

METHODOLOGICAL CONCERNS IN DEVELOPING MALAYSIAN ADOLESCENT'S PROFILE ON MENTAL HEALTH

Hairulliza Mohamad Judi^{1*} and Hazura Mohamed²

^{1,2}Faculty of Information Sciences and Technology, Universiti Kebangsaan Malaysia,
43600 UKM Bangi, Selangor, Malaysia

^{1*}hmj@ukm.edu.my, ²hazura.mohamed@ukm.edu.my

ABSTRACT

Adolescence is a crucial period for mental and social development, and the profile of Malaysian adolescents in terms of their mental health has significant implications for their education and social outcomes. Mental health issues such as anxiety, depression, and stress are prevalent among Malaysian adolescents; and these issues can negatively impact their academic performance and overall well-being. Poor mental health may influence social interactions and relationships, which can impact their ability to form healthy friendships and family relationships, communicate effectively, and function in society. The development of mental health profile of Malaysian adolescents is critical to their success in education and social development. Educators and communities can help adolescents thrive academically and socially, leading to positive long-term outcomes, by addressing mental health issues and providing the required support. Developing a mental health profile for teenagers requires a rigorous approach to ensure that the results are reliable and valid. The literature covers on the prevalence of mental health issues among adolescents in Malaysia, their impact on academic performance and social development, and existing efforts to address these issues. This paper addresses this issue by discussing methodological concerns that researchers should address in the development of mental health profile of Malaysian adolescents. The concerns focus on issues related to account sampling, validity of measures, bias, ethical concerns, longitudinal design, data analysis, and generalizability. The discussion aims to guide researchers to develop measures that are reliable, valid, and generalizable to the population of interest. The development of a reliable and valid mental health profile for Malaysian adolescents requires careful consideration of various methodological concerns. By addressing these concerns, researchers can ensure that their findings accurately reflect the mental health status of Malaysian adolescents and provide valuable insights for informed decision-making and intervention planning.

Keywords: *Mental Health Profile, Methodology, Sample.*

Received for review: 07-05-2024; Accepted: 14-08-2024; Published: 01-10-2024

DOI: 10.24191/mjoc.v9i2.26525

1. Introduction

The adolescent phase marks a critical period for both mental and social growth, serving as a bridge between childhood and adulthood. During this transitional stage, adolescents undergo significant transformations encompassing physical, mental, and social dimensions (Ismail et al., 2018; Taufik et al., 2022). Engaged in exploring and shaping their interests and identities,



This is an open access article under the CC BY-SA license
(<https://creativecommons.org/licenses/by-sa/3.0/>).

adolescents strive to maintain healthy relationships, particularly with parents and siblings (Noordin et al., 2020). Recognized as the nation's most valuable resource, they are expected to acquire knowledge and skills essential for their future roles (Amran, 2022). However, the swift evolution of communication technology has altered interpersonal dynamics and behaviors, with adolescents playing a pivotal role in this societal transition.

Mental health issues, including anxiety, depression, and stress, are prevalent among Malaysian adolescents, posing detrimental effects on their academic performance and overall well-being (Kamarulzaman & Jodi, 2018; Khairul Hamimah et al., 2019). These challenges can impair concentration, memory, and motivation, hindering academic success. Moreover, poor mental health can disrupt social interactions and relationships, hampering the formation of healthy friendships and romantic connections, impeding effective communication, and compromising social functioning (Moore et al., 2019). Consequently, adolescents may experience feelings of isolation, diminished self-esteem, and a lack of confidence, exerting enduring impacts on their mental and social welfare.

The profile of Malaysian adolescents in terms of their mental health has significant implications for their education and social outcomes. The education system plays a crucial role in addressing mental health issues among adolescents (Che Mansor & Rosly, 2024). Schools can provide mental health resources and support services to help students cope with stress, anxiety, and other mental health issues. Educators can also help create a safe and supportive environment for students to express their emotions and feelings. Various social factors such as family dynamics, peer pressure, and cultural expectations can also influence adolescent mental health. Understanding the unique cultural context of Malaysia and how it affects adolescents' mental health is essential in providing appropriate support and interventions (Chan & Gan, 2022).

Methodological concern refers to issues related to the methods used in a research study that can impact the validity, reliability, and overall quality of the research findings (Nurzafira et al., 2023) related with adolescent for whom the mental health and life well-being are related (Heintz & Law, 2018). The development of this mental health profile of Malaysian adolescents is critical to their success in education and social development. Educators and communities can help adolescents thrive academically and socially, leading to positive long-term outcomes, by addressing mental health issues and providing the required support. The methodology requires a rigorous approach to ensure that the results are reliable and valid (Petersen et al., 2022; Vaughan et al., 2020). This paper addresses this issue by discussing methodological concerns that researchers should address in the development of mental health profile of Malaysian adolescents.

