and psychosocial well-being play a more dominant role than geographic characteristics.

In the context of increasingly widespread digitalization, access to information and technology is no longer a major differentiator between adolescents in urban and rural areas. Zimmermann and Reer (2022) stated that adolescents' digital media use and online interaction patterns tend to be homogeneous across regions, thus reducing the influence of geographic differences on daily behavior. This finding aligns with Krause et al. (2023), who emphasized that psychological variables often have a stronger influence than social or geographic background.

Furthermore, within the framework of Self-Determination Theory, the basic needs for autonomy, competence, and social connectedness are universal and independent of geographic location (Ryan et al., 2022). Adolescents in both urban and rural areas have similar psychological needs for building motivation and involvement in sports. This may explain why the relationship between motivation, psychosocial well-being, and sports participation remains consistent across both contexts.

The primary contribution of these findings is the confirmation that the developed sports participation model has cross-context validity. This means that motivational and psychosocial well-being-based interventions to increase sports participation can be implemented relatively uniformly in both urban and district schools. Approaches that emphasize strengthening psychological and social factors are likely to be more effective than strategies that focus solely on geographic differences.

Thus, the absence of a moderating effect of school location suggests that Generation Z youth sports participation is more determined by internal psychological mechanisms than by their geographic location.

5.6.5. Structural Stability Across Preferred Sport Types

The results of a multi-group analysis based on preferred sport type—both individual and team sports—indicated no significant differences in the relationships between variables in the two groups. Thus, sport type preference did not moderate the relationship between gadget use behavior, motivation, psychosocial well-being, and sport participation. This finding suggests that the psychological mechanisms in the tested model are consistent regardless of the type of sport chosen by adolescents.

Theoretically, team sports are often assumed to provide greater social benefits than individual sports, particularly in terms of social connectedness and group support (Guddal et al., 2019). Meanwhile, individual sports are often associated with strengthening self-regulation and personal competence. However, in the context of this study, these differences in characteristics did not alter the structural relationship between motivation, psychosocial well-being, and sports participation.

This can be explained through the framework of Self-Determination Theory, which states that the fulfillment of basic psychological needs—autonomy, competence, and relatedness—can be achieved through both team and individual sports (Ryan & Deci, 2020). This means that as long as the activity fulfills basic psychological needs, the type of sport is not a primary differentiating factor in shaping motivation or psychosocial well-being.

These findings also suggest that the determining factor in sports participation lies not in the categorization of the sport type, but rather in the quality of the experience individuals experience while participating. Adolescents who experience enjoyment, appropriate challenges, and social support in sports activities—whether individual or team—will exhibit relatively similar patterns of motivation and well-being.

The primary contribution of these findings is the confirmation that the developed model of sport participation is stable across sport preferences. This suggests that strategies to increase participation need not be fundamentally differentiated based on sport preference. Interventions should focus on strengthening intrinsic motivation and creating meaningful sport experiences, regardless of whether the activity is performed individually or in a team.

Thus, the absence of a moderating effect of sport type further strengthens the robustness of this research model, and shows that the dynamics of Generation Z's sport participation are more determined by internal psychological factors than by the characteristics of the chosen activity.

5.6.6. Synthesis of Moderation Findings

Overall, the results of the moderation test indicate that demographic factors—including internet connection, parental occupation, gender, school area (city/district), and preferred sports—do not moderate the relationship between gadget use behavior, motivation, psychosocial well-being, and sports participation. The absence of this moderating effect indicates that the developed structural model has stability and consistency across demographic groups.

These findings have important theoretical implications. In many previous studies, demographic variables are often assumed to be the primary differentiating factors in adolescent exercise behavior and well-being. However, the results of this study indicate that internal psychological mechanisms—particularly motivation and psychosocial well-being—are more dominant than external characteristics such as gender, family background, or geographic context. This reinforces the perspective of Self-Determination Theory, which emphasizes that basic psychological needs (autonomy, competence, relatedness) are universal and transcend demographic boundaries (Ryan et al., 2022).

The insignificant moderating effect also indicates that Generation Z in West Sumatra exhibits relatively homogeneous behavioral patterns in the context of the relationship between gadget use and sports participation. Increasingly widespread digitalization, widespread access to information, and a youth culture increasingly connected through social media have likely narrowed demographic-based behavioral gaps. Thus, psychological and motivational variables are more central to explaining sports engagement than social categorical variables.

Furthermore, the stability of this model indicates that interventions to increase sports participation should not focus solely on demographic segmentation. A more effective approach is likely to be strategies oriented toward strengthening intrinsic motivation, improving psychosocial well-being, and managing healthy gadget use behaviors. In other words, policies and intervention programs that target universal psychological aspects have the potential to be more impactful than approaches based on group differences.

Methodologically, the lack of moderation also strengthens the robustness of the tested structural model. The relationships between gadget use behavior, motivation, psychosocial well-being, and sports participation were found to be stable and consistent across various subgroups. This enhances the model's external validity and suggests that the study's findings have broader generalizability within the context of the Generation Z adolescent population.

Thus, the synthesis of these moderation results confirms that the dynamics of Generation Z's sports participation are determined more by internal factors and psychological mechanisms than by differences in demographic characteristics. This stability is an important contribution of the study, as it demonstrates that the developed conceptual model is robust and cross-contextual.

5.7. Grand Integrative Discussion

This chapter as a whole aims to understand how gadget usage behavior, motivation, and psychosocial well-being interact in shaping Generation Z's sports participation. The results of the study indicate that sports participation does not stand as a single phenomenon, but rather is the result of a series of psychological mechanisms that are interconnected in a coherent structural system.

The main findings of this study confirm that motivation is the central driving force in the model. Motivation has a strong direct influence on sports participation and also acts as a link between gadget use behavior and psychosocial well-being. Conceptually, this suggests that gadget use does not directly determine sports behavior; its influence is mediated and reinforced through individual motivational dynamics. In other words, the impact of digitalization on adolescents' lifestyles is not deterministic, but rather depends on how individuals interpret and manage their digital experiences.

The strong relationship between motivation and psychosocial well-being suggests a reciprocal effect between physical engagement and psychological well-being. Adolescents with high exercise motivation tend to experience increased self-confidence, life satisfaction, and social connectedness. Conversely, good psychosocial well-being strengthens the sustainability of exercise participation. This pattern creates a positive reinforcement loop, where physical activity and mental health continuously reinforce each other.

Meanwhile, gadget use behavior shows a more complex pattern of influence. Intensity of gadget use has been shown to negatively impact sports participation, supporting the phenomenon of screen time displacement, where screen time displaces physical activity. However, not all aspects of gadget use directly impact psychosocial well-being. This indicates that the context, quality, and meaning of gadget use are more important than simply the frequency or access to the technology itself.

Parental involvement has been shown to have a positive effect on motivation, but not directly on psychosocial well-being or sports participation. These findings suggest that family support serves as a motivational reinforcement, but the final decision to participate in sports remains within the adolescent's autonomy. Generation Z appears to be increasingly independent in determining their lifestyle, so internal factors play a more dominant role than external controls.

The results of the moderation test further strengthen this conclusion. The lack of significant differences based on gender, school region, internet connection, parental occupation, or sport type indicates that the developed model is stable across contexts. The psychological mechanisms underlying Generation Z's sports participation are relatively universal and independent of specific demographic characteristics. This indicates that basic psychological needs—such as autonomy, competence, and social connectedness—apply consistently across groups.

Theoretically, this study expands understanding within the Self-Determination Theory framework by integrating digital-era risk variables into a model of sports participation. This study demonstrates that digitalization is not merely a threat to physical activity, but a contextual factor whose effects are highly dependent on individual motivational dynamics. Thus, this study proposes an integrated conceptual model that links digital behavior, intrinsic motivation, psychosocial well-being, and sports participation in a single, empirically tested structural chain.

Practically, the implications of this research emphasize the importance of intervention strategies that focus on strengthening intrinsic motivation and psychosocial well-being, rather than simply limiting gadget use. School sports programs, educational policies, and family approaches should be directed toward creating meaningful, enjoyable sports experiences that support adolescents' psychological needs. Approaches based on demographic segmentation appear to be less effective than strategies that target universal psychological factors.

In conclusion, this chapter confirms that Generation Z's sports participation in the digital age cannot be explained solely through technological or demographic factors. The primary determinants are the motivational dynamics and psychosocial well-being that shape how adolescents respond to their digital environment. The model developed in this study suggests that although gadgets have become an integral part of adolescents' lives, motivation remains key in determining whether Generation Z will become trapped in sedentary patterns or develop into active, healthy, and socially connected individuals.

5.8. Practical Implications

The findings of this study provide valuable insights for schools, families, and policymakers in West Sumatra on how to effectively foster youth motivation, enhance psychosocial well-being, and increase participation in sport within the digital era. Translating statistical results into actionable strategies is essential to ensure that the benefits extend beyond theory into meaningful practice. The following eight practical implications are designed as a comprehensive framework that addresses the central role of motivation, the influence of environmental and digital factors, the importance of parental involvement, and the integration of health and policy measures. Together, these practical implications serve as a roadmap for building a supportive ecosystem where students are empowered to lead active, balanced, and healthy lifestyles despite the challenges of modern digital culture.

5.8.1. Prioritise Intrinsic Motivation Programmes

Motivation emerges as the central driver of both students' well-being and their participation in sport. Schools should therefore prioritise strategies that strengthen intrinsic motivation, such as goal-setting activities, progress-oriented feedback, and autonomy-supportive teaching practices. Allowing students to choose preferred physical activities can enhance enjoyment, personal ownership, and a sense of

competence. Strengthening intrinsic motivation is a sustainable pathway to improving both mental well-being and long-term sport engagement.

5.8.2. Create an Activity-Friendly School Environment

An unsupportive school environment may reduce students' enthusiasm for physical activity. Schools should ensure adequate sports facilities, allocate sufficient time for physical education, and integrate short movement breaks into academic lessons. Encouraging a school culture that values physical activity as part of holistic development can increase students' motivation to participate consistently.

5.8.3. Manage Digital Impact Strategically

Excessive gadget use may reduce students' motivation and engagement in sports activities. Schools should implement digital well-being education programmes that promote balanced screen time and responsible device use. Establishing phone-free zones during physical education classes and teaching self-regulation skills can help students manage their digital habits more effectively while maintaining active lifestyles.

5.8.4. Activate Parental Support

Parental involvement plays a meaningful role in strengthening students' motivation to participate in sport. Schools can organise short workshops or information sessions to guide parents in providing positive and non-pressuring encouragement. Supporting children through attendance at sports events, recognising effort rather than outcomes, and modelling active behaviour at home can reinforce students' commitment to sport.

5.8.5. Balance Training Load to Prevent Burnout

Excessive physical demands without adequate recovery may reduce students' enthusiasm and increase fatigue. Teachers and coaches should design balanced training programmes that include appropriate rest periods and progressive intensity. Monitoring students' physical and emotional responses to training can help prevent burnout and sustain long-term engagement.

5.8.6. Integrate School Mental-Health Services

Students' psychosocial well-being is closely linked to their participation in sport. Schools should consider integrating counselling services, periodic well-being

assessments, and peer-support programmes within the educational system. Strengthening students' emotional resilience and social connectedness can enhance both mental health and sustained sport involvement.

5.8.7. Design Universal Policies

Findings indicate that intervention strategies can be applied broadly across different demographic groups. Schools in both urban and rural settings, as well as programmes targeting boys and girls, may implement similar policies to promote motivation, balanced gadget use, and sport participation without requiring highly differentiated approaches.

5.8.8. Data-Based Monitoring & Evaluation

Schools should conduct regular evaluations using simple monitoring tools such as motivation surveys, participation records, and well-being assessments. Continuous review and adjustment of programmes will ensure that interventions remain effective and responsive to students' needs over time.

5.9. Recommendation

These recommendations are important to implement in West Sumatra because they are directly supported by the research data findings: path test results (PLSc-SEM) show that a less conducive learning environment decreases motivation, perceived negative impact of gadget use weakens the urge to exercise, and screen time intensity directly displaces time for physical activity; conversely, parental emotional support increases motivation, while intrinsic motivation is shown to be a key lever that simultaneously strengthens psychosocial well-being and sports participation, with psychosocial well-being itself contributing to sustained physical engagement. Furthermore, the results of moderation tests (interaction term and MGA) showed that this pattern of relationships was stable across gender, school type, sport type, internet quality, and parental occupation, suggesting that the package of interventions-strengthening intrinsic motivation in physical education, activity-friendly school culture, healthy digital literacy and device-free zones, parental engagement, exercise load management, and school mental health services-is evidence-based, relevant to the identified risks, and universally applicable with minimal adaptation to the local Minangkabau context. The following recommendations are suggested:

5.9.1. Strengthen Intrinsic Motivation Programmes

Schools should embed structured goal-setting sessions, autonomy-supportive choices of physical activities, and mastery-oriented feedback into every semester of Physical Education. When students are encouraged to set personal performance benchmarks and reflect on incremental progress, they experience a sense of ownership that fuels self-determined motivation. Teachers can further sustain this climate by celebrating effort and learning rather than ranking outcomes, thereby making movement enjoyable even for less-skilled pupils.

5.9.2. Revitalize School Facilities and Active Culture

Crowded or poorly maintained sports spaces were linked to lower motivation; thus school boards need to prioritise renovating multipurpose courts, repainting lines, and ensuring equipment is safe and appealing. Creating dedicated ‘active zones’—simple corners with jump ropes, resistance bands, and mini goals—invites spontaneous play during breaks. Complement this hardware upgrade with a daily five-minute movement break between classes to interrupt sedentary time and foster an active school identity.

5.9.3. Implement Integrated Digital Well-Being Policies

Given the direct negative pathway from high screen intensity to sport participation, schools should adopt a holistic digital well-being protocol. This includes a two-hour cap on recreational screen time, clearly designated phone-free areas around sports fields, and workshops where students learn to track and reflect on their own screen habits. Embedding digital self-regulation into the curriculum reframes device use as a skill to be managed rather than a privilege to be policed.

5.9.4. Systematically Involve Parents

Parental emotional support emerged as a positive but underutilised resource. Schools can organise quarterly micro-workshops in which parents practise offering encouragement that praises effort, persistence, and enjoyment rather than only trophies. Creating WhatsApp or Telegram groups that link parents, coaches, and nutrition advisors increases transparency of training loads and recovery needs, ensuring the home environment reinforces rather than undermines school initiatives.

5.9.5. Monitor Training Load and Recovery

The small yet significant negative effect of excessive intensity on participation calls for systematic load management. Coaches should implement session-RPE logs—simple one-to-ten ratings collected at the end of each practice—and review patterns weekly to detect over-reaching early. Scheduled recovery days, yoga or mobility sessions, and sleep-hygiene education form a triad that protects students from burnout while sustaining performance.

5.9.6. Integrate Mental-Health Services

As psychosocial well-being mediates and predicts sports engagement, schools need to place mental health resources within sports programmes. Appointing counsellors who understand the pressures of screen time, running peer support groups and termly wellbeing screenings normalise help-seeking and reduce stigma. These services become the context that builds resilience.

5.9.7. Ensure Inclusive, Universal Policies

Moderator tests confirmed the model functions similarly across gender, location, sport type, and internet quality. Hence a single, core intervention package can be rolled out across urban and rural schools, adjusting only language and cultural references. Uniform guidelines also simplify teacher training and facilitate region-wide monitoring of programme outcomes.

5.9.8. Pursue Ongoing Research and Data-Based Evaluation

To refine predictive accuracy, future data collection should incorporate additional psychological constructs such as self-efficacy, enjoyment, and peer influence. Schools are encouraged to adopt a Plan-Do-Check-Act cycle: administer motivation and screen-time surveys each term, review trends with stakeholders, and revise actions accordingly. Longitudinal follow-up from Grade 10 to 12 will clarify causal pathways and ensure interventions remain responsive to developmental changes.

By implementing these recommendations, schools, families, and policymakers in West Sumatra can synergistically boost student motivation, mental health, and sports participation—nurturing a more active, resilient, and well-adjusted generation in the digital era.

5.10. Conclusion

Analyses showed a consistent pattern of relationships between environmental, digital, parental support, motivation, psychosocial well-being, and sport participation among Generation Z in West Sumatra, Indonesia. Unfavourable environmental conditions (crowded facilities, time pressure, lack of peer support) decreased motivation but had no direct impact on psychosocial well-being or participation. In the digital realm, perceived negative impacts of device use weakened motivation with no direct effect on well-being or participation, while screen time intensity affected neither motivation nor well-being but directly suppressed participation-confirming the 'displacement' effect. Parental emotional support increased motivation, but had no direct impact on well-being or participation, suggesting that the family's role was primarily a motivational buffer. Furthermore, intrinsic motivation played a central role with a strong increase in psychosocial well-being as well as a significant driver of sports participation; and finally, psychosocial well-being also increased participation, forming a positive feedback loop where good social-emotional conditions underpin sustained physical engagement, and regular physical activity in turn maintains that well-being.

Moderation tests based on interaction terms showed that internet connection and parental employment did not moderate the relationship between constructs and sports participation. In other words, the presence or quality of the network and the type of parental employment neither strengthened nor weakened the effect of the main pathway. Consistent with these findings, the Multi Group Analysis (MGA) for categorical moderators-gender, school type (city vs. district), and sport type (individual vs. team)-also found no significant differences in the structural trajectories between groups. There were some weak trends in certain pathways, but the patterns were inconsistent and thus could not be interpreted as moderating effects. The implication is that the pattern of relationships in Table B-including the central role of intrinsic motivation, the negative impact of perceived device use on motivation, and the direct effect of screen intensity on suppressing participation-is stable across groups, allowing interventions to be designed universally with minimal contextual customisation.

In public and private schools across West Sumatra-Padang, Bukittinggi, Payakumbuh, Solok, as well as southern coastal districts and other areas-programmes to increase sports participation and psychosocial well-being need to emphasise intrinsic motivation. The physical education curriculum should provide personalised goals,

progress-oriented feedback and autonomous activity choices. An activity-friendly school culture is built through realistic improvements to basic facilities, such as multipurpose courts and simple tool corners. Provide short movement breaks between classes and ‘active zones’ at break times. Digital impact is managed through healthy digital literacy, device-free areas during physical activities and self-monitoring training to control screen time. Engage parents and school committees through short workshops that emphasise emotional support without pressure. Use regular communication channels such as WhatsApp groups between parents, physical education teachers and coaches. Balance training loads with simple monitoring by school teachers/coaches and clubs assisted by Dispora/KONI West Sumatra to prevent burnout. Integrate school mental health services with BK, Puskesmas, and campus counsellor networks. Conduct regular screenings, form peer support groups and strengthen social ties. Implement inclusive policies that apply uniformly across gender, school type, internet quality, and sport type, with Minangkabau cultural adjustments to a minimum. Conduct seasonal data-based monitoring-motivation surveys, participation logs and well-being instruments-following a Plan-Do-Check-Act cycle coordinated by MGMP PJOK and the education office. Through the synergy of schools, families, nagari communities, and local sports stakeholders, this intervention can sustainably improve students' motivation, mental health, and sports engagement in accordance with the socio-cultural character of West Sumatra.

In general, the results of the study indicate that gadget usage behaviour affects motivation, psychosocial well-being, and participation in sports among Generation Z in West Sumatra. The environment and negative impacts of gadget usage behaviour affect motivation, while the intensity of gadget usage hinders participation in sports. However, motivation remains the key to improving psychosocial well-being and involvement in sports.

5.11. Summary

Interpreting through SDT, digital displacement, and JD-R, the chapter argues that strengthening intrinsic motivation while managing digital habits can simultaneously enhance psychosocial well-being and sport participation. It translates the evidence into a West Sumatra roadmap: autonomy-supportive PE curricula, activity-friendly school cultures, healthy digital-literacy with phone-free practice, systematic parental workshops, balanced training and recovery, integrated school mental-health

services, and data-driven Plan-Do-Check-Act (PDCA) monitoring each semester. Stable pathways across groups justify province-wide, inclusive policies with minimal cultural adaptation. Limitations (cross-sectional design, self-report, partial coverage of motivational antecedents) are acknowledged, and future research directions include longitudinal designs and added constructs (self-efficacy, peer influence). The chapter concludes by clarifying the study's contribution to theory and to practical, scalable school interventions in West Sumatra.

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APPENDICES

APPENDIX 1
Research Letter

Letter From the University

UNIVERSITI TEKNOLOGI MARA
Fakulti Sains Sukan dan Rekreasi

Padang, December 12, 2024

Number :
Matter : **Permission to Conduct Research**

To: Head of the Education Office of West Sumatra Province
In
Padang

Yours faithfully,
In connection with the writing of the Dissertation of the Doctor of Philosophy Program student at Universiti Teknologi MARA as stated below:

Name : Endang Sepdanius
NIM : 2022897034
Study program : Doctor of Philosophy (Sport Science and Recreation)
College : Universiti Teknologi MARA

We ask for your help in granting permission to the students mentioned above to conduct research at the following high schools (SMA):

No.	District	SMA
1	Kota Padang	SMA Pembangunan UNP
2	Kabupaten Pesisir Selatan	SMA 1 Lengayang
3	Kabupaten Pasaman Barat	SMA N 1 Pasaman
4	Kabupaten Agam	SMA N 2 Lubuak Basung
5	Kabupaten Padang Pariaman	SMA N 1 Lubuk Alung
6	Kabupaten Solok	SMA N 2 SUMBAR
7	Kabupaten Lima Puluh Koto	SMA N 1 Payakumbuh
8	Kabupaten Pasaman	SMA N 1 Bonjol
9	Kabupaten Tanah Datar	SMA N 1 Pariangan
10	Kabupaten Sijunjung	SMA N 2 Sijunjung
11	Kabupaten Dharmasraya	SMA N 1 Sikabu
12	Kota Payakumbuh	SMA 4 Payakumbuh
13	Kota Bukittinggi	SMA N 5 Bukitinggi
14	Kabupaten Solok Selatan	SMA N 1 Solok Selatan
15	Kota Pariaman	SMA N 2 Pariaman
16	Kabupaten Kepualauan Mentawai	SMA N 1 Siberut Selatan
17	Kota Solok	SMA N 2 Solok
18	Kota Padang Panjang	SMA N 3 Padang Panjang
19	Kota Sawah Sawah Lunto	SMA N 3 Sawahlunto

This research started on December 16, 2024 until February 30, 2025.

Dissertation/Research Title: **GENERATION Z (GEN Z) IN WEST SUMATRA INDONESIA: GADGET USAGE BEHAVIOUR, PSYCHOSOCIAL WELL-BEING, MOTIVATION, AND ITS IMPACT ON SPORTS PARTICIPATION**

Thus I submit this application letter. For your help and cooperation, I thank you.

Yours sincerely

Dr. Norasrudin bin Sulaiman
Head
Center of Postgraduate Studies
Faculty of Sports Science & Recreation UiTM Shah Alam, Selangor

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ISO 9001:2015 No. Sijil: 0048/18
UiTM di hatiku

Letter From the Government of West Sumatra

PEMERINTAH PROVINSI SUMATERA BARAT

DINAS PENDIDIKAN

Jalan Jenderal Sudirman Nomor 52, Padang Timur, Padang, Sumatera Barat 25129
Laman: disdik.sumbarprov.go.id, Pos-el: disdik@sumbarprov.go.id

Number : 000.9/3787/SEK/DISDIK-2024 Padang, 16 Desember 2024
Attachment : -
Regarding : Conduct Research

Dear,
Head Center Of Postgraduate Studies
Faculty of Sports Science & Recreation UiTM Shah Alam
Di tempat

In Connection with your letter, Date 13 December 2024 , about recearch permit for study progra Doctor of Philosophy (Sport Science and Recreation, with the title of the research **"Generation Z (Gen Z) In West Sumatera Indonesia : Gadget Usage Behavior, Psychosocial Well-Being, Motivation, And Its Impact On Sports Participation "** on behalf of :

Name : Endang Sepdanius
NIM : 2022897034
Study Program : Doctor of Philosophy (Sport Science and Recreation)
Research Location : Attached :
Waktu : December 16 ,2024 until Febuari 30, 2025

In relation to this, the West Sumatra Provincial Education Office in principle has no objection to granting permission to the students named above to carry out research, but it is hoped that during the activity they will pay attention to the following matters:

- Coordinate with the Head of the relevant educational unit
- Do not interfere with the learning and teaching process
- Do not burden students with any form of financing
- Data collection/observations are carried out entirely for educational purposes and are not to be published publicly
- Data taken is in accordance with applicable laws and regulations
- After completing the activity, submit a report to the West Sumatra Provincial Education Office

Thus we provide this letter of permission, so that it can be used as it should..

On Behalf Of The Head
Secretary,

Suryanto, S.Pd, M.Pd
NIP.196910051991011003

Dokumen ini telah ditandatangani secara elektronik menggunakan sertifikat elektronik yang diterbitkan oleh Balai Besar Sertifikasi Elektronik (BSrE), Badan Siber dan Sandi Negara

Attachment

No	District	SMA
1	Kota Padang	SMA Pembangunan UNP
2	Kab Pesisir Selatan	SMAN 1 Lengayang
3	Kab Pasaman Barat	SMAN 1 Pasaman
4	Kab Agam	SMAN 2 Lubuk Basung
5	Kab Padang Pariaman	SMAN 1 Lubuk Alung
6	Kab Solok	SMAN 2 Sumatera Barat
7	Kab 50 Kota	SMAN 1 Payakumbuh
8	Kab Pasaman	SMAN 1 Bonjol
9	Kab Tanah Datar	SMAN 1 Pariangan
10	Kab Sijunjung	SMAN 2 Sijunjung
11	Kab Dharmasraya	SMAN 1 Sikabu
12	Kota Payakumbuh	SMAN 4 Payakumbuh
13	Kota Bukittinggi	SMAN 5 Bukittinggi
14	Kab Solsel	SMAN 1 Solsel
15	Kota Pariaman	SMAN 2 Pariaman
16	Kab Kep Mentawai	SMAN 1 Siberut Selatan
17	Kota Solok	SMAN 2 Solok
18	Kota Padang Panjang	SMAN 3 Padang Panjang
19	Kota Sawahlunto	SMAN 3 Sawahlunto

Dokumen ini telah ditandatangani secara elektronik menggunakan sertifikat elektronik yang diterbitkan oleh Balai Besar Sertifikasi Elektronik (BSrE), Badan Siber dan Sandi Negara

APPENDIX 2
Etical Clearence

www.uitm.edu.my

UNIVERSITI TEKNOLOGI MARA | Pejabat Timbalan Naib Canselor (Penyelidikan dan Inovasi)

Reference : 600-TNCPI (5/1/6)
Our reference : REC/10/2024 (PG/MR/538)
Date : 1446H ربيع الأخير 26
29 October 2024

Mr/Ms Sepdanius Endang - 2023773653
(Supervisor: Dr Nurul Diyana Sanuddin)
College of Computing, Informatics and Mathematics
Universiti Teknologi MARA
40450 Shah Alam
SELANGOR

سلام عليكم ورحمة الله وبركاته and Greetings

Mr/Ms

APPROVAL LETTER - UiTM RESEARCH ETHICS COMMITTEE

Thank you for submitting your research proposal to the Research Ethics Committee (REC). After considering your application, the Committee approved your proposal titled "Generation Z In West Sumatera Indonesia: Gadget Usage, Psychosocial Well- Being, Motivation, And Its Impact on Commitment to Sports Participation" in the West Sumatra region. Details of the approval are as follows:

Ref. number:	REC/10/2024 (PG/MR/538)
Approval Period:	29 October 2024 until 28 February 2026
Authorised personnel:	1. Sepdanius Endang 2. Dr Nurul Diyana Sanuddin 3. Dr M.Adli Mohd Sidi

The UiTM Research Ethics Committee operates in accordance to the ICH Good Clinical Practice Guidelines, Malaysian Good Clinical Practice Guidelines and the Declaration of Helsinki. The approval of this project is conditional upon your continuing compliance with these guidelines and declaration.

We draw to your attention the requirement that a report on this research, must be submitted every 12 months from the date of the approval or on the completion of the project, whichever occurs first. Failure to submit reports will result in withdrawal of consent for the project to proceed. Amendments, if any, to the study documents are to be submitted to the REC for approval.

