

## **An Investigation of Fitness Analysis and Risk Analysis: A Systematic Review**

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### **ABSTRACT**

*Risk analysis consists of three elements which are risk management, risk communication, and risk assessment. The risk occurs in many ways and conditions while exercising mostly in the fitness industry. Therefore, the purpose of this study aims to examine the currently available literature that focuses on risk analysis and fitness facilities in the fitness industry. A comprehensive survey of online data sources (Scopus and Web of Science All Collection), as well as conference proceedings of possibly related papers, were analyzed. The search was limited to research that was published in English and had complete text access. All of these resources were gone through, using key search words and equivalents for fitness facilities, fitness centres with risk analysis, risk management, risk communication and risk assessment. 33 studies were record screened from 94 total number of records after duplicate and only a few studies were accepted for review which is eight theses was selected in qualitative synthesis and seven studies selected in the quantitative synthesis. The data were sort from the two published studies (Scopus and Web of Science). Results found that 15 dissertations and/or theses were submitted to systematic quality analysis. The findings systematically evaluate cross-sectional observation-based studies indicating risk analysis is critical for maintaining the fitness industry's surroundings safe and pristine when participating in any physical activity, particularly at a fitness facility. Analyses suggest that the assumption that risk analysis has a significant influence on the impression of being able to control future accidents. In conclusion, applying the management of risk analysis in fitness facilities is important in the fitness industry.*

**Keywords:** *Risk Analysis, Risk Management, Risk Communication, Preventing Injuries, Fitness Facilities.*

### **INTRODUCTION**

The fitness facilities sector has expanded fast throughout the year by year. For example, the unit of fitness centres in Malaysia was expanded greatly in the last decade due to the rising drastically to remain their health and fitness (Ong & Yap, 2017). The fitness centre and personal fitness club industries are significant on a worldwide platform, and it has evolved into a folk movement, but not one analogous to the earlier 20th-century movements, which were frequently linked to national ideals, but rather a highly personal obsession (Andreasson & Johansson, 2014). Following to the International Health, Racquet

and Sports Club Group (IHRSA) has mentioned that the industry group for the health and fitness club sector, this worldwide “revolution” produced approximate 75.7 billion in revenue in 2012, with over 153,000 health clubs supporting 131.7 million members (IHRSA, 2013). The sports sector is expanding by drawing fresh talent of all ages and groups to participate in a variety of sports and programming. The two primary types of services in the sports sector are spectator sports services and participant sports services. Spectator sports services, for example, professional football tournaments that seek to attract fans for them to socialize and experience the fun as an offer. Participant sports services, on the other hand, such as fitness centre services, offer members with amenities and places that contribute to exercise, physical, social, and emotional benefits (Jae Ko et al., 2008). However, another consideration should take part which is the safety precaution and their risk analysis of the participation once involved in the sector.

Risk analysis is an inherent aspect of quality management and a vital component of good corporate governance practices, which directs and controls organizations (Agrawal, 2017). As mentioned, risk analysis is an evaluation of managing risk. As a fundamental and necessary part of information security management, risk management requires correct evaluation and assessment. Aven (2018) also mentioned that risk analysis is defined as risk assessment, risk recognition, risk communication, risk management, and risk-related legislation in terms of risk of interest to people, public and private sector enterprises, and the community at the city, regional, local, or national levels. Risk analysis, in particular, has piqued the curiosity of many, as evidenced by the fact that risk analysis is frequently utilized as the starting point for information security events. According to Alam (2016), the risk is an unpredictable condition or threat that causes harm or injury that is caused by helplessness and it can be avoided by preventive action. To control the risk, it is essential to first educate the management and fitness trainer on how to provide the best quality of service. The current literature on risk analysis and fitness facilities are considered the review focus of this study. Despite abundant research on fitness facilities and risk analysis, efforts to systematically review these studies are still lacking. This study attempts to fill the gap in understanding the research pattern and trends regarding fitness facilities and risk analysis. In achieving the empirical gaps, variables and domain from this study could provide a new extension of knowledge for future scholarly studies. This review is also crucial as there is a lack of studies globally within the perspective of risk analysis and fitness facilities.

