European Journal of Physical Education and Sport Science
ISSN: 2501 - 1235
ISSN-L: 2501 - 1235
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejpe.v12i6.6049 Volume 12 | Issue 6 | 2025

# DEVELOPMENT AND VALIDATION OF A MULTI-EXERCISE DESIGN (MXD) COMMITMENT SCALE: AN EXPLORATORY SEQUENTIAL DESIGN

**Wilfredo M. Atayan[1i], Porferia S. Poralan[2]**
[1]Sultan Kudarat State University, Sultan Kudarat, Philippines
[2]University of the Immaculate Conception, Davao City, Philippines

**Abstract:**
The study aimed to develop a context-specific scale to measure the fitness enthusiasts' commitment to exercise in regions XI and XII using a multi-exercise design (MXD) fitness program. The study employed a mixed-methods approach, specifically the exploratory sequential design. In the qualitative phase, seven themes emerged: having physiological satisfaction, experiencing psychological satisfaction, acknowledging gained benefits, maintaining health conditions, creating impressions about MXD fitness exercise, improving social engagement, and achieving social support. Exploratory factor analysis (EFA) was used to code and analyze the participants' answers to the checklist, with 55 items were encoded and analyzed using EFA. This analysis revealed five key dimensions: social modeling, expected outcomes, self-efficacy, physiological satisfaction, and health outcomes. This structure was a better-fitting, more parsimonious model using confirmatory factor analysis (CFA) and other test indices. A CFA was done on the 50-item tool to ensure it had the correct final dimensions, the items were correctly assigned to their factors, and the factor models were a good fit. Finally, we conducted reliability tests to verify the validity of the results related to the respondents' commitment to the MXD fitness program. Data also revealed no significant difference when grouped based on age, sex, weight, and status. Further, quantitative data results confirm qualitative data results.

**Keywords:** commitment to exercise, multi-exercise design (MXD) fitness program, exploratory sequential, mixed methods, Philippines

[i] Correspondence: email watayan_220000000062@uic.edu.ph, wilfredoatayan@sksu.edu.ph

 

## 1. Introduction

Commitment to exercise is a psychological process that results in consistent engagement in an exercise program. This commitment to exercise has been found to benefit an individual's physiological, emotional, and psychosocial aspects regardless of age and gender. Hence, exercise instructors must create a pleasant environment during exercise sessions for participants to continue engaging in an exercise routine and commit to exercising regularly. However, a significant limitation is the absence of a valid and reliable scale for measuring how mixed fitness programs can aid adults in committing to regular exercise as part of their daily routines. According to Williams (2013), 90 percent of exercise programs have not gone through valid, reliable measures of commitment.

The low commitment to exercise among adults is a serious worldwide concern, already recognized as a public health concern. (Stratas *et al.*, 2022). Only about 20% of adults in America meet the recommended physical activity level (Lachman *et al.*, 2018). Similarly, 29.6 percent of Malaysian adults showed low exercise commitment, a higher percentage than in countries such as China, India, and Hong Kong. (Nik-Nasir *et al.*, 2022). The World Health Organization also reported low commitment to exercise in Middle Eastern countries, with only 31 percent of the population meeting the recommended physical activity level (Nik-Nasir *et al.*, 2022).

Meanwhile, 61 percent of middle-income Filipinos in the Philippines do not commit to exercise, the highest percentage reported among Asian countries (Cagas *et al.*, 2022). With its 108 million population, 40 percent of adults manifested a low level of commitment to exercise, resulting in a high risk of non-communicable diseases (WHO, 2022). Filipino children and adolescents were also reported to be in an alarming state of insufficient physical activity, indicative of a lack of commitment to physical activity or exercise (Guthold *et al.*, 2020).

The discussion above speaks about the manifestations of the low level of exercise commitment globally. Exercise commitment strongly indicates adherence and persistence (Guthold *et al.*, 2020), an essential aspect of maintaining positive exercise behavior. Researchers have examined exercise commitment scales using various contexts and populations. To cite a few: The Commitment to Physical Activity Scale (CPAS) by De Bate *et al.* (2009) was limited only to adolescents. The Exercise Commitment Scale (ECS) by Boyst (2009) was made for athletes; the Commitment to Exercise Scale (CES) by Davis *et al.* (1993) was made for women and measured how exercise affected their sense of well-being; the Exercise Commitment Checklist revised by Chen *et al.* (2022) was made to find out how exercise affected teens' feelings; and the Commitment to Exercise Scale (CES) is a collection of all the tests that measure psychological commitment to exercise.

Despite these existing measures, there is a need for a comprehensive and validated scale to assess exercise commitment among the general adult population. The current scales have limitations in their scope and target population.

The commitment to exercise scales mentioned above were conducted using different populations and contexts, and none were found to measure commitment to

exercise scales among adults. The low level of exercise commitment in the Philippines has been a persistent concern. This concern prompted the researcher to explore and investigate the factors involved in commitment to exercise, mainly focusing on the experiences of Multi-exercise Design (MXD) Fitness participants.

This exercise program allows participants to experience different exercise routines to ensure the body's physiological transformation lasts an hour per session. Since the conception of the MXD Fitness exercise, there have been no measures to explain why participants continue participating. So, the study aims to fill the gap by creating and testing a multi-exercise design commitment scale with a sequential explanatory design.

This investigation's output will help determine what keeps adults committed to exercise. It also allows future researchers to measure commitment to exercise across several populations or contexts. By measuring exercise commitment at the individual level, the scale may help identify specific barriers to exercise. It can also help in tracking commitments to exercise over time. It can also help predict exercise behavior, especially when adults are almost always confined to their seats (Robbins *et al.*, 2017). To better match the participants' readiness and motivation for exercise, this study's exercise commitment scale can be changed to fit their exercise plan (Derakhshanpoor *et al.*, 2016). This MXD fitness program approach has yet to be verified for the effectiveness of its implementation, which is why the researcher intends to create a tool to measure the participants' commitment. The proposed scale will provide a comprehensive tool for exercise professionals to assess and enhance commitment to exercise among adults, ultimately promoting a healthier and more active lifestyle.

## 2. Literature Review

### 2.1 Aerobic Exercise

Aerobic exercises have always been recommended since it is believed that they help manage insulin resistance while, at the same time, controlling body weight (Pescatello *et al.*, 2015). Aerobic exercises are also essential in managing cardiovascular risk factors through increased blood flow and muscle capitalization. Patients are always advised to participate in more than 30 minutes of daily aerobic exercise while not going for more than two days without exercise (Blair *et al.*, 2014). Regular aerobic exercise has shown significant improvements in managing various health conditions. Studies indicate that over 80% of the general population does not meet physical activity guidelines for aerobic exercise and strengthening activities (Fahey *et al.*, 2018).

### 2.2 Resistance Training (RT)

Aerobic and resistance exercises have been used in recent studies to see if they have any extra benefits. These studies have seen a three mmHg drop in blood pressure (Corso *et al.*, 2016). There is a similar drop in blood pressure between aerobic and resistance training. However, aerobic and resistance exercises each benefit from lowering the risk of cardiovascular disease. Aerobic exercise generally improves cardiorespiratory fitness

and cardiometabolic variables more than resistance exercise. Resistance exercise, on the other hand, mostly improves muscle strength and has positive effects on body composition, such as bone density and muscle mass.

### 2.3 Fitness Satisfaction in Life

There are positive relationships between physical activity and life satisfaction. Maher *et al.* (2015) found a positive relationship between physical activity and life satisfaction, while Zhang (2019) found a similar relationship with happiness. An extensive survey in 24 countries showed that 18- to 30-year-old adults with moderate or high physical activity had higher life satisfaction, happiness, and better-perceived health (Pengpid, 2019). A positive relationship between physical activity and life satisfaction was also found in older adults (Vaz, 2019).

The study also indicated that adults who performed more physical activity had higher life satisfaction, and the effect of physical activity was more potent in older adults than in young adults (Hsin *et al.*, 2019). The adoption of an active lifestyle not only depends on individual behaviors and choices but also on the interaction between individuals, the environment, and public policies (Andrade *et al.*, 2018).

### 2.4 Group exercise/sport

One of the potential benefits of group exercise/sport is social cohesion; research predominantly supports this idea, as described above. Research in 2021 suggests that one in 10 adults is socially isolated, with isolation increasing with age. Higher prevalence has been found in men, while people from a lower socio-demographic background were also more at risk (Rohr *et al.*, 2021). The finding has numerous implications; one particular implication is that those who are socially isolated are at an increased risk of early mortality (Holt-Lunstad *et al.*, 2015). Not only does social isolation impact physical health, but it has been found to impact mental health as well. A large systematic review found that numerous mental health issues are present in those who are socially isolated, although differences exist between individuals. Those Exercise Engagement Life Satisfaction Psychological Well-being Self-Esteem 14 Those who are socially isolated are at an increased risk of social anxiety, generalized anxiety, loneliness, and depression (Loades *et al.*, 2020)

### 2.5 Adult population

Worldwide, the average total life expectancy has increased by five years between 2000 and 2016 (World Health Organization, 2019), leading to a dramatic shift in the distribution of the population to older ages. The demographic shift prevails worldwide, with the most affected populations in developing countries. The World Health Organization (2018) predicts that by 2050, 80% of older people will reside in low- or middle-income households. Although this shift indicates lifestyle and medical advances and carries beneficial opportunities for societies and communities, it brings unintended social, economic, and health challenges (McPhee *et al.*, 2018). It is well-known that aging

is associated with a progressive decline in physical and mental functioning (McPhee *et al.*, 2018). Healthy aging is a term for a wider concept that implies allowing people to live healthy and active lives. Early interventions to promote healthy aging can reduce the prevalence of age-related disability and frailty. Promotion of physical activity (PA) is one of the five priority interventions proposed by the World Health Organization.