If you require further information, please contact the REC Secretariat at 03-55448069/03-55442794 or email at recsecretariat@uitm.edu.my.

اوسها، تقوى، مولیا
"MALAYSIA MADANI"
"BERKHIDMAT UNTUK NEGARA"

Yours sincerely,

EMERITUS PROFESSOR DATO' DR RAYMOND AZMAN ALI
Chairman
UiTM Research Ethics Committee

c.c.: Dean (Research and Innovation), College of Computing, Informatics and Mathematics, UiTM

Universiti Teknologi MARA
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ISO 9001:2015 No. Sijil: 10120156
UiTM di hatiku

Jawatankuasa Etika Penyelidikan
Pusat Pengurusan Penyelidikan
Universiti Teknologi MARA
40450 SHAH ALAM
Tel: +603-5544-8069, Faks: +603-5544-2096/2767

Borang Maklumat Subjek

Tajuk penyelidikan
Generasi Z (Gen Z) di Sumatera Barat, Indonesia: Penggunaan Gadget, Kesejahteraan Psikososial, Motivasi, dan Impaknya terhadap Komitmen untuk Berpartisipasi dalam Sukan

Pengenalan penyelidikan
Kajian ini menganalisis penggunaan gadget oleh Generasi Z dan hubungannya dengan komitmen untuk berpartisipasi dalam aktiviti sukan. Kajian ini juga menganalisis motivasi dan kesejahteraan psikososial dalam gaya hidup Generasi Z

Tujuan penyelidikan
Kajian ini bertujuan untuk mengetahui bagaimana tingkah laku penggunaan Alat mempengaruhi psikososial, motivasi dan penyertaan sukan generasi Z.

Prosedur penyelidikan
Dalam kajian ini, penyelidik mengumpul data melalui tinjauan menggunakan borang soal selidik. Pengkaji memberi arahan kepada peserta berkaitan kajian ini selepas itu, peserta diminta mengisi borang soal selidik. Peserta mengambil masa lebih kurang 15 minit untuk melengkapkan semua pernyataan dalam soal selidik.

Penyertaan dalam penyelidikan
Penyertaan anda dalam penyelidikan ini adalah secara sukarela. Anda boleh menolak untuk mengambil bahagian dalam kajian atau anda boleh menarik diri daripada penyertaan dalam penyelidikan pada bila-bila masa tanpa penalti.

Manfaat penyelidikan
Maklumat yang diperolehi daripada kajian ini akan memberi manfaat kepada peserta, penyelidik, institusi, dan masyarakat untuk kemajuan ilmu dan amalan pada masa hadapan.

Risiko penyelidikan
Tiada risiko dalam mengumpul data peserta. Kerana tiada pengumpulan data fizikal dan tiada campur tangan fizikal

Kerahsiaan
Maklumat anda akan dirahsiakan oleh penyiasat dan tidak akan didedahkan kepada umum melainkan pendedahan diperlukan oleh undang-undang.

Dengan menandatangani borang persetujuan ini, anda membenarkan penelitian rekod, penganalisaan dan penggunaan data hasil daripada penyelidikan ini.

Sekiranya anda mempunyai sebarang pertanyaan mengenai penyelidikan ini atau hak-hak anda, sila hubungi penyelidik di talian or via email endangsepdanius@fik.unp.ac.id and or via email adlisidi@uitm.edu.my

Borang Izin

Untuk menyertai penyelidikan ini, anda atau penjaga sah perlu menandatangani Borang Izin ini.

Saya dengan ini mengesahkan bahawa saya telah memenuhi syarat umur dan berupaya bertindak bagi pihak saya sendiri/ *sebagai penjaga yang sah dalam perkara-perkara berikut:

1. Saya memahami ciri-ciri dan skop penyelidikan ini.
2. Saya telah membaca dan memahami semua syarat penyertaan penyelidikan ini.
3. Saya berpuas hati dengan jawapan pada kemusykilan saya tentang penyelidikan ini.
4. Saya secara sukarela bersetuju menyertai penyelidikan ini dan mengikuti segala atur cara dan memberi maklumat yang diperlukan kepada penyelidik seperti yang dikehendaki.
5. Saya boleh menarik diri daripada penyelidikan ini pada bila-bila masa tanpa memberi sebab.
6. Saya telah pun menerima satu salinan Borang Maklumat Subjek dan Borang Izin.
7. Selain daripada kecederaan yang disebabkan oleh kelalaian dan kecuaian penyelidik, saya dengan ini melepaskan dan menggugurkan UiTM dan semua penyelidik dari semua liabiliti berhubung dengan, wujud dari atau berkaitan dengan penyertaan saya. Saya bersetuju untuk menjadikan mereka tidak bertanggunggjawab terhadap apa-apa kemudaratan atau kerugian yang mungkin akan saya tanggung disebabkan oleh penyertaan saya.

Nama Subjek/Penjaga Sah	Tandatangan
No. Kad Pengenalan	Tarikh
Nama Saksi	Tandatangan
No. Kad Pengenalan	Tarikh
Nama Penyelidik/Pengambil Izin	Tandatangan
No. Kad Pengenalan	Tarikh

Research Ethics Committee
Research Management Centre
Universiti Teknologi MARA

40450 SHAH ALAM
Tel: 03 – 5544-8069, Faks: 03 – 5544-2096/2767

Subject's Information Sheet

Research Title
Generation Z (Gen Z) in West Sumatera Indonesia: Gadget Usage, Psychosocial Well-Being, Motivation, and its Impact on participation in sport

Introduction of Research
This study analyzes Generation Z's gadget usage and its relationship to commitment to participate in sports activities. This study also analyses the motivation and psychosocial well-being of Generation Z's lifestyle.

Purpose of Research
This study aims to discover how Gadget use behaviour affects the psychosocial, motivation and sports participation of generation Z.

Research Procedure
In this study, researchers collected data through surveys using questionnaires. The researcher gave directions to participants related to this study after that, participants were asked to fill out the questionnaire. Participants took approximately 15 minutes to complete all statements in the questionnaire.

Participation in Research
Your participation in this research is entirely voluntary. You may refuse to take part in the study or you may withdraw yourself from participation in the research at any time without penalty.

Benefit of Research
The information gained from this study will benefit participants, researchers, institutions, and society for the advancement of knowledge and practice in the future.

Research Risk
There is no risk in collecting participant data. Because there is no physical data collection and no physical intervention.

Confidentiality
Your information will be kept confidential by the investigators and will not be made public unless disclosure is required by law.

By signing this consent form, you will authorize the review of records, analysis and use of the data arising from this research.

If you have any question about this research or your rights, please contact the investigator at telephone number or via email endangsepdanius@fik.unp.ac.id and or via email adlisidi@uitm.edu.my

Consent Form

To become a subject in the research, you or your legal guardian are required to sign this Consent Form.
I herewith confirm that I have met the requirement of age and am capable of acting on behalf of myself / *as a legal guardian as follows:

1. I understand the nature and scope of the research being undertaken.
2. I have read and understood all the terms and conditions of my participation in the research.
3. All my questions relating to this research and my participation therein have been answered to my satisfaction.
4. I voluntarily agree to take part in this research, to follow the study procedures and to provide all necessary information to the investigators as requested.
5. I may at any time choose to withdraw from this research without giving any reason.
6. I have received a copy of the Subjects Information Sheet and Consent Form.
7. Except for damages resulting from negligent or malicious conduct of the researcher(s), I hereby release and discharge UiTM and all participating researchers from all liability associated with, arising out of, or related to my participation. I agree to hold them harmless from any harm or loss that may be incurred by me due to my participation in the research.

__Name of Subject/Legal Guardian	Signature
__ I.C No	Date
__Name of Witness	Signature
__ I.C No	Date
__Name of Consent Taker	Signature
__ I.C No	Date

Research Ethics Committee
Research Management Centre
Universiti Teknologi MARA

40450 SHAH ALAM
Tel: 03 – 5544-8069, Faks: 03 – 5544-2096/2767

Subject's Information Sheet

Judul Penelitian
Generasi Z (Gen Z) di Sumatera Barat Indonesia: Penggunaan Gadget, Kesejahteraan Psikososial, Motivasi, dan Dampaknya terhadap Partisipasi Olahraga

Pengenalan Penelitian
Penelitian ini menganalisis penggunaan gadget Generasi Z dan hubungannya dengan komitmen mengikuti kegiatan olahraga. Penelitian ini juga menganalisis motivasi dan kesejahteraan psikososial gaya hidup Generasi Z.

Tujuan Penelitian
Penelitian ini bertujuan untuk mengetahui bagaimana perilaku penggunaan gadget memengaruhi psikososial, motivasi, dan partisipasi olahraga generasi Z.

Prosedur Penelitian
Pada penelitian ini, peneliti mengumpulkan data melalui survei dengan menggunakan kuesioner. Peneliti memberikan arahan kepada partisipan terkait penelitian ini setelah itu partisipan diminta untuk mengisi kuesioner. Partisipan membutuhkan waktu kurang lebih 15 menit untuk mengisi seluruh pernyataan dalam kuesioner..

Partisipasi dalam Penelitian
Partisipasi Anda dalam penelitian ini sepenuhnya bersifat sukarela. Anda dapat menolak untuk mengambil bagian dalam penelitian ini atau Anda dapat menarik diri dari partisipasi dalam penelitian ini kapan saja tanpa penalti.

Manfaat Penelitian
Informasi yang diperoleh dari penelitian ini akan bermanfaat bagi para peserta, peneliti, institusi, dan masyarakat untuk kemajuan pengetahuan dan praktik di masa depan

Risiko Penelitian
Tidak ada risiko dalam mengumpulkan data peserta. Karena tidak ada pengumpulan data secara fisik dan tidak ada intervensi fisik

Kerahasiaan
Informasi Anda akan dijaga kerahasiaannya oleh penyelidik dan tidak akan dipublikasikan kecuali pengungkapan diwajibkan oleh hukum.

Dengan menandatangani formulir persetujuan ini, Anda mengizinkan peninjauan catatan, analisis, dan penggunaan data yang timbul dari penelitian ini.

Jika Anda mempunyai pertanyaan mengenai penelitian ini atau hak-hak Anda, silakan menghubungi penyidik di nomor telepon atau melalui email endangsepdanius@fik.unp.ac.id dan atau melalui email adlisidi@uitm.edu.my

Lembar persetujuan

Untuk menjadi partisipan penelitian, Anda atau wali sah Anda wajib menandatangani Formulir Persetujuan ini.

Dengan ini saya menyatakan bahwa saya telah memenuhi persyaratan usia dan mampu bertindak atas nama diri saya sendiri / *sebagai wali yang sah sebagai berikut:

1. Saya memahami sifat dan ruang lingkup penelitian yang sedang dilakukan.
2. Saya telah membaca dan memahami seluruh syarat dan ketentuan keikutsertaan saya dalam penelitian ini.
3. Semua pertanyaan saya sehubungan dengan penelitian ini dan partisipasi saya di dalamnya telah dijawab dengan kepuasan saya.
4. Saya dengan sukarela setuju untuk mengambil bagian dalam penelitian ini, mengikuti prosedur penelitian dan memberikan semua informasi yang diperlukan kepada peneliti sebagaimana diminta.
5. Saya sewaktu-waktu dapat memilih untuk mengundurkan diri dari penelitian ini tanpa memberikan alasan apapun.
6. Saya telah menerima salinan Lembar Informasi Subyek dan Formulir Persetujuan.
7. Kecuali kerugian yang diakibatkan oleh kelalaian atau tindakan jahat para peneliti, saya dengan ini melepaskan dan membebaskan UiTM dan semua peneliti yang berpartisipasi dari semua tanggung jawab yang terkait dengan, timbul dari, atau terkait dengan partisipasi saya. Saya setuju untuk membebaskan mereka dari bahaya atau kerugian apa pun yang mungkin saya alami karena partisipasi saya dalam penelitian ini.

Nama Partisipan :	Tanda Tangan
IC No :	Tanggal
Nama Wali/Orang tua :	Tanda Tangan
IC No :	Tanggal
Nama Penerima Persetujuan :	Tanda Tangan
IC No :	Tanggal

APPENDIX 3
Expert Validation

Sport Participation Instrument
Expert 1. Prof. Dr Mohad Anizu Bin Mohd Nor

Research Instrument Assessment Questionnaire by Sports Participation Experts

Part 1: General Information

1. Name : Prof. Mohad Anizu Bin Mohd Nor
2. Institution/Organization : Universiti Teknologi MARA
3. Areas of expertise : Sport Science and Health
4. Work Experience (years) : 35 years

Part 2. Assessment

Instruction: Please, provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is very important to ensure the quality and validity of the research instruments.Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument covers all relevant aspects.	5√	4	3	2	1	
2	The statements in this instrument are in accordance with the purpose of the instrument	5√	4	3	2	1	
3	This instrument has sufficient coverage to measure the variables studied.	5√	4	3	2	1	
B	**Clarity**						
1	This instrument is easy for respondents to understand.	5√	4	3	2	1	
2	The language used in this instrument is clear and not confusing.	5√	4	3	2	1	
3	Every statement in this instrument does not give rise to misinterpretation.	5√	4	3	2	1	
C	**Appropriateness**						
1	This instrument is suitable for use in the context of the proposed research.	5√	4	3	2	1	
2	This instrument is able to measure the variables studied accurately.	5√	4	3	2	1	

3	This instrument can be applied to research samples effectively.	5√	4	3	2	1	

Section 3. Suggestions and Feedback

1. Is there any part of this instrument that needs repair? If yes, please explain.

   - For questionnaire, it is better to use 5-point Likert Scale instead of 7-point Likert Scale.

Thank you for your participation and contribution to the development of this questionnaire. Your input is valuable in ensuring that this questionnaire is effective and accurate in measuring sports participation using appropriate content validity, clarity, and appropriateness as an instrument.



.....

Validator

Sport Science and Health Expert

PROFESSOR DR MOHAD ANIZU BIN MOHD NOR
Faculty of Sports Science & Recreation
Universiti Teknologi MARA
40450 Shah Alam
SELANGOR DARUL EHSAN

(Prof. Dr Mohad Anizu Bin Mohd Nor)

Expert 2. Dr. Bekir Ekrhan Orhan

Research Instrument Assessment Questionnaire by Sports Participation Experts

Part 1: General Information

1. Name : Dr. Bekir Erhan Orhan
2. Institution/Organization : Istanbul Aydin University Turkey
3. Areas of expertise : Physical Activity and Health
4. Work Experience (years) : 14 years

Part 2. Assessment

Instruction: Please, provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is very important to ensure the quality and validity of the research instruments.Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument covers all relevant aspects.	√	4	3	2	1	The instrument effectively covers all aspects of sports participation, including individual participation, infrastructure, socio-cultural, and institutional factors. These dimensions are critical for a comprehensive assessment of sports participation.
2	The statements in this instrument are in accordance with the purpose of the instrument	√	4	3	2	1	The statements are well-aligned to measure sports participation across various dimensions, ensuring that each area is addressed systematically.
3	This instrument has sufficient coverage to measure the variables studied.	√	4	3	2	1	The instrument's scope is broad enough to cover all relevant variables associated with sports participation,

							ensuring a thorough evaluation of the factors influencing participation.
B	**Clarity**						
1	This instrument is easy for respondents to understand.	√	4	3	2	1	The instrument's language is clear and straightforward, making it easy for respondents from various backgrounds to comprehend and respond accurately.
2	The language used in this instrument is clear and not confusing.	√	4	3	2	1	The instrument uses precise and unambiguous language, reducing the likelihood of misinterpretation and ensuring that respondents can answer the questions as intended.
3	Every statement in this instrument does not give rise to misinterpretation.	√	4	3	2	1	The statements are carefully worded to minimize ambiguity and avoid misinterpretation, making the instrument reliable for consistent data collection.
C	**Appropriateness**						
1	This instrument is suitable for use in the context of the proposed research.	√	4	3	2	1	The instrument is well-suited for research on sports participation, as it addresses all relevant factors comprehensively, making it appropriate for the intended research context.
2	This instrument is able to measure the variables studied accurately.	√	4	3	2	1	The instrument measures the relevant variables precisely, ensuring accurate data collection and analysis.

3	This instrument can be applied to research samples effectively.	√	4	3	2	1	The instrument is versatile and can be effectively applied to different research samples, making it a valuable tool for studying sports participation across various demographics.

Section 3. Suggestions and Feedback

The instrument is well-designed and comprehensive. However, it may benefit from additional pilot testing in diverse populations to ensure that the language and concepts are universally understood.

Dr. Bekir Erhan Orhan
Validator
Physical Activity and Health Expert

Expert 3. Prof. Dr. Mohd Salleh Aman

SPORTS PARTICIPATION INSTRUMENT

Introduction

This scale assesses participation in sports activities. The instrument has four indicators: individual participation, infrastructure, socio-cultural and institutional. It consists of 16 items and is rated on a 7-point scale.

Instruction:

Please read each statement and put a circle mark (O) in the column corresponding to your agreement level. A 7-point Likert scale was used, where 1 = Strongly Disagree (SLD), 2 = Disagree (D), 3 = Somewhat Disagree (SD), 4 = Neutral (N), 5 = Somewhat Agree (SA), 6 = Agree (A), and 7 = Strongly Agree (SLA).

Individual Participation

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
1	I participate in sports activities at least three times a week	1	2	3	4	5	6	7
2	I spend at least 30 minutes every time I participate in the activities	1	2	3	4	5	6	7
3	I consistently do this sport every week	1	2	3	4	5	6	7
4	~~Whatever the situation,~~ I still exercise, whether in a group or individually	1	2	3	4	5	6	7
5	With sport activity and exercise I do, I feel my physical fitness is getting better	1	2	3	4	5	6	7

Infrastructure

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
6	The sport-related infrastructure in my surroundings is very supportive ~~of doing sports~~	1	2	3	4	5	6	7
7	The open space surrounding allows me to do sports	1	2	3	4	5	6	7
8	The sport-related infrastructure and open spaces ~~for exercise~~ at my place are well-managed	1	2	3	4	5	6	7
9	It is very easy for me to access the infrastructure and open spaces to do sport and exercise	1	2	3	4	5	6	7

Socio-cultural

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
10	In my community ~~environment~~, exercising is an important part of maintaining health	1	2	3	4	5	6	7
11	In the neighborhood where I am now, providing particular time to exercise (check and improve)	1	2	3	4	5	6	7
12	I (female/male) do not feel isolated when participating in sports in my community	1	2	3	4	5	6	7

Institutional

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
13	At my working place ~~In my institutional environment~~, there is a budget for a program to increase sports participation	1	2	3	4	5	6	7
14	Having a program coordinator makes sports participation run well in my working place ~~environment~~	1	2	3	4	5	6	7
15	Various innovative programs are provided in my working place ~~environment~~ in order to increase sports participation	1	2	3	4	5	6	7
16	There is cross-sectoral support in an effort to increase community participation in sports in my working place ~~environment~~	1	2	3	4	5	6	7

Instrument Assessment Questionnaire by Experts

Part 1: General Information

1. Name : Prof. Dr Mohd Salleh Aman
2. Institution/Organization : Universiti Malaya
3. Areas of expertise : Sport and Recreation Management
4. Work Experience (years) : 35 years

Part 2. Assessment

Instruction: Please, provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is very important to ensure the quality and validity of the research instruments. Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument covers all relevant aspects.	5	4✓	3	2	1	
2	The statements in this instrument are in accordance with the purpose of the instrument	5	4✓	3	2	1	
3	This instrument has sufficient coverage to measure the variables studied.	5	4✓	3	2	1	
B	**Clarity**						
1	This instrument is easy for respondents to understand.	5	4✓	3	2	1	
2	The language used in this instrument is clear and not confusing.	5	4✓	3	2	1	
3	Every statement in this instrument does not give rise to misinterpretation.	5	4✓	3	2	1	
C	**Appropriateness**						
1	This instrument is suitable for use in the context of the proposed research.	5	4✓	3	2	1	
2	This instrument is able to measure the variables studied accurately.	5	4✓	3	2	1	

3	This instrument can be applied to research samples effectively.	5	4✓	3	2	1	

Section 3. Suggestions and Feedback

1. Is there any part of this instrument that needs repair? If yes, please explain.

Yes, refer words in red. Words in red means suggestion. Words in red with line crossing means cancel / omit. You still need to read all of this instrument, and improve it. Please decide and conclude this instrument by your own.

Thank you for your participation and contribution to the development of this questionnaire. Your input is valuable in ensuring that this questionnaire is effective and accurate in measuring sports participation using appropriate content validity, clarity, and appropriateness as an instrument.



Validator
Hon Prof Dr Mohd Salleh Aman
Sport and Recreation Management
Faculty of Sports and Exercise Science
Universiti Malaya
50603 Kuala Lumpur

Expert 4. Prof. Dr. Novita Intan Arovah, MPH., Ph.D.

Angket Penilaian Instrumen Penelitian oleh Ahli Partisipasi Olahraga

Bagian 1: Informasi Umum

1. Nama : Prof. dr. Novita Intan Arovah, MPH., Ph.D.
2. Institusi/Organisasi : Universitas Negeri Yogyakarta
3. Bidang Keahlian : Kesehatan Olahraga
4. Pengalaman Kerja (tahun) : _____

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	**5V**	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	**5V**	4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	**5V**	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	**5V**	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	**5V**	4	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	**5V**	4	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	**5V**	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	**5V**	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	**5V**	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.
   - Instruksi awal bisa lebih jelas dengan menjelaskan bahwa responden harus mempertimbangkan kondisi mereka selama beberapa waktu terakhir (misalnya, dalam beberapa bulan terakhir) agar jawaban lebih representatif terhadap kebiasaan partisipasi olahraga mereka.
   - Mohon ditegaskan definisi infrastruktur olahraga, mengingat pertanyaan yang ada mencakup infrastruktur dan ruang terbuka padahal ruang terbuka merupakan bagian dari infrastruktur, bagaimana dengan infrastruktur yang lain?
   - Item no 12 : Partisipasi olahraga di lingkungan memungkinkan laki-laki dan perempuan untuk berolahraga

Terima kasih atas partisipasi dan kontribusi Bapak/Ibu dalam pengembangan kuesioner ini. Masukan Bapak/Ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur partisipasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

.....

Validator
Ahli Kesehatan Olahraga

Arovah

(Prof. dr. Novita Intan Arovah, MPH., Ph.D.)

Expert 5. Prof. Dr. Bafirman HB, M. Kes, AIFO

Angket Penilaian Instrumen Penelitian oleh Ahli Partisipasi Olahraga

Bagian 1: Informasi Umum

1. Nama : Prof. Dr. Bafirman HB, M. Kes, AIFO
2. Institusi/Organisasi : Universitas Negeri Yogyakarta
3. Bidang Keahlian : Pendidikan Kesehatan Olahraga
4. Pengalaman Kerja (tahun) : 38 Tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	5	(4)	3	2	1	SDM terlibat dlm olahraga ?
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	(5)	4	3	2	1	Sesuai
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	5	(4)	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	(5)	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	(5)	4	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	5	(4)	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	5	(4)	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	(5)	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Apakah SDM yg Anda sebagai penggiat olahraga seperti; guru, pelatih, instruktur dll ya.

Terima kasih atas partisipasi dan kontribusi Bapak/Ibu dalam pengembangan kuesioner ini. Masukan Bapak/Ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur partisipasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

23 Agustus 2024

Validator
Ahli Pendidikan Kesehatan Olahraga

(Prof. ~~Dr.~~ Bafirman HB, M. Kes, AIFO)

Expert 6. Prof. Dr. Muhamad Sazeli Rifki, S.Si, M.Pd

Angket Penilaian Instrumen Penelitian oleh Ahli Partisipasi Olahraga

Bagian 1: Informasi Umum

1. Nama : Prof. Dr. Muhamad Sazeli Rifki, S.Si, M.Pd
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Tes dan Pengukuran Olahraga
4. Pengalaman Kerja (tahun) : Tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	(5)	4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	(5)	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	(5)	4	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	(5)	4	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	(5)	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	(5)	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

_____

_____

_____

Terima kasih atas partisipasi dan kontribusi Bapak/Ibu dalam pengembangan kuesioner ini. Masukan Bapak/Ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur partisipasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

....., ...

Validator

Ahli Tes dan Pengukuran Olahraga

(Prof. Dr. Muhamad Sazeli Rifki, S.Si, M.Pd)

Expert 7. Prof. Dr. Phil Yanuar Kiram

Angket Penilaian Instrumen Penelitian oleh Ahli Partisipasi Olahraga

Bagian 1: Informasi Umum

1. Nama : Prof. Dr. Phil Yanuar Kiram
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Sosiologi Olahraga
4. Pengalaman Kerja (tahun) : tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	5	(4)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	5	(4)	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	5	(4)	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	5	(4)	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	5	(4)	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	5	(4)	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Tidak ada. Sudah baik.

Terima kasih atas partisipasi dan kontribusi Bapak/Ibu dalam pengembangan kuesioner ini. Masukan Bapak/Ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur partisipasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

....., ...

Validator
Ahli Sosiologi Olahraga

(Prof. Dr. Phil Yanuar Kiram)

Sport Motivation Scale II

Expert 1. Prof. Dr Mohad Anizu Bin Mohd Nor

Research Instrument Assessment Questionnaire by Experts

Part 1: General Information

1. Name : Prof. Mohad Anizu Bin Mohd Nor
2. Institution/Organization : Universiti Teknologi MARA
3. Areas of expertise : Sport Science and Health
4. Work Experience (years) : 35 years

Part 2. Assessment

Instruction: Please, sir/madam, provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is very important to ensure the quality and validity of the research instruments to be used. Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

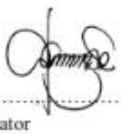
No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument already covers relevant aspects.	5√	4	3	2	1	
2	The statements in this instrument are in accordance with the purpose of the instrument	5√	4	3	2	1	
3	This instrument has sufficient coverage to measure the variables studied.	5√	4	3	2	1	
B	**Clarity**						
4	This instrument is easy for respondents to understand.	5√	4	3	2	1	
5	The language used in this instrument is clear and not confusing.	5√	4	3	2	1	
6	Every statement in this instrument does not give rise to misinterpretation.	5√	4	3	2	1	
C	**Appropriateness**						
7	This instrument is suitable for use in the context of the proposed research.	5√	4	3	2	1	

8	This instrument is able to measure the variables studied accurately.	5√	4	3	2	1	
9	This instrument can be applied to research samples effectively.	5√	4	3	2	1	

Section 3. Suggestions and Feedback

1. Is there any part of this instrument that needs repair? If yes, please explain.
   - For questionnaire, it is better to use 5-point Likert Scale instead of 7-point Likert Scale.

Thank you for your participation and contribution to the development of this questionnaire. Your input is very valuable in ensuring that this questionnaire is effective and accurate in measuring exercise motivation using appropriate content validity, clarity, and appropriateness as an instrument.



Validator
Sport Science and Health Expert

PROFESSOR DR MOHAD ANIZU BIN MOHD NOR
Faculty of Sports Science & Recreation
Universiti Teknologi MARA
40450 Shah Alam
SELANGOR DARUL EHSAN

(Prof. Dr Mohad Anizu Bin Mohd Nor)

Expert 2. Dr. Bekir Ekrhan Orhan

SPORT MOTIVATION SCALE II (SMS II)

Introduction

This scale assesses a person's motivation to engage in sports activities. This instrument consists of 6 indicators of motivation, namely: Intrinsic motivation, integrated regulation, identified regulation, introjection regulation, external regulation, amotivation. This instrument consists of 18 statement items (3 statement items in each indicator) and is assessed with a 7-point scale.

Instructions:

Please read each statement below and check (✓) the column corresponding to your agreement level. A 7-point Likert scale is used where:

Positive : 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Slightly Disagree (SLD), 4 = Neutral (N), 5 = Slightly Agree (SLA), 6 = Agree (A), 7 = Strongly Agree (SA)

Negatives : 7 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Slightly Disagree (SLD), 4 = Neutral (N), 3 = Slightly Agree (SLA), 2 = Agree (A), 1 = Strongly Agree (SA)

Why do you practice your sport?