## **METHODOLOGY**

### **Search Strategy**

A systematic review intends to systematically locate, search, and synthesize literature related to previous studies or research in a well-organized and transparent process, using replicable procedures throughout each step. Systematic reviews can also be called Meta-narrative reviews (Wong, Greenhalgh, Westhorp, Buckingham & Pawson, 2013) or mixed studies reviews. This process allows for various and disparate research designs to be reviewed in a single exercise (qualitative and quantitative). These reviews can adopt studies with different designs and concepts (Wong et al. 2013). It is also relevant to the statements of the researchers and supports research accuracy, helps promote the identification of gaps, trends, and needed directions for future studies. The RAMESES method was used to perform the systematic review while selected databases (Scopus and Web of Science) were used as information searching resources (identification and screening process).

### **Realist and Meta-narrative Evidence Syntheses: Evolving Standards (RAMESES)**

The authors decided to adopt a guideline called RAMESES (Realist and Meta-narrative Evidence Syntheses: Evolving Standards), applied by Wong et al. (2013). This method suggests the inclusion of several key points, such as abstract, introduction, methods, results, and discussion sections, with details that should be included in each section (review process, search process, and document

selection). RAMESES suits systematic reviews of literature in social sciences because 1) it clearly defines the research questions, 2) enables the identification of criteria (inclusion and exclusion), and 3) attempts to examine the main databases of scientific literature within a specific time.

## Resources

Two leading indexed databases were used for this review, Scopus, and Web of Science (WoS). Both databases are deemed as the leading indexing systems for citations. WoS is a scientific citation indexing service that can only be accessed through institutional subscription-based services and provides a comprehensive citation search function while Scopus consists of varied subject areas and document types such as scientific journals, books, and conference proceedings. Scopus features smart tools to track, analyze, and visualize research. Because of its notoriety, these two indexed databases are chosen, which is vital to ensure the quality of the articles reviewed in this paper.

## The Review Process

*Systematic review process (Identification):* The first phase in the systematic review process is identification, performed in May 2021. The process involved keywords identification for information searching purposes. Relying on several relevant information sources such as encyclopedias, dictionaries, thesauri, keywords from previous literature and keywords suggested by Scopus for keyword synonyms, possible related terms, and other variations to the term rural library were used (see Table 1). This process yielded a result of 63 documents from Scopus and 64 documents from Web of Science (WOS) databases were retrieved (see Table 1).

*Screening process (Inclusion and exclusion):* Screening is a process to include or exclude articles according to criteria determined by the authors with the assistance of specific databases. In the screening process, eligibility, inclusion, and exclusion criterion were determined to find suitable articles to be included in the systematic review process. Concerning the timeline, the studies between 2015-2020 were selected. The second inclusion criteria were the document types, the authors decided to select the article journal with empirical data, other types of documents such as review articles, books, chapters in books, and conference proceedings were excluded because they were not considered as primary sources. The third inclusion criteria were language, all the non-English language documents were excluded (see Table 2)

*Eligibility and duplication exclusion:* Eligibility is a process that includes or excludes articles manually according to the authors' specific criteria. The articles retrieved were thoroughly reviewed in the process, excluding any articles that did not meet the criteria. Before the eligibility process was carried out, duplicated documents were removed first. A total of 31 articles were traced as duplicated articles and were excluded which left 94 documents for the eligibility process and were screened manually for literature focusing on fitness facilities and risk analysis concerning the criteria from the earlier screening processes (inclusion and exclusion criteria).

*Data extraction process:* The data were conducted independently by one researcher. Extracted data related to the study's nation and location, sample size, fitness centre description, facility construction or refurbishment dates, assessment tools, and facility evaluators. Data from numerous papers on the same topic were retrieved and integrated independently from each published source. A second researcher fully investigated the data extraction in ten per cent of the listed publications.

*Data analysis:* We used descriptive statistics to examine the data. We calculated the mean average percentage per research area of usability to account for varied sample sizes across studies/theses (e.g., facilities, locker room, restrooms).