2. Empirical Study on Mental Health among Malaysian Adolescents

Empirical studies pertaining mental health issues among Malaysian adolescents involve various research to enhance understanding on the topic. More attention was given on the issue as adolescent is going through a phase of physical and emotional development, and the ability to control the phase of self-changing experience may influence not only their individual well-being but also their functions in society and nation (Suhana & Surat, 2023). The level of mental health among Malaysian adolescents shows alarming level including depression cases that can lead to suicidal symptoms, particularly following the COVID-19 pandemic (Mohamad Sahide et al., 2022). This study summarises methodological elements in the empirical studies as presented in Table 1.

Among the issues explored is the identification of factors influencing mental health literacy among adolescents in Malaysia, which includes understanding mental health concepts, seeking assistance, and addressing stigma (Singh et al., 2022). Success in addressing mental health issues among adolescents depends on their ability to accurately identify mental health conditions and their willingness to seek help. The research, which aims to investigate mental health literacy among Malaysian adolescents, involves a sample of 1400

individuals aged 13 to 14 from nine national secondary schools in Selangor. This cross-sectional research investigates whether various factors such as age, gender, ethnicity, smoking habits, alcohol consumption, feelings of loneliness, parental marital status, parental income and experiences of bullying are significant factors among the participants. Utilizing the Global School-Based Student Health Survey, the study evaluates mental health literacy using the Mental Health Literacy and Stigma instrument.

Table 1. Local Empirical Research on Mental Health

Research	Topic	Sample	Location	Data Collection	Instrument
Singh et al. (2022)	Mental health literacy (MHL)	1400 adolescents between 13 and 14 years old	Selangor	Survey	Global School Based Student Health Survey and Mental Health Literacy and Stigma
Lee et al. (2023)	Mental health awareness	450 adolescents aged 15–19 years old (purposive sampling)	Kuala Lumpur and Melaka	Survey	Adopted from various previous research
Idris et al. (2019)	Underlying factors in mental health issues	10 adolescents aged 13 and 14 years	Selangor	Qualitative method, focus group	Strengths and Difficulties Questionnaire (SDQ)
Taufik et al. (2022)	Mental health disorders	26,892 adolescent aged 13 to 17 years (Stratified cluster sampling)	Throughout Malaysia	Survey	Depression Anxiety and Stress Scale (DASS-21)
Aida et al. (2010)	Primary care services for mental health	175 adolescents aged 13 to 17 years	Selangor	Survey	Help-Seeking Behaviour instrument
Suhana & Surat (2023)	Personality types in mental health	298 adolescents aged 19 to 21 years	Selangor	Survey	Truity Test and Goldberg's General Health Questionnaire (GHQ-28)
Nik Murni et al. (2015)	Mental health awareness	118 adolescents aged 16 years	Johor	Survey	Adopted from various previous research

The factors influencing the awareness of mental health among adolescents in Malaysia include understanding mental health concepts, awareness of professional support, and attitudes toward mental health (Lee et al., 2023). The study employs self-administered questionnaires and executes purposive sampling to generate sample of 450 secondary school students aged 15 to 19 years from Kuala Lumpur and Melaka. The administration of online self-administered questionnaires is conducted across 12 selected secondary schools. To address ethical considerations, all participants provided informed consent before participating in the study. The research adheres to the principles outlined in the Declaration of Helsinki and receives approval from the Research Ethics Committee of Multimedia University. The study's questionnaire includes four demographic items: age, gender, ethnicity, and religion.

The research evaluates the instrument's convergent validity by examining factor loadings, with a minimum threshold of 0.7, an average variance extracted of 0.5, and a construct reliability of 0.7. Assessing convergent validity not only gauges the internal consistency reliability but also verifies the shared variance of the construct and enhances content validity. Additionally, the study investigates the discriminant validity of the instrument to determine the uniqueness of a construct, employing the Heterotrait-monotrait criterion. This criterion evaluates whether items are not excessively correlated with other constructs within the same model.

The underlying factors that may contribute to the development of mental health

problems were researched among adolescents in Selangor, Malaysia, using qualitative method (Idris et al., 2019). The adolescents were initially screened to have such problems in a prevalence study and invited to participate in focus group discussions. Five key themes emerged from the interaction to contribute to the development of mental health problems. Four of the themes were found to be analogous as in previous research: less parental involvement, harsh and inconsistent discipline, low parental monitoring, and lack of parental love. The novel theme appears to be lack of religious practices in the family to be associated with mental health problems.

Among adolescents in Selangor, Malaysia, qualitative methods were employed to investigate potential factors contributing to the emergence of mental health issues (Idris et al., 2019). Initially, adolescents identified as experiencing such problems in a prevalence study were invited to participate in focus group discussions. From these discussions, five key themes emerged as potential contributors to the development of mental health issues. Four of these themes echoed findings from previous research: diminished parental involvement, harsh and inconsistent disciplinary practices, low levels of parental supervision, and a lack of parental affection. A unique theme that surfaced was the absence of religious practices within the family, which appeared to be associated with mental health issues.