## 3. Materials and Methods

This study employed a mixed-methods research design, particularly the exploratory sequential approach. In the qualitative phase, IDI and FGD transcripts were analyzed to determine the dimensions of participants' commitment toward the Mixed Fitness Program.

Mixed methods research gathers, analyzes, and interprets qualitative and quantitative data. These events could happen in the same study or studies examining the same topic (Edelsburg, 2020). This study's exploratory sequential mixed method gradually combined the collection and analysis of qualitative and quantitative data (Creswell & Clark, 2017). Participants in the qualitative phase are the Karakasa Fitness Association (KFA) members who have been members for at least five years. In this phase, there were 10 participants for the in-depth interview and another 15 for the focus group discussion.

In the quantitative phase, 303 respondents responded to Exploratory Factor Analysis; they were the MXD fitness exercise participants in the MXD Fitness Challenge at an event held in a public gymnasium. For confirmatory factor analysis, another 265 respondents answered the survey question; they were the participants of MXD fitness exercise sessions conducted in various regions XI and XII.

Face validity was employed to address the various validity issues with the study's methods and design, ensuring that participants clearly and easily understood their commitment to the MXD Fitness Program. Meanwhile, content validity was used to analyze each questionnaire item to ensure the scale was comprehensive and inclusive.

We checked and validated an Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) checklist and surveys. Respondents were selected based on considerations of EFA and CFA sample size. We used a reliability test to measure the commitment scale developed for the MXD Fitness Program. We used Cronbach's alpha to demonstrate the consistency of the questionnaire items. This attribute made the tool suitable for determining how committed the participants were to the MXD Fitness Program.

This study adhered to the following procedures in gathering the relevant data: The first step the researcher undertook was to secure approval from the UIC Research Ethics Committee (UIC-REC) office. This phase included the submission of documentary requirements and the review process conducted by the committee. Moreover, the researcher also sought endorsement from the dean of the UIC Graduate School for the study's conduct among Region XII participants. The researcher then sent communication

letters to the president of the Karakasa Fitness Association (KFA) for approval to conduct the study at their meeting venue or session area.

In the qualitative phase, in-depth interviews and focus group discussions were conducted face-to-face. Moreover, the researcher interviewed 25 KARAKASA members of South Cotabato, Region XII. The availability and convenience of the participants determined the time and dates for the interviews. Instead of taking notes on the statements from the respondents, the researcher preferred recording the whole interview to prevent missing critical details. The researcher developed an interview guide to elicit the respondents' experiences and insights regarding the mixed fitness approach in teaching fitness sessions. The responses collected from the respondents were transcribed. In the quantitative phase, the results of the qualitative strand were used. We used the dimension results obtained through Exploratory Factor Analysis (EFA) to prepare for the second part. After receiving the dimension results, another group of respondents answered the questionnaire.

Thematic analysis is used to analyze IDI and FGD responses. Patterns, core ideas, and themes were drawn from the transcribed in-depth recorded interviews and FGDs. Fifty-five items were generated from the thematic analysis. We identified the underlying factor structure of the participants' satisfaction through EFA during the quantitative phase. EFA is a statistical technique that aims to identify the variables and the items from the administered checklist of observed variables without forcing a structure on the outcome. This process resulted in five factors and eliminated five out of the original 55 items.

Further, the CFA method was also used to choose the final dimension and items for the survey questionnaire that asked Karakasa members and fitness goers about their satisfaction. CFA is a statistical technique used to verify the factor structure of a set of observed variables. CFA (Suhr, 2006) could test the hypothesis that measured variables were linked to latent constructs.

In the last phase of the study, two statistical tools were used to analyze and interpret data from the supplementary quantitative survey. We used the mean to determine the satisfaction level of the participants in the mixed fitness program. The analysis of variance (ANOVA) was also used to find the significant difference in the level of satisfaction among the Karakasa Fitness Association members who took part in this study.

To establish the trustworthiness of the study, the researcher followed the four proposed criteria in evaluating interpretive research work by Lincoln and Guba (1985), which are as follows: credibility, transferability, dependability, and confirmability.

## 4. Results and Discussion

The results and discussions are divided into two phases because this study used an exploratory sequential mixed-methods design to develop and validate a commitment to exercise scale.

### 4.1 Qualitative Phase

The qualitative phase examined the main themes related to people's experiences with the Multi-Exercise Design Fitness program. Seven essential themes were generated from the interviews in the qualitative phase: physiological satisfaction, psychological satisfaction, benefits gained, maintaining health conditions, impressions of MXD fitness exercise, and social engagement. We extracted and presented significant statements and feedback from participants in the in-depth interviews and focus group discussions to shed light on these themes.

### 4.2 Having Physiological Satisfaction

The essential theme of physiological satisfaction included positive sensations, a sense of contentment, and body improvements that led to a heightened sense of well-being during multi-exercise design fitness sessions. Ekkekakis and Brand (2021) support these results as they highlighted how positive sensations during exercise (affective responses) are critical to long-term adherence and commitment to exercise.

### 4.3 Experiencing Psychological Satisfaction

Psychological satisfaction, an essential component, brings enjoyment to physical activities like mixed fitness exercise. This satisfaction presents comprehensive ideas in understanding participants' acquisition of satisfaction, such as excitement and anticipation of the mixed fitness sessions and the sense of accomplishment after every session. Participants expressed their pride in participating in the sessions and their mood enhancement. Meeusen and Meirleir's (1995) study described how exercise-induced changes in brain chemistry (e.g., endorphins) enhance mood, leading to positive sensations and emotional satisfaction.

### 4.4 Acknowledging Gained Benefits

This theme concerns the tangible and intangible benefits of participants' engagement in mixed fitness. Participants achieve better body forms, helping them lose or maintain weight, achieve glowing skin, and feel good. This result demonstrates a consistent result revealed by Swift *et al.* (2014) that physical activity, particularly aerobic and resistance training, effectively reduces body weight and improves body composition.

### 4.5 Maintaining Health Conditions

An individual's commitment to exercise is brought about by recognizing the importance of a healthy lifestyle. Regular exercise offers positive results for an individual's health conditions and can promote a healthy and active lifestyle. Vast literature supports this claim, such as the systematic review on exercise's health benefits (Oja *et al.*, 2015). Their study confirms that physical activity helps maintain weight, supports cardiovascular health, and improves respiratory and muscular function.

### 4.6 Creating Impressions about MXD Fitness Exercise

The participant's commitment to mixed fitness exercise stemmed from the program's versatility. It offered various exercise routines tailored to different ages and fitness levels. This diverse and dynamic nature of mixed fitness prevented monotony, kept participants engaged, exposed them to different forms of exercise, and expanded their fitness repertoire. Reimers *et al.* (2012) emphasized in their study the importance of adapting physical activity programs to different life stages for better health outcomes and adherence.

### 4.7 Improving Social Engagement

This theme emphasizes the importance of relationships and leadership in enhancing the overall experience and commitment to mixed fitness exercises. Participants claim that the sessions create an environment where they can connect, develop friendships, and foster community, enhancing their enjoyment and commitment. Hanson *et al.* (2019) found that community and social connections were major facilitators of participation and commitment in exercise programs. Moreover, Cassar *et al.* (2019) also revealed that social interaction and friendship were core motivators for sustained engagement in exercise.

### 4.8 Gaining Social Support

In maintaining a commitment to an exercise program, gaining social support plays an important role. This support fosters a motivating and collaborative environment. The family, friends, and peers recognize an opportunity for interaction, which enhances the participants' experiences. Fitness programs like mixed fitness can ensure higher engagement, satisfaction, and long-term commitment to exercise. Cho *et al.* (2020) found that social support from family and friends positively influences individuals' intentions to engage in physical activity. This support satisfies those basic psychological needs and fosters motivation, leading to increased exercise participation.

### 4.9 Quantitative Phase

A 55-item checklist was developed during the interview based on the participants' responses regarding the Multi-Exercise Design (MXD) fitness program. This tool was administered to 303 fitness enthusiasts in Regions XI and XII. In the second phase of the survey, respondents were asked to rate their level of agreement for each item on the checklist after experiencing the MXD fitness exercise program. They used a five-point Likert scale for their responses: 5 (strongly agree), 4 (agree), 3 (neutral), 2 (disagree), and 1 (strongly disagree).