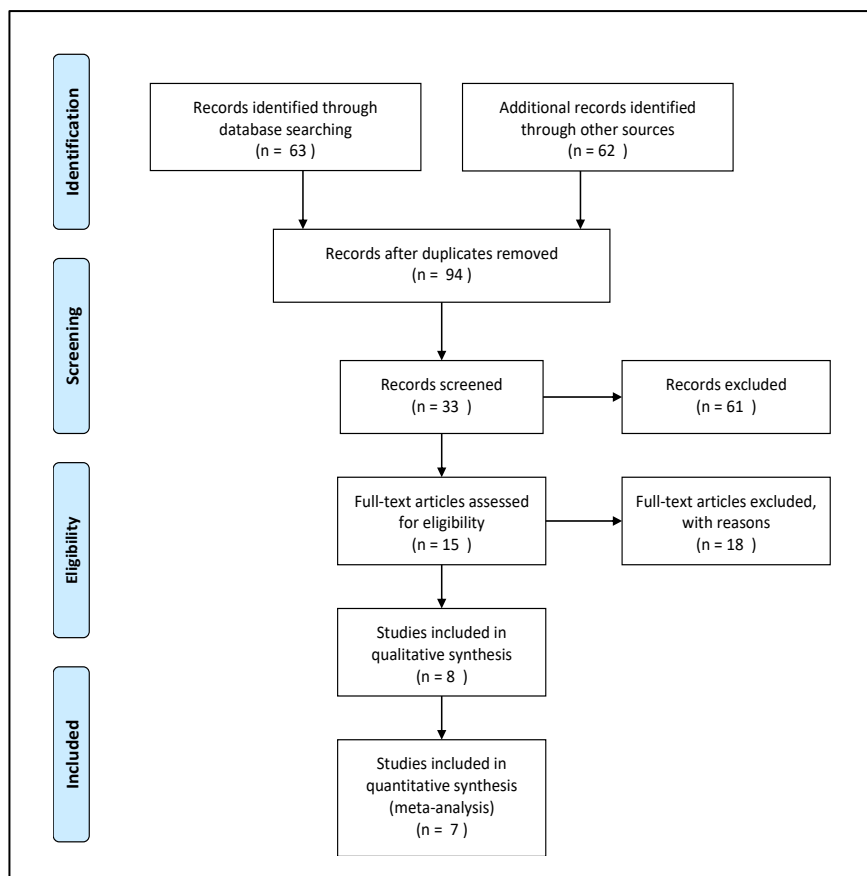
*Methodological quality:* Each study was evaluated by using a systematic review model by Shaffril, Abu Samah, Samsudin and Ali (2019). This systematic review model will comprehensively locate, search, and synthesize literature related to previous studies or research in a well-organized and transparent process, using replicable procedures throughout each step (Shaffril et al., 2019).

**Table 1: Keywords and Search Strings**

Databases	Keywords used
Scopus	TITLE-ABS-KEY ( ( "fitness facilit*" OR "fitness amenit*" OR "fitness servic*" OR "fitness cente*" OR "fitness clu*" OR "fitness gymnasium*" OR "fitness accomodatio*" OR "fitness convenien*" OR "fitness spac*" OR "fitness roo*" OR "fitness accessbilit*" ) AND ( "risk analysis" OR "risk assessment" OR "risk evaluation" ) )
Web of Science	TS= ( ( "fitness facilit*" OR "fitness amenit*" OR "fitness servic*" OR "fitness cente*" OR "fitness clu*" OR "fitness gymnasium*" OR "fitness accomodatio*" OR "fitness convenien*" OR "fitness spac*" OR "fitness roo*" OR "fitness accessbilit*" ) AND ( "risk analysis" OR "risk assessment" OR "risk evaluation" ) )

**Table 2: The Inclusion and Exclusion Criteria**

Criteria	Inclusion	Exclusion
Timeline	Between 2015-2020	<2015
Document Type	Article Journals	Review articles, books, chapters in books, conference proceedings
Language	English	Non-English



**Figure 1: PRISMA flow diagram of the study selection process (Adapted from Shaffril et al., 2019)**

## RESULTS

These are the only journals that met the criteria that this research focused on. Only 33 studies were record screened from 94 total numbers of records after being duplicated and only a few studies were accepted for review as eight theses were selected in qualitative synthesis and seven studies were selected in the quantitative synthesis. We sorted out the data from the two published studies (Scopus and Web of Science). As a result, a total of 15 studies and/or theses were addressed to review the quality evaluation. (Please refer to Table 3).