A comprehensive study aimed at identifying factors associated with anxiety among Malaysian adolescents involved a large sample of 26,892 school-going adolescents from 212 selected schools across Malaysia (Taufik et al., 2022). Anxiety levels were assessed using the Depression Anxiety and Stress Scale (DASS-21), and associations between anxiety, sociodemographic characteristics, and other variables of interest were analyzed using multivariable logistic regression. The study's design and sampling methodology employed a two-stage stratified cluster sampling approach, focusing on students in Forms 1 to 5 (aged 13 to 17 years). Malaysia was first divided into 13 states and three Federal Territories for stratification. Subsequently, 212 secondary schools were randomly selected in the first stage of sampling, with all classes in each selected school included in the sampling frame using systematic random sampling in the second stage.

Data collection for the study took place within a period of less than two months, involving 36 teams of researchers, with four teams assigned to Sabah and Sarawak and two teams per state for the remaining regions. Parental consent forms were distributed to students in selected classes, and students who did not provide consent were treated as non-respondents. Validated self-administered bilingual anonymous questionnaires were utilized to safeguard students' privacy. Ethical approval for the study was obtained from both the Medical Research and Ethics Committee of the Ministry of Health Malaysia and the Ethics Committee of the Ministry of Education.

An interesting topic arises to examine how personality types related to mental health examine factors like personality types and gender variations may influence mental health among undergraduate students (Suhana & Surat, 2023). Mental health illnesses can impair academic performance and social connections that could be related to personality type. The study applies a total sample size of 248 students using systematic sampling and adapts Truity Test and Goldberg's General Health Questionnaire (GHQ-28).

How adolescents report their awareness level and perception on mental illness was researched using 118 adolescences in Johor Adolescents awareness towards mental health receives more attention as mental illness in Malaysia have increased recently. The study shows that most of the respondents are fairly ignorant of mental illness and the promotion of mental health and wellness is still very limited in Malaysia. Furthermore, these adolescences have strong stigma upon mental illness although they have relatively positive views on mental health patients.

Research conducted in Johor investigated adolescents' self-reported levels of awareness and perceptions regarding mental illness, involving a sample of 118 adolescents (Nik Murni et al., 2015). With the recent rise in mental illness cases in Malaysia, adolescents' awareness of mental health issues has garnered increased attention. Findings from the study indicate that a significant portion of the respondents demonstrated limited understanding of mental illness, and efforts to promote mental health and well-being remain insufficient in

Malaysia. Additionally, the adolescents exhibited a pronounced stigma toward mental illness, despite generally holding positive views of individuals with mental health conditions.

A project examining adolescents' perceptions of primary health care services regarding mental illness was undertaken in Hulu Langat, Selangor, Malaysia (Aida et al., 2010). The study utilized questions related to help-seeking behavior to assess the utilization of medical facilities and sources of assistance. Responses from 175 adolescents revealed that formal help-seeking sources included teachers, counsellors, and doctors, while informal sources included friends, parents, and siblings. The majority of students were unaware of the availability of services within primary health care settings. The study concludes that limited awareness of such services represents a significant barrier to their utilization and underscores the need for increased promotion and interventions in this area.

3. Methodological Concerns in Profile Development

Developing a mental health profile for teenagers requires a rigorous approach to ensure that the results are reliable and valid. Among important concerns in the development are related to the measurement, source of data and data collection procedure. Sampling issues also receive particular attention that will be discussed separately.

Validity and reliability of the measures concern that the instruments should accurately measure what they are intended to measure and produce consistent results. Validity of measurement such as DSM-Level 1, refers to the extent to which the measurement tool or instrument used accurately captures the construct it is intended to measure (Creswell & Guetterman, 2019). In the case of developing a mental health profile for teenagers, validity is crucial to ensure that the measurement tool captures the relevant dimensions of mental health and accurately represents the mental health status of the individual being measured.

Various aspects of validity would be related in the discussion: content validity, criterion validity, construct validity and face validity. Content validity refers to the degree to which the measurement tool captures all the relevant dimensions of mental health that are important for the target population. In order to ensure content validity, it is important to consult with mental health experts, clinicians, and the target population to identify the key dimensions of mental health that are relevant to the teenagers being assessed (Cadorin et al., 2017). Criterion validity is related to the degree to which the measurement tool correlates with other established measures of mental health. In order to establish criterion validity in the context of this research, it is important to compare the scores obtained from the new measurement tool with scores obtained from established measures of mental health (Petersen et al., 2022). The applied procedure may involve tools, such as standardized diagnostic tests or clinical interviews.

Construct validity addresses the degree to which the measurement tool accurately measures the theoretical construct it is intended to measure. In the case of developing a mental health profile for teenagers, construct validity requires that the measurement tool accurately captures the underlying dimensions of mental health, such as anxiety, depression, and social functioning (Lee et al., 2023). Finally, face validity discusses the degree to which the measurement tool appears to measure what it is intended to measure (Jong et al., 2020). Face validity can be established by having mental health experts review the measurement tool and provide feedback on whether it appears to capture the relevant dimensions of mental health.