Intrinsic Motivation

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
1	Because it gives me pleasure to learn more about my sport.	1	2	3	4	5	6	7
2	Because I find it enjoyable to discover new performance strategies.	1	2	3	4	5	6	7
3	Because it is very interesting to learn how I can improve.	1	2	3	4	5	6	7

Integrated Regulation

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)

4	Because practicing sports reflects the essence of whom I am.	1	2	3	4	5	6	7
5	Because participating in sport is an integral part of my life.	1	2	3	4	5	6	7
6	Because through sport, I am living in line with my deepest principles.	1	2	3	4	5	6	7

Identified Regulation

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
7	Because I have chosen this sport as a way to develop myself.	1	2	3	4	5	6	7
8	Because I found it is a good way to develop aspects of myself that I value.	1	2	3	4	5	6	7
9	Because it is one of the best ways I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7

Introjected Regulation

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
10	Because I would feel bad about myself if I did not take the time to do it.	1	2	3	4	5	6	7
11	Because I feel better about myself when I do.	1	2	3	4	5	6	7
12	Because I would not feel worthwhile if I did not.	1	2	3	4	5	6	7

External Regulation

No	Statement	SLD (1)	D (2)	SD (3)	N (4)	SA (5)	A (6)	SLA (7)
13	Because people I care about would be upset with me if I didn't.	1	2	3	4	5	6	7
14	Because I think others would disapprove of me if I did not.	1	2	3	4	5	6	7

15	Because people around me reward me when I do.	1	2	3	4	5	6	7

Amotivation

No	Statement	SLD (7)	D (6)	SLD (5)	N (4)	SLA (3)	A (2)	SA (1)
16	I used to have good reasons for doing sports, but now I am asking myself if I should continue.	7	6	5	4	3	2	1
17	So that others will praise me for what I do.	7	6	5	4	3	2	1
18	It is not clear to me anymore; I don't really think my place is in sports.	7	6	5	4	3	2	1

Instrument Assessment Questionnaire by Experts

Part 1: General Information

1. Name : Dr. Bekir Erhan Orhan
2. Institution/Organization : Istanbul Aydin University Turkey
3. Areas of expertise : Physical Activity and Health
4. Work Experience (years) : 14 years

Part 2. Assessment

Instruction: Please, sir/madam, provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is very important to ensure the quality and validity of the research instruments to be used. Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument already covers relevant aspects.	√	4	3	2	1	The instrument effectively encompasses all essential aspects of sports motivation, including intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and motivation.
2	The statements in this instrument are in accordance with the purpose of the instrument	√	4	3	2	1	The statements align well with the instrument's objective to assess various dimensions of sports motivation comprehensively.
3	This instrument has sufficient coverage to measure the variables studied.	√	4	3	2	1	The instrument's scope is adequate to measure the different facets of motivation among sports

							participants, with a well-balanced representation of each motivational type.
B	**Clarity**						
4	This instrument is easy for respondents to understand.	5	√	3	2	1	The language is generally straightforward, though minor adjustments could be made to simplify certain statements for a broader range of respondents.
5	The language used in this instrument is clear and not confusing.	√	4	3	2	1	The language is clear and effectively communicates the intent of each statement, minimizing potential confusion.
6	Every statement in this instrument does not give rise to misinterpretation.	5	√	3	2	1	While most statements are clear, a few might benefit from slight rephrasing to ensure they are interpreted consistently by all respondents.
C	**Appropriateness**						
7	This instrument is suitable for use in the context of the proposed research.	√	4	3	2	1	The instrument is highly appropriate for research focused on sports motivation, considering the thorough inclusion of various motivational dimensions.
8	This instrument is able to measure the variables studied accurately.	√	4	3	2	1	The instrument's design and the specificity of its statements suggest it will accurately capture the intended motivational variables.
9	This instrument can be applied to research samples effectively.	√	4	3	2	1	The instrument is versatile and can be effectively applied to various research samples, making it a valuable tool for studying sports motivation across different populations.

Section 3. Suggestions and Feedback

1. The instrument is well-constructed overall. However, minor refinements in the wording of certain statements could enhance clarity and prevent misinterpretation. Expanding the explanation of terms such as "introjected regulation" or "amotivation" within the instructions might also improve respondent understanding, particularly for those less familiar with psychological terminology.

Dr. Bekir Erhan Orhan
Validator
Physical Activity and Health Expert

Expert 3. Prof. Dr. Mohd Salleh Aman

Instrument Assessment Questionnaire by Experts

Part 1: General Information

1. Name : Prof Dr Mohd Salleh Aman
2. Institution/Organization : Universiti Malaya
3. Areas of expertise : Sport and Recreation Management
4. Work Experience (years) : 35

Part 2. Assessment

Instruction: Please, sir/madam, provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is very important to ensure the quality and validity of the research instruments to be used. Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument already covers relevant aspects.	5✓	4	3	2	1	Adequate
2	The statements in this instrument are in accordance with the purpose of the instrument	5	4✓	3	2	1	ok
3	This instrument has sufficient coverage to measure the variables studied.	5✓	4	3	2	1	Adequate
B	**Clarity**						
4	This instrument is easy for respondents to understand.	5	4✓	3	2	1	ok
5	The language used in this instrument is clear and not confusing.	5	4✓	3	2	1	ok
6	Every statement in this instrument does not give rise to misinterpretation.	5	4✓	3	2	1	ok
C	**Appropriateness**						

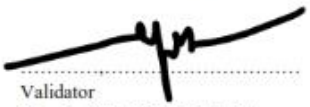
7	This instrument is suitable for use in the context of the proposed research.	5✓	4	3	2	1	Adequate
8	This instrument is able to measure the variables studied accurately.	5	4✓	3	2	1	ok
9	This instrument can be applied to research samples effectively.	5	4✓	3	2	1	ok

Section 3. Suggestions and Feedback

1. Is there any part of this instrument that needs repair? If yes, please explain.

   Yes. Please check (red in color) and consider my advice. But decide according to your conclusion.

Thank you for your participation and contribution to the development of this questionnaire. Your input is very valuable in ensuring that this questionnaire is effective and accurate in measuring exercise motivation using appropriate content validity, clarity, and appropriateness as an instrument.



Validator
Hon Prof Dr Mohd Salleh Aman
Sport and Recreation Management
Faculty of Sports and Exercise Science
Universiti Malaya
50603 Kuala Lumpur

Expert 4. Prof. Dr. Novita Intan Arovah, MPH., Ph.D.

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Prof. dr. Novita Intan Arovah, MPH., Ph.D.
2. Institusi/Organisasi : Universitas Negeri Yogyakarta
3. Bidang Keahlian : Kesehatan Olahraga
4. Pengalaman Kerja (tahun) :

   20 tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini sudah mencakup aspek yang relevan.	**5√**	4	3	2	1	
2	Pernyataan dalam instrumen ini sesuai dengan tujuan instrumen.	**5√**	4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	**5√**	4	3	2	1	
B	**Kejelasan**						
4	Instrumen ini mudah dipahami oleh responden.	**5√**	4	3	2	1	
5	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan	**5√**	4	3	2	1	
6	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	**5√**	4	3	2	1	
C	**Kelayakan**						

7	Instrumen ini layak digunakan dalam konteks penelitian yang diusulkan.	**5√**	4	3	2	1	
8	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	**5√**	4	3	2	1	
9	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	**5√**	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Sudah baik

Terima kasih atas partisipasi dan kontribusi bapak/ibu dalam pengembangan kuesioner ini. Masukan bapak/ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur motivasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuais sebagai sebuah instrumen.

.....

Validator

Ahli Kesehatan Olahraga

(Prof. dr. Novita Intan Arovah, MPH., Ph.D.)

Expert 5. Amin Akbar. Ph.D

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Amin Akbar, S.Psi., M.A., Ph.D.
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Psikologi Olahraga
4. Pengalaman Kerja (tahun) : tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	(5)	(4)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	(5)	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	(5)	4	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	(5)	(4)	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	5	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	5	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Terima kasih atas partisipasi dan kontribusi bapak/ibu ahli dalam pengembangan kuesioner ini. Masukan bapak/ibu ahli sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur perilaku penggunaan gadget dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

Padang 21 Agustus 2024

Validator
Ahli Psikologi Olahraga

(Amin Akbar, S.Psi., M.A., Ph.D.)

Expert 6. Prima Aulia, S.Psi, M.Psi.

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Prima Aulia, S.Psi, M.Psi.
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Psikologi Olahraga and Praktisi
4. Pengalaman Kerja (tahun) : _____

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini sudah mencakup aspek yang relevan.	√5	4	3	2	1	
2	Pernyataan dalam instrumen ini sesuai dengan tujuan instrumen.	5	√4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	√5	4	3	2	1	
B	**Kejelasan**						
4	Instrumen ini mudah dipahami oleh responden.	5	√4	3	2	1	
5	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan	√5	4	3	2	1	

6	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	√5	4	3	2	1	
C	**Kelayakan**						
7	Instrumen ini layak digunakan dalam konteks penelitian yang diusulkan.	√5	4	3	2	1	
8	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	√5	4	3	2	1	
9	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	5	√4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

_____

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_____

Terima kasih atas partisipasi dan kontribusi bapak/ibu dalam pengembangan kuesioner ini. Masukan bapak/ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur motivasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuais sebagai sebuah instrumen.

....., ...

Validator

Ahli Psikologi Olahraga dan Praktisi

(Prima Aulia, S.Psi, M.Psi.)

Expert 7. Prof. Dr. Tjung Hauw Sin, M. Pd, Kons.

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Prof. Dr. Tjung Hauw Sin, M. Pd,Kons.
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Psikologi Olahraga /Motivator
4. Pengalaman Kerja (tahun) : tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	5	(4)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	(5)	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	(5)	4	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	(5)	4	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	(5)	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	(5)	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

_____

_____

_____

Terima kasih atas partisipasi dan kontribusi bapak/ibu ahli dalam pengembangan kuesioner ini. Masukan bapak/ibu ahli sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur perilaku penggunaan gadget dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

....., ...

Validator

Ahli Psikologi Olahraga /Motivator

(Prof. Dr. Tjung Hauw Sin, M. Pd,Kons.)

Psychososial Well-Being
Expert 1. Prof. Dr Mohad Anizu Bin Mohd Nor

Research Instrument Assessment Questionnaire by Sports Participation Experts

Part 1: General Information

1. Name : Prof. Mohad Anizu Bin Mohd Nor
2. Institution/Organization : Universiti Teknologi MARA
3. Areas of expertise : Sport Science and Health
4. Work Experience (years) : 35 years

Part 2. Assessment

Instruction: Please, provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is very important to ensure the quality and validity of the research instruments.Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument covers all relevant aspects.	5√	4	3	2	1	
2	The statements in this instrument are in accordance with the purpose of the instrument	5√	4	3	2	1	
3	This instrument has sufficient coverage to measure the variables studied.	5√	4	3	2	1	
B	**Clarity**						
1	This instrument is easy for respondents to understand.	5√	4	3	2	1	
2	The language used in this instrument is clear and not confusing.	5√	4	3	2	1	
3	Every statement in this instrument does not give rise to misinterpretation.	5√	4	3	2	1	
C	**Appropriateness**						
1	This instrument is suitable for use in the context of the proposed research.	5√	4	3	2	1	
2	This instrument is able to measure the variables studied accurately.	5√	4	3	2	1	

3	This instrument can be applied to research samples effectively.	5√	4	3	2	1	

Section 3. Suggestions and Feedback

1. Is there any part of this instrument that needs repair? If yes, please explain.

   - For questionnaire, it is better to use 5-point Likert Scale instead of 7-point Likert Scale.

Thank you for your participation and contribution to the development of this questionnaire. Your input is valuable in ensuring that this questionnaire is effective and accurate in measuring sports participation using appropriate content validity, clarity, and appropriateness as an instrument.



Validator
Sport Science and Health Expert

PROFESSOR DR MOHAD ANIZU BIN MOHD NOR
Faculty of Sports Science & Recreation
Universiti Teknologi MARA
40450 Shah Alam
SELANGOR DARUL EHSAN

(Prof. Dr Mohad Anizu Bin Mohd Nor)

Expert 2. Dr. Bekir Ekrhan Orhan

Research Instrument Assessment Questionnaire by Experts

Part 1: General Information

1. Name : Dr. Bekir Erhan Orhan
2. Institution/Organization : Istanbul Aydin University Turkey
3. Areas of expertise : Physical Activity and Health
4. Work Experience (years) : 14 years

Part 2. Assessment

Instruction: Please provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is critical to ensure the quality and validity of the research instruments to be used.Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument covers all relevant aspects.	✓	4	3	2	1	The instrument thoroughly addresses all critical aspects necessary for evaluating the psychosocial well-being of sports participants, covering a wide range of relevant areas, including social integration, contribution, actualization, coherence, and acceptance.
2	The statements in this instrument are in accordance with the purpose of the instrument.	✓	4	3	2	1	The statements align well with the instrument's objective to measure sports participants' psychosocial well-being comprehensively.
3	This instrument has sufficient coverage to measure the variables studied.	5	✓	3	2	1	The instrument effectively covers the variables, although certain areas could be expanded to explore

							more nuanced aspects of psychosocial well-being.
B	**Clarity**						
1	This instrument is easy for respondents to understand.	5	✓	3	2	1	Generally, the language used is clear and accessible, though a few statements might benefit from slight rewording to enhance comprehension.
2	The language used in this instrument is clear and not confusing.	✓	4	3	2	1	The language is straightforward and avoids complex terminology, making it easy for respondents from diverse backgrounds to understand.
3	Every statement in this instrument does not give rise to misinterpretation.	5	✓	3	2	1	Most statements are unambiguous, but some items could be refined to eliminate any potential for misinterpretation.
C	**Appropriateness**						
1	This instrument is suitable for use in the context of the proposed research.	✓	4	3	2	1	The instrument is well-suited for the research context, especially given its focus on sports participants' psychosocial well-being.
2	This instrument is able to measure the variables studied accurately.	5	✓	3	2	1	The instrument has good potential for accurate measurement, though additional validation might enhance its reliability in varied contexts.
3	This instrument can be applied to research samples effectively.	✓	4	3	2	1	The instrument is adaptable and can effectively apply to different research samples, ensuring broad applicability.

Section 3. Suggestions and Feedback

1. The instrument is robust and well-structured; however, slight modifications in wording could further improve clarity and reduce the risk of misinterpretation. Additionally, expanding on specific psychosocial dimensions might provide a more comprehensive assessment.

Dr. Bekir Erhan Orhan

Validator

Physical Activity and Health Expert

Expert 3. Prof. Dr. Mohd Salleh Aman

Instrument Assessment Questionnaire by Experts

Part 1: General Information

1. Name : Prof. Dr Mohd Salleh Aman
2. Institution/Organization : Universiti Malaya
3. Areas of expertise : Sport and Recreation Management
4. Work Experience (years) : 35 Years

Part 2. Assessment

Instruction: Please provide an assessment of this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is critical to ensure the quality and validity of the research instruments to be used. Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument covers all relevant aspects.	5	4✓	3	2	1	ok
2	The statements in this instrument are in accordance with the purpose of the instrument.	5	4✓	3	2	1	ok
3	This instrument has sufficient coverage to measure the variables studied.	5	4✓	3	2	1	ok
B	**Clarity**						
1	This instrument is easy for respondents to understand.	5✓	4	3	2	1	Adequate
2	The language used in this instrument is clear and not confusing.	5✓	4	3	2	1	Adequate

3	Every statement in this instrument does not give rise to misinterpretation.	5	4✓	3	2	1	ok
C	**Appropriateness**						
1	This instrument is suitable for use in the context of the proposed research.	5✓	4	3	2	1	Adequate
2	This instrument is able to measure the variables studied accurately.	5	4✓	3	2	1	ok
3	This instrument can be applied to research samples effectively.	5✓	4	3	2	1	Adequate

Section 3. Suggestions and Feedback

1. Is there any part of this instrument that needs repair? If yes, please explain.

All is okay except no. 7. I add word socially at the end of the sentence. So that it become focus that this question is about social contribution, not about personal ability, for example.

Thank you for your participation and contribution to the development of this questionnaire. Expert input is very valuable in ensuring that this questionnaire is effective and accurate in measuring psychosocial well-being by using content validity, clarity and appropriateness as an instrument.



Validator
Hon Prof Dr Mohd Salleh Aman
Sport and Recreation Management
Faculty of Sports and Exercise Science
Universiti Malaya
50603 Kuala Lumpur✓

Expert 4. Amin Akbar. PhD

Gadget Usage.

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Amin Akbar, S.Psi., M.A., Ph.D.
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Psikologi Olahraga
4. Pengalaman Kerja (tahun) : _____

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini sudah mencakup aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan dalam instrumen ini sesuai dengan tujuan instrumen.	5	(4)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
4	Instrumen ini mudah dipahami oleh responden.	5	(4)	3	2	1	
5	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan	(5)	4	3	2	1	
6	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	(5)	4	3	2	1	
C	**Kelayakan**						

7	Instrumen ini layak digunakan dalam konteks penelitian yang diusulkan.	(5)	4	3	2	1	
8	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	(5)	4	3	2	1	
9	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	5	(4)	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Terima kasih atas partisipasi dan kontribusi bapak/ibu dalam pengembangan kuesioner ini. Masukan bapak/ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur motivasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuais sebagai sebuah instrumen.

Padang, 21 Agustus 2024

Validator
Ahli Psikologi Olahraga

(Amin Akbar, S.Psi., M.A., Ph.D.)

Expert 5. Dr. Zadrian Ardi, S.Pd..,M.Pd.., Kons

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Dr. Zadrian Ardi, S.Pd., M.Pd., Kons
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Bimbingan Konseling
4. Pengalaman Kerja (tahun) : 10 tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	X	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	X	4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	X	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	X	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	5	X	3	2	1	Item 10 bisa lebih di-sederhanakan agar tidak multitafsir. Ada 2 hal yg diukur.
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	5	X	3	2	1	Sama dengan poin 2

C	Kelayakan						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	X	4	3	2	1	
2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	X	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	X	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Secara keseluruhan telah ada perbaikan, namun perlu pertimbangan dan revisi beberapa, terutama pada item 10 agar tidak membingungkan.

Terima kasih atas partisipasi dan kontribusi bapak/ibu ahli dalam pengembangan kuesioner ini. Masukan bapak/ibu ahli sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur kesejahteraan psikososial dengan menggunakan validitas, kejelasan dan kelayakan isi sebagai sebuah instrumen.

Padang, 20 Agustus 2024

Validator
Ahli Bimbingan Konseling

(Dr. Zadrian Ardi, S.Pd., M.Pd., Kons)

Expert 6. Prof. Dr. H. Irwan Prayitno, M.Sc

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Prof. Dr. H. Irwan Prayitno, M.Sc
2. Institusi/Organisasi : Universitas Adzkia
3. Bidang Keahlian : Psikologi
4. Pengalaman Kerja (tahun) : ..... Tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	5	(4)	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	5	(4)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	5	(4)	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	5	(4)	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	5	(4)	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	(5)	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	(5)	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

_____

_____

_____

Terima kasih atas partisipasi dan kontribusi bapak/ibu ahli dalam pengembangan kuesioner ini. Masukan bapak/ibu ahli sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur perilaku penggunaan gadget dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

.....

Validator

Ahli Bidang Psikologi

(Prof. Dr. H. Irwan Prayitno, M.Sc)

Expert 7. Prof. Dr. Phil Yanuar Kiram

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Prof. Dr. Phil Yanuar Kiram
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Sosiologi Olahraga
4. Pengalaman Kerja (tahun) : ……..tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	(5)	4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	(5)	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	(5)	4	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	(5)	4	3	2	1	

C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	
2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	(5)	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	(5)	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Tidak ada. Sudah komprehensif.

Terima kasih atas partisipasi dan kontribusi bapak/ibu ahli dalam pengembangan kuesioner ini. Masukan bapak/ibu ahli sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur kesejahteraan psikososial dengan menggunakan validitas, kejelasan dan kelayakan isi sebagai sebuah instrumen.

.....

Validator
Ahli Sosiologi Olahraga

(Prof. Dr. Phil Yanuar Kiram)

Gadget Use Behaviour

Expert 1. Prof. Dr Mohad Anizu Bin Mohd Nor

Research Instrument Assessment Questionnaire by Experts

Part 1: General Information

1. Name : Prof. Dr Mohad Anizu Bin Mohd Nor
2. Institution/Organization : Universiti Teknologi MARA
3. Areas of expertise : Sport Science and Health
4. Work Experience (years) : 35 tahun

Part 2. Assessment

Instruction: Please assess this research instrument by ticking (√) in the appropriate column and providing comments in the column provided. This assessment is critical to ensure the quality and validity of the research instruments. Use a scale of 1-5 (1 = Strongly Disagree, disagree = 2, Undecided = 3, agree = 4 and 5 = Strongly Agree).

No	Statement	Evaluation					Comment
A	**Content Validity**						
1	This instrument covers all relevant aspects.	5√	4	3	2	1	
2	The statements in this instrument are in accordance with the purpose of the instrument	5√	4	3	2	1	
3	This instrument has sufficient coverage to measure the variables studied.	5√	4	3	2	1	
B	**Clarity**						
1	This instrument is easy for respondents to understand.	5√	4	3	2	1	
2	The language used in this instrument is clear and not confusing.	5√	4	3	2	1	
3	Every statement in this instrument does not give rise to misinterpretation.	5√	4	3	2	1	

C	**Appropriateness**						
1	This instrument is suitable for use in the context of the proposed research.	5√	4	3	2	1	
2	This instrument is able to measure the variables studied accurately.	5√	4	3	2	1	
3	This instrument can be applied to research samples effectively.	5√	4	3	2	1	

Section 3. Suggestions and Feedback

1. Is there any part of this instrument that needs repair? If yes, please explain.

   No

Thank you for your participation and contribution to the development of this questionnaire. Expert input is precious to ensure this questionnaire is effective and accurate in measuring gadget usage behavior by using validity, clarity, and suitability of appropriate content as an instrument.



.....

Validator

Sport Science and Health Expert

PROFESSOR DR MOHAD ANIZU BIN MOHD NOR
Faculty of Sports Science & Recreation
Universiti Teknologi MARA
40450 Shah Alam
SELANGOR DARUL EHSAN

(Prof. Dr Mohad Anizu Bin Mohd Nor)

Expert 2. Prof. Dr. H. Irwan Prayitno, M.Sc

Gadget Usage

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Prof. Dr. H. Irwan Prayitno, M.Sc
2. Institusi/Organisasi : Universitas Adzkia
3. Bidang Keahlian : Psikologi
4. Pengalaman Kerja (tahun) : ..... Tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	5	(4)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	5	(4)	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	5	(4)	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	5	(4)	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	5	(4)	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	(5)	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	5	(4)	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	(5)	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Terima kasih atas partisipasi dan kontribusi bapak/ibu ahli dalam pengembangan kuesioner ini. Masukan bapak/ibu ahli sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur perilaku penggunaan gadget dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

.....

Validator
Ahli Bidang Psikologi

(Prof. Dr. H. Irwan Prayitno, M.Sc)

Expert 3. Amin Akbar, PhD

Gadget Usage.

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Amin Akbar, S.Psi., M.A., Ph.D.
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Psikologi Olahraga
4. Pengalaman Kerja (tahun) : _____

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini sudah mencakup aspek yang relevan.	(5)	4	3	2	1	
2	Pernyataan dalam instrumen ini sesuai dengan tujuan instrumen.	5	(4)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	(5)	4	3	2	1	
B	**Kejelasan**						
4	Instrumen ini mudah dipahami oleh responden.	5	(4)	3	2	1	
5	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan	(5)	4	3	2	1	
6	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	(5)	4	3	2	1	
C	**Kelayakan**						

7	Instrumen ini layak digunakan dalam konteks penelitian yang diusulkan.	(5)	4	3	2	1	
8	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	(5)	4	3	2	1	
9	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	5	(4)	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

_____

_____

_____

_____

Terima kasih atas partisipasi dan kontribusi bapak/ibu dalam pengembangan kuesioner ini. Masukan bapak/ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur motivasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuais sebagai sebuah instrumen.

Padang, 21 Agustus 2024

Validator
Ahli Psikologi Olahraga

(Amin Akbar, S.Psi., M.A., Ph.D.)

Expert 4. Dr. Zadrian Ardi, S.Pd..,M.Pd.., Kons

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Dr. Zadrian Ardi, S.Pd., M.Pd., Kons
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Bimbingan Konseling
4. Pengalaman Kerja (tahun) : 10 Tahun

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini mencakup semua aspek yang relevan.	X	4	3	2	1	
2	Pernyataan-pernyataan yang ada dalam instrumen ini sesuai dengan tujuan instrument.	X	4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	X	4	3	2	1	
B	**Kejelasan**						
1	Instrumen ini mudah dipahami oleh responden.	X	4	3	2	1	
2	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan.	X	4	3	2	1	
3	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	X	4	3	2	1	
C	**Kelayakan**						
1	Instrumen ini layak digunakan dalam konteks tujuan dari instrumen	X	4	3	2	1	

2	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	X	4	3	2	1	
3	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	X	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Tetap ada perbaikan pada instrument.

Terima kasih atas partisipasi dan kontribusi bapak/ibu ahli dalam pengembangan kuesioner ini. Masukan bapak/ibu ahli sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur perilaku penggunaan gadget dengan menggunakan validtas, kejelasan dan kelayakan isi sesuai sebagai sebuah instrumen.

Padang, 26 Agustus 2024

Validator
Ahli Bidang Bimbingan Konseling

(Dr. Zadrian Ardi, S.Pd., M.Pd., Kons)

Expert 5. Prima Aulia, S.Psi, M.Psi

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Prima Aulia, S.Psi, M.Psi.
2. Institusi/Organisasi : Universitas Negeri Padang
3. Bidang Keahlian : Psikologi Olahraga and Praktisi
4. Pengalaman Kerja (tahun) : 8 years

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini sudah mencakup aspek yang relevan.	5	√4	3	2	1	
2	Pernyataan dalam instrumen ini sesuai dengan tujuan instrumen.	5	√4	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	5	√4	3	2	1	
B	**Kejelasan**						
4	Instrumen ini mudah dipahami oleh responden.	5	√4	3	2	1	
5	Bahasa yang digunakan dalam instrumen ini jelas dan tidak membingungkan	5	√4	3	2	1	

6	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	5	√4	3	2	1	
C	**Kelayakan**						
7	Instrumen ini layak digunakan dalam konteks penelitian yang diusulkan.	5	√4	3	2	1	
8	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	5	√4	3	2	1	
9	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	√5	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

_____

_____

_____

_____

Terima kasih atas partisipasi dan kontribusi bapak/ibu dalam pengembangan kuesioner ini. Masukan bapak/ibu sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur motivasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuais sebagai sebuah instrumen.

.....

Validator

Ahli Psikologi Olahraga dan Praktisi

(Prima Aulia, S.Psi, M.Psi.)

Expert 6. Dr. Muhammad Iqbal

INSTRUMENT PERILAKU PENGGUNAAN GADGET BAGI GENERASI Z

Pendahuluan

Skala ini menilai perilaku penggunaan gadget seseorang. Instrument ini terdiri dari beberapa indikator yaitu konteks penggunaan, intensitas, dampak yang dirasakan, pengaruh lingkungan dan peran orang tua. Instrumen ini terdiri dari 12 item pernyataan dan dinilai dengan 7 poin skala.