**Table 3: Demographics of Includes Studies**

NO.	AUTHORS, PUB YEAR	NUMBER OF PARTICIPANTS, PARTICIPANTS	STUDY DESIGN	OUTCOME/CONCLUSION	INCLUSION REASON(S), PUB YEAR, PUB TYPE, LANGUAGE, STUDY DESIGN
1.	Inbal Druker and Anat Gesser-Edelsburg 2017 Identifying and assessing views among Physically active adult gym members on dietary supplements	(n = 34) interviews with a diverse group of adult clubs and (n = 20) members who use food supplements, and (n = 14) interviews with nutritionists and personal trainers.	Semi-structured face-to-face interviewing was applied to a constructed qualitative study.	There is a difference in risk perception of food supplements usage among nutritionists, gym customers, and personal trainers. Consumers of nutritional supplements had a low-risk perception. Trainers thought that the advantages of supplement usage outweighed the risks, thus they did not send a danger warning to their customers. Dietitians consulted for this study, on the other hand, strongly opposed the use of sports nutritional supplements in general and questioned whether trainers have the necessary nutritional understanding to justify it. The lack of risk perception shows that there is a need for communication on this topic. We advocate for the presence of specialists (health professionals and nutritionists) in sports clubs that offer such substances in an unregulated manner.	2017, research journal, English, identifying and assessing gym members.
2.	Lionel Fontan, Marie Fraval, Anne Michon, Sébastien Déjean, and Muriel Welby-Gieusse, Toulouse, France 2017 Vocal Problems in Sports and Fitness Instructors: A Study of Prevalence, Risk Factors, and Need for Prevention in France	(n = 267) through an online and (n = 53) paper version.	A cross-sectional investigation was conducted. The questionnaire included 31 questions on self-reported voiced issues, potential risk factors, and personalized health background, followed by the Voice Handicap Index evaluation.	The proportion of self-reported voice problems is 55%. The Voice Handicap Index is highly connected to age, gender, and workplace (noise and music) and behavior factors (yelling, frequent sessions), and also average sleeping time. The findings also showed that a few of SFIs (37%) gathered reports about voice issues, while the most (80%) expressed an interest in engaging in preventative initiatives. This study indicates that SFIs are an increased demographic for VD, highlights the necessity for particular training courses in France, and offers essential statistics to drive such preventative activities.	2017, research journal, English, a risk factor in sport fitness.
3.	Astrid Müller, Sabine Loeber, Johanna Söchtig, Bert Te Wildt and Martina De Zwaan 2015	A total of 128 fitness facility customers were sampled. Inclusion requirements included	128 people with 71.7 % men, 74.2 % universities and age mean = 26.5, standard deviation = 6.7 years had completed the	7.8 % of the group is in danger for EXD, 10.9 % had eating disorder pathology, 2.3 % had pathological purchasing, 3.1 % had hypersexual conduct, and none had abnormal video	2015, article journal, English, risk factors in fitness centers.