Besides validity, bias and related issues need to be addressed in the study. There is a risk of bias in any study, and researchers should take steps to minimize bias. For example, they should ensure that the questions asked are unbiased and do not lead participants to respond in a particular way (Pitt et al., 2018). In terms of longitudinal study design, the study may consider this as mental health is a dynamic process, and studying it requires a longitudinal design that can track changes over time (Bersia et al., 2022). This design will ensure that researchers can detect changes in mental health that occur over the teenage years and identify risk factors that may predict poor mental health outcomes.

Generalizability concerns how the results could be applied and researchers should

consider the generalizability of their findings. They should assess whether the results can be generalized to other populations and settings beyond the study sample (Singh et al., 2022). Developing a mental health teenager profile requires careful analysis of relevant data. There are several data analysis methods that can be used to develop such a profile. Surveys are a commonly used data collection method for obtaining data on a large group of people. Surveys can be used to collect information about mental health problems in teenagers, including their symptoms, prevalence, and risk factors. Data analysis is a critical part of developing a mental health profile for teenagers. Researchers should use appropriate statistical techniques to identify the most salient factors that contribute to mental health outcomes in this population.

Interviews are a more in-depth data analysis method that allows researchers to gather information about individual experiences with mental health (Sahril et al., 2021). Teenagers can be interviewed about their mental health, including their symptoms, diagnosis, and treatment. Case studies can provide a rich source of data for developing mental health teenager profiles. Case studies involve the detailed analysis of a single case, which can provide insight into the experiences of a teenager with mental health issues (Batista & Pestun, 2019).

Observational studies can be used to analyse the behaviour of teenagers with mental health problems. Observational studies can be conducted in a clinical setting or in natural environments, such as schools or homes. Data mining involves the analysis of large datasets to identify patterns and relationships. Data mining can be used to identify factors that are associated with mental health problems in teenagers.

3.1 Sampling and Data Collection

Developing a mental health teenager profile through sampling can be a complex process that requires careful consideration of various factors. The key sampling issues that need to be addressed when developing a mental health teenager profile start with the sample size. The size of the sample is a crucial factor that determines the accuracy of the mental health teenager profile.

A small sample size may not be representative of the population, and therefore, the findings may not be generalizable. On the other hand, a large sample size may be difficult to manage and may increase the costs of the study. Therefore, the suggested number could be based on the available research funding to cover the access to participants and fit the time constraints, given that representativeness to the population is fulfilled (Sahril et al., 2021).

Sampling Method refers to the technique to select individual adolescences to represent the population to make statistical inferences (Creswell & Guetterman, 2019). Sampling methods that can be used to develop a mental health teenager profile include random sampling. Random sampling appears to be the gold standard for ensuring representativeness (Creswell & Guetterman, 2019), but it may not always be feasible due to practical considerations, such as time and budget constraints. Other sampling methods, such as stratified sampling and cluster sampling, may be more appropriate depending on the specific research question and population (Taufik et al., 2022).

Eventually, sampling bias occurs when the sample is not representative of the population due to certain characteristics of the sample that differ from the population. For example, if the sample is recruited from a particular setting, such as a particular private school or clinic, it may not be representative of the larger population of teenagers. To address sampling bias, researchers may plan ahead about how they recruit participants and ensure that they have a diverse and representative sample. By selecting pupils from public secondary schools, researchers may find not only adequate sample size being fulfilled but also common features in the population available in the sample (Rosnah S, Hanafiah MS, Hazlina M, Normah CD, 2016). Students in public schools appear to be able to include teenagers from different socio-economic backgrounds, genders, and ethnicities as compared to students in private schools (Singh et al., 2022).

The data collection needs to consider ethical issues related to informed consent. Obtaining informed consent from teenagers and their parents or guardians is a critical ethical issue in developing a mental health teenager profile (Taufik et al., 2022). Researchers need to

ensure that participants understand the nature of the study, the potential risks and benefits, and their rights as participants.

Not only researchers need to ensure that participants understand the confidentiality and anonymity of their responses, participants should be given freedom to participate in or withdraw from the study (Shaw et al., 2018). When it comes to working with vulnerable populations such as teenagers and dealing with sensitive topic such as mental illness, participants need to be fully informed about the study by giving clear and precise explanation of the study. Among good practices in this issue is to obtain approval document from the related organisations or agencies prior to the study (Taufik et al., 2022). Similarly, obtaining written consent from the parents and adolescents after explaining the procedures are among the steps to ensure participants are fully informed about the study and that their participation is voluntary (Aida et al., 2010).

Recruitment and retention of participants in the study need to be planned ahead as there are various strategy to approach the subjects. The popular mean would be through secondary schools where the targeted adolescences go to (Idris et al., 2019; Singh et al., 2022). Recruitment and retention of participants in mental health research can be challenging, especially for teenagers. Researchers need to consider how to recruit participants, how to engage and motivate them to participate, and how to retain them throughout the study in long term strategy by developing incentives or building rapport with participants. An integrated program could be conducted by promoting awareness of mental well-being to teenagers in order to enhance participation from targeted adolescences. Psychosocial intervention may involves presentation by experts regarding information on getting early treatment and the need to create a support system and treatment (Suzaily & Nurul Sarah, Adib Adham Low, 2021).