Petunjuk:
Silakan baca setiap pernyataan berikut dan beri tanda lingkar (O) pada kolom yang sesuai dengan tingkat persetujuan Anda. Skala likert 7 poin digunakan di mana: 1 = Sangat Tidak Setuju (**STS**), 2 = Tidak Setuju (**TS**), 3 = Agak Tidak Setuju (**ATS**), 4 = Netral (**N**), 5 = Agak Setuju (**AS**), 6 = Setuju (**S**), 7 = Sangat Setuju(**SS**)

Peran Orang Tua

No	Pernyataan	STS (1)	TS (2)	ATS (3)	N (4)	AS (5)	S (6)	SS (7)
1	Orang tua saya memberikan saya gadget untuk saya pribadi	1	2	3	4	5	6	7
2	Orang tua saya meminjamkan gadget kepada saya dalam waktu lama	1	2	3	4	5	6	7

7. orang tua membatasi penggunaan gadget
Lingkungan tempat tinggal 4. tidak ada teman di rumah bermain gadget

No	Pernyataan	STS (1)	TS (2)	ATS (3)	N (4)	AS (5)	S (6)	SS (7)
3	Di rumah saya, saya bebas untuk menggunakan gadget	1	2	3	4	5	6	7
4	Sekolah memberi kebabasan dalam membawa dan menggunakan gadget di sekolah	1	2	3	4	5	6	7
5	Saya berada dilingkungan sehari-hari yang membuat saya selalu menggunakan gadget	1	2	3	4	5	6	7

6. Akses internet lebih bebas di lingkungan rumah
Konteks

No	Pernyataan	STS (1)	TS (2)	ATS (3)	N (4)	AS (5)	S (6)	SS (7)
6	Bagi saya fungsi gadget hanya sebagian kecil untuk berkomunikasi.	1	2	3	4	5	6	7
7	Hanya sebagian kecil fungsi gadget saya gunakan untuk fasilitas belajar	1	2	3	4	5	6	7
8	Saya hanya menggunakan gadget untuk menikmati layanan hiburan seperti bermain game, menonton video, social media, atau browsing internet.	1	2	3	4	5	6	7

5. gadget cenderung digunakan untuk hiburan saja

Intensitas

No	Pernyataan	STS (1)	TS (2)	ATS (3)	N (4)	AS (5)	S (6)	SS (7)
9	Saya menggunakan gadget berulang kali setiap hari dengan frekuensi tak terbatas	1	2	3	4	5	6	7
10	saya bisa menghabiskan waktu beberapa jam setiap kali menggunakan gadget	1	2	3	4	5	6	7

- Saya bermain gadget lebih lama

Dampak

No	Pernyataan	STS (1)	TS (2)	ATS (3)	N (4)	AS (5)	S (6)	SS (7)
11	Saya mengalami kesusahan untuk tidur sehingga membuat saya merasa cemas dan menurunkan produktivitas hidup saya	1	2	3	4	5	6	7
12	Saya merasa memiliki masalah dalam berhubungan orang lain ataupun dengan keluarga	1	2	3	4	5	6	7

- Saya sering marah tanpa alasan
- Saya sering kesepian

Angket Penilaian Instrumen Penelitian oleh Ahli

Bagian 1: Informasi Umum

1. Nama : Dr. Muhammad Iqbal
2. Institusi/Organisasi : Paramadina University
3. Bidang Keahlian : Child Psychology
4. Pengalaman Kerja (tahun) : 14 years.

Bagian 2. Penilaian

Petunjuk: Mohon Bapak/Ibu untuk memberikan penilaian terhadap instrumen penelitian ini dengan memberikan tanda (√) pada kolom yang sesuai dan memberikan komentar pada kolom yang telah disediakan. Penilaian ini sangat penting untuk memastikan kualitas dan keabsahan instrumen penelitian yang akan digunakan. Gunakan skala 1-5 (1 = Sangat Tidak Setuju, tidak setuju= 2, Ragu-ragu = 3, setuju = 4 dan 5 = Sangat Setuju).

No	Pernyataan	Penilaian					Komentar
A	**Validitas Isi**						
1	Instrumen ini sudah mencakup aspek yang relevan.	5	(5)	3	2	1	
2	Pertanyaan dalam instrumen ini sesuai dengan tujuan penelitian.	5	(5)	3	2	1	
3	Instrumen ini memiliki cakupan yang cukup untuk mengukur variabel yang diteliti.	5	(5)	3	2	1	
B	**Kejelasan**						
4	Instrumen ini mudah dipahami oleh responden.	5	(5)	3	2	1	
5	Bahasa yang digunakan dalam instrumen ini jelas dan tidak ambigu.	5	(5)	3	2	1	
6	Setiap pernyataan dalam instrumen ini tidak menimbulkan salah tafsir.	5	(5)	3	2	1	
C	**Kelayakan**						
7	Instrumen ini layak digunakan dalam konteks penelitian yang diusulkan.	5	(5)	3	2	1	
8	Instrumen ini mampu mengukur variabel yang diteliti secara akurat.	5	(5)	3	2	1	

9	Instrumen ini dapat diterapkan pada sampel penelitian dengan efektif.	(5)	4	3	2	1	

Bagian 3. Saran dan Masukan

1. Apakah ada bagian dari instrumen ini yang perlu diperbaiki? Jika ya, mohon jelaskan.

Sudah oleh ditambah

Terima kasih atas partisipasi dan kontribusi Anda dalam pengembangan kuesioner ini. Masukan Anda sangat berharga untuk memastikan kuesioner ini efektif dan akurat dalam mengukur motivasi berolahraga dengan menggunakan validtas, kejelasan dan kelayakan isi sesuais sebagai sebuah instrumen.

.....

Validator

Ahli (Expert) Psikologi

(Muhammad Iqbal, Ph.D)

APPENDIX 4
Research Instrument

PARTISIPASI OLAHRAGA, KESEJAHTERAAN PSIKOSOSIAL, MOTIVASI BEROLAHRAGA DAN PERILAKU PENGGUNAAN GADGET

Siswa Menengah Atas yang terhormat,

Saya Endang Sepdanius, S.Si., M.Or., mahasiswa Doktoral di Universiti Teknologi MARA Malaysia. Pada masa ini, saya sedang melakukan penelitian Prilaku Penggunaan Gadget, Kesejahteraan Psikososial, Motivasi Berolahraga dan Partisipasi Olahraga. Untuk mengumpulkan informasi terkait variabel tersebut, kami akan menggunakan beberapa instrumen yaitu:

- Prilaku Penggunaan Gadget (19 item)
- Kesejahteraan Psikososial (18 item)
- Sport Motivation Scale II (16 item)
- Partisipasi Olahraga (16 item)

Total keseluruhan item adalah 69. Survei ini membutuhkan waktu sekitar 15 menit untuk menyelesaikannya. Harap baca dengan seksama dan jawablah setiap pertanyaan sesuai dengan partisipan rasakan.

Survei ini semata-mata merupakan kegiatan akademis, dan Anda dijamin bahwa informasi yang Anda berikan akan dijaga kerahasiaannya dan bahwa Anda akan tetap dirahasiakan dalam setiap publikasi hasil penelitian ini.
Dengan menjawab pertanyaan-pertanyaan ini, Anda telah berpartisipasi secara sukarela dalam penelitian ini. Jika Anda memiliki pertanyaan tentang penelitian ini atau hak-hak Anda, silakan hubungi:

Endang Sepdanius, S.Si., M.Or. Hp. 0852 6329 4253 email: 2023773653@student.uitm.edu.my
Dr. M. Adli bin Mohd Sidi Hp: +6017-700 0960, email: adlisidi@uitm.edu.my
Dr. Nurul Diyana Binti Sanuddin Hp: +60 16-338 1086, email: diyanasanuddin@uitm.edu.my

Dengan berpartisipasi dalam survei ini, saya menyatakan setuju bahwa:

1. Saya mengizinkan peninjauan catatan, analisis, dan penggunaan data yang timbul dari penelitian ini.

2. Saya memahami sifat dan ruang lingkup penelitian yang sedang dilakukan.

3. Saya telah membaca dan memahami semua syarat dan ketentuan keikutsertaan saya dalam penelitian ini.

4. Saya secara sukarela setuju untuk berpartisipasi dalam penelitian ini dan mengikuti prosedur penelitian.

5. Saya dapat setiap saat memilih untuk mengundurkan diri dari penelitian ini tanpa memberikan alasan apapun.

Biodata Responden:

Nama: _____

Usia: _____ tahun

Jenis Kelamin: ☐ Pria ☐ Wanita

Pekerjaan Ayah: ☐ ASN/PNS ☐ Tenaga Pengajar ☐ Wiraswasta ☐ Petani/Peternak ☐ Nelayan ☐ Agama/Kepercayaan ☐ Tenaga Kesehatan ☐ Pensiunan ☐ Tidak Bekerja

Pekerjaan Ibu: ☐ ASN/PNS ☐ Tenaga Pengajar ☐ Wiraswasta ☐ Petani/Peternak ☐ Nelayan ☐ Agama/Kepercayaan ☐ Tenaga Kesehatan ☐ Pensiunan ☐ Tidak Bekerja

Perkiraan Penghasilan Orang Tua (Ayah+Ibu) per bulan:
☐ < Rp. 1.500.000 ☐ Rp. 1.500.000 – Rp. 3.500.000 ☐ Rp. 3.500.000 – Rp. 6.000.000 ☐ Rp. 6.000.000 – Rp. 10.000.000 ☐ > Rp. 10.000.000

Nama Sekolah: _____

Daftar Pilihan Sekolah:

- SMA Negeri 8 Padang, Kota Padang
- SMA Negeri 3 Bukittinggi
- SMA N 1 Pasaman, Pasaman Barat
- SMA N 2 Lubuak Basung, Agam

- SMA N 1 Lubuk Alung, Padang Pariaman
- SMA N 2 SUMBAR, Kab. Solok
- SMA N 1 Kecamatan Payakumbuh, Lima Puluh Kota
- SMA N 1 Bonjol, Pasaman
- SMA N 1 Pariangan, Tanah Datar
- SMA N 2 Sijunjung, Sijunjung
- SMA N Sikabu, Dharmasraya
- SMA N 4 Payakumbuh, Kota Payakumbuh
- SMA N 5 Bukittinggi, Kota Bukittinggi
- SMA N 1 Solok Selatan, Solok Selatan
- SMA N 2 Pariaman, Kota Pariaman
- SMA N 1 Siberut Selatan, Kepulauan Mentawai
- SMA N 2 Solok, Kota Solok
- SMA N 3 Padang Panjang, Kota Padang Panjang
- SMA N 3 Sawahlunto, Kota Sawahlunto
- SMA Pembangunan UNP, Kota Padang
- SMA Negeri 1 Lengayang, Pesisir Selatan

Akses Internet:

☐ Sangat Tidak Setuju ☐ Tidak Setuju ☐ Tidak Yakin ☐ Setuju ☐ Sangat Setuju

1) Akses internet yang tidak stabil di daerah saya membuat penggunaan gadget menjadi terbatas.

2) Saya merasa tidak ada batasan dalam mengakses internet dan teknologi di daerah saya.

Instrumen Partisipasi Olahraga

1. Saya berpartisipasi dalam kegiatan olahraga minimal tiga kali dalam seminggu

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

2. Saya menghabiskan waktu minimal 30 menit setiap kali berolahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

3. Saya konsisten untuk melakukan olahraga ini setiap minggunya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

4. Saya tetap berolahraga baik dalam group atau perseorangan

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

5. Dengan olahraga yang saya lakukan, saya merasa kebugaran fisik saya menjadi lebih baik

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

6. Infrastruktur terkait dengan olahraga di lingkungan sekitar saya sangat mendukung

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

7. Ruang terbuka di lingkungan sekitar saya memungkinkan saya untuk melakukan olahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

8. Infrastruktur terkait dengan olahraga dan ruang terbuka ditempat saya dikelola dengan baik

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

9. Sangat mudah bagi saya untuk mengakses infrastruktur dan ruang terbuka untuk latihan dan olahraga.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

10. Di lingkungan masyarakat saya berada, melakukan olahraga menjadi bagian penting untuk menjaga kesehatan

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

11. Di lingkungan tempat saya berada sekarang, menyediakan waktu khusus untuk saya berolahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

12. Saya (perempuan/Pria) tidak merasa terasing saat berpartisipasi dalam olahraga di lingkungan saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju

☐ ☐ ☐ ☐ ☐

13. Di tempat saya sekolah/bekerja menyediakan anggaran untuk program peningkatan partisipasi berolahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

14. Adanya koordinator program olahraga membuat partisipasi olahraga berjalan dengan baik di sekolah/tempat bekerja saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

15. Berbagai Inovasi program disediakan di sekolah/tempat bekerja dalam rangka meningkatkan partisipasi olahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

16. Adanya dukungan dari lintas sektoral dalam upaya meningkatkan partisipasi untuk berolahraga di sekolah/tempat kerja saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

Instrumen Motivasi Berolahraga

17. Karena saya senang belajar lebih banyak tentang olahraga yang saya lakukan

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

18. Karena saya merasa senang menemukan gaya permainan yang baru

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

19. Karena sangat menarik untuk belajar bagaimana saya dapat meningkatkan diri

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

20. Karena berlatih olahraga mencerminkan jati diri saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

21. Karena berpartisipasi dalam olahraga adalah bagian tak terpisahkan dari hidup saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

22. Karena melalui olahraga, saya hidup sesuai dengan prinsip hidup saya yang paling dalam.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

23. Karena saya memilih olahraga ini sebagai cara untuk membangun diri saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

24. Karena saya menemukan bahwa menekuni olahraga ini adalah cara yang baik untuk mengembangkan hal-hal yang saya kagumi dalam diri saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

25. Karena menekuni olahraga itu adalah salah satu cara terbaik yang saya pilih untuk mengembangkan aspek lain dari diri saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

26. Karena saya akan merasa tidak enak dengan diri saya sendiri jika saya tidak meluangkan waktu untuk melakukan olahraga tersebut

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

27. Karena saya merasa lebih baik dengan diri saya sendiri ketika saya melakukannya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

28. Karena saya tidak akan merasa berharga jika tidak melakukannya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

29. Karena orang-orang yang saya sayangi akan merasa kesal jika saya tidak melakukannya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

30. Karena saya pikir orang lain akan tidak setuju jika saya tidak melakukannya.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

31. Karena orang-orang di sekitar saya memberikan penghargaan kepada saya ketika saya melakukannya.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

32. Sekarang saya tidak yakin lagi; saya rasa tempat saya bukan di bidang olahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

Instrumen Kesejahteraan Psikososial

33. Saya merasa memiliki hubungan yang lebih baik dengan teman-teman saya sejak saya mulai berpartisipasi dalam olahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

34. Saya merasa lebih mudah membangun hubungan baru ketika saya berpartisipasi dalam kegiatan olahraga.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

35. Saya menerima dukungan emosional dari rekan tim saya selama berpartisipasi dalam olahraga.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

36. Saya merasa menjadi bagian dari komunitas atau kelompok tertentu melalui partisipasi dalam olahraga.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

37. Kegiatan olahraga membantu saya merasa lebih terhubung dengan lingkungan sosial saya.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

38. Saya merasa bahwa berpartisipasi dalam olahraga memperkuat rasa kebersamaan dan saling mendukung di antara anggota tim.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

39. Melalui olahraga saya dapat berkontribusi pada keberhasilan tim atau komunitas saya.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

40. Partisipasi dalam olahraga membuat saya merasa lebih bermakna dan berguna.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

41. Partisipasi aktif dalam olahraga memungkinkan saya berkontribusi menciptakan lingkungan yang lebih harmonis di masyarakat.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

42. Saya merasa bahwa partisipasi dalam olahraga membantu saya mengasah dan membiasakan kemampuan diri

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

43. Saya merasa puas dengan pencapaian saya berpartisipasi dalam kegiatan olahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

44. Saya merasa bahwa berpartisipasi dalam olahraga mengajarkan saya untuk berkomunikasi secara baik dalam menyampaikan tujuan.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

45. Kegiatan olahraga menjadi rutinitas yang membantu saya merasa lebih terhubung dengan masyarakat.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

46. Partisipasi dalam olahraga dimasyarakat membantu saya menumbuhkan rasa saling percaya.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

47. Berpartisipasi dalam olahraga membantu saya membangun rasa kebersamaan dan kekompakan

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

48. Saya merasa diterima oleh rekan tim saya dalam kegiatan olahraga.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

49. Saya merasa dihargai dalam komunitas olahraga saya

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

50. Saya merasa terbuka untuk berinteraksi dengan orang lain selama berpartisipasi dalam olahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

Instrumen Perilaku Penggunaan Gadget

51. Orang tua saya meminjamkan gadget kepada saya dalam waktu lama.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

52. Orang tua saya senang melihat saya bermain gadget dibandingkan terlibat dalam olahraga.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

53. Orang tua saya tidak memberikan batasan bagi saya untuk menggunakan gadget.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

54. Tidak ada aturan dari orang tua saya untuk menggunakan gadget.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

55. Saya bebas untuk menggunakan gadget di rumah.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

56. Sekolah memberi kebabasan dalam menggunakan gadget di sekolah.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

57. Saya berada di lingkungan sehari-hari yang membuat saya menggunakan gadget daripada ikut terlibat olahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

58. Saya bermain gadget karena menikmati akses internet gratis di lingkungan saya tinggal.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

59. Hanya sebagian kecil fungsi gadget saya gunakan untuk fasilitas belajar.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

60. Saya hanya menggunakan gadget untuk menikmati layanan hiburan seperti bermain game, menonton video, social media, atau browsing internet.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

61. Saya menggunakan gadget berulang kali setiap hari.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

62. Saya bisa menghabiskan waktu berjam-jam setiap kali menggunakan gadget.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

63. Saya sering tidur larut malam karena bermain gadget.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

64. Saya merasa gelisah jika tidak menggunakan gadget dalam kurun waktu lebih dari satu jam.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

65. Terkadang saya lupa mengerjakan tugas sekolah karena sibuk bermain gadget.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

66. Saya mengalami kesusahan untuk tidur malam sehingga membuat saya merasa cemas.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

67. Saya merasa memiliki masalah dengan keluarga karena bermain gadget.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