**Table 1:** Checklist for assessing the Development and Validation of Multi-Exercise Design Fitness Commitment Scale

| |
|---|
| 1. I am confident in my ability to perform a variety of body movements during MXD fitness exercise. |
| 2. I believe I can complete a full-body workout through MXD fitness exercise. |
| 3. I can stay engaged and focused throughout the MXD fitness sessions without getting bored. |
| 4. I am capable of handling the physical challenges in MXD fitness exercise. |
| 5. I believe I can achieve my fitness goals through consistent participation in MXD Fitness. |
| 6. I feel in control of my fitness goals through consistent participation in MXD fitness. |
| 7. I am confident I can regularly attend MXD fitness sessions despite other commitments. |
| 8. I believe I have the motivation and energy to actively join MXD fitness exercise. |
| 9. I feel a strong sense of achievement in consistently participating in MXD fitness. |
| 10. MXD fitness exercise routine is easy to follow. |
| 11. I am proud that I have become a mixed fitness goer. |
| 12. I am greatly challenged finishing MXD fitness exercise routine. |
| 13. I feel good after the MXD fitness exercise. |
| 14. I feel happy after the MXD fitness exercise. |
| 15. I can finish the mixed fitness routine. |
| 16. MXD fitness allows me to adjust the intensity that suits me. |
| 17. I can learn a lot of type of exercises in MXD fitness. |
| 18. I learn good body forms in MXD fitness exercise. |
| 19. MXD fitness helped me lose weight. |
| 20. MXD fitness helped me maintain my weight. |
| 21. MXD fitness helped me keep my skin glowing. |
| 22. MXD fitness helped me feel good. |
| 23. MXD fitness helps you not get tired easily. |
| 24. MXD fitness allowed me to express emotions. |
| 25. MXD fitness helped me maintain an active lifestyle. |
| 26. MXD fitness keeps my body fit. |
| 27. MXD Fitness improve my cardiovascular endurance. |
| 28. MXD fitness helps me lower my bad cholesterol level. |
| 29. MXD fitness improves liver condition. |
| 30. MXD fitness helps me lower my sugar level. |
| 31. MXD fitness exercise lessens my anxiety and depression. |
| 32. Participating in MXD improves my health condition. |
| 33. I was not bored participating in MXD fitness exercise. |
| 34. MXD fitness exercise is good for all groups of ages. |
| 35. MXD fitness exercise gets me in good body shape. |
| 36. MXD fitness exercise introduces new routine from time to time. |
| 37. MXD fitness is a unique form of exercise. |
| 38. My health condition improves because of MXD fitness exercise. |
| 39. I gain friends because of MXD fitness sessions. |
| 40. I feel a sense of belonging with MXD fitness exercise goers. |
| 41. I am comfortable exercising with friends. |
| 42. I like exercising with MXD fitness friends. |
| 43. I get the right motivation from the fitness instructor of MXD fitness exercise. |
| 44. The MXD fitness instructor influenced the crowd to perform their best. |
| 45. MXD fitness instructors' leadership helped me to finish the routine. |
| 46. My friends are supporting my participation with MXD fitness exercise. |

| |
|---|
| 47. My friends encouraged me to join MXD fitness exercise. |
| 48. I gain friends while participating in MXD fitness exercise. |
| 49. The crowd in MXD fitness exercise is encouraging. |
| 50. MXD fitness exercise peers encourage each other. |
| 51. I enjoy my friendship with fellow MXD fitness exercise goers. |
| 52. My family and friends recognize my effort in attending MXD fitness exercise. |
| 53. Mixed fitness exercise instructors teach the correct body form to prevent injury. |
| 54. I become an inspiration of others to join MXD fitness exercise. |
| 55. Mixed fitness exercise allows interaction among goers. |

The multi-exercise design fitness attendees answered the 55 items. The researcher conducts an orientation for the respondents on a multi-exercise fitness program and holds a session in one of the gyms in his research locale. The respondents were asked to respond based on their agreement level with each item, with five strongly agreeing, four agreeing, three being neutral, two disagreeing, and one strongly disagreeing. Respondents in this phase of the survey were of mixed fitness. They answered the survey right after the event.

Presented in Table 2 is the rotated factor matrix. This matrix provides insights into the underlying structure of the dataset by grouping related items based on their factor loading. The Promax rotation with Kaiser Normalization was used, which allows for correlation between factors. This method is particularly useful when factors are expected to be interrelated, as is common in psychological and behavioral research.

**Table 2:** Rotated Factor Matrix

| **Item Number** | **Factor** | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| Item 1 | | | .694 | | |
| Item 2 | | | .772 | | |
| Item 3 | | | .500 | | |
| Item 4 | | | .607 | | |
| Item 5 | | | .864 | | |
| Item 6 | | | .894 | | |
| Item 7 | | | .718 | | |
| Item 8 | | | .638 | | |
| Item 9 | | | .511 | | |
| Item 10 | | | | .610 | |
| Item 11 | | | .578 | | |
| Item 12 | | | | | |
| Item 13 | | | | | |
| Item 14 | | | | | |
| Item 15 | | | | .630 | |
| Item 16 | | | | .555 | |
| Item 17 | | | | | |
| Item 18 | | | | .465 | |
| Item 19 | | | | | |
| Item 20 | | .535 | | | |

| | | | | | |
|---|---|---|---|---|---|
| Item 21 | | .631 | | | |
| Item 22 | | .500 | | | |
| Item 23 | | .789 | | | |
| Item 24 | | .599 | | | |
| Item 25 | | .613 | | | |
| Item 26 | | .711 | | | |
| Item 27 | | .777 | | | |
| Item 28 | | .796 | | | |
| Item 29 | | .588 | | | |
| Item 30 | | .710 | | | |
| Item 31 | | .459 | | | |
| Item 32 | | | | | .581 |
| Item 33 | | | | | .414 |
| Item 34 | | | | | .412 |
| Item 35 | | .624 | | | |
| Item 36 | | .594 | | | |
| Item 37 | .447 | | | | |
| Item 38 | .533 | | | | |
| Item 39 | .670 | | | | |
| Item 40 | .592 | | | | |
| Item 41 | .709 | | | | |
| Item 42 | .602 | | | | |
| Item 43 | .601 | | | | |
| Item 44 | .644 | | | | |
| Item 45 | .717 | | | | |
| Item 46 | .620 | | | | |
| Item 47 | .813 | | | | |
| Item 48 | .803 | | | | |
| Item 49 | .777 | | | | |
| Item 50 | .797 | | | | |
| Item 51 | .709 | | | | |
| Item 52 | .856 | | | | |
| Item 53 | .769 | | | | |
| Item 54 | .939 | | | | |
| Item 55 | .896 | | | | |
| Extraction Method: Principal Axis Factoring.<br>Rotation Method: Promax with Kaiser Normalization. | | | | | |
| a. Rotation converged in 7 iterations. | | | | | |

The scree plot showed eigenvalues for each factor in an exploratory factor analysis (EFA) or principal component analysis (PCA). This graph shows them. It helps determine the optimal number of factors to retain in a factor structure by identifying the elbow point, where eigenvalues begin to level off.

The first factor has the highest eigenvalues (above 25), accounting for the most variance. The scree plot suggests a one-factor or two-factor solution, as the eigenvalues drastically drop after the first two factors. After Factor 3, the eigenvalues flatten, indicating that additional factors contribute to insignificant variance and should likely be

discarded. Therefore, a parallel analysis is recommended to confirm the optimal number of factors.

Presented in Table 3 is the 50-item measurement scale for the multi-exercise design commitment scale. The distribution of these items is based on social modeling. Outcome expectations, self-efficacy, physiological satisfaction, and health outcomes. Each item in this category is designed to probe different facets of commitment to exercise.

**Table 3:** 50-item Measurement Scale for Multi-Exercise Design Commitment Scale

| | |
|---|---|
| **Factor 1: Social Modeling** | |
| 1. Seeing others enjoy MXD fitness exercise makes me more confident to participate. | .447 |
| 2. I am inspired to maintain a healthy lifestyle because others I see in MXD fitness. | .533 |
| 3. I gain friends because of MXD fitness sessions. | .670 |
| 4. I feel a sense of belonging with MXD fitness exercise goers. | .592 |
| 5. I am comfortable exercising with friends. | .709 |
| 6. I like exercising with mixed fitness friends. | .602 |
| 7. I get the right motivation from the fitness instructor of MXD fitness exercise. | .601 |
| 8. The MXD fitness instructor influenced the crowd to perform their best. | .644 |
| 9. MXD fitness instructors' leadership helped me to finish the routine. | .717 |
| 10. My friends are supporting my participation in MXD fitness exercise. | .620 |
| 11. My friends encouraged me to join MXD fitness exercise. | .813 |
| 12. I gain friends while participating in MXD fitness exercise. | .803 |
| 13. The crowd in MXD fitness exercise is encouraging. | .777 |
| 14. MXD fitness exercise peers encourage each other. | .797 |
| 15. I enjoy my friendship with fellow MXD fitness exercise goers. | .709 |
| 16. My family and friends recognize my effort in attending MXD fitness exercise. | .856 |
| 17. MXD fitness exercise instructors teach the correct body form to prevent injury. | .769 |
| 18. I become an inspiration for others to join MXD fitness exercise. | .939 |
| 19. MXD fitness exercise allows interaction among goers. | .896 |
| **Factor 2: Outcome Expectations** | |
| 1. MXD fitness helps me maintain my weight. | .535 |
| 2. MXD fitness helps me keep my skin glowing. | .631 |
| 3. MXD fitness helps me feel good. | .500 |
| 4. MXD fitness helps you not get tired easily. | .789 |
| 5. MXD fitness allows me to express emotions. | .599 |
| 6. MXD fitness helps me maintain an active lifestyle. | .613 |
| 7. MXD fitness keeps my body fit. | .711 |
| 8. MXD Fitness Improves my cardiovascular endurance. | .777 |
| 9. MXD fitness helps me lower my bad cholesterol level. | .796 |
| 10. MXD fitness improves liver condition. | .588 |
| 11. MXD fitness helps me lower my sugar level. | .710 |
| 12. MXD fitness exercise lessens my anxiety and depression. | .459 |
| 13. MXD fitness exercise gets me in good body shape. | .624 |
| 14. MXD fitness exercise introduces a new routine from time to time. | .594 |
| **Factor 3: Self-Efficacy** | |
| 1. I am confident in my ability to perform a variety of body movements during MXD fitness exercise. | .694 |
| 2. I believe I can complete a full-body workout through MXD fitness exercise. | .772 |

| | |
|---|---|
| 3. I can stay engaged and focused throughout the MXD fitness sessions without getting bored. | .500 |
| 4. I am capable of handling the physical challenges in MXD fitness exercise. | .607 |
| 5. I believe I can achieve my fitness goals through consistent participation in MXD fitness. | .894 |
| 6. I feel in control of my fitness goals through consistent participation in MXD fitness. | .718 |
| 7. I am confident I can regularly attend MXD fitness sessions despite other commitments. | .638 |
| 8. I believe I have the motivation and energy to actively join MXD fitness exercise. | .511 |
| 9. I feel a strong sense of achievement in consistently participating in MXD fitness. | .578 |
| **Factor 4: Physiological Satisfaction** | |
| 1. MXD fitness exercise routine is easy to follow. | .630 |
| 2. I can finish the MXD fitness routine. | .555 |
| 3. I sweat a lot with MXD fitness exercise. | .864 |
| 4. MXD fitness allows me to adjust the intensity that suits me. | .465 |
| 5. I learn good body forms in MXD fitness exercise. | |
| **Factor 5: Health Outcomes** | |
| 1. Participating in MXD improves my health condition. | .581 |
| 2. MXD fitness helped me lose weight. | .414 |
| 3. MXD fitness exercise is good for all groups of age. | .412 |

Meanwhile, physical satisfaction items were derived from the claims of the participants that they were satisfied and enjoyed the multi-exercise design fitness program. This satisfaction and enjoyment derived from exercise play a motivational role in fostering long-term commitment. Finally, the item in the health outcome resulted from the participants' feelings.