4. Methodological Framework

Among the methodological frameworks, the systemic approach such as the ADDIE Model (Analysis, Design, Development, Implementation, Evaluation), presents a broad scope, allowing an overview of the methodological process and favouring decisions aimed at modifications of shortcomings (Tobase et al., 2017). While originally developed for designing training programs, the ADDIE model as presented in Figure 1 can also be applied to developing a mental health teenager profile (Budoya et al., 2019). Analysis is the first step in the ADDIE model is to analyse the current situation and identify the needs of the target audience. In the case of developing a mental health teenager profile, researchers would start by gathering information about the teenager's mental health history, current symptoms, family history, and any other relevant information that could affect their mental health including parents' divorce (Aimran et al., 2022).

In the second step, researchers design the study. Once researchers have gathered the information, they can use it to design a plan for addressing the teenager's mental health needs. This could involve setting specific goals for improving their mental health, identifying resources that can support them, and developing a plan for monitoring progress. The development stage involves creating the actual profile based on the plan that was designed in the previous stage. The development of profile such as in cyber fraud could involve gathering useful information about the target group teenager (Fadlil & Makkie Perdana Kusuma, 2023). The profile summarizes teenagers' mental health history and current needs, and creating a list of recommended interventions and support resources (Knowles et al., 2022).

Implementation is the next step is to put the plan into action. This could involve sharing the profile with mental health professionals, educators, and other relevant parties who can support the teenager's mental health (Chua, 2020). It may also involve scheduling appointments for the teenager to receive treatment or connecting them with support groups or other resources. Evaluation involves the final step is to evaluate the effectiveness of the mental health teenager profile. This could involve tracking the teenager's progress over time

and adjusting the plan as needed. It may also involve soliciting feedback from the teenager, their family, and their care providers to ensure that the profile is meeting their needs.

There are key findings that emerged from the methodological approach applied in developing the mental health profile for teenagers. Regarding the validity and reliability of instrument, researcher needs to demonstrate the tool has content and construct validity, to effectively capturing dimensions of anxiety, depression, and social functioning among teenagers. Moreover, criterion validity could be established through correlations with established mental health measures, confirming the tool’s accuracy. To address bias and generalizability of the study, researchers can consider employing random sampling methods. By doing so, the study may minimize sampling bias and achieve a representative sample that enhanced the generalizability of the findings across different socioeconomic backgrounds. The sampling method also allows for a diverse representation of the population, and ethical considerations to be rigorously upheld, ensuring informed consent and participant confidentiality. The development of the mental health profile may consider ADDIE model in ensuring a systematic approach that enhanced the robustness of the findings.

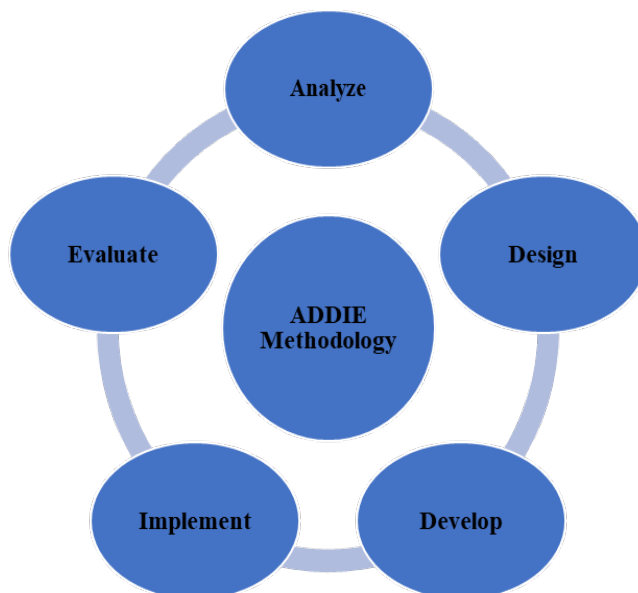


Figure 1. Adolescent’s Mental Health Profile Development Framework

5. Results

The findings of this paper highlight critical methodological considerations that researchers must address when developing a mental health profile for Malaysian adolescents. A key issue is the careful selection of sampling methods to ensure that the sample accurately represents the adolescent population (Sahril et al., 2021). Researchers are advised to employ robust sampling techniques, such as random or stratified sampling, to avoid bias and enhance the generalizability of their findings (Cohen et al., 2007). It is crucial to avoid convenience sampling or relying on data from a specific subgroup, as this can lead to skewed results that do not reflect the broader adolescent population.

Another significant finding emphasizes the importance of ensuring the validity and reliability of the measurement tools used in the research. Instruments must be carefully chosen or designed to accurately capture the constructs they are intended to measure, such as anxiety, depression, and social functioning (Vaughan et al., 2020). Researchers should establish content validity by consulting with mental health experts and ensuring that the measurement tools cover all relevant dimensions of adolescent mental health (Creswell & Guetterman, 2019).