NO.	AUTHORS, PUB YEAR	NUMBER OF PARTICIPANTS, PARTICIPANTS	STUDY DESIGN	OUTCOME/CONCLUSION	INCLUSION REASON(S), PUB YEAR, PUB TYPE, LANGUAGE, STUDY DESIGN
	Risk for exercise dependence, eating disorder pathology, alcohol use disorder and addictive behaviors among clients of fitness centers	being at least 18 years old and doing one hour of exercise every week. Exclusion grounds included a lack of competent German.	following survey questions: Exercise Dependence Scale, Examination Questionnaire, Hypersexual Behavior Inventory, Eating Disorder Compulsive Buying Scale, Alcohol Use Disorders Identification Test (AUDIT) and Pathological Computer-Gaming Scale.	gaming. The criteria for serious alcohol disorder pathology (AUDIT 16) were met by 10.2 % of the respondents. EXD symptoms with eating disorder pathology and compulsive purchasing were strongly connected, but not for pathological video gaming, hypersexuality, or alcohol use problem in terms of continuous symptom ratings. It is worth noting that greater symptoms of pathological purchasing were associated with the greater sign of sexual addict conduct. The gender was not the pattern of correlation.	
4.	Jairo León-Quismondo, Jorge García-Unanue and Pablo Burillo 2020 Best Practices for Fitness Center Business Sustainability: A Qualitative Vision	The sample consisted of 23 fitness facilities ranging in age from 22 to 50 years old, with an average of 10 years of experience.	Semi-structured interviews were used to conduct qualitative research using a cross-sectional technique. A literature study was conducted, as well as a preliminary draft of the interview, which included 18 questions on fitness facility type, personality, and management.	In Spain, a qualitative methodology was used to conduct 23 semi-structured interviews with fitness centre administrators, spanning private centres with a variety of business models (7 low-cost, 13 mid-market, and 3 premium). The management was questioned about their background, the type of the fitness facility, management actions, and individual thoughts.	2020, article journal, English, fitness center.
5.	Ewa Kruszyńska and Joanna Począta 2020 Difficulties Limiting Access to Sports and Recreational Facilities in the City in the Perceptions of Service Users. Sports and Recreational Infrastructure Management Policy - Poznań Case Study	The survey of 1159 service receivers was conducted in indoor swimming pools (12 facilities, 360 responders), indoor tennis courts (16 facilities, 480 responders), and fitness clubs (11 facilities, 319 responders) in Poznań.	The identity questionnaires were issued to service receivers (Poznań citizens who use the services provided at the evaluated sports and leisure facilities) and verified six months before the current survey at chosen Poznań sports facilities.	The survey sent to service beneficiaries contained ideas for obstacles that might impede their access to sports and leisure facilities in Poznań. When a team of rank amateurs and professional athletes evaluated the availability of sports and leisure facilities, identical results were observed in the groups of beneficiaries. Despite relatively modest chance values of 9.3 % for mean value and 13.4 % for variance, the allocates of the variables studied do not measure position, variability, and interpretations of distribution shape differ. Mean and variance equal tests validate this.	2020, article journal, English, sports facilities and management.
6.	Dorokhova liudmyla, Dorokhova Oleksandr, Hutorov Andrii and Sirenko Olena 2020 Consumer Behavior Modeling for Fitness Services Evaluation	139 institutions with different sizes, levels, range of services, conditions for visitors in Kharkiv that provide an opportunity to engage various types of fitness and health-improving physical procedures.	In Kharkiv, surveys of the youth fitness customer category were done. Use fuzzy logic as modeling methodology and Fuzzy ToolBox was chosen as an instrument for the implementation of the model for multi-criteria evaluation.	Consequently, the quantitative estimates for the fitness center in Kharkiv were confirmed. The established concept can be extended to tasks of multi-criteria prediction of equal services offered to the community in various categories such as rehabilitation gymnastics, spa, health-improving sports activities, outdoor activities, amateur sport, water procedures, mass physical training, health-improving, and others.	2020, article journal, English, sports facilities evaluation.