68. Saya sering menunda-nunda pekerjaan / tugas sekolah karena bermain gadget.

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

69. Saya lebih senang bermain gadget daripada berolahraga

Sangat Tidak Setuju	Tidak Setuju	Tidak Yakin	Setuju	Sangat Setuju
☐	☐	☐	☐	☐

APPENDIX 5

Analysis of Data Pilot Study

Item Validity

Correlations

		POR1	POR2	POR3	POR4	POR5	POR6	POR7	POR8	POR9	POR10	POR11	POR12	POR13	POR14	POR15	POR16	TOTALPOR
POR1	Pearson Correlation	1	.555**	.483**	.561**	.624**	.387**	.432**	.601**	.421**	.332*	.498**	.461**	.178	.186	.382**	.337*	.782**
	Sig. (2-tailed)		<,001	<,001	<,001	<,001	.004	<,001	<,001	.001	.013	<,001	<,001	.194	.174	.004	.012	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR2	Pearson Correlation	.555**	1	.552**	.504**	.424**	.392**	.189	.410**	.328*	.269*	.322*	.310*	.307*	.109	.309*	.334*	.660**
	Sig. (2-tailed)	<,001		<,001	<,001	.001	.003	.166	.002	.015	.047	.017	.021	.023	.426	.022	.013	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR3	Pearson Correlation	.483**	.552**	1	.416**	.320*	.522**	.243	.382**	.169	.265	.335*	.266*	.149	-.186	.187	.233	.593**
	Sig. (2-tailed)	<,001	<,001		.002	.017	<,001	.073	.004	.218	.050	.012	.050	.277	.174	.171	.087	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR4	Pearson Correlation	.561**	.504**	.416**	1	.244	.357**	.274*	.351**	.296*	.483**	.384**	.231	.138	.261	.264	.188	.633**
	Sig. (2-tailed)	<,001	<,001	.002		.073	.007	.043	.009	.028	<,001	.004	.089	.316	.054	.052	.169	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR5	Pearson Correlation	.624**	.424**	.320*	.244	1	.409**	.386**	.590**	.369**	.199	.211	.372**	.152	.089	.406**	.313*	.616**
	Sig. (2-tailed)	<,001	.001	.017	.073		.002	.004	<,001	.006	.145	.122	.005	.268	.518	.002	.020	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR6	Pearson Correlation	.387**	.392**	.522**	.357**	.409**	1	.398**	.646**	.455**	.264	.270*	.257	.362**	.204	.583**	.246	.695**
	Sig. (2-tailed)	.004	.003	<,001	.007	.002		.003	<,001	<,001	.051	.046	.059	.007	.136	<,001	.070	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR7	Pearson Correlation	.432**	.189	.243	.274*	.386**	.398**	1	.532**	.033	.128	.347**	.523**	.203	.153	.368**	.414**	.580**
	Sig. (2-tailed)	<,001	.166	.073	.043	.004	.003		<,001	.811	.353	.009	<,001	.137	.265	.006	.002	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR8	Pearson Correlation	.601**	.410**	.382**	.351**	.590**	.646**	.532**	1	.451**	.202	.382**	.360**	.202	.187	.520**	.340*	.733**
	Sig. (2-tailed)	<,001	.002	.004	.009	<,001	<,001	<,001		<,001	.139	.004	.007	.139	.172	<,001	.011	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR9	Pearson Correlation	.421**	.328*	.169	.296*	.369**	.455**	.033	.451**	1	.249	.303*	.313*	.413**	.398**	.418**	.249	.584**
	Sig. (2-tailed)	.001	.015	.218	.028	.006	<,001	.811	<,001		.067	.025	.020	.002	.003	.001	.066	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR10	Pearson Correlation	.332*	.269*	.265	.483**	.199	.264	.128	.202	.249	1	.492**	.271*	.119	.130	.173	.195	.505**
	Sig. (2-tailed)	.013	.047	.050	<,001	.145	.051	.353	.139	.067		<,001	.045	.387	.344	.208	.154	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR11	Pearson Correlation	.498**	.322*	.335*	.384**	.211	.270*	.347**	.382**	.303*	.492**	1	.471**	.201	.086	.231	.570**	.653**
	Sig. (2-tailed)	<,001	.017	.012	.004	.122	.046	.009	.004	.025	<,001		<,001	.142	.535	.090	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR12	Pearson Correlation	.461**	.310*	.266*	.231	.372**	.257	.523**	.360**	.313*	.271*	.471**	1	.178	.093	.366**	.441**	.620**
	Sig. (2-tailed)	<,001	.021	.050	.089	.005	.059	<,001	.007	.020	.045	<,001		.194	.499	.006	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR13	Pearson Correlation	.178	.307*	.149	.138	.152	.362**	.203	.202	.413**	.119	.201	.178	1	.349**	.429**	.385**	.464**
	Sig. (2-tailed)	.194	.023	.277	.316	.268	.007	.137	.139	.002	.387	.142	.194		.009	.001	.004	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR14	Pearson Correlation	.186	.109	-.186	.261	.089	.204	.153	.187	.398**	.130	.086	.093	.349**	1	.386**	.327*	.334*
	Sig. (2-tailed)	.174	.426	.174	.054	.518	.136	.265	.172	.003	.344	.535	.499	.009		.004	.015	.013
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR15	Pearson Correlation	.382**	.309*	.187	.264	.406**	.583**	.368**	.520**	.418**	.173	.231	.366**	.429**	.386**	1	.487**	.632**
	Sig. (2-tailed)	.004	.022	.171	.052	.002	<,001	.006	<,001	.001	.208	.090	.006	.001	.004		<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
POR16	Pearson Correlation	.337*	.334*	.233	.188	.313*	.246	.414**	.340*	.249	.195	.570**	.441**	.385**	.327*	.487**	1	.600**
	Sig. (2-tailed)	.012	.013	.087	.169	.020	.070	.002	.011	.066	.154	<,001	<,001	.004	.015	<,001		<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
TOTALPOR	Pearson Correlation	.782**	.660**	.593**	.633**	.616**	.695**	.580**	.733**	.584**	.505**	.653**	.620**	.464**	.334*	.632**	.600**	1
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	.013	<,001	<,001	
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		MO1	MO2	MO3	MO4	MO5	MO6	MO7	MO8	MO9	MO10	MO11	MO12	MO13	MO14	MO15	MO16	MO17	MO18	TOTALMO
MO1	Pearson Correlation	1	.646**	.610**	.493**	.287*	.388**	.461**	.496**	.481**	.529**	.557**	.449**	.040	.203	.304*	-.157	.039	.194	.635**
	Sig. (2-tailed)		<,001	<,001	<,001	.034	.003	<,001	<,001	<,001	<,001	<,001	<,001	.770	.137	.024	.252	.778	.156	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO2	Pearson Correlation	.646**	1	.542**	.647**	.392**	.469**	.456**	.467**	.523**	.363**	.609**	.293*	.256	.340*	.286*	-.189	-.111	.288*	.653**
	Sig. (2-tailed)	<,001		<,001	<,001	.003	<,001	<,001	<,001	<,001	.006	<,001	.030	.060	.011	.035	.166	.422	.033	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO3	Pearson Correlation	.610**	.542**	1	.440**	.427**	.424**	.437**	.474**	.509**	.495**	.505**	.400**	.151	.217	.152	-.250	-.155	.104	.569**
	Sig. (2-tailed)	<,001	<,001		<,001	.001	.001	<,001	<,001	<,001	<,001	<,001	.002	.273	.112	.269	.066	.259	.449	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO4	Pearson Correlation	.493**	.647**	.440**	1	.665**	.732**	.598**	.553**	.495**	.473**	.613**	.454**	.409**	.439**	.490**	-.174	-.092	.432**	.808**
	Sig. (2-tailed)	<,001	<,001	<,001		<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	.002	<,001	<,001	.205	.503	.001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO5	Pearson Correlation	.287*	.392**	.427**	.665**	1	.809**	.747**	.611**	.576**	.411**	.494**	.452**	.426**	.378**	.398**	-.185	-.109	.447**	.770**
	Sig. (2-tailed)	.034	.003	.001	<,001		<,001	<,001	<,001	<,001	.002	<,001	<,001	.001	.004	.003	.176	.430	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO6	Pearson Correlation	.388**	.469**	.424**	.732**	.809**	1	.703**	.639**	.634**	.499**	.545**	.491**	.555**	.508**	.342*	-.295*	.014	.337*	.822**
	Sig. (2-tailed)	.003	<,001	.001	<,001	<,001		<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	.011	.029	.920	.012	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO7	Pearson Correlation	.461**	.456**	.437**	.598**	.747**	.703**	1	.657**	.682**	.428**	.487**	.436**	.352**	.380**	.322*	-.277*	-.022	.427**	.762**
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001		<,001	<,001	.001	<,001	<,001	.008	.004	.017	.041	.873	.001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO8	Pearson Correlation	.496**	.467**	.474**	.553**	.611**	.639**	.657**	1	.670**	.411**	.534**	.482**	.181	.171	.180	-.402**	.153	.375**	.699**
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001	<,001		<,001	.002	<,001	<,001	.186	.213	.189	.002	.265	.005	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO9	Pearson Correlation	.481**	.523**	.509**	.495**	.576**	.634**	.682**	.670**	1	.564**	.466**	.444**	.337*	.296*	.143	-.265	.058	.379**	.732**
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001		<,001	<,001	<,001	.012	.028	.299	.051	.675	.004	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO10	Pearson Correlation	.529**	.363**	.495**	.473**	.411**	.499**	.428**	.411**	.564**	1	.506**	.644**	.293*	.410**	.269*	-.055	.103	.196	.713**
	Sig. (2-tailed)	<,001	.006	<,001	<,001	.002	<,001	.001	.002	<,001		<,001	<,001	.030	.002	.047	.688	.455	.152	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO11	Pearson Correlation	.557**	.609**	.505**	.613**	.494**	.545**	.487**	.534**	.466**	.506**	1	.572**	.187	.169	.341*	-.203	.181	.410**	.740**
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001		<,001	.171	.217	.011	.138	.186	.002	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO12	Pearson Correlation	.449**	.293*	.400**	.454**	.452**	.491**	.436**	.482**	.444**	.644**	.572**	1	.407**	.421**	.401**	-.310*	.020	.109	.684**
	Sig. (2-tailed)	<,001	.030	.002	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001		.002	.001	.002	.021	.886	.429	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO13	Pearson Correlation	.040	.256	.151	.409**	.426**	.555**	.352**	.181	.337*	.293*	.187	.407**	1	.681**	.297*	-.276*	-.260	-.150	.465**
	Sig. (2-tailed)	.770	.060	.273	.002	.001	<,001	.008	.186	.012	.030	.171	.002		<,001	.028	.041	.055	.276	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO14	Pearson Correlation	.203	.340*	.217	.439**	.378**	.508**	.380**	.171	.296*	.410**	.169	.421**	.681**	1	.497**	-.297*	-.231	-.143	.515**
	Sig. (2-tailed)	.137	.011	.112	<,001	.004	<,001	.004	.213	.028	.002	.217	.001	<,001		<,001	.028	.090	.297	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO15	Pearson Correlation	.304*	.286*	.152	.490**	.398**	.342*	.322*	.180	.143	.269*	.341*	.401**	.297*	.497**	1	-.088	-.191	.103	.506**
	Sig. (2-tailed)	.024	.035	.269	<,001	.003	.011	.017	.189	.299	.047	.011	.002	.028	<,001		.522	.162	.454	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO16	Pearson Correlation	-.157	-.189	-.250	-.174	-.185	-.295*	-.277*	-.402**	-.265	-.055	-.203	-.310*	-.276*	-.297*	-.088	1	.302*	.252	-.125
	Sig. (2-tailed)	.252	.166	.066	.205	.176	.029	.041	.002	.051	.688	.138	.021	.041	.028	.522		.025	.064	.363
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO17	Pearson Correlation	.039	-.111	-.155	-.092	-.109	.014	-.022	.153	.058	.103	.181	.020	-.260	-.231	-.191	.302*	1	.284*	.138
	Sig. (2-tailed)	.778	.422	.259	.503	.430	.920	.873	.265	.675	.455	.186	.886	.055	.090	.162	.025		.035	.314
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
MO18	Pearson Correlation	.194	.288*	.104	.432**	.447**	.337*	.427**	.375**	.379**	.196	.410**	.109	-.150	-.143	.103	.252	.284*	1	.497**
	Sig. (2-tailed)	.156	.033	.449	.001	<,001	.012	.001	.005	.004	.152	.002	.429	.276	.297	.454	.064	.035		<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
TOTALMO	Pearson Correlation	.635**	.653**	.569**	.808**	.770**	.822**	.762**	.699**	.732**	.713**	.740**	.684**	.465**	.515**	.506**	-.125	.138	.497**	1
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	.363	.314	<,001	
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		PPO1	PPO2	PPO3	PPO4	PPO5	PPO6	PPO7	PPO8	PPO9	PPO10	PPO11	PPO12	PPO13	PPO14	PPO15	PPO16	PPO17	PPO18	TOTALPPO
PPO1	Pearson Correlation	1	.519**	.487**	.467**	.646**	.233	.476**	.422**	.261	.181	.404**	.477**	.623**	.504**	.409**	.384**	.343*	.408**	.687**
	Sig. (2-tailed)		<,001	<,001	<,001	<,001	.087	<,001	.001	.054	.186	.002	<,001	<,001	<,001	.002	.004	.010	.002	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO2	Pearson Correlation	.519**	1	.667**	.497**	.544**	.516**	.367**	.335*	.249	.198	.298*	.316*	.272*	.134	.296*	.306*	.285*	.272*	.576**
	Sig. (2-tailed)	<,001		<,001	<,001	<,001	<,001	.006	.012	.066	.146	.027	.019	.044	.330	.028	.023	.035	.045	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO3	Pearson Correlation	.487**	.667**	1	.435**	.304*	.376**	.348**	.273*	.273*	.261	.397**	.459**	.288*	.413**	.419**	.413**	.270*	.329*	.609**
	Sig. (2-tailed)	<,001	<,001		<,001	.024	.005	.009	.044	.044	.054	.003	<,001	.033	.002	.001	.002	.046	.014	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO4	Pearson Correlation	.467**	.497**	.435**	1	.484**	.507**	.385**	.475**	.303*	.297*	.382**	.389**	.550**	.352**	.508**	.438**	.391**	.316*	.673**
	Sig. (2-tailed)	<,001	<,001	<,001		<,001	<,001	.004	<,001	.024	.028	.004	.003	<,001	.008	<,001	<,001	.003	.019	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO5	Pearson Correlation	.646**	.544**	.304*	.484**	1	.523**	.605**	.405**	.213	.224	.260	.342*	.539**	.289*	.464**	.225	.296*	.245	.615**
	Sig. (2-tailed)	<,001	<,001	.024	<,001		<,001	<,001	.002	.119	.100	.055	.011	<,001	.032	<,001	.099	.028	.071	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO6	Pearson Correlation	.233	.516**	.376**	.507**	.523**	1	.592**	.610**	.392**	.512**	.245	.320*	.173	.100	.539**	.463**	.443**	.275*	.621**
	Sig. (2-tailed)	.087	<,001	.005	<,001	<,001		<,001	<,001	.003	<,001	.072	.017	.206	.467	<,001	<,001	<,001	.042	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO7	Pearson Correlation	.476**	.367**	.348**	.385**	.605**	.592**	1	.569**	.316*	.534**	.586**	.432**	.396**	.355**	.507**	.294*	.436**	.310*	.684**
	Sig. (2-tailed)	<,001	.006	.009	.004	<,001	<,001		<,001	.019	<,001	<,001	<,001	.003	.008	<,001	.030	<,001	.021	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO8	Pearson Correlation	.422**	.335*	.273*	.475**	.405**	.610**	.569**	1	.604**	.705**	.546**	.608**	.398**	.465**	.535**	.716**	.574**	.516**	.794**
	Sig. (2-tailed)	.001	.012	.044	<,001	.002	<,001	<,001		<,001	<,001	<,001	<,001	.003	<,001	<,001	<,001	<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO9	Pearson Correlation	.261	.249	.273*	.303*	.213	.392**	.316*	.604**	1	.664**	.583**	.489**	.400**	.583**	.478**	.569**	.617**	.545**	.701**
	Sig. (2-tailed)	.054	.066	.044	.024	.119	.003	.019	<,001		<,001	<,001	<,001	.002	<,001	<,001	<,001	<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO10	Pearson Correlation	.181	.198	.261	.297*	.224	.512**	.534**	.705**	.664**	1	.629**	.528**	.254	.398**	.511**	.524**	.454**	.334*	.661**
	Sig. (2-tailed)	.186	.146	.054	.028	.100	<,001	<,001	<,001	<,001		<,001	<,001	.061	.003	<,001	<,001	<,001	.013	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO11	Pearson Correlation	.404**	.298*	.397**	.382**	.260	.245	.586**	.546**	.583**	.629**	1	.559**	.508**	.509**	.490**	.450**	.356**	.473**	.715**
	Sig. (2-tailed)	.002	.027	.003	.004	.055	.072	<,001	<,001	<,001	<,001		<,001	<,001	<,001	<,001	<,001	.008	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO12	Pearson Correlation	.477**	.316*	.459**	.389**	.342*	.320*	.432**	.608**	.489**	.528**	.559**	1	.299*	.373**	.515**	.533**	.405**	.378**	.684**
	Sig. (2-tailed)	<,001	.019	<,001	.003	.011	.017	<,001	<,001	<,001	<,001	<,001		.026	.005	<,001	<,001	.002	.004	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO13	Pearson Correlation	.623**	.272*	.288*	.550**	.539**	.173	.396**	.398**	.400**	.254	.508**	.299*	1	.722**	.510**	.408**	.269*	.437**	.672**
	Sig. (2-tailed)	<,001	.044	.033	<,001	<,001	.206	.003	.003	.002	.061	<,001	.026		<,001	<,001	.002	.047	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO14	Pearson Correlation	.504**	.134	.413**	.352**	.289*	.100	.355**	.465**	.583**	.398**	.509**	.373**	.722**	1	.509**	.441**	.431**	.518**	.674**
	Sig. (2-tailed)	<,001	.330	.002	.008	.032	.467	.008	<,001	<,001	.003	<,001	.005	<,001		<,001	<,001	.001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO15	Pearson Correlation	.409**	.296*	.419**	.508**	.464**	.539**	.507**	.535**	.478**	.511**	.490**	.515**	.510**	.509**	1	.528**	.499**	.270*	.724**
	Sig. (2-tailed)	.002	.028	.001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001		<,001	<,001	.047	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO16	Pearson Correlation	.384**	.306*	.413**	.438**	.225	.463**	.294*	.716**	.569**	.524**	.450**	.533**	.408**	.441**	.528**	1	.746**	.695**	.753**
	Sig. (2-tailed)	.004	.023	.002	<,001	.099	<,001	.030	<,001	<,001	<,001	<,001	<,001	.002	<,001	<,001		<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO17	Pearson Correlation	.343*	.285*	.270*	.391**	.296*	.443**	.436**	.574**	.617**	.454**	.356**	.405**	.269*	.431**	.499**	.746**	1	.622**	.691**
	Sig. (2-tailed)	.010	.035	.046	.003	.028	<,001	<,001	<,001	<,001	<,001	.008	.002	.047	.001	<,001	<,001		<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
PPO18	Pearson Correlation	.408**	.272*	.329*	.316*	.245	.275*	.310*	.516**	.545**	.334*	.473**	.378**	.437**	.518**	.270*	.695**	.622**	1	.667**
	Sig. (2-tailed)	.002	.045	.014	.019	.071	.042	.021	<,001	<,001	.013	<,001	.004	<,001	<,001	.047	<,001	<,001		<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
TOTALPPO	Pearson Correlation	.687**	.576**	.609**	.673**	.615**	.621**	.684**	.794**	.701**	.661**	.715**	.684**	.672**	.674**	.724**	.753**	.691**	.667**	1
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		GU1	GU2	GU3	GU4	GU5	GU6	GU7	GU8	GU9	GU10	GU11	GU12	GU13	GU14	GU15	GU16	GU17	GU18	GU19	GU20	GU21	GU22	TOTALGU
GU1	Pearson Correlation	1	.365**	-.102	.240	.202	.348**	.033	.028	.102	-.056	.053	.281*	-.114	.230	.139	-.066	-.157	-.070	-.094	-.246	.127	-.161	.151
	Sig. (2-tailed)		.006	.457	.078	.140	.009	.812	.841	.457	.685	.703	.038	.409	.092	.311	.631	.252	.610	.494	.071	.355	.240	.271
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU2	Pearson Correlation	.365**	1	.267*	.414**	.318*	.497**	.410**	.487**	.277*	-.083	.292*	.133	.137	.282*	.446**	.195	.029	.083	.065	.204	.185	.120	.498**
	Sig. (2-tailed)	.006		.049	.002	.018	<,001	.002	<,001	.041	.548	.031	.333	.317	.037	<,001	.153	.832	.548	.639	.136	.176	.381	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU3	Pearson Correlation	-.102	.267*	1	.450**	.511**	.406**	.371**	.461**	.449**	.248	.479**	.220	.092	.267*	.297*	.265	.441**	.265	.335*	.433**	.350**	.488**	.674**
	Sig. (2-tailed)	.457	.049		<,001	<,001	.002	.005	<,001	<,001	.068	<,001	.107	.506	.049	.028	.051	<,001	.050	.013	<,001	.009	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU4	Pearson Correlation	.240	.414**	.450**	1	.671**	.500**	.302*	.332*	.486**	.035	.135	.133	.009	.407**	.539**	.479**	.203	.299*	.328*	.236	.482**	.301*	.672**
	Sig. (2-tailed)	.078	.002	<,001		<,001	<,001	.025	.013	<,001	.797	.327	.334	.947	.002	<,001	<,001	.137	.026	.015	.083	<,001	.025	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU5	Pearson Correlation	.202	.318*	.511**	.671**	1	.576**	.382**	.283*	.227	.157	.098	.133	-.031	.355**	.431**	.431**	.221	.365**	.289*	.247	.502**	.424**	.661**
	Sig. (2-tailed)	.140	.018	<,001	<,001		<,001	.004	.036	.095	.254	.475	.331	.822	.008	.001	.001	.104	.006	.032	.069	<,001	.001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU6	Pearson Correlation	.348**	.497**	.406**	.500**	.576**	1	.578**	.473**	.354**	.173	.173	.144	-.046	.481**	.549**	.369**	.065	.270*	.135	.185	.274*	.346**	.649**
	Sig. (2-tailed)	.009	<,001	.002	<,001	<,001		<,001	<,001	.008	.206	.206	.296	.740	<,001	<,001	.006	.635	.046	.327	.177	.043	.010	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU7	Pearson Correlation	.033	.410**	.371**	.302*	.382**	.578**	1	.382**	.336*	.378**	.380**	.145	.226	.378**	.330*	.236	.449**	.137	.272*	.346**	.097	.214	.602**
	Sig. (2-tailed)	.812	.002	.005	.025	.004	<,001		.004	.012	.004	.004	.290	.097	.004	.014	.082	<,001	.319	.044	.010	.482	.116	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU8	Pearson Correlation	.028	.487**	.461**	.332*	.283*	.473**	.382**	1	.298*	-.056	.261	.106	.098	.541**	.591**	.350**	.308*	.285*	.288*	.330*	.416**	.467**	.638**
	Sig. (2-tailed)	.841	<,001	<,001	.013	.036	<,001	.004		.027	.687	.054	.441	.479	<,001	<,001	.009	.022	.035	.033	.014	.002	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU9	Pearson Correlation	.102	.277*	.449**	.486**	.227	.354**	.336*	.298*	1	.063	.333*	.077	.223	.161	.277*	.232	.280*	.202	.188	.241	.168	.319*	.520**
	Sig. (2-tailed)	.457	.041	<,001	<,001	.095	.008	.012	.027		.646	.013	.575	.102	.241	.040	.089	.039	.139	.170	.077	.219	.018	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU10	Pearson Correlation	-.056	-.083	.248	.035	.157	.173	.378**	-.056	.063	1	.373**	.310*	.341*	-.155	-.071	-.043	.350**	.074	.322*	.249	.030	-.003	.290*
	Sig. (2-tailed)	.685	.548	.068	.797	.254	.206	.004	.687	.646		.005	.021	.011	.260	.607	.753	.009	.592	.016	.067	.826	.985	.032
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU11	Pearson Correlation	.053	.292*	.479**	.135	.098	.173	.380**	.261	.333*	.373**	1	.514**	.227	.070	.034	.075	.373**	.154	.227	.323*	.158	.176	.475**
	Sig. (2-tailed)	.703	.031	<,001	.327	.475	.206	.004	.054	.013	.005		<,001	.096	.613	.804	.584	.005	.261	.096	.016	.249	.198	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU12	Pearson Correlation	.281*	.133	.220	.133	.133	.144	.145	.106	.077	.310*	.514**	1	-.052	.048	.172	.159	.081	.305*	.023	.155	.365**	.027	.359**
	Sig. (2-tailed)	.038	.333	.107	.334	.331	.296	.290	.441	.575	.021	<,001		.704	.725	.210	.246	.556	.023	.866	.258	.006	.846	.007
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU13	Pearson Correlation	-.114	.137	.092	.009	-.031	-.046	.226	.098	.223	.341*	.227	-.052	1	-.040	-.047	-.073	.308*	.056	.189	.205	-.109	-.006	.194
	Sig. (2-tailed)	.409	.317	.506	.947	.822	.740	.097	.479	.102	.011	.096	.704		.771	.734	.594	.022	.684	.167	.132	.427	.965	.156
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU14	Pearson Correlation	.230	.282*	.267*	.407**	.355**	.481**	.378**	.541**	.161	-.155	.070	.048	-.040	1	.684**	.494**	.198	.359**	.376**	.258	.384**	.315*	.579**
	Sig. (2-tailed)	.092	.037	.049	.002	.008	<,001	.004	<,001	.241	.260	.613	.725	.771		<,001	<,001	.148	.007	.005	.057	.004	.019	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU15	Pearson Correlation	.139	.446**	.297*	.539**	.431**	.549**	.330*	.591**	.277*	-.071	.034	.172	-.047	.684**	1	.679**	.132	.490**	.263	.345**	.526**	.292*	.668**
	Sig. (2-tailed)	.311	<,001	.028	<,001	.001	<,001	.014	<,001	.040	.607	.804	.210	.734	<,001		<,001	.336	<,001	.052	.010	<,001	.030	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU16	Pearson Correlation	-.066	.195	.265	.479**	.431**	.369**	.236	.350**	.232	-.043	.075	.159	-.073	.494**	.679**	1	.317*	.777**	.468**	.546**	.621**	.552**	.677**
	Sig. (2-tailed)	.631	.153	.051	<,001	.001	.006	.082	.009	.089	.753	.584	.246	.594	<,001	<,001		.018	<,001	<,001	<,001	<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU17	Pearson Correlation	-.157	.029	.441**	.203	.221	.065	.449**	.308*	.280*	.350**	.373**	.081	.308*	.198	.132	.317*	1	.331*	.564**	.401**	.272*	.388**	.539**
	Sig. (2-tailed)	.252	.832	<,001	.137	.104	.635	<,001	.022	.039	.009	.005	.556	.022	.148	.336	.018		.014	<,001	.002	.045	.003	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU18	Pearson Correlation	-.070	.083	.265	.299*	.365**	.270*	.137	.285*	.202	.074	.154	.305*	.056	.359**	.490**	.777**	.331*	1	.486**	.551**	.689**	.552**	.641**
	Sig. (2-tailed)	.610	.548	.050	.026	.006	.046	.319	.035	.139	.592	.261	.023	.684	.007	<,001	<,001	.014		<,001	<,001	<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU19	Pearson Correlation	-.094	.065	.335*	.328*	.289*	.135	.272*	.288*	.188	.322*	.227	.023	.189	.376**	.263	.468**	.564**	.486**	1	.659**	.594**	.477**	.621**
	Sig. (2-tailed)	.494	.639	.013	.015	.032	.327	.044	.033	.170	.016	.096	.866	.167	.005	.052	<,001	<,001	<,001		<,001	<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU20	Pearson Correlation	-.246	.204	.433**	.236	.247	.185	.346**	.330*	.241	.249	.323*	.155	.205	.258	.345**	.546**	.401**	.551**	.659**	1	.575**	.554**	.652**
	Sig. (2-tailed)	.071	.136	<,001	.083	.069	.177	.010	.014	.077	.067	.016	.258	.132	.057	.010	<,001	.002	<,001	<,001		<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU21	Pearson Correlation	.127	.185	.350**	.482**	.502**	.274*	.097	.416**	.168	.030	.158	.365**	-.109	.384**	.526**	.621**	.272*	.689**	.594**	.575**	1	.481**	.689**
	Sig. (2-tailed)	.355	.176	.009	<,001	<,001	.043	.482	.002	.219	.826	.249	.006	.427	.004	<,001	<,001	.045	<,001	<,001	<,001		<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
GU22	Pearson Correlation	-.161	.120	.488**	.301*	.424**	.346**	.214	.467**	.319*	-.003	.176	.027	-.006	.315*	.292*	.552**	.388**	.552**	.477**	.554**	.481**	1	.623**
	Sig. (2-tailed)	.240	.381	<,001	.025	.001	.010	.116	<,001	.018	.985	.198	.846	.965	.019	.030	<,001	.003	<,001	<,001	<,001	<,001		<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
TOTALGU	Pearson Correlation	.151	.498**	.674**	.672**	.661**	.649**	.602**	.638**	.520**	.290*	.475**	.359**	.194	.579**	.668**	.677**	.539**	.641**	.621**	.652**	.689**	.623**	1
	Sig. (2-tailed)	.271	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	.032	<,001	.007	.156	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001	<,001
	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Reliability

Sport Participation

Case Processing Summary

		N	%
Cases	Valid	55	100.0
	Excluded[a]	0	.0
	Total	55	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.884	16

Motivation

Case Processing Summary

		N	%
Cases	Valid	55	100.0
	Excluded[a]	0	.0
	Total	55	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.912	16

Psychosocial Well-being sport participan

Case Processing Summary

		N	%
Cases	Valid	55	100.0
	Excluded[a]	0	.0
	Total	55	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.929	18

Gadget usage bahaviour

Case Processing Summary

		N	%
Cases	Valid	55	100.0
	Excluded[a]	0	.0
	Total	55	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.902	20

APPENDIX 6
Analysis Data

Missing data treatment

```
MVA VARIABLES=SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 SP9 SP10 SP11 SP12 SP13 SP14 SP15 SP16 MO1
MO2 MO3
    MO4 MO5 MO6 MO7 MO8 MO9 MO10 MO11 MO12 MO13 MO14 MO15 MO16 PS1 PS2 PS3 PS4 PS5 PS6 PS
7 PS8 PS9 PS10
    PS11 PS12 PS13 PS14 PS15 PS16 PS17 PS18 GU1 GU2 GU3 GU4 GU5 GU6 GU7 GU8 GU9 GU10 GU11
 GU12 GU13
    GU14 GU15 GU16 GU17 GU18 GU19
  /EM(TOLERANCE=0.001 CONVERGENCE=0.0001 ITERATIONS=25).
```

MVA

```
[DataSet0]
```

Warnings

There are no missing values. EM estimates are not computed.

Univariate Statistics

	N	Mean	Std. Deviation	Missing Count	Missing Percent	No. of Extremes[a] Low	No. of Extremes[a] High
SP1	785	3.6752	.86467	0	.0	9	0
SP2	785	3.8904	.72014	0	.0	30	0
SP3	785	3.6051	.82806	0	.0	4	0
SP4	785	3.7873	.71203	0	.0	35	0
SP5	785	4.2548	.60297	0	.0	40	0
SP6	785	3.5516	.84377	0	.0	9	0
SP7	785	3.8115	.76273	0	.0	57	0
SP8	785	3.5452	.78786	0	.0	8	0
SP9	785	3.6433	.75604	0	.0	61	0
SP10	785	3.8076	.72488	0	.0	32	0
SP11	785	3.2803	.87652	0	.0	17	0
SP12	785	3.7541	.72099	0	.0	51	0
SP13	785	3.5949	.75692	0	.0	65	0
SP14	785	3.7860	.65470	0	.0	32	0
SP15	785	3.7924	.66925	0	.0	33	0
SP16	785	3.7185	.70057	0	.0	37	0
MO1	785	3.9159	.66858	0	.0	28	0
MO2	785	3.9732	.59165	0	.0	17	0
MO3	785	4.0586	.55248	0	.0	10	0
MO4	785	3.8038	.71231	0	.0	33	0
MO5	785	3.5580	.75560	0	.0	52	0

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Univariate Statistics

	N	Mean	Std. Deviation	Missing		No. of Extremes[a]	
				Count	Percent	Low	High
MO6	785	3.6433	.71618	0	.0	37	0
MO7	785	3.8841	.64923	0	.0	17	0
MO8	785	3.8713	.65854	0	.0	25	0
MO9	785	3.8611	.64865	0	.0	23	0
MO10	785	3.6178	.78681	0	.0	66	0
MO11	785	3.9325	.61593	0	.0	22	0
MO12	785	3.2471	.92310	0	.0	28	0
MO13	785	2.9490	1.04489	0	.0	0	0
MO14	785	2.9873	.98449	0	.0	59	33
MO15	785	3.2930	.93310	0	.0	28	0
MO16	785	2.9070	1.04869	0	.0	0	0
PS1	785	3.6854	.73304	0	.0	48	0
PS2	785	3.7006	.72900	0	.0	46	0
PS3	785	3.6713	.76865	0	.0	60	0
PS4	785	3.6025	.77261	0	.0	66	0
PS5	785	3.8331	.64001	0	.0	24	0
PS6	785	3.9287	.64286	0	.0	20	0
PS7	785	3.7885	.66710	0	.0	28	0
PS8	785	3.7962	.67894	0	.0	31	0
PS9	785	3.7631	.65847	0	.0	26	0
PS10	785	3.9185	.60270	0	.0	12	0
PS11	785	3.7809	.65496	0	.0	28	0
PS12	785	3.8459	.60646	0	.0	15	0
PS13	785	3.7350	.71329	0	.0	30	0
PS14	785	3.8025	.65698	0	.0	18	0
PS15	785	3.9363	.60484	0	.0	11	0
PS16	785	3.7694	.65976	0	.0	22	0
PS17	785	3.7478	.69074	0	.0	25	0
PS18	785	3.7503	.70626	0	.0	33	0
GU1	785	3.2178	.98571	0	.0	41	0
GU2	785	2.2752	1.07414	0	.0	0	17
GU3	785	2.9261	1.10755	0	.0	0	0
GU4	785	2.6764	1.09487	0	.0	0	23

Univariate Statistics

	N	Mean	Std. Deviation	Missing Count	Missing Percent	No. of Extremes[a] Low	No. of Extremes[a] High
GU5	785	3.0446	1.08176	0	.0	0	0
GU6	785	2.7185	1.03311	0	.0	0	18
GU7	785	2.8675	1.04260	0	.0	0	19
GU8	785	2.7949	1.06545	0	.0	0	25
GU9	785	2.9083	1.04087	0	.0	0	26
GU10	785	3.2229	1.04001	0	.0	55	0
GU11	785	3.4293	.89665	0	.0	26	0
GU12	785	3.1427	1.03141	0	.0	57	0
GU13	785	2.5975	1.10009	0	.0	0	18
GU14	785	2.6153	1.02880	0	.0	0	15
GU15	785	2.6191	1.11295	0	.0	0	19
GU16	785	2.5936	1.08760	0	.0	0	20
GU17	785	2.4955	1.07869	0	.0	0	20
GU18	785	2.7643	1.09346	0	.0	0	26
GU19	785	2.5860	1.06692	0	.0	0	12

a. Number of cases outside the range (Mean - 2*SD, Mean + 2*SD).