Table 4 shows the rotated factor matrix after the exploratory factor analysis (EFA). The analysis reveals that 55 items impacted the five factors removed. We performed the EFA using the principal axis factoring extraction method and applied a Promax rotation with Kaiser Normalization. The exercise was done to find the data's underlying structure and make the factors easier to understand.

This study sets the acceptable threshold for factor loading at .40 and above. This decision aligns with the recommendations found in the literature. The threshold also ensures the practical significance of the loading (Hair *et al.*, 2019). Items with loading above this threshold are considered to have a strong relationship with the corresponding factor, thus contributing meaningfully to the factor's interpretation.

Some items were taken out of the analysis because they didn't fit into the factors well or because they were linked to more than one factor, which could make the factors less clear and distinct (Tabachnich & Fidell, 2013). Items that did not meet the .40 loading threshold or loaded significantly on more than one factor were removed to improve the overall model fit and ensure each factor represents a unique construct. Consequently, items 12, 13, 14, 17, and 19 were deleted.

The result of the exploratory factor analysis provides a robust statistical basis for identifying the underlying factors within the datasets. The KMO value above .90 indicates excellent sampling adequacy. This value indicates that the dataset is suitable for factor analysis. These high values suggest that the dataset will likely yield reliable results. Also, the significant p-values indicate that the correlation matrix is not an identity matrix,

meaning the variables are sufficiently correlated to proceed with factor analysis, thus confirming the dataset's appropriateness for EFA, suggesting that meaningful factors can be extracted.

The data can be used for factor analysis because the KMO measure of sampling adequacy is high (0.962) and Bartlett's test of sphericity is significant. A KMO value close to 1 suggests that the patterns of correlations are relatively compact and, therefore, suitable for factor analysis.

**Table 4:** Factor Correlation Matrix

| **Factor** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| 1. Social Modeling | 1,000 | .751 | .737 | .611 | .472 |
| 2. Expected Outcome | .751 | 1.000 | .741 | .567 | .438 |
| 3. Self-Efficacy | .737 | .741 | 1,000 | .599 | .464 |
| 4. Physiological Satisfaction | .611 | .567 | .599 | 1,000 | .247 |
| 5. Health Outcomes | .472 | .438 | .464 | .247 | 1.000 |
| Extraction Method: Principal Axis Factoring.<br>Rotation Method: Promax with Kaiser Normalization. | | | | | |

The factor-correlation matrix confirms that the dataset exhibits a multidimensional structure with moderately strong correlations for the last two factors. The results suggest using an oblique rotation (Promax) in the EFA since the factors vary but are still different. Further structural validation through CFA or higher-order modeling could enhance the theoretical understanding of these relationships.

## 5. Factor Structure of the Questionnaire on Respondents' Commitment to Multi-Exercise Design Fitness Program

The researcher carefully used the Confirmatory Factor Analysis (CFA) to ensure that the items of the commitment to the multi-exercise design fitness program fit their related factors perfectly. This 50-item instrument was administered to the 265 participants who joined the 5$^{th}$ Senator "Sonny" study. The study included adults from regions XI and XII to validate its factor structure. Respondents were asked to respond to a five-point Likert scale questionnaire ranging from 5 (indicating strong agreement) to 1 (indicating disagreement).

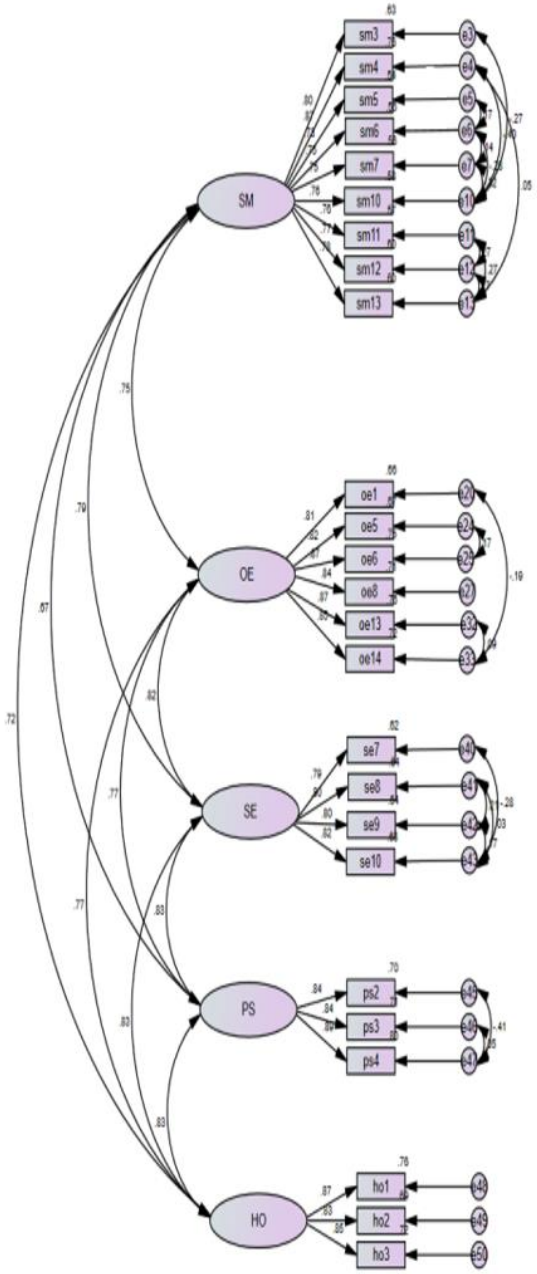


**Figure 7:** CFA Model of Multi-Exercise Design Commitment to Exercise Scale

Figure 7 reveals the factorial structure of the respondents' commitment to exercise. Factor loading indicates the strength of the relationship between observed variables (items) and their latent constructs. Significant loadings

***Goodness of Fit of the Five-Factor Model***

($p<.001$) Across all constructs, the model adequately explains the variance in each observed variable.

The figure represents a confirmatory factor analysis that illustrates the relationship between five latent variables. SM for social modeling, OE for outcome expectation, SE for self-efficacy, PS for physiological satisfaction, and HO for health outcomes. Each latent variable is connected to multiple observable variables (items) corresponding to error terms. (e1, e2, e3, etc.). The numbers on the arrows represent factor loadings, which indicate how strongly each observed variable is associated with its latent construct.

The figure reveals that most observed variables exhibit robust loadings (above 0.70) on their corresponding latent constructs, indicating strong construct validity. However, certain items, such as those with a lower loading of around 0.50, may suggest a weaker relationship, necessitating further refinement in future analyses.

Also shown in the figure is how the latent variables are related. The model finds a strong link between all five latent variables: self-efficacy, social modeling, and outcome expectations. There is a strong link between health outcomes and physiological satisfaction and other constructs. This means that perceived health benefits and physical confirmation greatly affect exercise commitment.

Social modeling appears to substantially influence other factors, reinforcing the role of peer motivation and instructor guidance in maintaining engagement. Also, outcome expectations (OE) and self-efficacy (SE) act as mediators, showing that people who expect to benefit from exercise and have faith in their ability to do it are more likely to keep doing it. Physiological satisfaction (PS) and health outcomes (HO) are outcome variables, highlighting their role in reinforcing long-term adherence.

The CFA model successfully supports the idea that social factors, motivation, self-confidence, physical comfort, and health benefits all shape people's commitments to MXD fitness exercise. The high factor load and strong interconnections suggest that fostering peer support, clear fitness goals, and self-efficacy can significantly enhance engagement and health outcomes. Further refinements may focus on strengthening weaker items and conducting confirmatory factor analysis for additional validation.

Shown in Table 5 is the Goodness of Fit Indices. This information reveals how well the hypothesized model fits the observed data. A confirmatory factor analysis indicates that the measurement model is within an acceptable range. This means that the CFA model does a good job of representing the data. The model balances parsimony and fit, making it a robust representation of the underlying construct. The chi-square to degrees of freedom ratio (CMIN/DF) is a fundamental gauge of model fit with values less than 3, with an estimated.