NO.	AUTHORS, PUB YEAR	NUMBER OF PARTICIPANTS, PARTICIPANTS	STUDY DESIGN	OUTCOME/CONCLUSION	INCLUSION REASON(S), PUB YEAR, PUB TYPE, LANGUAGE, STUDY DESIGN
7.	Liv Riseth, Torunn Hatlen Nost, Tom L. Nilsen, and Aslak Steinsbekk 2019 Long-term members' use of fitness centers: A qualitative study	21 semi-structured personal interviews were conducted with adult regular fitness centre users in a city in Central Norway at Trondheim, with a population of around 190,000 people.	Participants in this qualitative study had been consistent fitness club customers for further than two years and their expectations while using a fitness facility as well as what they planned to achieve with their membership. The systematic sentence shortening methodology was used to examine the data systematically.	The findings were divided into three major themes: "health advantages and physical appearance," "accessibility, safety, and convenience of usage," and "variation, versatility, and encouragement." The fitness centre was largely rated as easily accessible and a pleasant place to work out. When compared to outdoor exercise, numerous female participants mentioned a sense of safety. Activity variety, making pledges, and receiving support from staff and other members were all factors that led to physical activity at the fitness centre. Permanent members mostly used the workout facilities to attain targeted health benefits and to increase physical beauty. The fitness centre was picked for its convenience and ability to adhere to specific training hours and activities.	2019, research article, English, fitness center.
8.	Badr A. Fallatah, Hong Seok Pyo, Basim N. Alsaleh 2019 Recreational physical activity participation among women in Saudi Arabia	Saudi Arabian women (n = 161: ages 17–44) took part.	The analysis concluded that examining the fitness surroundings in the fitness centre, including layout, flooring, and staff, as well as intangibles such as social contact and gym experience, may favorably affect participants' motivation and increase the number of fitness clubs.	Females' inclination to return to the gym may be influenced positively by motivational factors. SPSS revealed that actual fitness features were not significant, however social aspects strongly influenced willingness to visit female centres (P < 0.001). On the other hand, motivation has a considerable impact on readiness to return to the centre (P < 0.001).	2019, article journal, English, women physical activity participation.
9.	David J. Blok, Frank J. van Lenthe and Sake J. de Vlas 2018 The impact of individual and environmental interventions on income inequalities in sports participation: Explorations with an agent-based model	Data collected from Statistics of Netherlands were mapped using GIS and translated into matrix format with measuring 10 m X 10 m in 8 residential areas in Eindhoven.	Qualitative sports participation is assessed by a person's tendency to starting sports (at a gym, fitness club, or personality), which is affected by personal characteristics (e.g., gender, age, salary), sports amenities (e.g., cost, availability), and community factors (i.e., social power and social cohesiveness).	Results showed that strengthening safety standards can increase sports participation while only marginally decreasing income distribution differences in sports participation and offering health information, extending the accessibility of sports facilities, and lowering facility rates. If the effect and reach are large enough, health education can yield the most benefit. Environmental actions have a limited impact on their own. Only after five to ten years can noticeable impacts occur. Our research highlights the challenges of ABM development and identifies data shortages by showing significant promise for assessing the population-level effects of different treatments in the setting of a system.	2018, article journal, English, sports participation.
10.	Katie M. Heinrich, Christopher K. Haddock, Natinee Jitnarin, Joseph Hughey, LaVerne A. Berkel and Walker S. C. Poston	The female participant (69.9%), married (51.7%), Caucasian (65.6%), and college education	Population surveys were gathered as prevalence studies in a major capital area and asked about free time physical exercise, frequent fitness facility	41.0 % of individuals fulfilled leisure-time physical activity guidelines, and 50.9 % used a fitness facility on a common basis. Meeting walk (p = 0.036), moderate (p < 0.001), and vigorous (p < 0.001) guidelines was related with regular facility usage.	2017, article journal, English, perception of physical activity.

NO.	AUTHORS, PUB YEAR	NUMBER OF PARTICIPANTS, PARTICIPANTS	STUDY DESIGN	OUTCOME/CONCLUSION	INCLUSION REASON(S), PUB YEAR, PUB TYPE, LANGUAGE, STUDY DESIGN
	2017 Perceptions of important characteristics of Physical activity Facilities: implications for engagement in Walking, Moderate and Vigorous Physical activity	(72.8%). with a total of participants N = 582: ages 18–74, mean age = 45 ± 14.7 years)	utilization, and importance ratings for key facility types.	Intense exercisers are much eager using fitness centre (p = 0.006) and appreciated facilities condition (p = 0.022), the variety of available physical exercise options (p = 0.003), and the identification of various equipment and personnel (p = 0.01). Insights on how to structure intervention using the social ecology model, as well as how to improve current physical activity facilities.	
11.	Rochelle M. Eime, Jack Harvey, Melanie J. Charity, Meghan Casey, Hans Westerbeek, Warren R. Payne 2017 The relationship of sport participation to the provision of sports facilities and socioeconomic status: A geographical analysis	In 2012, a total sample size of 488,693 includes the number of participants in these sports varied from 78,656 to 198,255,	Identification membership registration data were collected from state sport governing organizations for four prominent team sports members. To evaluate the relationships between participation rate, facility provision rate, and SES, correlation and regression approaches were used.	SES and geographical effects were confounded since the supply of amenities were positively correlated with the participation rate. The non-area had higher levels of engagement and a larger supply of facilities than the capital area. the metropolitan region. Adequate sports facility supply is often connected with higher sports participation, although socioeconomic status and area are important determinants.	2017, health promotion journal, English, the relationship of sport participation and sports facilities.
12.	Haichun Sun A, Cheryl A. Vamos Sara S.B. Flory, Rita Debate, Erika L. Thompson Jennifer Bleck 2017 Correlates of long-term physical activity adherence in women	The research included The National Longitudinal Study of Adolescent to Adult Health (Add Health) female data from Waves I, III, and IV (n = 5381)	A structured research design was used to enroll 80 secondary schools that reflected schools in the United States in terms of region, socioeconomic conditions, population, category (e.g., postcode, publicly or privately school), ethnicity, and levels of physical activity.	According to the findings, future research should focus on therapies (such as PE programmes or community programs) that may improve lifetime physical activity in women, to decrease death rates, and physically active teens were more highly possible in becoming healthy and active individuals. Adolescent physical activity levels strongly predicted physical activity adherence (aOR = 1.67, 95% CI: 1.35–2.05). Furthermore, intending to lose weight (aOR = 1.49, 95 per cent CI: 1.20–1.85), utilising a neighbourhood fitness centre (aOR = 1.29, 95 per cent CI: 1.05–1.58), and having 5 days of PE per week (aOR = 1.48, 95 per cent CI: 1.09–2.02) were significant predictors. Women who did not believe themselves to be physically fit (aOR = 0.65, 95% CI: 0.44–0.95).	2017, article journal, English, physical activity.
13.	James H. Rimmer, PhD, Sangeetha Padalabalanarayanan, MS, Laurie A. Malone, PhD, Tapan Mehta 2017 Fitness facilities still lack accessibility for people with disabilities	Trained assessors evaluated a sample of 227 fitness establishments across ten states.	AIMFREE section evaluations were used non-parametric tests to determine by geographical area (urban and rural), company group (profit and non-profit), facility connection (physical exercise, recreational park, healthcare facility, institute), and facility building assignation (before/after the Americans with Disabilities Act, or ADA).	Scale score (11/13) were low (70), with variations noted by facility affiliation. While facilities constructed after the ADA's enactment earned greater accessibility ratings than pre-ADA facilities, only programmes and water fountains received scaled scores of 70 regardless of facility construction date. Conclusions: There is a significant and pressing need to encourage fitness facility owners and operators to improve accessibility. Many persons with toxicity challenges will continue to have restricted access to the activities, facilities, and services provided by these organizations until that time.	2017, research paper, English, fitness facilities.