Summary of Estimated Means

	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
All Values	3.6752	3.8904	3.6051	3.7873	4.2548	3.5516	3.8115	3.5452

Summary of Estimated Means

	SP9	SP10	SP11	SP12	SP13	SP14	SP15	SP16
All Values	3.6433	3.8076	3.2803	3.7541	3.5949	3.7860	3.7924	3.7185

Summary of Estimated Means

	MO1	MO2	MO3	MO4	MO5	MO6	MO7	MO8
All Values	3.9159	3.9732	4.0586	3.8038	3.5580	3.6433	3.8841	3.8713

Summary of Estimated Standard Deviations

	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
All Values	.86467	.72014	.82806	.71203	.60297	.84377	.76273	.78786

Summary of Estimated Standard Deviations

	SP9	SP10	SP11	SP12	SP13	SP14	SP15	SP16
All Values	.75604	.72488	.87652	.72099	.75692	.65470	.66925	.70057

Summary of Estimated Standard Deviations

	MO1	MO2	MO3	MO4	MO5	MO6	MO7	MO8
All Values	.66858	.59165	.55248	.71231	.75560	.71618	.64923	.65854

Summary of Estimated Standard Deviations

	MO9	MO10	MO11	MO12	MO13	MO14	MO15	MO16
All Values	.64865	.78681	.61593	.92310	1.04489	.98449	.93310	1.04869

Summary of Estimated Standard Deviations

	PS1	PS2	PS3	PS4	PS5	PS6	PS7	PS8
All Values	.73304	.72900	.76865	.77261	.64001	.64286	.66710	.67894

Summary of Estimated Standard Deviations

	PS9	PS10	PS11	PS12	PS13	PS14	PS15	PS16
All Values	.65847	.60270	.65496	.60646	.71329	.65698	.60484	.65976

Summary of Estimated Means

	MO9	MO10	MO11	MO12	MO13	MO14	MO15	MO16
All Values	3.8611	3.6178	3.9325	3.2471	2.9490	2.9873	3.2930	2.9070

Summary of Estimated Means

	PS1	PS2	PS3	PS4	PS5	PS6	PS7	PS8
All Values	3.6854	3.7006	3.6713	3.6025	3.8331	3.9287	3.7885	3.7962

Summary of Estimated Means

	PS9	PS10	PS11	PS12	PS13	PS14	PS15	PS16
All Values	3.7631	3.9185	3.7809	3.8459	3.7350	3.8025	3.9363	3.7694

Summary of Estimated Means

	PS17	PS18	GU1	GU2	GU3	GU4	GU5	GU6
All Values	3.7478	3.7503	3.2178	2.2752	2.9261	2.6764	3.0446	2.7185

Summary of Estimated Means

	GU7	GU8	GU9	GU10	GU11	GU12	GU13	GU14
All Values	2.8675	2.7949	2.9083	3.2229	3.4293	3.1427	2.5975	2.6153

Summary of Estimated Means

	GU15	GU16	GU17	GU18	GU19
All Values	2.6191	2.5936	2.4955	2.7643	2.5860

Summary of Estimated Standard Deviations

	PSI7	PSI8	GU1	GU2	GU3	GU4	GU5	GU6
All Values	.69074	.70626	.98571	1.07414	1.10755	1.09487	1.08176	1.03311

Summary of Estimated Standard Deviations

	GU7	GU8	GU9	GU10	GU11	GU12	GU13	GU14
All Values	1.04260	1.06545	1.04087	1.04001	.89665	1.03141	1.10009	1.02880

Summary of Estimated Standard Deviations

	GU15	GU16	GU17	GU18	GU19
All Values	1.11295	1.08760	1.07869	1.09346	1.06692

Outlier Examination

Variabel	No	Sub Varibel		Case of outlier	standardised values i.e. z-scores >3.0
Participation in Sport	1	Individual Participation	ZSP1	64	-3.09384
				133	-3.09384
				304	-3.09384
				332	-3.09384
				448	-3.09384
				533	-3.09384
				646	-3.09384
				728	-3.09384
			ZSP2	382	-4.01375
			ZSP3	100	-3.14601
			ZSP4	493	-3.91455
				73	-3.91455
			ZSP5	571	-5.39788
				249	-5.39788
				117	-5.39788
				617	-3.73943
				258	-3.73943
				496	-3.73943
	2	Sports Infrastructure	ZSP6	344	-3.02406
				91	-3.02406
				298	-3.02406
				632	-3.02406
				780	-3.02406
				336	-3.02406
				201	-3.02406
			ZSP7	165	-3.68606
				87	-3.68606
				215	-3.68606
			ZSP8	680	-3.23056
				406	-3.23056
				568	-3.23056
				158	-3.23056
			ZSP9	261	-3.49628
				440	-3.49628
				402	-3.49628
	3	Socio-cultural	ZSP10	706	-3.87325
			ZSP11	No Case	---
			ZSP12	437	-3.81992
				442	-3.81992
	4	Institutional	ZSP13	768	-3.42823
				529	-3.42823
				453	-3.42823
				634	-3.42823
				54	-3.42823
				273	-3.42823

				283	-3.42823
			ZSP14	No Case	---
			ZSP15	770	-4.17234
				693	-4.17234
			ZSP16	58	-3.88039
Motivation	5	Intrinsic Motivation	ZMO1	515	-4.36135
			ZMO2	138	-3.33517
				241	-3.33517
				767	-3.33517
				245	-3.33517
				567	-3.33517
				695	-3.33517
				408	-3.33517
				719	-3.33517
				764	-3.33517
				775	-3.33517
				454	-3.33517
			ZMO3	247	-3.7261
				452	-3.7261
				504	-3.7261
				315	-3.7261
	6	Integrated Regulation	ZMO4	772	-3.93625
			ZMO5	755	-3.38533
				349	-3.38533
				616	-3.38533
			ZMO6	No Case	---
	7	Identified Regulation	ZMO7	No Case	-3.32715
			ZMO8	No Case	---
			ZMO9	No Case	---
	8	Introjected Regulation	ZMO10	113	-3.32715
				104	-3.32715
				413	-3.32715
				383	-3.32715
			ZMO11	331	-3.13753
				641	-3.13753
				390	-3.13753
				185	-3.13753
				422	-3.13753
				238	-3.13753
				378	-3.13753
				123	-3.13753
			ZMO12	No Case	---
	9	External Regulation	ZMO13	No Case	---
			ZMO14	No Case	---
			ZMO15	No Case	---
	10	Amotivation	ZMO16	No Case	---
Pysichosocial Well-Being	11	Psychosocial Well-being	ZPS1	610	-3.6633
				703	-3.6633

			ZPS2	275	-3.70458
			ZPS3	No Case	---
	12	Social Integration	ZPS4	596	-3.3685
			ZPS5	718	-4.42667
			ZPS6	737	-4.55566
				416	-3.00012
				266	-3.00012
				217	-3.00012
				756	-3.00012
				74	-3.00012
				134	-3.00012
				109	-3.00012
	13	Social Contribution	ZPS7	No Case	---
			ZPS8	168	-4.11847
			ZPS9	No Case	---
	14	Social Actualization	ZPS10	114	-4.84236
				259	-4.84236
				389	-3.18315
				359	-3.18315
				434	-3.04367
			ZPS11	No Case	---
			ZPS12	464	-3.04367
				197	-3.04367
				288	-3.04367
				489	-4.85465
	15	Social Coherence	ZPS13	107	-3.83438
			ZPS14	No Case	---
			ZPS15	489	-4.85465
				244	-3.20133
	16	Social Acceptance	ZPS16		---
			ZPS17	34	-3.97804
				744	-3.97804
				657	-3.97804
			ZPS18	No Case	---
Gadget used Behaviour	17	Role of Parents	ZGU1	No Case	---
			ZGU2	No Case	---
			ZGU3	No Case	---
			ZGU4	No Case	---
	18	Residential environment	ZGU5	No Case	---
			ZGU6	No Case	---
			ZGU7	No Case	---
	19	Context	ZGU8	No Case	---
			ZGU9	No Case	---
	20	Intensity	ZGU10	No Case	---
			ZGU11	No Case	---
			ZGU12	No Case	---
			ZGU13	No Case	---
			ZGU14	No Case	---

	21	Impact	ZGU15	No Case	---
			ZGU16	No Case	---
			ZGU17	No Case	---
			ZGU18	No Case	---
			ZGU19	No Case	---

Multivariate Outlier

P < 0.001

Count	Case of Outlier	Mahalanobis (D2)	Probability_MD	outlier
1	623	31.83424	0.00000	1
2	618	19.00985	0.00027	1
3	650	17.83459	0.00048	1

Conclusion

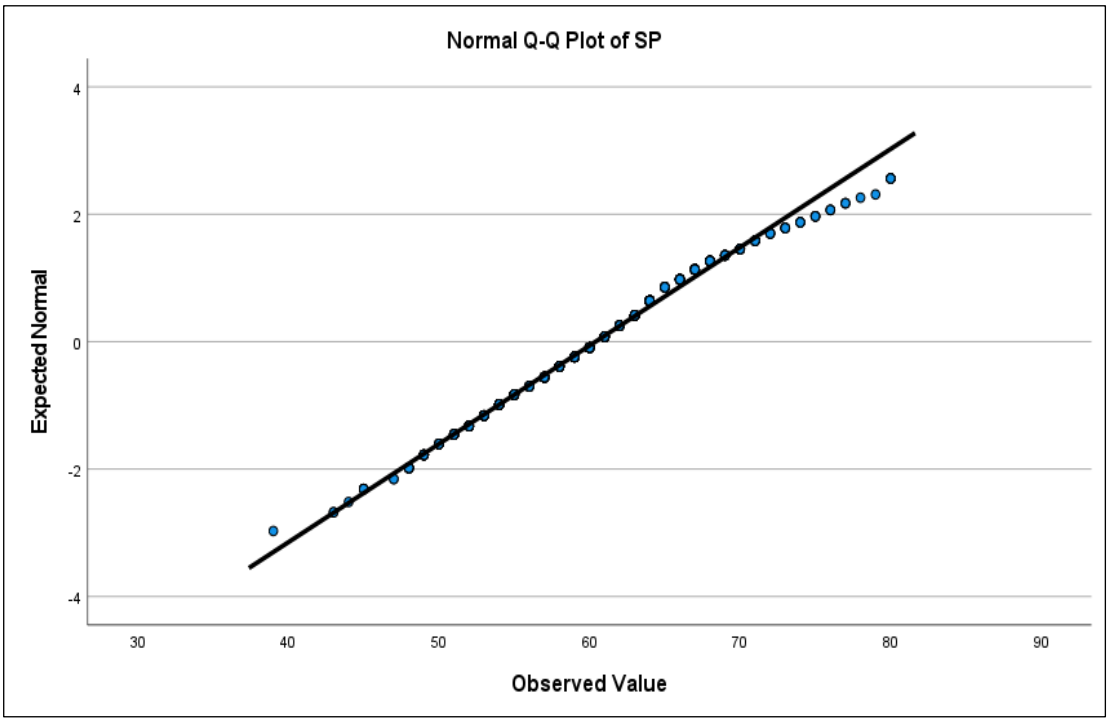
If outliers have the potential to significantly interfere with the analysis results → $p < 0.001$ is better.

If you want to capture more outliers for further analysis → $p < 0.01$ could be an option.

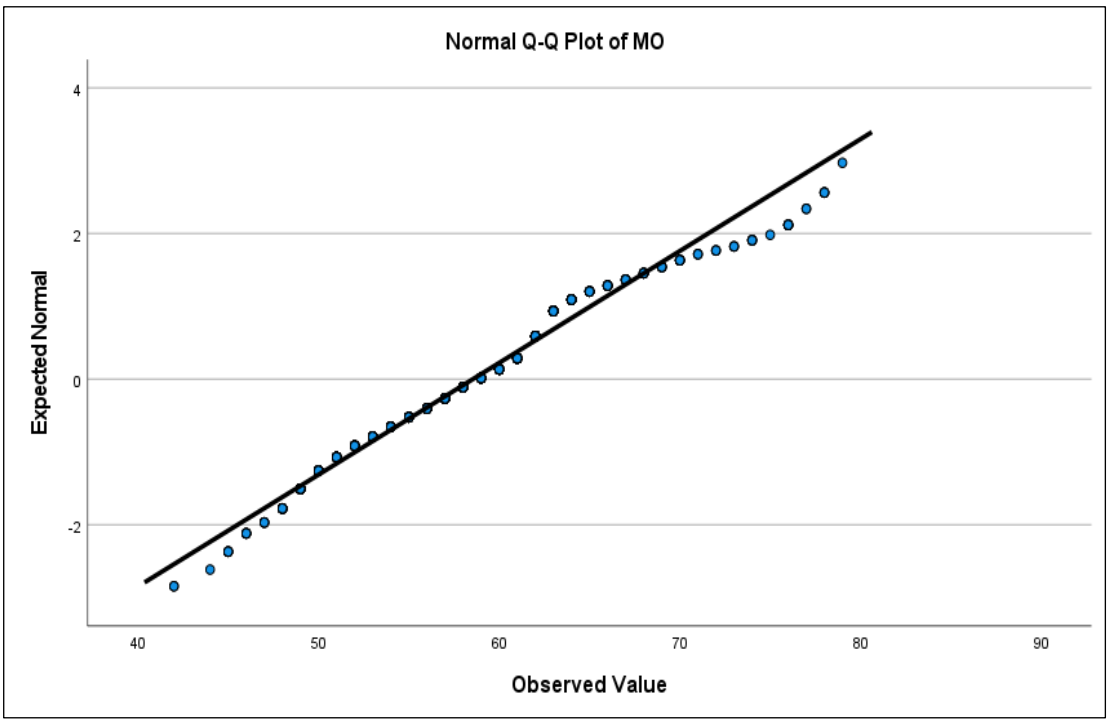
With 785 data points, $p < 0.001$ is a safe conservative choice, but $p < 0.01$ is also acceptable if you want a slightly looser approach.

Normality

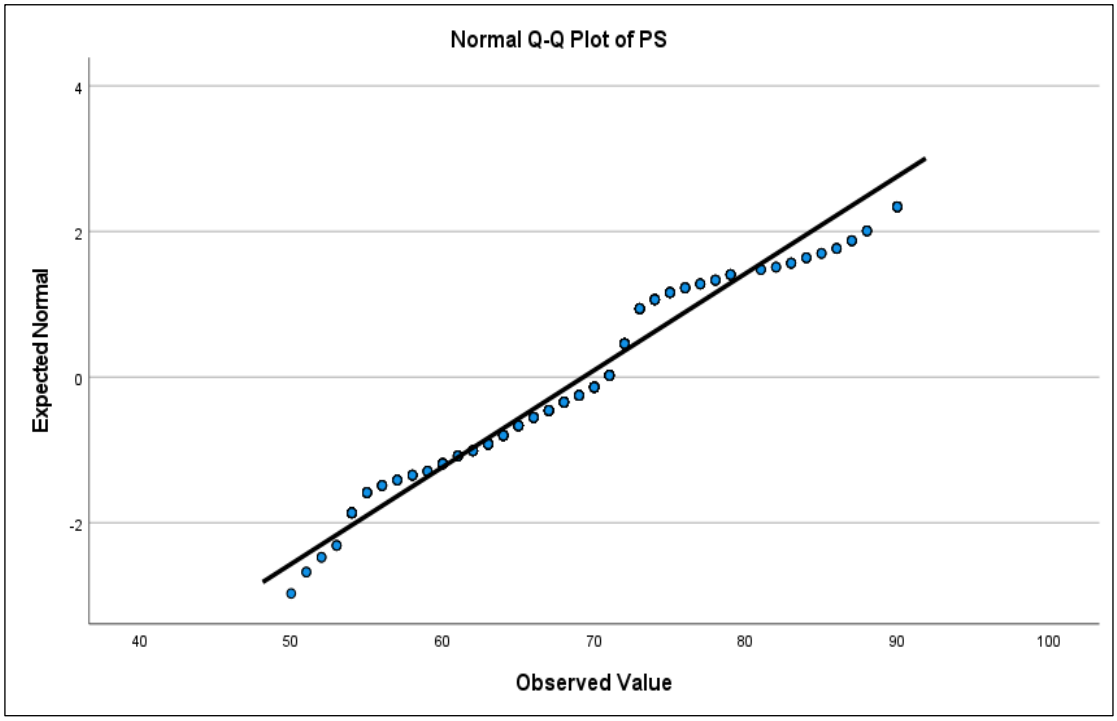
Q-Q Plot Sport Participation



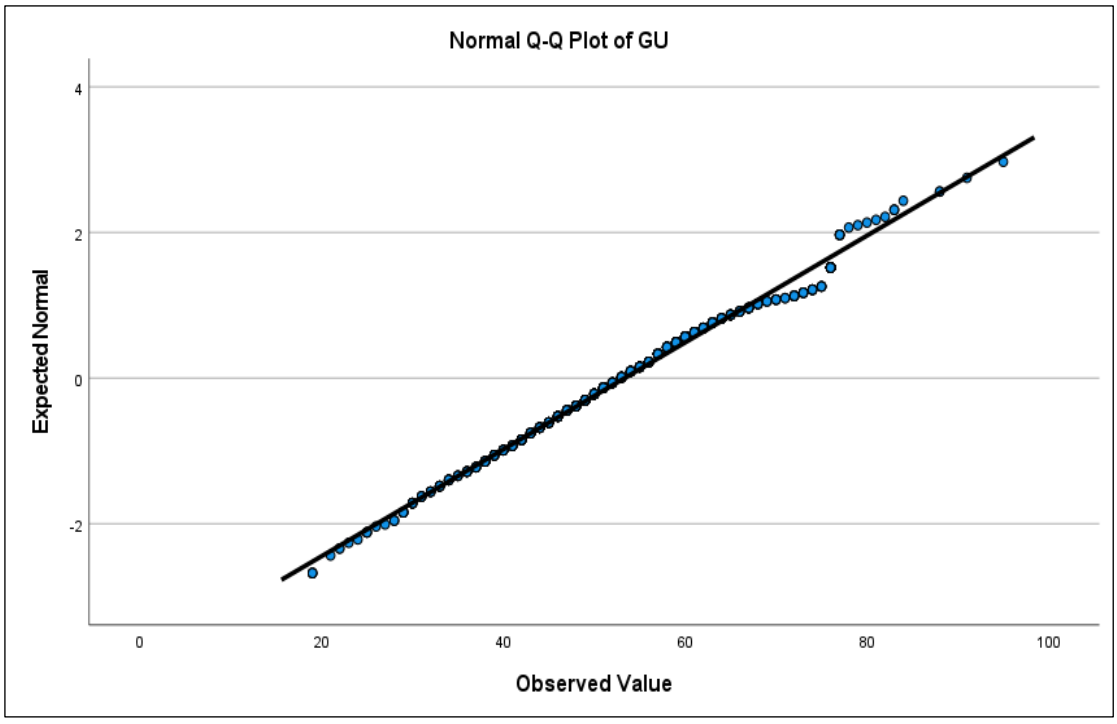
Q-Q Plot Motivation



Q-Q Plot Psychosocial Well-Being



Q-Q Plot Gadget Usage Behaviour



Normality testing using Kolmogorov-Smirnov and Shapiro-Wilk tests

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SP	.079	672	.000	.990	672	.000
MO	.100	672	.000	.975	672	.000
PS	.170	672	.000	.939	672	.000
GU	.052	672	.000	.990	672	.000

a. Lilliefors Significance Correction

Skewness and Kurtosis Test

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SP	672	39.00	80.00	60.3958	6.48174	.188	.094	.497	.188
MO	672	42.00	79.00	58.5461	6.50995	.351	.094	.393	.188
PS	672	50.00	90.00	69.2872	7.51884	.123	.094	.796	.188
GU	672	19.00	95.00	53.3363	13.62791	.111	.094	-.271	.188
Valid N (listwise)	672								

Homoscedasticity

Levene's Test

		Levene Statistic	df1	df2	Sig.
SP	Based on Mean	1.541	1	670	.215
	Based on Median	1.612	1	670	.205
	Based on Median and with adjusted df	1.612	1	662.591	.205
	Based on trimmed mean	1.509	1	670	.220
MO	Based on Mean	.615	1	670	.433
	Based on Median	.464	1	670	.496
	Based on Median and with adjusted df	.464	1	643.671	.496
	Based on trimmed mean	.644	1	670	.422
PS	Based on Mean	.147	1	670	.701
	Based on Median	.384	1	670	.536
	Based on Median and with adjusted df	.384	1	662.426	.536
	Based on trimmed mean	.157	1	670	.692
GU	Based on Mean	2.661	1	670	.103
	Based on Median	2.606	1	670	.107
	Based on Median and with adjusted df	2.606	1	666.978	.107
	Based on trimmed mean	2.676	1	670	.102

Multicollinearity

Multicollinearity Test

Correlations				
		MO	PS	GU
MO	Pearson Correlation	1	.743**	-.016
	Sig. (2-tailed)		.000	.679
	N	672	672	672
PS	Pearson Correlation	.743**	1	-.085*
	Sig. (2-tailed)	.000		.028
	N	672	672	672
GU	Pearson Correlation	-.016	-.085*	1
	Sig. (2-tailed)	.679	.028	
	N	672	672	672
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Uji VIF
VIF test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	MO	.445	2.247
	PS	.442	2.262
	GU	.988	1.012

a. Dependent Variable: SP

Non-Response Biasness

3 Non-Response Biasness Test

	SP	MO	PS	GU
Mann-Whitney U	1022.500	1212.500	1155.500	858.000
Wilcoxon W	2297.500	2487.500	2430.500	2133.000
Z	-1.571	-.259	-.657	-2.705
Asymp. Sig. (2-tailed)	.116	.796	.511	.007

a. Grouping Variable: tabel

Data Descriptif

Frequencies

Notes

Output Created		15-APR-2025 06:48:27
Comments		
Input	Data	D:\UITM\Rencana Disertasi\Phase 3. Main Research\Analisis Data\DATA DESKRIPTIF PENELITIAN.sav
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	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	672
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=Age JK FJ MJ SLRY School IntCon LimCon Sport /HISTOGRAM NORMAL /ORDER=ANALYSIS.
Resources	Processor Time	00:00:02,08
	Elapsed Time	00:00:01,28

Statistics

		Age	JK	FJ	MJ	SLRY	School	IntCon
N	Valid	672	672	672	672	672	672	672
	Missing	0	0	0	0	0	0	0

Statistics

		LimCon	Sport
N	Valid	672	672
	Missing	0	0

Frequency Table

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15.00	84	12.5	12.5	12.5
	16.00	275	40.9	40.9	53.4
	17.00	208	31.0	31.0	84.4
	18.00	96	14.3	14.3	98.7
	19.00	7	1.0	1.0	99.7
	20.00	2	.3	.3	100.0
	Total	672	100.0	100.0	

JK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Pria	229	34.1	34.1	34.1
	Wanita	443	65.9	65.9	100.0
	Total	672	100.0	100.0	

FJ

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ASN/PNS	82	12.2	12.2	12.2
	Tenaga Pengajar	3	.4	.4	12.6
	Wiraswasta	244	36.3	36.3	49.0
	Pertanian/Peternakan	262	39.0	39.0	87.9
	Nelayan	17	2.5	2.5	90.5
	Agama/kepercayaan	1	.1	.1	90.6
	Tenaga Kesehatan	3	.4	.4	91.1
	Pensiunan	20	3.0	3.0	94.0
	Tidak bekerja	40	6.0	6.0	100.0
	Total	672	100.0	100.0	

MJ

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ASN/PNS	103	15.3	15.3	15.3
	Tenaga Pengajar	19	2.8	2.8	18.2
	Wiraswasta	73	10.9	10.9	29.0

	Pertanian/Peternakan	60	8.9	8.9	37.9
	Nelayan	2	.3	.3	38.2
	Tenaga Kesehatan	6	.9	.9	39.1
	Pensiunan	7	1.0	1.0	40.2
	Tidak bekerja	402	59.8	59.8	100.0
	Total	672	100.0	100.0	

SLRY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< Kurang dari Rp. 1.500.000	281	41.8	41.8	41.8
	Rp. 1.500.000 sampai Rp. 3.500.000	223	33.2	33.2	75.0
	Rp. 3.500.000 sampai Rp. 6.000.000	121	18.0	18.0	93.0
	Rp. 6.000.000 sampai Rp. 10.000.000	29	4.3	4.3	97.3
	> besar dari Rp. 10.000.000	18	2.7	2.7	100.0
	Total	672	100.0	100.0	

School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SMA N 1 Pasaman, Pasaman Barat	38	5.7	5.7	5.7
	SMA N 2 Lubuak Basung in Agam	34	5.1	5.1	10.7
	SMA N 1 Lubuk Alung, Padang Pariaman	40	6.0	6.0	16.7
	SMA N 2 SUMBAR, Kab. Solok	34	5.1	5.1	21.7
	SMA N 1 Kecamatan Payakumbuh, limo Puluh Kota	71	10.6	10.6	32.3
	SMA N 1 Bonjol, Pasaman	46	6.8	6.8	39.1
	SMA N 1 Pariangan, Tanah Datar	42	6.3	6.3	45.4
	SMA N 2 Sijunjung, Sijunjung	24	3.6	3.6	49.0
	SMA N Sikabu, Dharmasraya	18	2.7	2.7	51.6
	SMA N 4 Payakumbuh, Kota Payakumbuh	17	2.5	2.5	54.2
	SMA N 5 Bukitinggi, Kota Bukitinggi	38	5.7	5.7	59.8
	SMA N 1 Solok Selatan, Solok Selatan	23	3.4	3.4	63.2
	SMA N 2 Pariaman, Kota Pariaman	16	2.4	2.4	65.6
	SMA N 1 Siberut Selatan, Kepulauan Mentawai	18	2.7	2.7	68.3

	SMA N 2 Solok, Kota Solok	55	8.2	8.2	76.5
	SMA N 3 Padang Panjang. Kota Padang Panjang	15	2.2	2.2	78.7
	SMA N 3 Sawahlunto, Kota Sawahlunto	16	2.4	2.4	81.1
	SMA Pembangunan UNP, Kota Padang	80	11.9	11.9	93.0
	SMA Negeri 1 Lengayang Pesisir Selatan	47	7.0	7.0	100.0
	Total	672	100.0	100.0	

IntCon

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	26	3.9	3.9	3.9
	2.00	153	22.8	22.8	26.6
	3.00	118	17.6	17.6	44.2
	4.00	315	46.9	46.9	91.1
	5.00	60	8.9	8.9	100.0
	Total	672	100.0	100.0	

LimCon

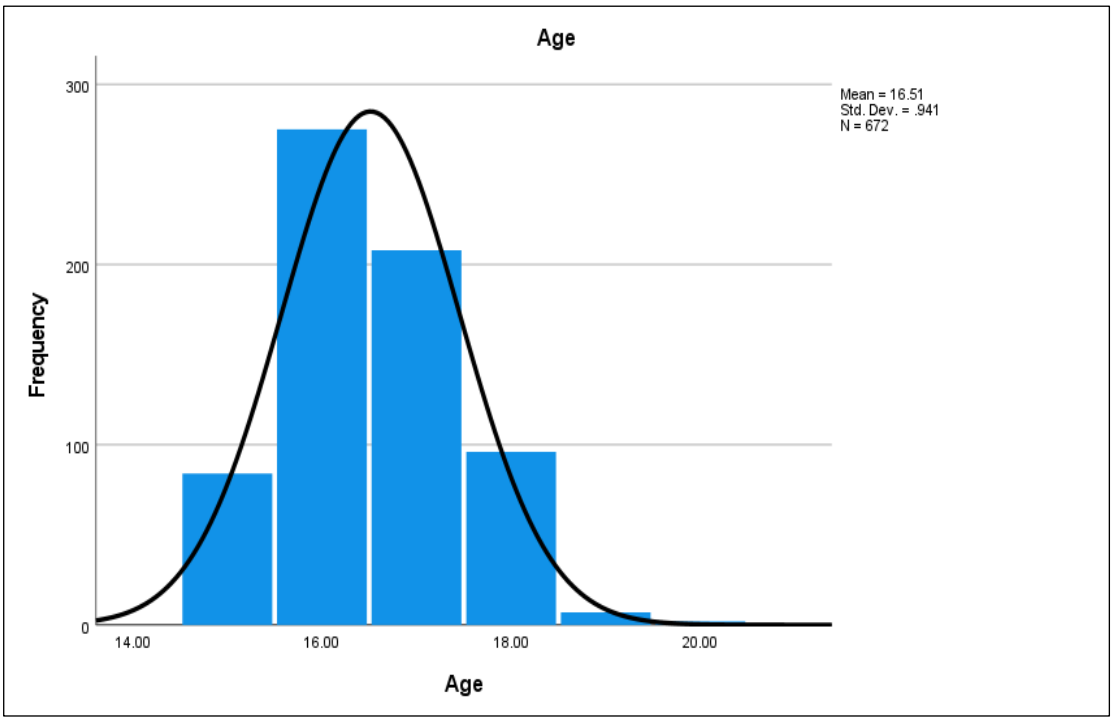
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	18	2.7	2.7	2.7
	2.00	102	15.2	15.2	17.9

	3.00	158	23.5	23.5	41.4
	4.00	356	53.0	53.0	94.3
	5.00	38	5.7	5.7	100.0
	Total	672	100.0	100.0	

Sport

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bolabasket	40	6.0	6.0	6.0
	Jalan Kaki	30	4.5	4.5	10.4
	Jogging	87	12.9	12.9	23.4
	Bersepeda	47	7.0	7.0	30.4
	Bulutangkis	178	26.5	26.5	56.8
	Bola voli	60	8.9	8.9	65.8
	Sepak takraw	1	.1	.1	65.9
	Karate	8	1.2	1.2	67.1
	Taekwondo	5	.7	.7	67.9
	Berenang	61	9.1	9.1	76.9
	Senam	30	4.5	4.5	81.4
	Pencak Silat	10	1.5	1.5	82.9
	Futsal	63	9.4	9.4	92.3
	GYM/Angkat beban	17	2.5	2.5	94.8
	Olahraga lainya	35	5.2	5.2	100.0
	Total	672	100.0	100.0	