**Table 5:** Goodness of Fit of the Five-Factor Model

| Indices | Threshold | Estimate | Remarks |
|---|---|---|---|
| CMIN/DF | <3 | 2.308 | |
| TLA | < .90 | .928 | Fit |
| CFI | < .90 | .941 | Fit |
| NFI | < .90 | .901 | Fit |
| IFI | < .90 | .941 | Fit |
| RMSEA | < .80 | .071 | Fit |

**Legend:** CMIN/DF = Conformity to Masculine Norms Inventory/Degree of Freedom**;** TLI = Tucker Lewis Index**;** CFI = Comparative Fit Index**;** NFI = Normal Fit Index**;** IFI = Incremental Fit Index**;** CFI = 2.308.

The estimate here stands for the calculated model fit value. It is possible to interpret the outcome as a satisfactory model fit.

To further bolster the model's credibility, the Comparative Fit Index (CFI) achieves a score of .941, almost reaching the benchmark of .95. This value reflects that the model is an excellent fit. Similarly, the Normal Fit Index (NFI) score of .901 reveals an acceptable fit. The Tucker-Lewis Index (TLI) gained an estimated score of .928, indicating a favorable fit.

Moreover, the Incremental Fit Index (IFI) reveals a score of.941, indicating a strong model fit. The Root Mean Square Error of Approximation (RMSEA), which has a score of .071, also indicates a good fit. Overall, the CFA model is a good fit for the data. The indices show that the model balances complex and simple, accurately capturing the factors that affect exercise commitment. Further, the CFA model demonstrates a robust theoretical and practical framework.

### 5.1 Reliability Test of the Developed Scale on Commitment to Multi-Exercise Design Fitness Program

The reliability analysis presented includes multiple Cronbach's alpha values for different sets of items. Cronbach's alpha is a measure of internal consistency, indicating how well the items in a scale measure a single construct. A higher value suggests greater reliability.

The results show high levels of reliability across different sets of items. These results align with the commonly accepted thresholds for Cronbach's alpha. The factors of social modeling have Cronbach's alpha values of 0.933, with 19 items. This value indicates excellent reliability and suggests that the 19-item scale is highly consistent in measuring the intended construct. Therefore, the items within this set are strongly interrelated and produce stable results.

The expected outcome has a Cronbach's alpha value of 0.724. The 14 items fall in an acceptable range, indicating moderate reliability. The scale is reliable, but there may be room for improvement, such as revising or removing weaker items. The third factor, self-efficacy, falls in a favorable reliability range, suggesting that the scale is well-structured. The 10-item set is a reliable source and likely provides consistent results. The fourth factor, which measures physiological satisfaction, also demonstrated good reliability. The factor's 4-item set contributes significantly to its reliability. The Cronbach's

alpha value of 0.864 indicates a high level of reliability. This statistic means that the four items effectively measure a cohesive construct. Finally, the fifth factor has gained Cronbach's alpha values of 0.833. This value suggests excellent reliability, even with just three items. Despite the limited number of items, they still produce a reliable measure of the intended construct.

Overall, all sets show good to excellent reliability, meaning they can be used confidently for research or testing. However, the 14-item scale with a reliability of 0.724 might need more testing through item or exploratory factor analysis.

### 5.2 Measurement Scale for Multi-Design Fitness Exercise Commitment Scale

As shown in Table 5, the culmination of this investigation is a meticulously refined 50-item scale designed to quantify respondents' commitment to exercise. The scale is stratified into distinct subscales: 19 items encapsulated social modeling, 14 for outcome expectations, 10 for self-efficacy, four for physiological satisfaction, and three for health outcomes.

We asked respondents to express their concordance with each statement using a 5-point Likert scale ranging from strongly agree to strongly disagree. With a range of agreement levels, this Likert scale created a psychometric tool to measure the respondent's dedication to multi-design fitness exercise accurately.

The main goal of this study is to determine the level of commitment of participants in a multi-exercise fitness program. The level of commitment among MXD fitness exercise participants is discussed below, which is very high, with a mean of 4.85. This implies that their commitment is always observed. Social influence, fulfilling desired expectations, confidence in exercise execution, physiological satisfaction, and meeting desired health outcomes all contributed to their commitment.

The results indicate that participants have overwhelmingly positive perceptions of mixed fitness exercise across five factors. The most decisive factor is self-efficacy, with a mean of 4.90, suggesting that confidence in one's abilities is a major contribution to commitment to exercise.

#### 5.2.1 Social Modeling

Social influence plays a crucial role in exercise. This data implies the leadership and motivation provided by instructors and peers strongly contribute to engagement, indicating that social support enhances commitment. Lim and Wang *et al.* (2014) found that leadership in exercise groups significantly affect members commitment to exercise. This leadership transforms individuals, influencing their behaviors, suggesting that fitness instructors who motivate and inspire can enhance individuals' commitment to exercise. Further, Zhang *et al.* (2022) highlighted the direct influence of peer support for exercise behaviors and commitment through enhanced self-efficacy.

**Table 5:** Level of Commitment to Mult-Exercise Design Fitness Exercise

| **Factor 1: Social Modeling** | **Mean** | **SD** | **Descriptive Interpretation** |
|---|---|---|---|
| 1. Seeing others enjoy MXD fitness exercise makes me more confident to participate. | 4.89 | 0.37 | Very High |
| 2. I am inspired to maintain a healthy lifestyle because of others I see in MXD fitness. | 4.84 | 0.37 | Very High |
| 3. I gain friends because of MXD fitness sessions. | 4.89 | 0.31 | Very High |
| 4. I feel a sense of belonging with MXD fitness exercise goers. | 4.87 | 0.38 | Very High |
| 5. I am comfortable exercising with friends. | 4.87 | 0.33 | Very High |
| 6. I like exercising with mixed fitness friends. | 4.93 | 0.26 | Very High |
| 7. I get the right motivation from the fitness instructor of MXD Fitness exercise. | 4.89 | 0.31 | Very High |
| 8. The MXD fitness instructor influenced the crowd to perform their best. | 4.78 | 0.45 | Very High |
| 9. MXD fitness instructors' leadership helped me to finish the routine. | 4.73 | 0.52 | Very High |
| 10. My friends are supporting my participation in MXD fitness exercise. | 4.82 | 0.47 | Very High |
| 11. My friends encouraged me to join MXD fitness exercise. | 4.89 | 0.37 | Very High |
| 12. I gain friends while participating in MXD fitness exercise. | 4.87 | 0.33 | Very High |
| 13. The crowd in MXD fitness exercise is encouraging. | 4.85 | 0.44 | Very High |
| 14. MXD fitness exercise peers encourage each other. | 4.76 | 0.57 | Very High |
| 15. I enjoy my friendship with fellow MXD fitness exercise goers. | 4.84 | 0.42 | Very High |
| 16. My family and friends recognize my effort in attending MXD fitness exercise. | 4.75 | 0.51 | Very High |
| 17. MXD fitness exercise instructors teach the correct body form to prevent injury. | 4.78 | 0.45 | Very High |
| 18. I become an inspiration for others to join MXD fitness exercise. | 4.91 | 0.29 | Very High |
| 19. MXD fitness exercise allows interaction among goers. | 4.87 | 0.33 | Very High |
| **Category Mean** | **4.84** | **0.37** | **Very High** |
| **Factor 2: Outcome Expectations** | **Mean** | **SD** | **Descriptive Interpretation** |
| 1. MXD fitness helped me maintain my weight. | 4.84 | 0.37 | Very High |
| 2. MXD fitness helped me keep my skin glowing. | 4.73 | 0.45 | Very High |
| 3. MXD fitness helped me feel good. | 4.87 | 0.33 | Very High |
| 4. MXD fitness helps you not get tired easily. | 4.82 | 0.39 | Very High |
| 5. MXD fitness allowed me to express emotions. | 4.80 | 0.40 | Very High |
| 6. MXD fitness helped me maintain an active lifestyle. | 4.87 | 0.33 | Very High |
| 7. MXD fitness keeps my body fit. | 4.87 | 0.33 | Very High |
| 8. MXD fitness: improve my cardiovascular endurance. | 4.82 | 0.39 | Very High |
| 9. MXD fitness helps me lower my bad cholesterol level. | 4.76 | 0.42 | Very High |
| 10. MXD fitness improves liver condition. | 4.67 | 0.51 | Very High |
| 11. MXD fitness helps me lower my sugar level. | 4.71 | 0.45 | Very High |
| 12. MXD fitness exercise lessens my anxiety and depression. | 4.82 | 0.43 | Very High |
| 13. MXD fitness exercise gets me in good body shape. | 4.84 | 0.37 | Very High |

| | | | |
|---|---|---|---|
| 14. MXD fitness exercise introduces a new routine from time to time. | 4.84 | 0.37 | Very High |
| **Category Mean** | **4.80** | **0.37** | **Very High** |
| **Factor 3: Self-Efficacy** | **Mean** | **SD** | **Descriptive Interpretation** |
| 1. I am confident in my ability to perform a variety of body movements during MXD fitness exercise. | 4.86 | 0.33 | Very High |
| 2. I believe I can complete a full-body workout through MXD fitness exercise. | 4.93 | 0.37 | Very High |
| 3. I can stay engaged and focused throughout the MXD fitness sessions without getting bored. | 4.93 | 0.71 | Very High |
| 4. I am capable of handling the physical challenges in MXD fitness exercise. | 4.87 | 0.37 | Very High |
| 5. I believe I can achieve my fitness goals through consistent participation in MXD fitness. | 4.87 | 0.29 | Very High |
| 6. I feel in control of my fitness goals through consistent participation in MXD fitness. | 4.93 | 0.31 | Very High |
| 7. I am confident I can regularly attend MXD fitness sessions despite other commitments. | 4.81 | 0.35 | Very High |
| 8. I believe I have the motivation and energy to actively join MXD fitness exercise. | 4.87 | 0.37 | Very High |
| 9. I feel a strong sense of achievement in consistently participating in MXD fitness. | 4.93 | 0.40 | Very High |
| **Category Mean** | **4.90** | **0.34** | **Very High** |
| **Factor 4: Physiological Satisfaction** | **Mean** | **SD** | **Descriptive Interpretation** |
| 1. MXD fitness exercise routine is easy to follow. | 4.84 | 0.48 | Very High |
| 2. I can finish the MXD fitness routine. | 4.77 | 0.35 | Very High |
| 3. MXD fitness allows me to adjust the intensity that suits me. | 4.78 | 0.37 | Very High |
| 4. I am satisfied with MXD fitness exercise. | 4.94 | 0.29 | Very High |
| 5. I learn good body forms in MXD fitness exercise. | 4.77 | 0.35 | Very High |
| **Category Mean** | **4.79** | **0.49** | **Very High** |
| **Factor 5: Health Outcomes** | **Mean** | **SD** | **Descriptive Interpretation** |
| 1. Participating in MXD improves my health condition. | 4.91 | 0.29 | Very High |
| 2. MXD fitness helped me lose weight. | 4.82 | 0.39 | Very High |
| 3. MXD fitness exercise is good for all groups of age. | 4.84 | 0.37 | Very High |
| **Category Mean** | **4.85** | **0.29** | **Very High** |
| **Overall Mean** | **4.85** | **0.87** | **Very High** |