NO.	AUTHORS, PUB YEAR	NUMBER OF PARTICIPANTS, PARTICIPANTS	STUDY DESIGN	OUTCOME/CONCLUSION	INCLUSION REASON(S), PUB YEAR, PUB TYPE, LANGUAGE, STUDY DESIGN
14.	Majed F. Mujalli, Maen Z. Zakarneh & Ala'a Kh. Abu Aloyoun 2016 Common Sports Injuries among Physical Activities Practitioners at the Physical Fitness Centers in Jordan (Comparative Study)	The study sample included (272) voluntary male (n=221) and female (n=51) (Age 303) participants.	A special form that is used to assess sporting injuries. Following the collection and analysis of data.	The most prevalent sports injuries among the study's sample were muscular tears (26.7%), muscle spasms (20.7%), and ligament tears (20.2%). And the most vulnerable areas of the body to injury are the lumbar area (26.8 %), elbows (16.9 %), and shoulders (8.9 per cent). The study's findings found that the most common cause of injuries was overtraining (24.14 %). Poor warm-up (22.1%) and poor technique (11.3%). With 18.8 %, bodybuilding was the most dangerous sort of activity. Physical fitness is worth 6.6 %, while weight loss is worth 27.7 %. Physical treatment was the most commonly used method of treating injuries (54.14 %), followed by pharmacological therapy (33.3 %), and surgical intervention (4.2 %). According to the study, males are more vulnerable to injuries than females. Conclusions: These results suggest that sports injuries are a part of physical activity participation; precautions should be taken by participants, and the researchers recommended that physical and medical checkups be performed at physical fitness centres before participation in physical activity.	2016. article journal, English, injuries in the fitness center.
15.	Behzad Foroughi, Mohammad Iranmanesh Hassan F. Gholipour, and Sunghyup Sean Hyun. 2019 Examining relationships among process quality, outcome quality, delight, satisfaction and behavioural intentions in fitness centres in Malaysia	Malaysia has 379 fitness centre members.	This study's questionnaire had six sections that addressed process quality, outcome quality, customer joy, satisfaction, behavioural intentions, and respondents' demographic information. The participants in this study are members of Malaysian fitness clubs. The study's sample population consists of members from three prominent fitness centres in Kuala Lumpur, Malaysia.	According to the findings, the quality of the procedure and the output had a significant influence on the customers' delight and contentment. Customer joy also affected customer satisfaction and behavioural intentions. Implications for practice The study's findings will assist fitness centre managers in understanding the relevance of result quality and joy, as well as process quality and satisfaction, in influencing members' behavioural intentions, allowing them to differentiate their service from that of their consumers. The quality of the process and the results were shown to have a favorable association with both satisfaction and enjoyment.	2019, article journal, English, quality and satisfaction in the fitness center.