Establishing the reliability of the measurement involves ensuring that the instrument consistently produces stable and consistent results over repeated applications. Researchers should consider conducting a pilot study where the measurement tool is administered to a smaller, representative sample of the target population and then assess internal consistency, to determine how closely related the items within the instrument are to each other (Cadorin et al., 2017).

The study also underscores the need to address potential biases that could arise during the research process. Researchers should be vigilant in designing their studies to minimize any form of bias, such as leading questions or selection bias. For example, there could have been risk of recall bias in answering the self-reported questionnaire regarding adolescent academic improvement (Sumaiyah et al., 2021). Ethical considerations are equally important, particularly when working with a vulnerable population like adolescents. Obtaining informed consent from both the adolescents and their guardians is essential (Kliewer & Saultz, 2018), along with ensuring the confidentiality and anonymity of the participants' data .

Lastly, the findings suggest that the generalizability of the research outcomes should be critically assessed. Researchers must consider whether their findings can be applied to other adolescent populations and settings beyond the immediate study sample. The results should be drawn with caution due to limitations such as a majority of Malays and female students in such study which limits its generalizability to the whole Malaysian adolescents (Aida et al., 2010). By rigorously addressing these methodological concerns, researchers can develop a more accurate and reliable mental health profile for Malaysian adolescents, ultimately contributing to more effective interventions and support strategies.

6. Conclusions

Mental health issues such as anxiety, depression, and stress are prevalent among Malaysian adolescents. These issues can negatively impact their academic performance and overall well-being. The development of mental health profile of Malaysian adolescents aims to support adolescences to success in education and social development. Educators and communities can help adolescents thrive academically and socially, leading to positive long-term outcomes, by addressing mental health issues and providing the required support.

Developing a mental health profile for teenagers requires a rigorous approach to ensure that the results are reliable and valid. This paper addresses this issue by discussing methodological concerns that researchers should address in the development of mental health profile of Malaysian adolescents.

The development of mental health profile for teenagers requires researchers to take into account issues including sample size, validity of measures, ethical concerns, longitudinal design, data analysis, and generalizability. The methodological concerns also include the importance of un-bias sample to represent the population of interest regarding mental health among Malaysian adolescences. Besides, the most suitable data collection and analysis method may depend on the research question, available resources, and the nature of the data being analysed to provide a comprehensive and in-depth understanding of mental health problems in teenagers. These methodological concerns may guide researchers in developing a valid and reliable mental health profile of Malaysian adolescents.

Acknowledgement

The authors would like to express their deepest gratitude to all individuals and organisations for their invaluable contributions for providing the research facilities and support necessary to conduct this study.

Funding

The authors thank Universiti Kebangsaan Malaysia to support this study under TT-2023-004 Research

Author Contribution

Author1 prepared the literature review and oversaw the article writing. Author2 wrote the methodological framework and conclusions.

Conflict of Interest

The authors declare no conflicts of interest.

References

- Aida, J., Azimah, M. N., Mohd Radzniwan, A. R., Iryani, M. D. T., Ramli, M., & Khairani, O. (2010). Barriers to the utilization of primary care services for mental health problems among adolescents in a secondary school in Malaysia. *Malaysian Family Physician*, 5(1), 31–35.
- Aimran, N., Rambli, A., Afthanorhan, A., Mahmud, A., Sapri, A., & Aireen, A. (2022). Prediction of Malaysian Women Divorce Using. *Malaysian Journal of Computing*, 7(2), 1067–1081. <https://doi.org/10.24191/mjoc.v7i2.17077>
- Amran, M. S. (2022). Psychosocial risk factors associated with mental health of adolescents amidst the COVID-19 pandemic outbreak. *International Journal of Social Psychiatry*, 68(1), 6–8. <https://doi.org/10.1177/0020764020971008>
- Batista, M., & Pestun, M. S. V. (2019). The RTI Model as a prevention strategy for learning disorder. *Psicologia Escolar e Educacional*, 23(2), 1–8. <https://doi.org/10.1590/2175-35392019015929>
- Bersia, M., Charrier, L., Berchiolla, P., Cosma, A., Comoretto, R. I., & Dalmaso, P. (2022). The Mental Well-Being of Italian Adolescents in the Last Decade through the Lens of the Dual Factor Model. *Children*, 9(12), 1–9. <https://doi.org/10.3390/children9121981>
- Budoya, C., Kissake, M. M., & Mtebe, J. S. (2019). Instructional design enabled Agile Method using ADDIE Model and Feature Driven Development method. *International Journal of Education and Development Using Information and Communication Technology*, 15(1), 35–54.
- Cadorin, L., Bagnasco, A., Tolotti, A., Pagnucci, N., & Sasso, L. (2017). Developing an instrument to measure emotional behaviour abilities of Meaningful Learning through the Delphi technique. *The Journal of Advanced Nursing*, 73(9), 2208–2218. <https://doi.org/10.1111/ijlh.12426>
- Chan, T. W. Y., & Gan, C. H. (2022). *Art-based Interventions to Improve Mental Health and Well-Being of Adolescents : A Scoping Review*. 6(2), 8–18.