### 5.2.2 Outcome Expectations

The category mean is 4.80, which is interpreted as very high. The overall average score implies that promoting awareness of long-term health benefits could further reinforce commitment. This result supports the claim of Poliakoff *et al.* (2013), who found out that when individuals are made aware of the long-term health outcomes, their adherence to physical activity improves. Similarly, Sheeran *et al.*'s (2014) study also demonstrated that

increased awareness of health risks and benefits leads to more favorable exercise intentions and behaviors.

### 5.2.3 Self-Efficacy

The category mean is 4.90, which is interpreted as very high. The very high self-efficacy rating suggests that participants feel competent, engaged, and challenged at the right level. In the study of Yu *et al.* (2024), self-efficacy mediates the relationship between motivation and exercise satisfaction, fostering greater engagement and mental toughness. Also, the study of Peng *et al.* (2025) showed that physical exercise enhances adolescents' self-efficacy and resilience, enabling them to face physical challenges more competently.

### 5.2.4 Physiological Satisfaction

The category mean is 4.79, which is interpreted as very high. This finding suggests that adaptability and comfort are essential in maintaining long-term participation in exercise. Searli *et al.* (2021) revealed that personalized and adaptable exercise routines enhance comfort and adherence, especially for individuals managing chronic conditions or mental health challenges. Additionally, Balague *et al.* (2025) advocated for redefining fitness as adaptability, emphasizing the value of exercise programs that can flexibly meet individual physical and psychological needs.

### 5.2.5 Health Outcome

The category mean stands at 4.85, which is considered very high. The perception that mixed fitness benefits all age groups in terms of health outcomes suggests the program is inclusive and widely accessible. Piercy *et al.*'s (2018) summary of a journal article in the US physical activity guidelines stated that physical activity offers health benefits for all age groups. Bird *et al.* (2014) also found that older adults who participated in group-based exercise programs reported improvements in physical function and mental well-being, reinforcing the inclusive nature of such programs.

## 6. Utilization of the Tool to Measure the Significant Difference in the Level of Commitment to Multi-Exercise Design Fitness Exercise, when Analyzed According to Sex, Age, Status and Weight

When combining the variables, the t-test and ANOVA demonstrate a significant difference in the level of commitment to multi-exercise design fitness. The data is categorized by dimensions and analyzed based on variances in sex, age, status, and weight. The t-test results help us understand the significance of the differences in participants' commitment to the multi-exercise design fitness program.

### 6.1 Social Modeling

The test of significant differences in social modeling revealed an intriguing result. When compared by sex, the data further indicates that both sexes value role models or peers equally, influencing their fitness behavior. Widowed participants reported higher levels of commitment when compared by status, in part because they formed close social bonds in group exercise environments. Older individuals showed slightly higher social modeling when compared by age, possibly reflecting the importance of social influences as age increases. As regards their weight, data imply that those with higher weight may rely more on models for motivation, though this is not statistically significant.

### 6.2 Outcome Expectation

When data was examined and tested for significant differences, this result showed no significant difference as regards their commitment to multi-exercise design. However, females expect slightly more positive outcomes from exercise, which may reflect greater health awareness or specific fitness goals. When compared by status, married individuals scored the highest. The results also say that married individuals may perceive stronger health benefits, influenced by family-related responsibilities and the desire for longevity.

As regards age, data suggests that middle-aged participants may have heightened health concerns, increasing their expectations of exercise benefits.

When weight was compared, the results were uniformly high with minimal variation. This evidence shows that regardless of weight, participants in the multi-exercise design fitness expect a similar benefit from the program.

### 6.3 Self-Efficacy

In this particular dimension, when data were analyzed by sex to determine if there was a significant difference, we found no significant difference. The result implies that both sexes feel equally confident in their ability to engage in fitness exercise. Regarding widows' status, the findings could suggest strong personal determination among widowed participants. Regarding age, the figure reveals that self-efficacy remains strong as we age due to more established routines.

Regarding weight, data may mean that heavier individuals may feel empowered by their exercise progress.

### 6.4 Physiological Satisfaction

Data revealed that females reported slightly higher satisfaction, possibly due to the greater focus on physical outcomes like weight loss or flexibility; widows reported high satisfaction, which may reflect the emotional and stress-relief benefits gained from exercise. When analyzed by age, the conclusion means that middle-aged adults may appreciate physiological benefits due to health risks that emerge with age. No significant difference was found when analyzed by weight.

**Table 6:** T-Test and ANOVA Results on the Significance of the Difference in the Level of Commitment to Multi-Exercise Design Fitness when analyzed according to Grouping Variables

| Dimension | Sex | Mean | SD | t | *p*-value | Interpretation |
|---|---|---|---|---|---|---|
| Social Modeling | Male | 4.88 | .338 | -.764 | .448 | Not Significant |
| | Female | 4.94 | .250 | | | |
| Outcome Expectations | Male | 4.75 | .442 | -1.395 | .169 | Not Significant |
| | Female | 4.97 | .657 | | | |
| Self-Efficacy | Male | 4.88 | .338 | .044 | .965 | Not Significant |
| | Female | 4.87 | .341 | | | |
| Physiological Satisfaction | Male | 4.75 | .442 | -1.528 | .132 | Not Significant |
| | Female | 4.90 | .301 | | | |
| Health Outcome | Male | 4.83 | .381 | -.386 | .701 | Not Significant |
| | Female | 4.87 | .341 | | | |
| **Dimension** | **Status** | **Mean** | **SD** | **t** | ***p*-value** | **Interpretation** |
| Social Modeling | Single | 4.83 | .383 | 1.157 | .322 | Not Significant |
| | Married | 4.93 | .267 | | | |
| | Widow | 5.00 | .000 | | | |
| | Total | 4.91 | .290 | | | |
| Outcome Expectations | Single | 4.67 | .485 | 1.860 | .166 | Not Significant |
| | Married | 5.00 | .679 | | | |
| | Widow | 4.90 | .316 | | | |
| | Total | 4.87 | .579 | | | |
| Self-Efficacy | Single | 4.78 | .428 | 1.491 | .235 | Not Significant |
| | Married | 4.89 | .320 | | | |
| | Widow | 5.00 | .000 | | | |
| | Total | 4.87 | .336 | | | |
| Psychological Satisfaction | Single | 4.78 | .428 | .381 | .685 | Not Significant |
| | Married | 4.85 | .362 | | | |
| | Widow | 4.90 | .316 | | | |
| | Total | 4.84 | .373 | | | |
| Health Outcome | Single | 4.78 | .428 | .617 | .543 | Not Significant |
| | Married | 4.89 | .320 | | | |
| | Widow | 4.90 | .316 | | | |
| | Total | 4.85 | .356 | | | |
| **Dimension** | **Age** | **Mean** | **SD** | **t** | ***p*-value** | **Interpretation** |
| Social Modelling | 40 & below | 4.86 | .351 | .496 | .687 | Not Significant |
| | 41-50 | 4.92 | .289 | | | |
| | 51-60 | 5.00 | .000 | | | |
| | Above 60 | 4.91 | .302 | | | |
| | Total | 4.91 | .290 | | | |
| Outcome Expectations | 40 & below | 4.73 | .456 | 1.583 | .205 | Not Significant |
| | 41-50 | 5.17 | .937 | | | |
| | 51-60 | 4.90 | .316 | | | |
| | Above 60 | 4.82 | .405 | | | |
| | Total | 4.87 | .579 | | | |
| Self-Efficacy | 40 & below | 4.86 | .351 | .119 | .949 | Not Significant |
| | 41-50 | 4.83 | .389 | | | |
| | 51-60 | 4.90 | .316 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Above 60 | 4.91 | .302 | | | |
| | Total | 4.87 | .336 | | | |
| Physiological Satisfaction | 40 & below | 4.82 | .395 | .599 | .619 | Not Significant |
| | 41-50 | 4.92 | .289 | | | |
| | 51-60 | 4.90 | .316 | | | |
| | Above 60 | 4.73 | .467 | | | |
| | Total | 4.84 | .373 | | | |
| Health Outcome | 40 & below | 4.82 | .395 | .280 | .840 | Not Significant |
| | 41-50 | 4.92 | .289 | | | |
| | 51-60 | 4.90 | .316 | | | |
| | Above 60 | 4.82 | .405 | | | |
| | Total | 4.85 | .356 | | | |
| **Dimension** | **Weight** | **Mean** | **SD** | **t** | ***p*-value** | **Interpretation** |
| Social Modelling | 50 & below | 4.88 | .354 | .565 | .641 | Not Significant |
| | 51-60 | 4.93 | .258 | | | |
| | 61-70 | 4.86 | .351 | | | |
| | Above 70 | 5.00 | .000 | | | |
| | Total | 4.91 | .290 | | | |
| Outcome Expectations | 50 & below | 4.88 | .354 | .009 | .999 | Not Significant |
| | 51-60 | 4.87 | .990 | | | |
| | 61-70 | 4.86 | .351 | | | |
| | Above 70 | 4.90 | .316 | | | |
| | Total | 4.87 | .579 | | | |
| Self-Efficacy | 50 & below | 4.88 | .354 | 1.458 | .237 | Not Significant |
| | 51-60 | 4.73 | .458 | | | |
| | 61-70 | 4.91 | .294 | | | |
| | Above 70 | 5.00 | .000 | | | |
| | Total | 4.87 | .336 | | | |
| Physiological Satisfaction | 50 & below | 4.88 | .354 | .140 | .936 | Not Significant |
| | 51-60 | 4.80 | .414 | | | |
| | 61-70 | 4.86 | .351 | | | |
| | Above 70 | 4.80 | .422 | | | |
| | Total | 4.84 | .373 | | | |
| Health Outcome | 50 & below | 4.75 | .463 | .905 | .445 | Not Significant |
| | 51-60 | 4.80 | .414 | | | |
| | 61-70 | 4.86 | .351 | | | |
| | Above 70 | 5.00 | .000 | | | |
| | Total | 4.85 | .356 | | | |