## DISCUSSION

This study aims to conduct a comprehensive overview of cross-sectional observational studies that examined fitness facilities and risk analysis. Risk analysis is essential for keeping the fitness industry's surroundings safe and in pristine condition when participating in any physical activity, particularly at a fitness centre. Several researchers support the assumption that risk analysis has a significant influence on their impression of being able to control future accidents. Risk analysis may also help to prevent the impact of negative outcomes in the future. Based on Table 3, all the findings showed at least three similar factors in influencing risk factors at a fitness facility and these include the trainers, customers, and equipment. The results in Table 3 show that all these three factors were connected. From the table, a study by Druker and Edelsburg (2017), found that risk communication can be included in manipulating the risk perception of the customer at a fitness facility, especially while doing exercises. This shows that risk communication should be given more focus to be studied in improving the risk analysis factors at a fitness facility. Another study by Quismondo, Unanue and Burillo (2020), stated that the management personal background, the type of the fitness facility, management actions, and individual thought were studied in improving the risk control in fitness facilities focusing on the customers. This includes the evaluation of the availability of sports and leisure facilities, identical results were observed in the groups of beneficiaries (Kruszyńska & Poczta, 2020). These findings were important as they can be used in identifying the customers' satisfaction and awareness on the fitness facilities built and as well as the trainers and staff prepared for them.

The findings from Riseth, Nost, Nilsen, and Steinsbekk (2019), show that there were major themes that can focus on fitness facilities, which include "health advantages and physical appearance", "accessibility, safety, and convenience of usage", and "variation, versatility, and encouragement". The study also found that the customers agree that the fitness centre that includes all the major themes was rated as easily accessible and a pleasant place to work out. This study proved that the customers were concerned about the fitness facilities availability and accessibility as well as the safety and safety precaution prepared for them. The findings of the study will help fitness club employees understand the importance of the performance of service and enjoyment, as well as processes impact on customer satisfaction, in influencing customers' purchase intention, allowing them to identify the offering from their clients (Behzad et al., 2019). The quality of the process and the results were found to have a favorable association with both pleasure and satisfaction. As a result, Rae, McDermid, and Alexander, (2012) discovered the significance of risk assessment methodologies and management decisions that are centred on them. This indicated that every fitness facility should do a risk assessment and consider it. Staff and trainers can also indicate potential hazards and direct actions or give solutions. As a result, the exercise equipment ensures its users are safe.

Injuries might occur if risk analysis is not practiced in the fitness facilities. Sports injuries are a component of physical activity participation. Thus, preventative measures should be performed by participants. The researchers recommended that individuals undergo a physical and a medical evaluation before engaging in physical activity at fitness centres (Mujalli et al., 2016). Basic sports injuries are highly encouraged to every sports trainee that takes part in sports association to improve their knowledge and applied to their client. Such as warming up which is regarded as the most important sport component for any sport training time, it serves as the foundation for any athlete before participating in any sports activity or competition (Alanazi, 2016).

Other fitness facilities that are available to the public include wellbeing sports activities, outdoor activities, amateur sports, spa, water treatments, rehabilitation gymnastics, massive physical training, health-improving, and other services. Other elements influencing the quality of the offer include cost, promotion, and the aspects of the recreational programming (services) given by fitness centres (Maksimović et al., 2017).

## CONCLUSION

To sum up, it has been discussed that physical exercise can cause injury if not applied to the management of risk analysis in the fitness facilities either in real life. To keep the safety of people, the management team should take all risks as important parts and precautions to avoid hazards and dangers in the fitness industry. Thereby, welcoming people to participate in the fitness industry is the main key in inspiring and motivating others. Analysis of the survey data acquired in this study reveals that risk analysis is performed and it is under control in the fitness business. It is also showed that knowledge about risk analysis is essential, although there is still a deficiency. Future studies may replicate several studies and conduct them as empirical for item risk identified. A fitness centre would be the best place to participate in any physical activity without any limitation. Thus, the findings also help fitness industry to learn more and gain knowledge about risk analysis by improving their skills and methods in approaching their clients and take serious measures towards any outcoming hazards when it occurs.

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