Histogram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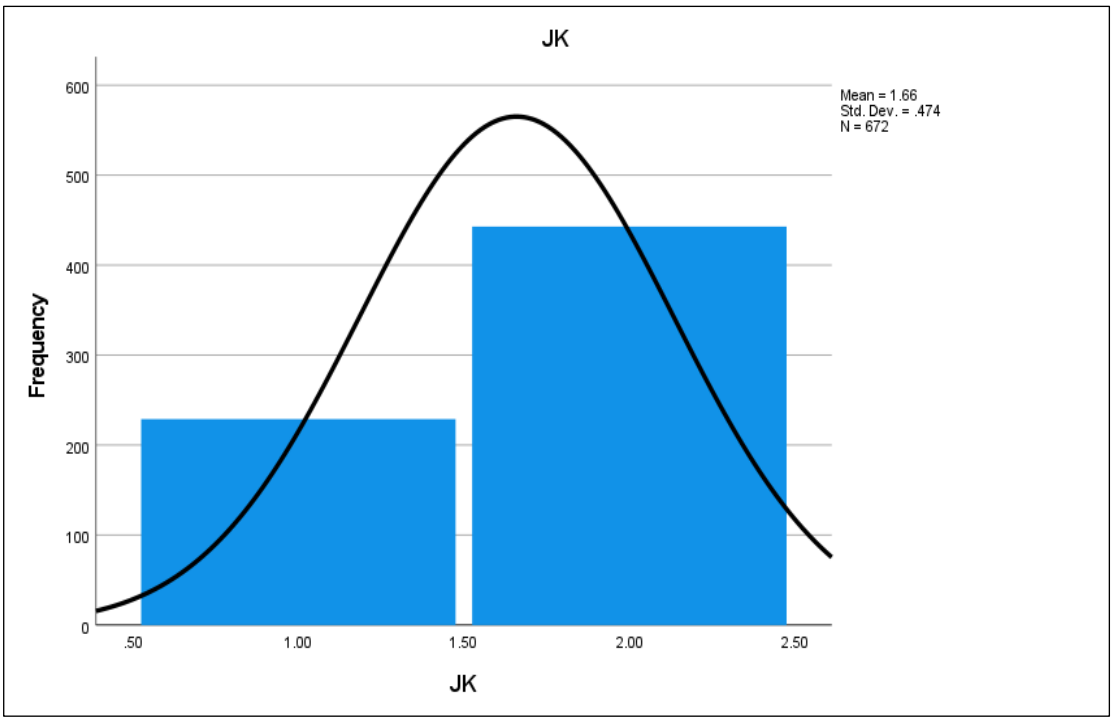
14.00
16.00
18.00
20.00
Age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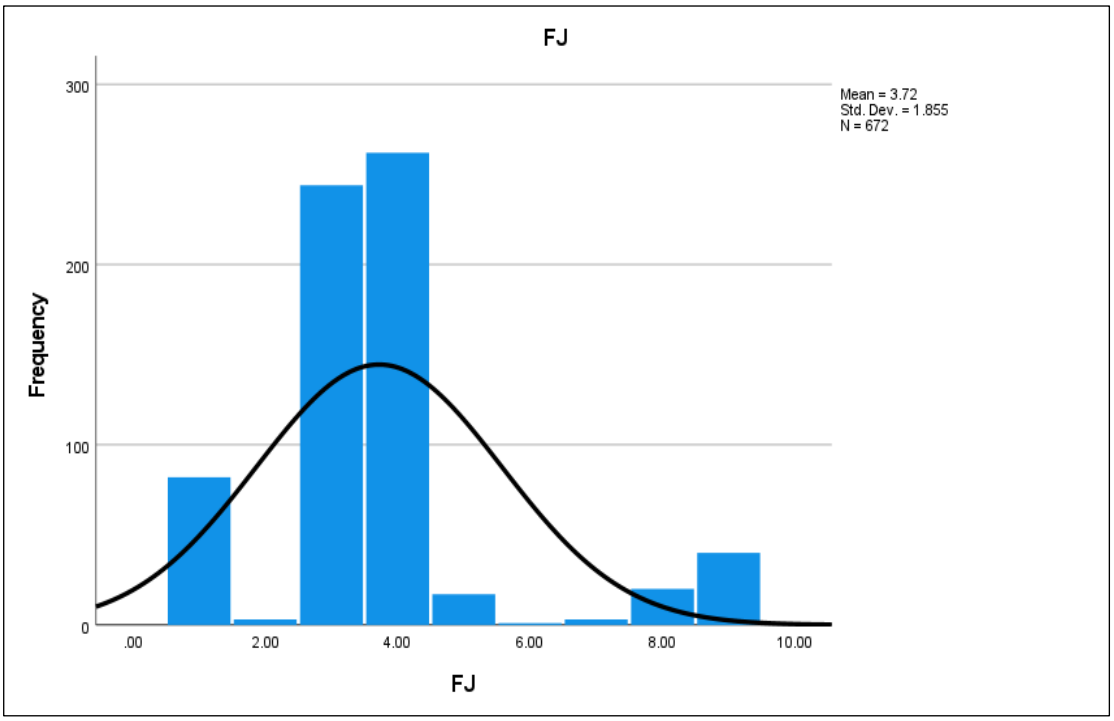
JK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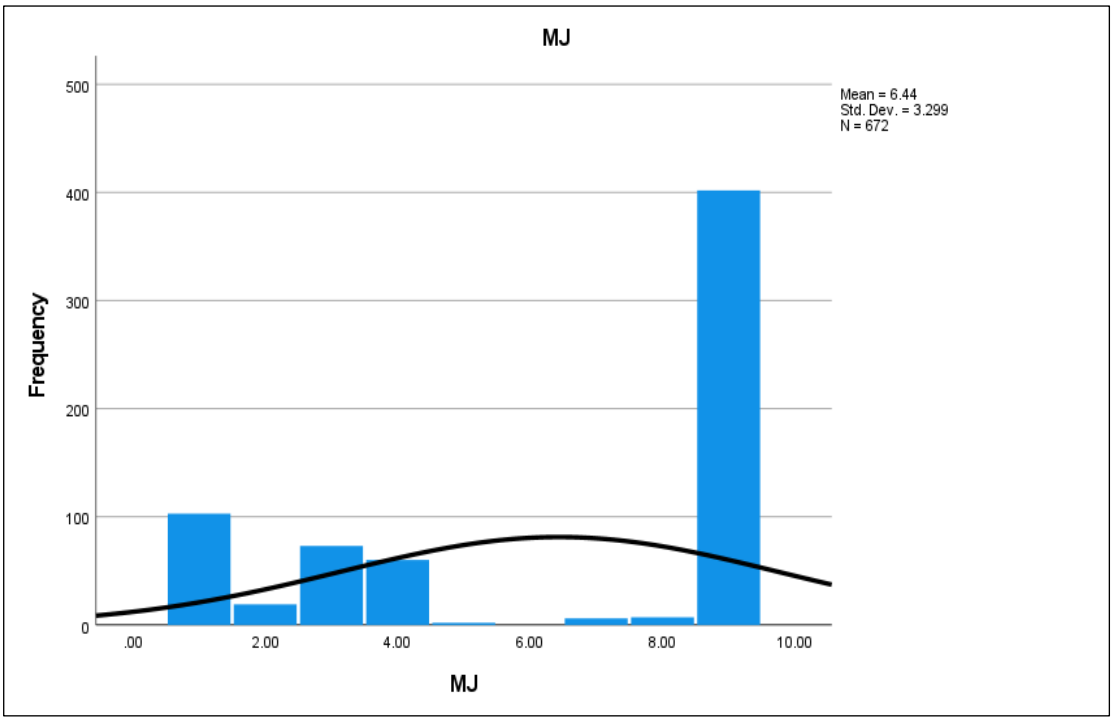
FJ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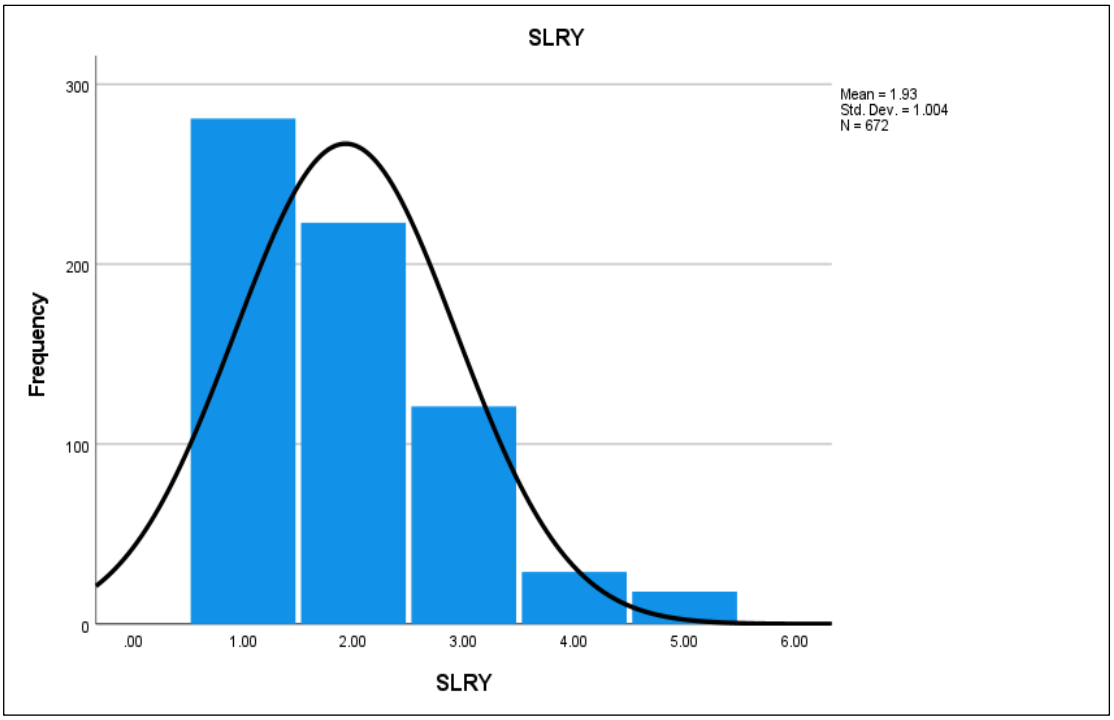
MJ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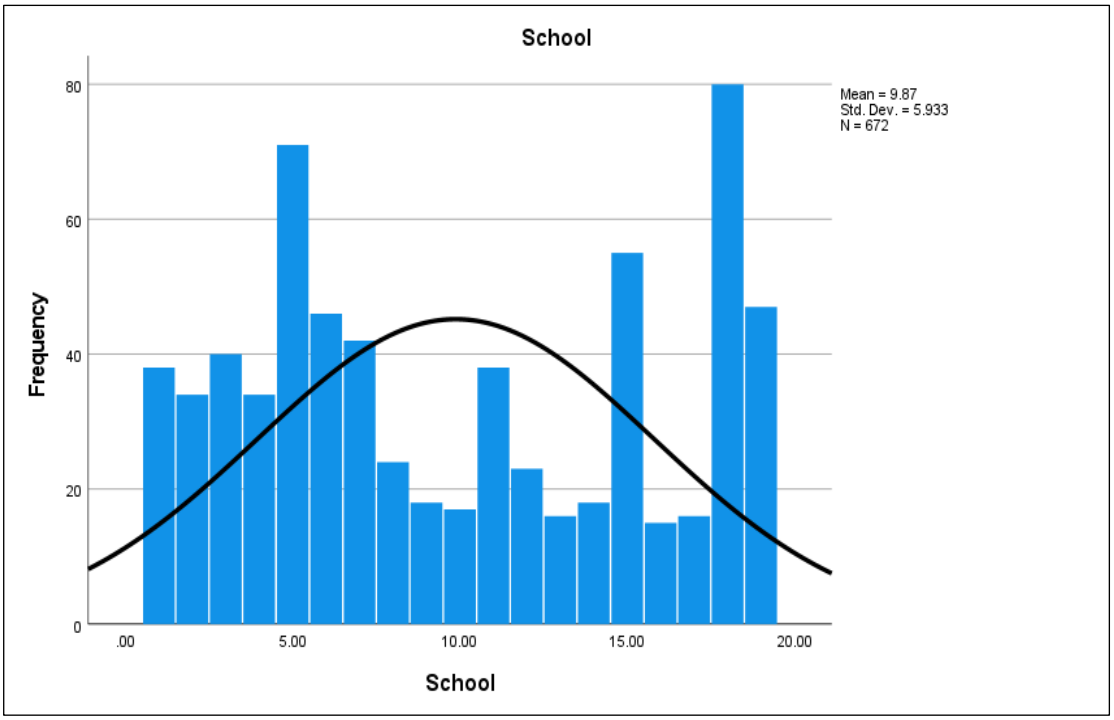
5.00
6.00
SLRY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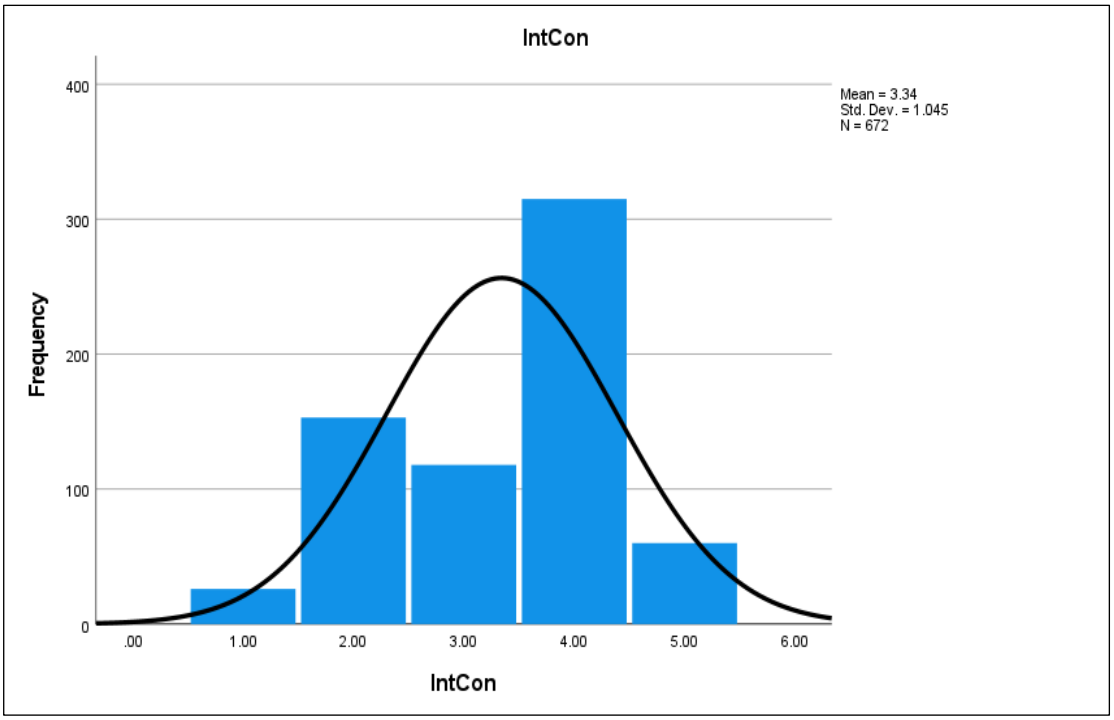
20.00
School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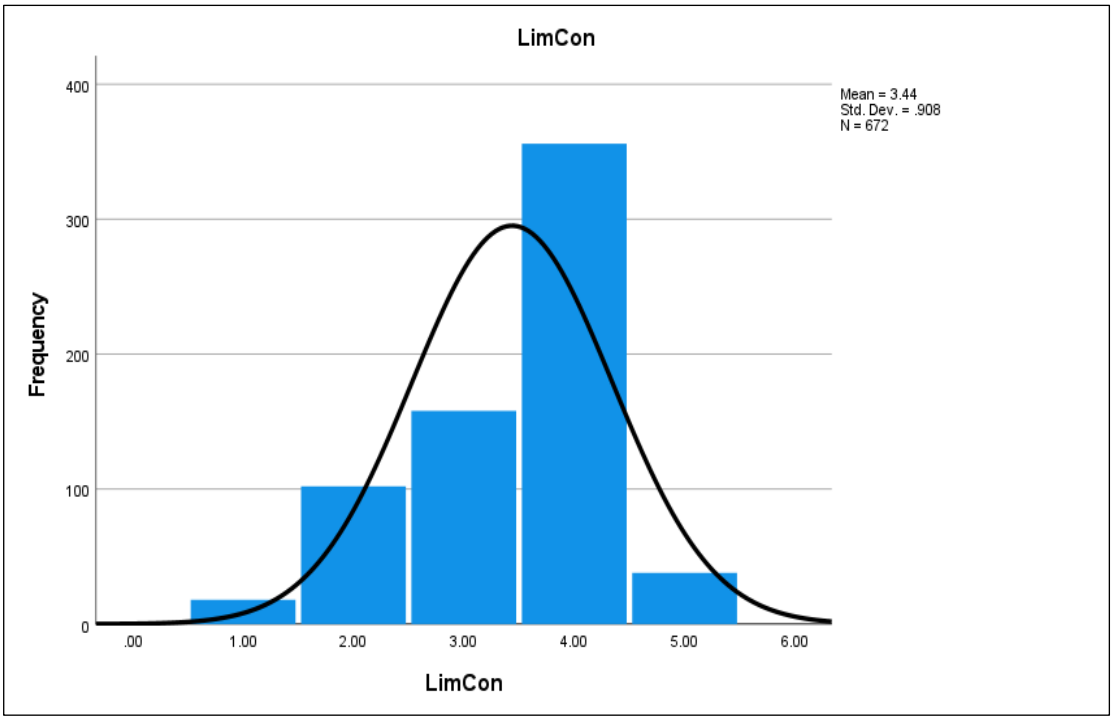
4.00
5.00
6.00
IntCon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.00
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2.00
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4.00
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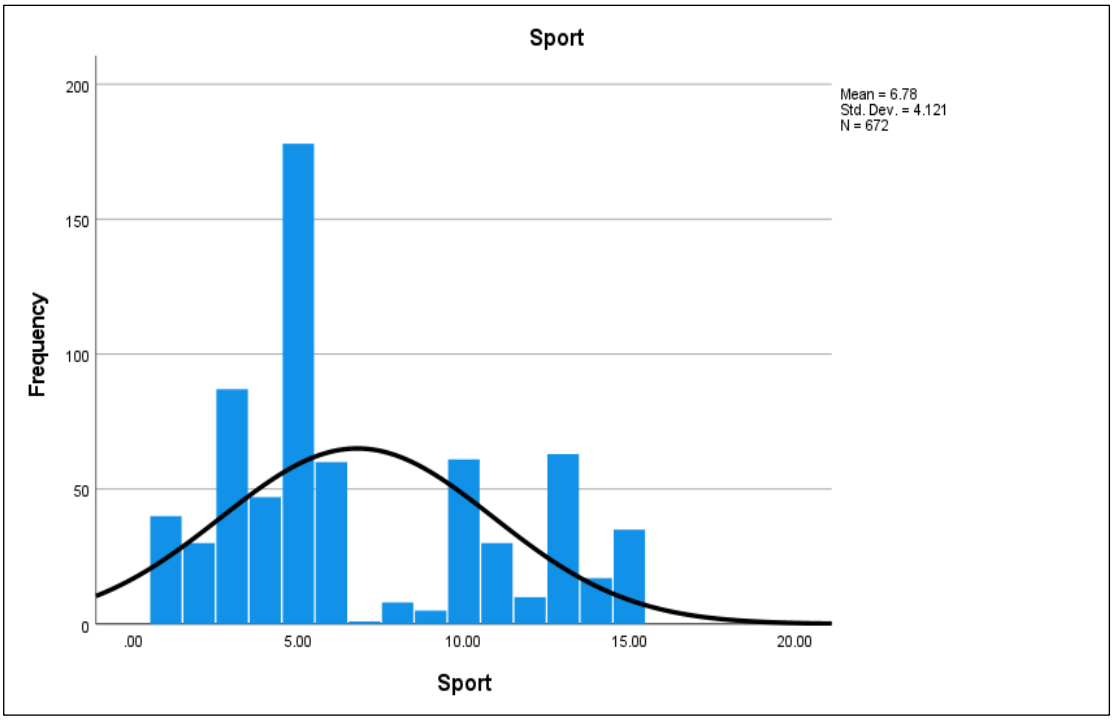
LimCon



DESCRIPTIVES VARIABLES=SP MO PS GU /SAVE /STATISTICS=MEAN SUM STDDEV VARIANCE MIN MAX.

Descriptives

Notes

Output Created		15-APR-2025 15:15:07
Comments		
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	N of Rows in Working Data File	672
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
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	Elapsed Time	00:00:00,01
Variables Created or Modified	ZSP	Zscore(SP)
	ZMO	Zscore(MO)
	ZPS	Zscore(PS)
	ZGU	Zscore(GU)

[DataSet1] D:\UITM\Rencana Disertasi\Phase 3. Main Research\Analisis Data\DATA DESKRIPTIF PENELITIAN.sav

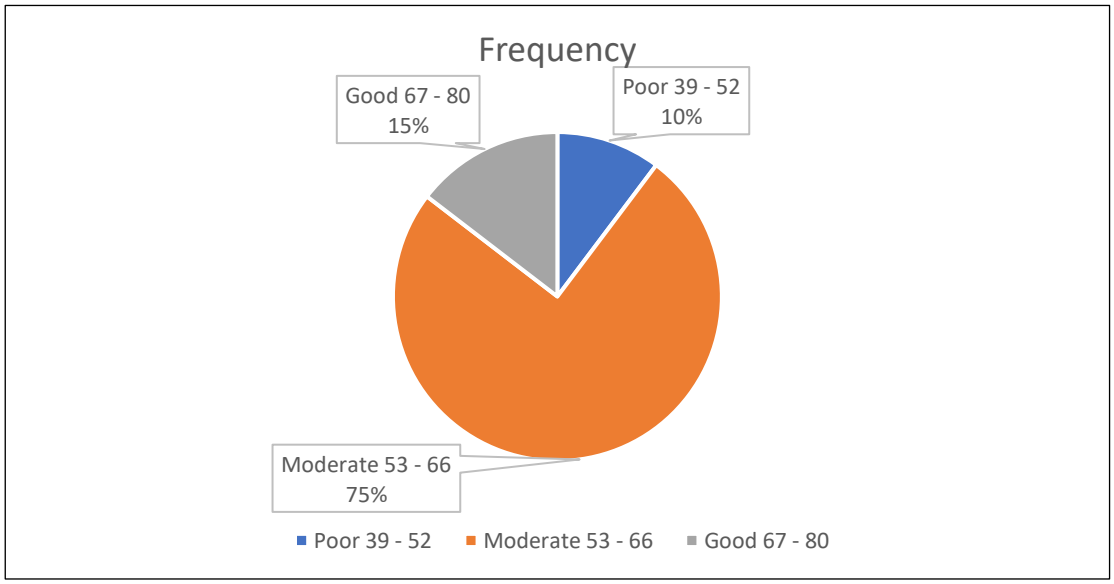
Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
SP	672	39.00	80.00	40586.00	60.3958	6.48174	42.013
MO	672	42.00	79.00	39343.00	58.5461	6.50995	42.379
PS	672	50.00	90.00	46561.00	69.2872	7.51884	56.533
GU	672	19.00	95.00	35842.00	53.3363	13.62791	185.720
Valid N (listwise)	672						

Interval Class Frequency Distribution

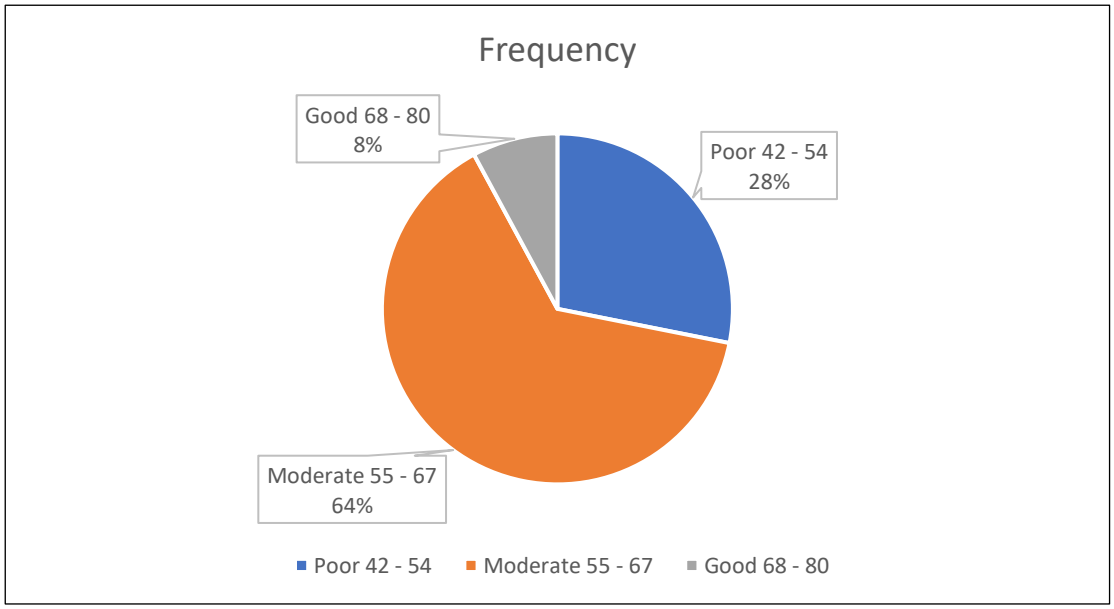
Frequency distribution for sport participation variables

Category	Interval	Frequency	Percentage
Poor	39 - 52	69	10%
Moderate	53 - 66	505	75%
Good	67 - 80	98	15%
Total		672	100%



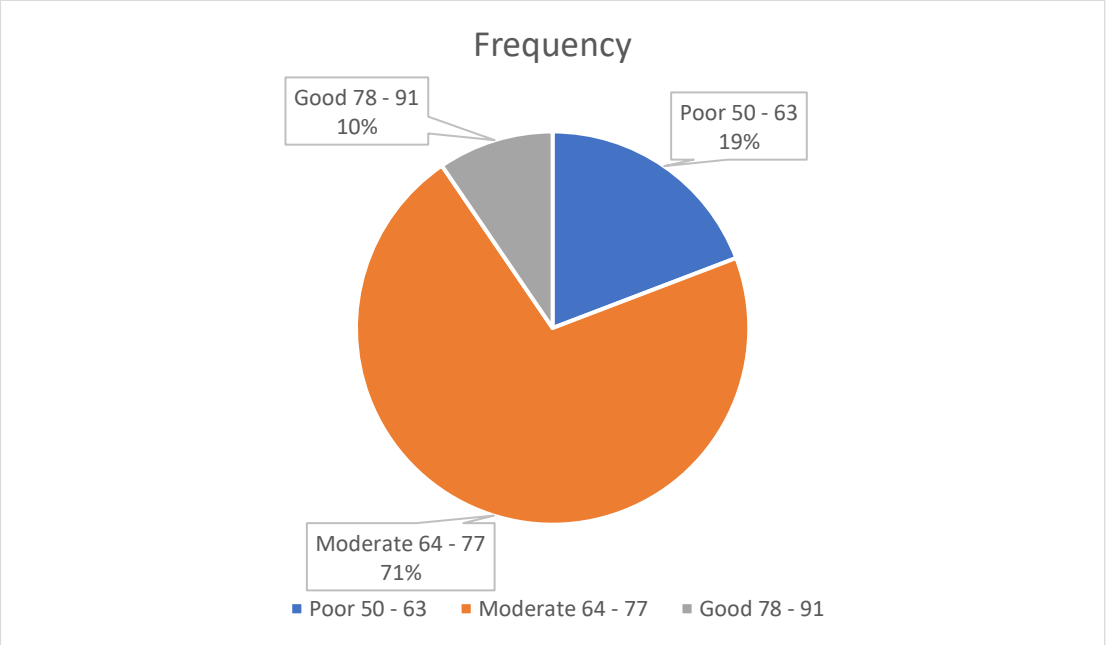
Frequency distribution of exercise motivation

Category	Interval	Frequency	Percentage
Poor	42 - 54	189	28%
Moderate	55 - 67	430	64%
Good	68 - 80	53	8%
Total		672	100%