- Che Mansor, N. S., & Rosly, N. S. (2024). A Study on the Relationship Between Game-Based Learning and Secondary School Students' Mathematics Achievement in SMK Kompleks Gong Badak. *Malaysian Journal of Computing (MJOC)*, 9(1), 1776–1788. <https://doi.org/10.24191/mjoc.v9i1.26081>
- Chua, S. N. (2020). The economic cost of mental disorders in Malaysia. *The Lancet Psychiatry*, 7(4), e23. [https://doi.org/10.1016/S2215-0366\(20\)30091-2](https://doi.org/10.1016/S2215-0366(20)30091-2)
- Cohen, L., Manion, L., & Morrison, K. (2007). Research Methods in Education. In 6th (Ed.), *Education* (Vol. 55, Issue 4). Routledge. https://doi.org/10.1111/j.1467-8527.2007.00388_4.x
- Creswell, J. W., & Guetterman, T. C. (2019). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*. Pearson Education
- Fadlil, A., & Makkie Perdana Kusuma, N. (2023). Cyber Fraud Profiling with Routine Activity Theory Using Data Mining Techniques. *Malaysian Journal of Computing*, 8(2), 1517–1533. <https://doi.org/10.24191/mjoc.v8i2.23391>
- Heintz, S., & Law, E. L. C. (2018). Digital educational games: Methodologies for evaluating the impact of game type. *ACM Transactions on Computer-Human Interaction*, 25(2). <https://doi.org/10.1145/3177881>
- Idris, I., Hod, R., Nawi, A. M., Mohd Ghazali, Q., & Anuar, N. A. (2019). The relationship between religiosity and mental health problems among adolescents in Malaysia: a qualitative study. *Mental Health, Religion and Culture*, 22(8), 794–804. <https://doi.org/10.1080/13674676.2019.1646234>
- Ismail, A., Ab Rahman, Z., Sheikh Abdullah, S. N. H., Sudin, M. N., Shaari, A. H., & Sarnon @ Kusenin, N. (2018). Relationship Between Personal Empowerment and Self-Identity Development among Adolescents in Malaysia. *Asia-Pacific Journal of Information Technology and Multimedia*, 07(02(02)), 43–51. [https://doi.org/10.17576/apjitm-2018-0702\(02\)-04](https://doi.org/10.17576/apjitm-2018-0702(02)-04)
- Jong, N. B. De, Kip, H., & Kelders, S. M. (2020). Evaluation of the Perceived Persuasiveness Questionnaire: User-Centered Card-Sort Study. *Journal of Medical Internet Research*, 22(10), 1–14. <https://doi.org/10.2196/20404>
- Kamarulzaman, W., & Jodi, K. H. M. (2018). A Review of Mental Illness Among Adolescent in Malaysia. *International Journal of Education, Psychology and Counseling*, 3(20), 72–81. www.ijepc.com
- Khairul Hamimah, M. J., Faridah, C. H., & Zawiyah, H. M. (2019). Remaja Dan Kecelaruhan Mental; Cabaran dan Penyelesaian. *Jurnal Sultan Alauddin Sulaiman Shah, Special Issue*, 229–240.
- Kliewer, S. P., & Saultz, J. (2018). The impact of spirituality. *Healthcare and Spirituality*, 63–83. <https://doi.org/10.1201/9781315379692-4>
- Knowles, G., Gayer-Anderson, C., Blakey, R., Davis, S., Lowis, K., Stanyon, D., Ofori, A., Turner, A., Dorn, L., Beards, S., Pinfold, V., Reininghaus, U., Harding, S., & Morgan, C. (2022). Cohort Profile: Resilience, Ethnicity and AdolesCent mental Health (REACH). *International Journal of Epidemiology*, 51(5), e303–e313. <https://doi.org/10.1093/ije/dyac051>