### 6.4 Health Outcomes

Health outcomes refer to measurable changes in physical, mental, and emotional well-being resulting from participation in a multi-exercise-designed fitness program. When analyzed by sex, data may reflect greater health consciousness among females, who often engage in fitness programs for physical fitness and disease prevention, mental health, and aesthetic goals.

When analyzed by marital status, married individuals may benefit from spousal support, which encourages consistent participation in fitness activities, while single individuals may face more challenges in maintaining motivation.

Health outcomes by age: The middle-aged reported the highest health outcomes. This age group may focus more on maintaining health due to increasing health risks. They might also experience more noticeable improvements in their energy levels, mobility, and mental clarity due to regular exercise.

## 7. Conclusions

Emerging themes showed the participants' feelings about their commitment to the Multi-Exercise Design (MXD) fitness program. For example, they talked about feeling physiological satisfaction, the happiness or fulfillment of doing MXD fitness exercises. The participants experienced psychological satisfaction, which can sustain the contentment of fulfilling one's desires, needs, or expectations. Additionally, they acknowledged benefits gained, wherein participants experienced positive outcomes from engaging in various forms of physical activity, particularly when combining different types of exercises or training modalities. Moreover, maintaining health conditions using the MXD fitness program can significantly improve and maintain an individual's health conditions.

A checklist comprising 55 items was developed based on the participants' responses regarding their commitment to the multi-exercise design (MXD) fitness program among Region XI and Region XII fitness enthusiasts. The participants' answers to the checklist were coded and put through exploratory factor analysis. The analysis revealed that 50 items were retained from the checklist, as their factor loading exceeded 0.4. The remaining five items were removed. This process revealed five underlying dimensions: social modeling, expected outcomes, self-efficacy, physiological satisfaction, and health outcomes.

A CFA model was done on the 50-item tool to ensure it had the correct final dimensions, the items were correctly assigned to their factors, and the factor models were a good fit. Finally, the same 50-item tool was subjected to a reliability test to ensure the validity of the results in terms of the respondents' commitment to the MXD fitness program.

The crafted measurement tool also demonstrated high reliability, yielding a high Cronbach's alpha value. Each of the measurement tools' dimensions met or exceeded the reliability standards. Moreover, the dimensions and overall mean level of the MXD fitness program were very high among enthusiasts in Regions XI and XII. This finding suggests that fitness enthusiasts in Regions XI and XII consistently observed all the dimensions of the MXD fitness program. The data analysis revealed no statistically significant difference in the overall level of the MXD fitness program among fitness enthusiasts within the cities and municipalities of Regions XI and XII.

The quantitative phase's new measurement tool used supporting statements of qualitative themes as questions. The evidence suggests that the tool served as the third primary integration point. Using the new measuring tool in the quantitative phase (supplemental survey) worked to find out what it was meant to find out by conducting a research survey.

## 8. Recommendation

The study had many intriguing results and conclusions. Here are some suggestions for how to make the multi-exercise design (MXD) fitness program better at promoting fitness and getting people more committed to exercise.

Firstly, the results from this study may raise awareness among top administrators in the Department of Education and higher education institutions. In particular, it is suggested that the groups that make policy think about creating detailed rules that require the physical education departments of different schools and universities to develop ways to get their basic physical education students to be more active.

Secondly, conducting longitudinal studies to assess the long-term impact of the MXD fitness program on participants' fitness levels and overall well-being would provide more profound insights. Additionally, incorporating diverse participants from various demographic backgrounds will ensure that the findings apply to a broader population.

Thirdly, exploring technology and digital platforms to enhance participant engagement and adherence to the program can lead to improved outcomes. The MXD fitness program will work even better if targeted interventions deal with specific problems that make people not want to exercise, like insufficient time or motivation.

Lastly, future researchers may find this study valuable as a starting point for more profound investigations. It can contribute additional knowledge to the physical education curriculum and inform future studies.

These recommendations aim to refine and enhance the MXD fitness program, encouraging more individuals to commit to an active and healthy lifestyle.

## Acknowledgements

The researcher wishes to extend his deepest gratitude and heartfelt appreciation to all those who contributed to the successful completion of this endeavor. We sincerely extend special thanks to the following individuals:

To Dr. Porferia S. Poralan, the researcher's adviser, for her expertise, dedication to content quality, and unwavering support. Her guidance and encouragement were invaluable in overcoming numerous challenges and completing this degree.

To the esteemed panel of examiners: Dr. Jo-Ann Y. Solomon (Chairperson), Dr. Danilo G. Baradillo, Dr. Thelma Alderite, Dr. Edna Salva, and Dr. Felix C. Chavez— The researcher extends heartfelt gratitude for their invaluable feedback, meticulous

manuscript corrections, and insightful commentaries. Without their expertise, this paper would not have been successfully guided in the right direction.

To Sultan Kudarat State University, for trusting the researcher and granting a full scholarship. This privilege served as a driving force in achieving the completion of this degree.

To the Karakasa Fitness Association (KFA) officers and members, whose unwavering support and active participation in both qualitative and quantitative survey studies greatly enriched this research.

To the K2 Hatawista Fitness Club, Tacurong Fitness Club (TFC), Tagum City Fitness Club (TCFC), and Panabo City Fitness Club (PCFC), led by their energetic presidents, for generously dedicating their time and energy s respondents in the survey.

To Dr. Siony S. Brunio, Dr. Rodelyn Dalayap, Dr. Jesusa Ortuoste, Dr. Elvie V. Diaz for their encouragement and wisdom, which inspired the researcher to consider and ultimately pursue this degree.

To all the individuals whose unwavering support behind the scenes made the realization of this endeavor and the completion of this study possible, my heartfelt gratitude goes out to you.

Above all, I thank God for allowing all these things to come into my life.

**Conflict of Interest Statement**

The authors declare no conflicts of interest.

**About the authors**

**Wilfredo M. Atayan** is a seasoned educator and dynamic leader in physical education, currently serving as an Associate Professor I at Sultan Kudarat State University, Tacurong Campus. Over three decades of extensive experience in teaching, sports, coaching, and cultural organizing, he has consistently demonstrated excellence in fostering holistic student development through physical education, performing arts, and socio-cultural activities. Born in Quezon City and residing in Tacurong City, Mr. Atayan earned his Master of Arts in Teaching Physical Education from Sultan Kudarat State University, Tacurong City, Province of Sultan Kudarat. A dynamic and multi-talented individual, he is renowned for his roles as an event organizer, fitness instructor, and sports enthusiast, with remarkable expertise in dancing, acting, and sports development. His impressive career includes key leadership positions such as school sports director, head coach for soccer and football, martial arts practitioner, and sports and socio-cultural coordinator. Beyond his academic contributions, he extended his service to the community by serving as a DILG CSIS Field Manager in Sultan Kudarat Province, showcasing his commitment to leadership and development. An active member and officer in numerous cultural and athletic organizations, Mr. Atayan has contributed significantly as the President of the South Cotabato Football Association, president of the Association of Mindanao Physical Educators in Region XII and president of the Kiwanis Club of Koronadal, Division 6A. He has also been an esteemed member of performance groups such as the Dipolog City

Dance Troupe and Sining ng Kambayoka Theatre Arts of MSU. Mr. Atayan continues to inspire through his commitment to physical wellness, cultural enrichment, and academic excellence, making him a respected figure in both educational and community development circles.

**Dr. Porferia Sarana Poralan** is an accomplished educator with extensive experience spanning grade school to graduate school, specializing in physical education, health, and music. She is also recognized for her teaching excellence, research contributions, and administrative leadership in higher education. She holds a PhD in Educational Leadership and a master's in Physical Education, along with a Master of Arts in Guidance Counseling. Her professional journey includes serving as Graduate School Program Coordinator (2022–Present), Program Dean (2012–2016), and Research Capability-Building Coordinator (2016–2018) at the University of the Immaculate Conception. She has also taught for over two decades, instructing at all academic levels. Dr. Poralan actively contributes to quality assurance and research ethics in education, serving as a member of CHED's Regional Quality Assurance Team (RQAT) (2019–2024) and as an Affiliated Scientist Member of her university's Research Ethics Committee (2019–2023). She has authored textbooks and research publications in physical education. Her leadership and teaching excellence have earned her prestigious awards, including being recognized as one of the Top Five Most Outstanding Teachers in Region XI (2022). Her expertise includes curriculum development, leadership training, research methodologies, and administrative management. She continues to engage in professional development through training, research, and academic conferences.