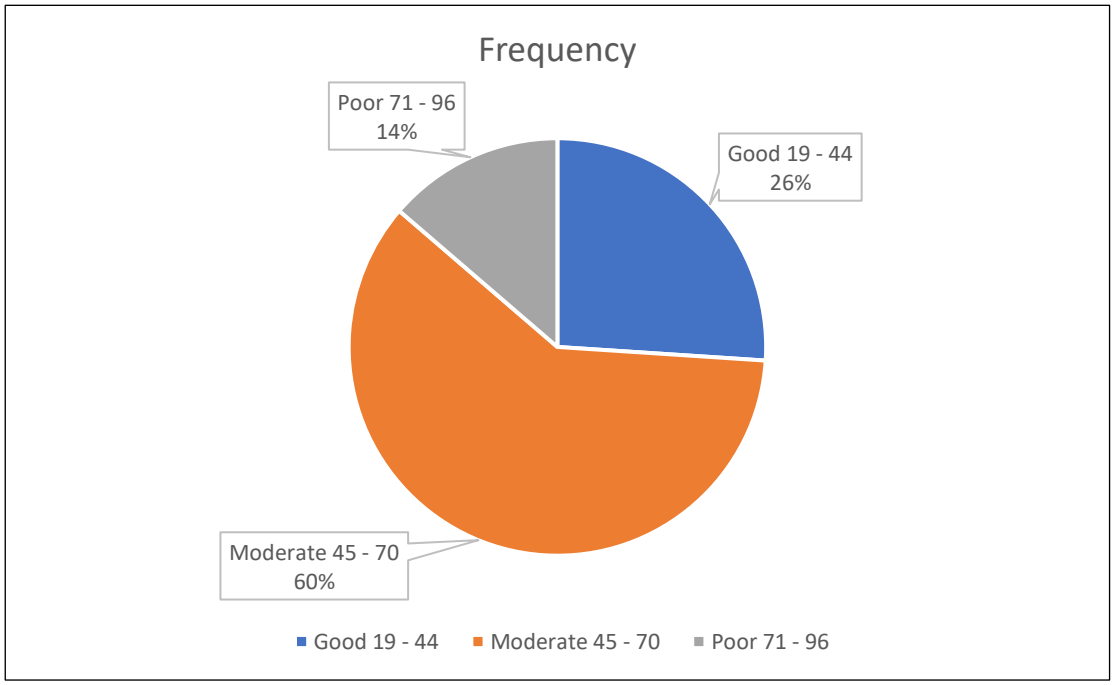
Frequency distribution of psychosocial well-being variables

Category	Interval	Frequency	Percentage
Low	50 - 63	129	19%
Moderate	64 - 77	479	71%
Good	78 - 91	64	10%
		672	100%



Frequency distribution of gadget use behavior variables

Category	Interval	Frequency	Percentage
Good	19 - 44	175	26%
Moderate	45 - 70	405	60%
Poor	71 - 96	92	14%
		672	100%



APPENDIX 7

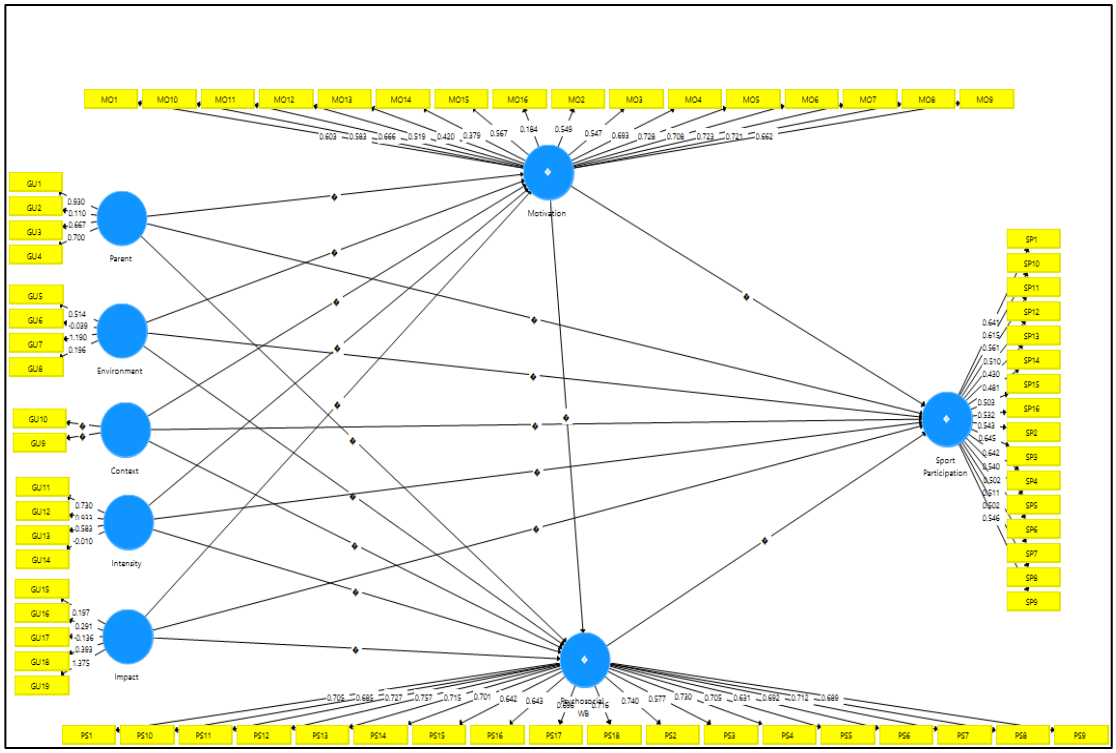
Measurement Model Evaluation

Outerloading

Outerloading Value Firts Test

	Context	Environment	Impact	Intensity	Motivation	Parent	Psychosocial WB	Sport Participation
GU1						0.930		
GU10	n/a							
GU11				0.730				
GU12				0.933				
GU13				0.583				
GU14				-0.010				
GU15			0.197					
GU16			0.291					
GU17			-0.136					
GU18			0.393					
GU19			1.375					
GU2						0.110		
GU3						0.667		
GU4						0.700		
GU5		0.514						
GU6		-0.039						
GU7		1.190						
GU8		0.196						
GU9	n/a							
MO1					0.603			
MO10					0.583			
MO11					0.666			
MO12					0.519			
MO13					0.420			
MO14					0.379			
MO15					0.567			
MO16					0.184			
MO2					0.549			
MO3					0.547			

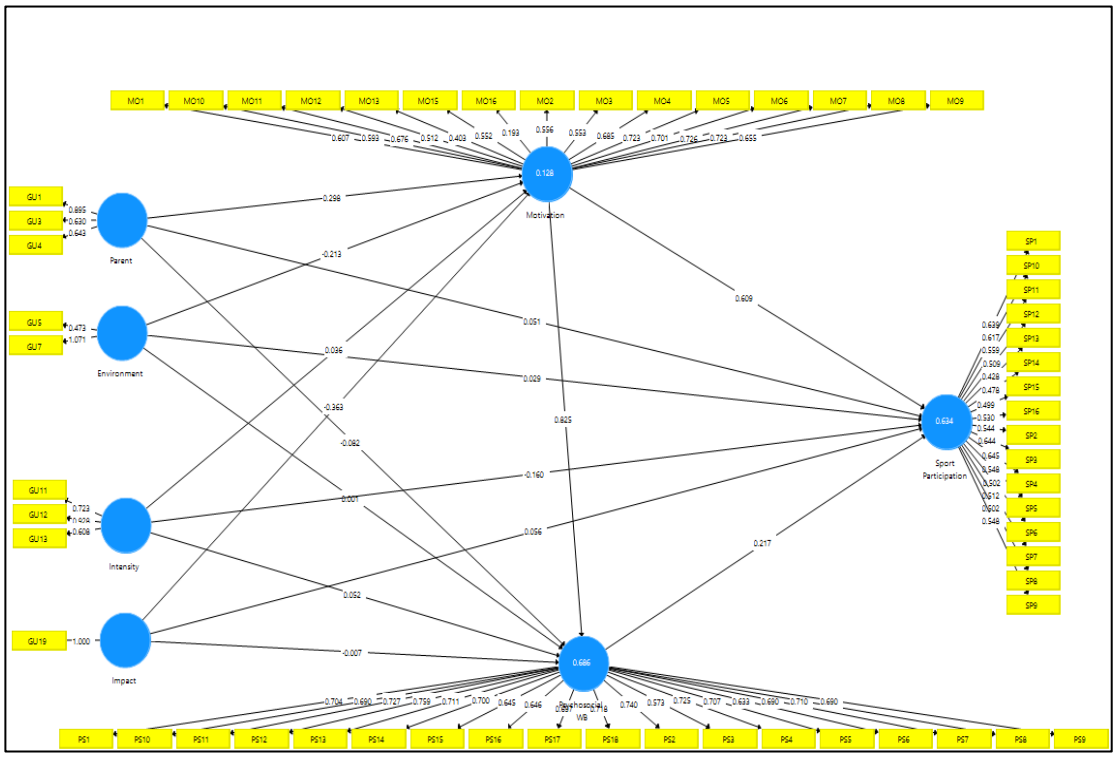
MO4	0.693		
MO5	0.728		
MO6	0.708		
MO7	0.723		
MO8	0.721		
MO9	0.662		
PS1		0.705	
PS10		0.685	
PS11		0.727	
PS12		0.757	
PS13		0.715	
PS14		0.701	
PS15		0.642	
PS16		0.643	
PS17		0.696	
PS18		0.716	
PS2		0.740	
PS3		0.577	
PS4		0.730	
PS5		0.705	
PS6		0.631	
PS7		0.692	
PS8		0.712	
PS9		0.689	
SP1			0.641
SP10			0.615
SP11			0.561
SP12			0.510
SP13			0.430
SP14			0.481
SP15			0.503
SP16			0.532
SP2			0.543
SP3			0.645
SP4			0.642
SP5			0.540
SP6			0.502
SP7			0.511
SP8			0.502
SP9			0.546


MO1
MO10
MO11
MO12
MO13
MO14
MO15
MO16
MO2
MO3
MO4
MO5
MO6
MO7
MO8
MO9
Motivation
GU1
GU2
GU3
GU4
Parent
GU5
GU6
GU7
GU8
Environment
GU10
GU9
Context
GU11
GU12
GU13
GU14
Intensity
GU15
GU16
GU17
GU18
GU19
Impact
Sport Participation
SP1
SP10
SP11
SP12
SP13
SP14
SP15
SP16
SP2
SP3
SP4
SP5
SP6
SP7
SP8
SP9
PS1
PS10
PS11
PS12
PS13
PS14
PS15
PS16
PS17
PS18
PS2
PS3
PS4
PS5
PS6
PS7
PS8
PS9

Outerloading Value Second Test

	Environtment	Impact	Intensity	Motivation	Parent	Psycosocial Well Being	Sport Participation
GU1					0.892		
GU11			0.726				
GU12			0.931				
GU13			0.602				
GU19		0.999					
GU3					0.626		
GU4					0.650		
GU5	0.472						
GU7	0.998						
MO1				0.607			
MO10				0.595			
MO11				0.678			
MO12				0.515			
MO13				0.407			
MO15				0.555			
MO2				0.556			
MO3				0.553			
MO4				0.686			
MO5				0.725			
MO6				0.703			
MO7				0.728			
MO8				0.723			
MO9				0.656			
PS1						0.704	
PS10						0.688	
PS11						0.725	
PS12						0.759	
PS13						0.712	
PS14						0.700	
PS15						0.644	
PS16						0.645	
PS17						0.697	
PS18						0.719	
PS2						0.740	
PS3						0.574	
PS4						0.726	
PS5						0.705	
PS6						0.632	
PS7						0.690	

PS8	0.711	
PS9	0.691	
SP1		0.637
SP10		0.618
SP11		0.560
SP12		0.508
SP13		0.431
SP14		0.482
SP15		0.502
SP16		0.532
SP2		0.542
SP3		0.643
SP4		0.643
SP5		0.544
SP6		0.502
SP7		0.511
SP8		0.504
SP9		0.549



Construct reliability (Composite reliability, Cronbach's α, AVE)

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Environtment	**0.672**	**1.000**	**0.792**	**0.687**
Impact	**1.000**	**1.000**	**1.000**	**1.000**
Intensity	**0.789**	**0.838**	**0.804**	**0.585**
Motivation	**0.897**	**0.905**	**0.899**	**0.594**
Parent	**0.781**	**0.801**	**0.772**	**0.537**
Psycosocial Well Being	**0.943**	**0.944**	**0.943**	**0.581**
Sport Participation	**0.873**	**0.875**	**0.871**	**0.580**

Discriminant validity (Construct-level)

Fornell-Larcker Criterion

	Environtment	Impact	Intensity	Motivation	Parent	Psycosocial Well Being	Sport Participation
Environtment	0.829						
Impact	0.623	1.000					
Intensity	0.688	0.578	0.765				
Motivation	-0.177	-0.285	-0.096	0.627			
Parent	0.764	0.596	0.733	-0.045	0.733		
Psycosocial Well Being	-0.184	-0.271	-0.096	0.826	-0.092	0.694	
Sport Participation	-0.162	-0.229	-0.154	0.781	-0.064	0.711	0.548

APPENDIX 8

Structural Evaluation of The Model

Analysis of Determination Coefficient (R^2)

	R Square	R Square Adjusted
Motivation	0.121	0.116
Psycosocial Well Being	0.687	0.685
Sport Participation	0.635	0.631

Multicollinearity Analysis (Outer VIF Value)

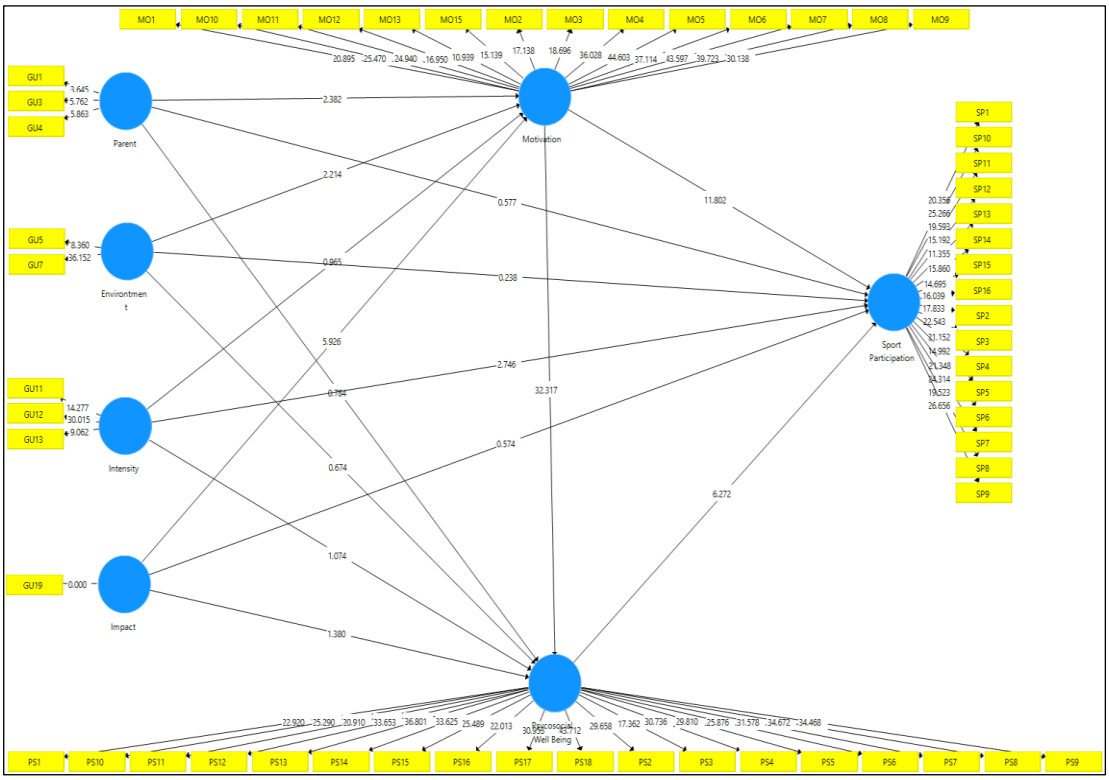
	VIF
GU1	**1.352**
GU11	**1.906**
GU12	**2.360**
GU13	**1.481**
GU19	**1.000**
GU3	**2.020**
GU4	**2.003**
GU5	**1.345**
GU7	**1.345**
MO1	**1.636**
MO10	**1.746**
MO11	**1.762**
MO12	**2.070**
MO13	**2.140**
MO15	**1.629**
MO2	**1.547**
MO3	**1.674**
MO4	**2.015**
MO5	**2.261**
MO6	**2.108**
MO7	**2.250**
MO8	**2.385**
MO9	**2.063**
PS1	**1.916**
PS10	**1.930**
PS11	**1.776**
PS12	**2.251**
PS13	**2.160**
PS14	**2.250**
PS15	**2.168**
PS16	**2.534**

PS17	3.019
PS18	**2.631**
PS2	**2.149**
PS3	**1.577**
PS4	**2.073**
PS5	**1.972**
PS6	**2.122**
PS7	**2.199**
PS8	**2.151**
PS9	**2.340**
SP1	**1.649**
SP10	**1.535**
SP11	**1.588**
SP12	**1.283**
SP13	**1.596**
SP14	**2.088**
SP15	**1.935**
SP16	**1.821**
SP2	**1.550**
SP3	**1.704**
SP4	**1.582**
SP5	**1.370**
SP6	**2.042**
SP7	**1.757**
SP8	**2.200**
SP9	**1.951**

Path Coefficient – β Coefficient

Mean, STDEV, T-Values, P-Values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Environtment -> Motivation	-0.136	-0.132	0.059	2.315	**0.021**
Environtment -> Pschosocial	-0.025	-0.024	0.040	0.643	**0.521**
Environtment -> Sport Participation	0.011	0.012	0.050	0.222	**0.824**
Impact -> Motivation	-0.334	-0.328	0.051	6.532	**0.000**
Impact -> Pschosocial	-0.035	-0.031	0.033	1.056	**0.291**
Impact -> Sport Participation	0.029	0.033	0.043	0.668	**0.505**
Intensity -> Motivation	0.064	0.062	0.056	1.159	**0.247**
Intensity -> Pschosocial	0.032	0.029	0.035	0.901	**0.368**
Intensity -> Sport Participation	-0.108	-0.106	0.038	2.871	**0.004**
Motivation -> Pschosocial	0.750	0.753	0.026	29.402	**0.000**
Motivation -> Sport Participation	0.469	0.471	0.042	11.191	**0.000**
Parent -> Motivation	0.178	0.163	0.070	2.533	**0.012**
Parent -> Pschosocial	-0.023	-0.026	0.037	0.621	**0.535**
Parent -> Sport Participation	0.037	0.028	0.048	0.770	**0.442**
Pschosocial -> Sport Participation	0.291	0.293	0.045	6.450	**0.000**



Effect Size Analysis (f^2)

	Environtment	Impact	Intensity	Motivation	Parent	Psycosocial Well Being	Sport Participation
Environtment				**0.018**		**0.000**	**0.001**
Impact				0.079		**0.000**	**0.003**
Intensity				**0.000**		**0.004**	0.027
Motivation						**1.900**	**0.309**
Parent				0.034		**0.007**	**0.002**
Psycosocial Well Being							0.039
Sport Participation							

Prediction Relevance Analysis (Q^2)

Total

	SSO	SSE	Q^2 (=1-SSE/SSO)
Environtment	1344.000	1344.000	
Impact	672.000	672.000	
Intensity	2016.000	2016.000	
Motivation	8736.000	8327.082	0.047
Parent	2016.000	2016.000	
Pschosocial	12096.000	8533.903	0.294
Sport Participation	10752.000	8919.758	0.170

Model Fit Evaluation

Fit Summary

	Saturated Model	Estimated Model
SRMR	0.065	0.065
d_ULS	6.980	6.980
d_G	1.937	1.937
Chi-Square	6930.945	6930.945
NFI	0.679	0.679

Moderating Impact (Moderation Test With Interaction Term (for numeric moderator))

Mean, STDEV, T-Values, P-Values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Environtment -> Motivation	-0.135	-0.127	0.061	2.230	0.026
Environtment -> Psycosocial Well Being	-0.026	-0.023	0.037	0.705	0.481
Environtment -> Sport Participation	0.012	0.023	0.052	0.225	0.822
Environtment-Internet -> Sport Participation	-0.019	-0.010	0.049	0.392	0.695
Environtment-Job -> Sport Participation	-0.023	0.000	0.056	0.404	0.687
Impact -> Motivation	-0.318	-0.313	0.052	6.110	0.000
Impact -> Psycosocial Well Being	-0.047	-0.045	0.033	1.441	0.150
Impact -> Sport Participation	0.028	0.026	0.044	0.630	0.529
Impact-Job -> Sport Participation	0.041	0.033	0.050	0.809	0.419
Impact-internet -> Sport Participation	0.048	0.039	0.044	1.088	0.277
Intensity -> Motivation	0.056	0.056	0.055	1.009	0.313
Intensity -> Psycosocial Well Being	0.036	0.030	0.033	1.115	0.265
Intensity -> Sport Participation	-0.107	-0.105	0.038	2.824	0.005
Intensity-Internet -> Sport Participation	-0.050	-0.040	0.043	1.171	0.242
Intensity-Job -> Sport Participation	0.008	0.007	0.045	0.176	0.860
Internet -> Sport Participation	0.013	0.017	0.028	0.471	0.638
Job -> Sport Participation	0.008	0.018	0.034	0.225	0.822
Motivation -> Psycosocial Well Being	0.749	0.752	0.024	31.564	0.000
Motivation -> Sport Participation	0.483	0.491	0.042	11.554	0.000
Motivation-Internet -> Sport Participation	-0.014	0.002	0.093	0.156	0.876
Motivation-Job -> Sport Participation	-0.029	-0.009	0.052	0.555	0.579
Parent -> Motivation	0.190	0.173	0.078	2.438	0.015
Parent -> Psycosocial Well Being	-0.031	-0.031	0.038	0.811	0.418
Parent -> Sport Participation	0.030	0.015	0.048	0.629	0.530
Parent-Internet -> Sport Participation	0.007	0.004	0.052	0.133	0.894
Parent-Job -> Sport Participation	-0.042	-0.035	0.056	0.749	0.454
Psycosocial WB-Job -> Sport Participation	-0.003	-0.004	0.048	0.068	0.946
Psycosocial Well Being -> Sport Participation	0.282	0.272	0.045	6.209	0.000
Psyschosocial WB-Internet -> Sport Participation	0.058	0.033	0.059	0.980	0.328

Moderation Test With Multi-Group Analysis (MGA) (for categorical moderators) Gander

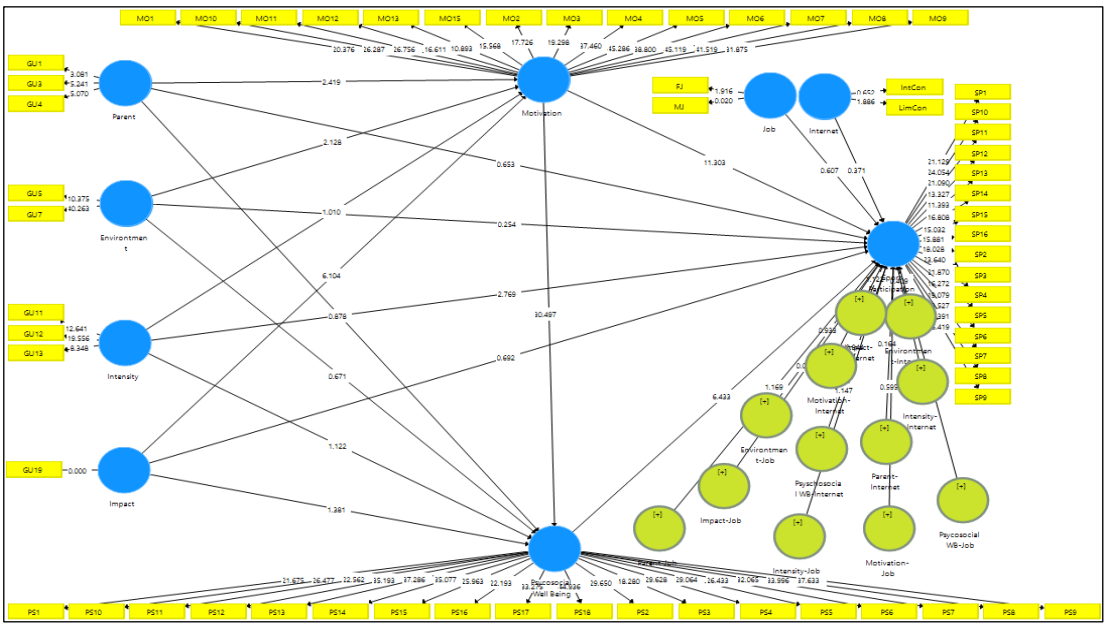
	Path Coefficients-diff (GROUP_Gender_Men - GROUP_Gender_Women)	p-Value original 1-tailed (GROUP_Gender_Men vs GROUP_Gender_Women)	p-Value new (GROUP_Gender_Men vs GROUP_Gender_Women)
Environtment -> Motivation	-0.023	0.581	**0.838**
Environtment -> Psychosocial WB	-0.017	0.588	**0.825**
Environtment -> Sport Participation	0.199	0.037	**0.074**
Impact -> Motivation	0.149	0.093	**0.185**
Impact -> Psychosocial WB	0.044	0.256	**0.513**
Impact -> Sport Participation	0.077	0.177	**0.354**
Intensity -> Motivation	-0.133	0.865	**0.271**
Intensity -> Psychosocial WB	-0.051	0.757	**0.487**
Intensity -> Sport Participation	-0.107	0.925	**0.149**
Motivation -> Psychosocial WB	-0.009	0.574	**0.852**
Motivation -> Sport Participation	-0.053	0.739	**0.521**
Parent -> Motivation	0.026	0.433	**0.865**
Parent -> Psychosocial WB	-0.067	0.806	**0.388**
Parent -> Sport Participation	-0.149	0.919	**0.162**
Psychosocial WB -> Sport Participation	0.088	0.160	**0.320**

Moderation Test With Multi-Group Analysis (MGA) (for categorical moderators) City/Region

	Path Coefficients-diff (GROUP_School_City - GROUP_School_District)	p-Value original 1-tailed (GROUP_School_City vs GROUP_School_District)	p-Value new (GROUP_School_City vs GROUP_School_District)
Environtment -> Motivation	0.000	0.500	**1.000**
Environtment -> Psychosocial WB	0.062	0.201	**0.403**
Environtment -> Sport Participation	-0.001	0.514	**0.971**
Impact -> Motivation	0.042	0.344	**0.688**
Impact -> Psychosocial WB	-0.054	0.785	**0.429**
Impact -> Sport Participation	0.011	0.449	**0.898**
Intensity -> Motivation	-0.123	0.814	**0.372**
Intensity -> Psychosocial WB	-0.085	0.886	**0.229**
Intensity -> Sport Participation	0.010	0.447	**0.894**
Motivation -> Psychosocial WB	0.052	0.133	**0.267**
Motivation -> Sport Participation	-0.062	0.732	**0.536**
Parent -> Motivation	-0.064	0.662	**0.677**
Parent -> Psychosocial WB	0.094	0.127	**0.253**
Parent -> Sport Participation	-0.086	0.794	**0.413**
Psychosocial WB -> Sport Participation	0.003	0.490	**0.980**

Moderation Test With Multi-Group Analysis (MGA) (for categorical moderators)

	Path Coefficients-diff (GROUP_Sport_individual - GROUP_Sport_team)	p-Value original 1-tailed (GROUP_Sport_individual vs GROUP_Sport_team)	p-Value new (GROUP_Sport_individual vs GROUP_Sport_team)
Environtment -> Motivation	0.114	0.167	**0.334**
Environtment -> Psychosocial WB	-0.015	0.571	**0.857**
Environtment -> Sport Participation	-0.005	0.519	**0.963**
Impact -> Motivation	-0.028	0.609	**0.781**
Impact -> Psychosocial WB	-0.108	0.933	**0.135**
Impact -> Sport Participation	-0.027	0.631	**0.738**
Intensity -> Motivation	0.221	0.047	**0.094**
Intensity -> Psychosocial WB	0.047	0.258	**0.516**
Intensity -> Sport Participation	-0.018	0.590	**0.819**
Motivation -> Psychosocial WB	-0.065	0.916	**0.169**
Motivation -> Sport Participation	-0.105	0.904	**0.193**
Parent -> Motivation	-0.178	0.891	**0.217**
Parent -> Psychosocial WB	0.005	0.466	**0.932**
Parent -> Sport Participation	0.088	0.186	**0.371**
Psychosocial WB -> Sport Participation	0.105	0.115	**0.229**



AUTHOR'S PROFILE



Endang Sepdanius obtained a Bachelor of Sport Science in 2011 from Universitas Negeri Padang Indonesia and a Master of Sport Science in 2014 from Universitas Negeri Yogyakarta, Indonesia. I have been a lecturer at the Faculty of Sport Science, Universitas Negeri Padang, since 2015. The field of expertise is the sport sociology and badminton. I have published articles in this field using several methodological approaches: quantitative, research and development, and qualitative.

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