- Lee, J. E., Goh, M. L., & Yeo, S. F. (2023). Mental health awareness of secondary schools students: Mediating roles of knowledge on mental health, knowledge on professional help, and attitude towards mental health. *Heliyon*, 9(3), e14512. <https://doi.org/10.1016/j.heliyon.2023.e14512>
- Mohamad Sahide, N., Mohd Pauzi, H., & Awang Noh, N. (2022). Isu dan Literasi Kesihatan Mental dalam kalangan Remaja. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(8), e001688. <https://doi.org/10.47405/mjssh.v7i8.1688>
- Moore, S. A., Dowdy, E., Nylund-Gibson, K., & Furlong, M. J. (2019). A latent transition analysis of the longitudinal stability of dual-factor mental health in adolescence. *Journal of School Psychology*, 73, 56–73. <https://doi.org/10.1016/j.jsp.2019.03.003>
- Nik Murni, N. M., Hadina, H., Noor Aireen, I., & Hanita, H. (2015). Awareness Level on Mental Illness Among Secondary School Students in Skudai, Johor. *Psychology and Behavioral Sciences*, 4(5), 181–189. <https://doi.org/10.11648/j.pbs.20150405.12>
- Noordin, I. D., Idris, I. B., Hod, R., Muhammad, N. A., Mohd Yusoff, H., Anuar, N. A., & Mohd Ghazali, Q. (2020). Do parenting style and adolescents' self-esteem contribute to mental health problems among young adolescents in Malaysia? An adolescents' perspective. *IIUM Medical Journal Malaysia*, 19(2), 89–97. <https://doi.org/10.31436/imjm.v19i2.1568>
- Nurzafira, S., Taufik, M., Zaharah Ishak, S., Yusoff, Z. M., Nizar, M., Jaafar, M., & Somenahalli, S. (2023). Methodological Framework in Applying Geographic Information System (Gis) for Parking Spaces Data. *Malaysian Journal of Computing*, 8(2), 1639–1651. <https://doi.org/10.24191/mjoc.v8i2.24075>
- Petersen, K. J., Humphrey, N., & Qualter, P. (2022). Dual-Factor Mental Health from Childhood to Early Adolescence and Associated Factors: A Latent Transition Analysis. *Journal of Youth and Adolescence*, 51(6), 1118–1133. <https://doi.org/10.1007/s10964-021-01550-9>
- Pitt, A., Oprescu, F., Tapia, G., & Gray, M. (2018). An exploratory study of students' weekly stress levels and sources of stress during the semester. *Active Learning in Higher Education*, 19(1), 61–75. <https://doi.org/10.1177/1469787417731194>
- Rosnah S, Hanafiah MS, Hazlina M, Normah CD, N. H. (2016). Effectiveness of a Social Intervention Among Adolescents with Risk Taking Behaviour on Mental Health. *9th IAAH World Congress in Conjunction with 31st MPA Annual Congress*, 1–23.
- Sahril, N., Ahmad, N. A., Idris, I. B., Sooryanarayana, R., & Razak, M. A. A. (2021). Factors associated with mental health problems among Malaysian children: A large population-based study. *Children*, 8(2), 1–12. <https://doi.org/10.3390/children8020119>
- Shaw, S. A., Pillai, V., Assessing, W. K. P., Shaw, S. A., Pillai, V., & Ward, K. P. (2018). *Assessing mental health and service needs among refugees in Malaysia*. 44–52. <https://doi.org/10.1111/ijsw.12313>
- Singh, S., Zaki, R. A., Farid, N. D. N., & Kaur, K. (2022). The Determinants of Mental Health Literacy among Young Adolescents in Malaysia. *International Journal of Environmental Research and Public Health*, 19(6). <https://doi.org/10.3390/ijerph19063242>
- Suhana, M. M. R., & Surat, S. (2023). A Study of Personality Types Towards Students' Mental Health. *International Journal of Academic Research in Progressive Education and Development*, 1(1), 1478–1492. <https://doi.org/10.6007/IJARPED/v12-i1/16446>

- Sumaiyah, M., Vivian Sheereen, R., Lo, I. S. J., Adibah Nabilah, Z., Alif Najmi, A., Nabil Amin, M. Y., Ho, W. S., Ahmad Nabil Khairi, M., Nor Azlin, M. N., Normala, M., Deepashini, H., Nor Azura, A., Asfarina, Z., Ismarulyusda, I., & Devinder Kaur, A. S. (2021). Depression, Anxiety, and Stress Related to Online Distance Learning (ODL) Does Not Influence Academic Performance: Findings From an Online Survey Among Undergraduates in Malaysia. *Asean Journal of Teaching and Learning in Higher Education*, 13(2), 99–112.
- Suzaily, W., & Nurul Sarah, Adib Adham Low, N. Y. (2021). The Effect of Psychosocial Intervention on Adolescents' Mental Health and Quality of Life Post-Earthquake in Indonesia. *21st WPA World Congress of Psychiatry*, 83115.
- Taufik, M. H., Rezali, M. S., Shahein, N. A., Sahril, N., Ying Ying, C., & Ab Wahab, N. 'Ain. (2022). Anxiety and Its Associated Factors among School-going Adolescents in Malaysia. *International Journal of Public Health Research*, 12(02), 1608–1616. <https://doi.org/10.17576/ijphr.1202.2022.03>
- Tobase, L., Helena, H., Peres, C., Almeida, D. M. De, Aparecida, E., Tomazini, S., Ramos, B., & Polastri, T. F. (2017). Instructional design in the development of an online course on Basic Life Support. *Journal of School of Nursing*, 51, 1–8.
- Vaughan, R. S., Edwards, E. J., & MacIntyre, T. E. (2020). Mental Health Measurement in a Post Covid-19 World: Psychometric Properties and Invariance of the DASS-21 in Athletes and Non-athletes. *Frontiers in Psychology*, 11(October). <https://doi.org/10.3389/fpsyg.2020.590559>