## References

Andrade A. C. d. S., Mingoti S. A., Fernandes A. P., Andrade R. G. d., Friche A. d. L., Xavier C. C., Caiaffa W. T. (2018). Neighborhood-based physical activity differences: Evaluation of the effect of health promotion program. *PLoS ONE, 13*(2), doi: 10.1371/journal.pone.0192115

Boyst, J. P. (2009). An examination of sport commitment in collegiate athletes (Master's thesis, University of North Carolina at Greensboro). UNCG Institutional Repository. https://libres.uncg.edu/ir/uncg/f/Boyst_uncg_0154M_10149.pdf

Cagas J, Eric Julian M, Beatriz T, S.P. Chessa, Comparison of exercise versus sport participation motives among Filipino university students, *Asia Life Sciences*, vol. 24, no. 2, pp. 703-713, 2015. https://pages.upd.edu.ph/sites/default/files/ejmanalastas/files/cagas_et_al._asia_life_sciences_242_703-713_2015.galley_proof_04_mar_2015 .pdf

Cagas, J. Y., Mallari, M. F. T., Torre, B. A., Kang, M. G. D. P., Palad, Y. Y., Guisihan, R. M., Aurellado, M. I., Sanchez-Pituk, C., Realin, J. G. P., Sabado, M. L. C., Ulanday, M. E. D., Baltasar, J. F., Maghanoy, M. L. A., Ramos, R. A. A., Santos, R. A. B., & Capio, C. M., Chendo, I.; Silva, C.; Duarte, G.S.; Prada, L.; Vian, J.; Quintão, A.; Voon, V.;

Ferreira, J.J. Frequency of Depressive Disorders in Parkinson's Disease: A Systematic Review and Meta-Analysis. *J. Park. Dis.* 2022, *12*, 1409–1418.

Chen Y, Sloan FA, Yashkin AP. Adherence to diabetes guidelines for screening, physical activity, and medication and onset of complications and death. J Diabetes Complications. 2015;29(8):1228-33. https://doi.org/10.1016/j.jdiacomp.2015.07.005

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and Conducting Mixed Methods Research* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Davis, C., Brewer, H., & Ratusny, D. (1993). Commitment to Exercise Scale (CES) [Database record]. *PsycTESTS*. https://doi.org/10.1037/t53199-000.

Davis, A., Taylor, J., & Cohen, E. (2015). Social bonds and exercise: Evidence for a reciprocal relationship. *PLoS One, 10*(8). https://doi.org/10.1371/journal.pone.0136705.

DeBate, R. D., Huberty, J., & Gabriel, K. P. (2009). Reliability and validity of the Commitment to Physical Activity Scale for adolescent girls. *Journal of Physical Activity and Health, 6*(1), 97–104. https://doi.org/10.1123/jpah.6.1.97

Derakhshanpoor, A., Vaez Mousavi, M., & Taheri, H. R. (2016). Introducing the Questionnaire of Commitment to Exercise. *Global Journal of Health Science, 9*(6), 151–160. https://doi.org/10.5539/gjhs.v9n6p151

Fahey T. D., Insel P., Roth T. (2018). *Fit & well (13th ed.).* New York, NY: McGraw Hill.

Guthold R, Stevens GA, Riley LM, Bull FC. Worldwide trends in insufficient physical activity from 2001 to 2016: a pooled analysis of 358 population-based surveys with 1.9 million participants. *Lancet Glob Health 2018*; 6(10). doi: 10.1016/S2214-109X (18)30357-7

Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1·6 million participants. *The Lancet. Child & Adolescent Health*, *4*(1), 23–35. https://doi.org/10.1016/S2352-4642(19)30323-2

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Cengage Learning.

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspectives on psychological science, 10*(2), 227-237.

Lachman, M. E., Lipsitz, L., Lubben, J., Castaneda-Sceppa, C., & Jette, A. M. (2018). When Adults Don't Exercise: Behavioral Strategies to Increase Physical Activity in Sedentary Middle-Aged and Older Adults. *Innovation in Aging, 2*(1). https://doi.org/10.1093/GERONI/IGY007

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

Loades, M. E., Chatburn, E., Higson-Sweeney, N., Reynolds, S., Shafran, R., Brigden, A., & Crawley, E. (2020). Rapid systematic review: the impact of social isolation and loneliness on the mental health of children and adolescents in the context of

COVID-19. *Journal of the American Academy of Child & Adolescent Psychiatry,* 59(11), 1218-1239.

Maher, J. P., Pincus, A. L., Ram, N., & Conroy, D. E. (2015). Daily physical activity and life satisfaction across adulthood. *Developmental Psychology, 51*(10), 1407–1419. https://doi.org/10.1037/dev0000037

Mcphee JS, French DP, Jackson D, Nazroo J, Pendleton N, Degens H. (2018). Physical Activity in older age: perspectives for healthy aging and frailty. *Biogerontology;* 17(3):567_80. doi:10.1007/s10522-016-9641_0 https://pubmed.ncbi.nlm.nih.gov/26936444/

Nik-Nasir, N. M., Md-Yasin, M., Ariffin, F., Mat-Nasir, N., Miskan, M., Abu-Bakar, N., & Yusoff, K. (2022). Physical Activity in Malaysia: Are We Doing Enough? Findings from the REDISCOVER Study. *International Journal of Environmental Research and Public Health*, *19*(24). https://doi.org/10.3390/IJERPH192416888

Pengpid, S.; Peltzer, K. Sedentary behaviour, physical activity and life satisfaction, happiness and perceived health status in university students from 24 countries. *Int. J. Environ. Res. Public Health* 2019, *16*, 2084. https://pubmed.ncbi.nlm.nih.gov/31200427/

Pescatello, L. S., Arena, R., Riebe, D., & Thompson, P. D. (2015). *ACSM's Guidelines for Exercise Testing and Prescription* (9th ed.). Philadelphia, PA: Wolters Kluwer/Lippincott Williams & Wilkins. https://pmc.ncbi.nlm.nih.gov/articles/PMC4139760/

Robbins, L. B., Ling, J., Wesolek, S. M., Kazanis, A. S., Bourne, K. A., & Resnicow, K. (2017). Reliability and Validity of the Commitment to Physical Activity Scale for Adolescents. *American Journal of Health Promotion: AJHP*, *31*(4), 343–352. https://doi.org/10.4278/AJHP.150114-QUAN-665

Röhr, S., Wittmann, F., Engel, C., Enzenbach, C., Witte, A. V., Villringer, A., ... & Riedel (2021). Social factors and the prevalence of social isolation in a population-based adult cohort. *Social psychiatry and psychiatric epidemiology*, 1-10. https://pubmed.ncbi.nlm.nih.gov/34533607/

Stratas, A., Karlis, G., Gravelle, F., & Lagacé, M. (2022). Factors influencing commitment to maintaining long-term exercise in adults over the age of 50. *Loisir et Société / Society and Leisure*, *45*(3), 626–643. https://doi.org/10.1080/07053436.2022.2141429

Suhr, D. D. (2006). Exploratory or Confirmatory Factor Analysis? *Proceedings of the 31st Annual SAS Users Group International Conference*. Cary, NC: SAS Institute Inc., Paper Number 200-31. Retrieved from SAS Support. https://support.sas.com/resources/papers/proceedings/proceedings/sugi31/200-31.pdf

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th ed.). Boston, MA: Pearson Education.

Vaz, C.T.; de Souza Andrade, A.C.; Proietti, F.A.; Xavier, C.C.; de Lima Friche, A.A.; Caiaffa, W.T. A multilevel model of life satisfaction among old people: Individual

characteristics and neighborhood physical disorder. *BMC Public Health* 2019, *19*, 861. https://europepmc.org/article/MED/31269940

Williams BM, Kraemer RR. Comparison of cardiorespiratory and metabolic responses in kettlebell high-intensity interval training versus sprint interval cycling. J Strength Cond Res 29: 3317–3325, 2015. https://pubmed.ncbi.nlm.nih.gov/26360962/

Williams, S., Booton, T., Watson, M., Rowland, D., and Altini, M. (2017). Heart rate variability is a moderating factor in the workload-injury relationship of competitive CrossFit–athletes. *J. Sports Sci. Med.* 16, 443–449.

Williams BM, Kraemer RR. Comparison of cardiorespiratory and metabolic responses in kettlebell high-intensity interval training versus sprint interval cycling. J Strength Cond Res 29: 3317–3325, 2013.

World Health Organization. WHO Life expectancy. WHO. Available via https://www.who.int/gho/mortality.burden.disease/lifetable/situationtrends.text/en/. Published 2018 (Accessed 19 January 2019).

World Health Organization. (2019). *World Health Statistics 2019: Monitoring Health for the SDGs, Sustainable Development Goals*. Geneva: WHO. Retrieved from WHO Publications.

World Health Organization. The Global Status Report on Physical Activity 2022. Available online: https://www.who.int/teams/health-promotion/physical-activity/global-status-report-on-physical-activity-2022 (accessed on 1 November 2022).

Zhang, Z.; Chen, W. A systematic review of the relationship between physical activity and happiness. *J. Happiness Stud.* 2019, *20*, 1305–1322.