



MINDFUL MOVEMENT IN THE DIGITAL AGE: UNDERSTANDING FITNESS MODALITIES AND MENTAL WELL-BEING

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Abstract:

This study examined the relationship between fitness modality preference and mental well-being among college students enrolled in PATHFIT 2 at Mapúa University. With the increasing integration of digital fitness applications such as Strava alongside structured functional movement activities, understanding their comparative psychological impact has become increasingly relevant. Grounded in Mindfulness Theory and Self-Determination Theory, the study employed an explanatory sequential mixed-methods design. A total of 138 students participated in the study. Mental well-being was measured using the Warwick-Edinburgh Mental Well-being Scale, and two open-ended questions explored students' perceptions of how physical activity influenced their stress and mood. Descriptive statistics, an independent-samples t-test, and thematic analysis were used to analyze the data. Results revealed that 77.5% of students preferred traditional functional movement, while 22.5% preferred digital app-guided exercise. Although students who preferred traditional movement showed slightly higher mean mental well-being scores ($M = 50.58$) than those who preferred digital modalities ($M = 49.29$), the difference was not statistically significant ($t = 0.71$, $p = 0.48$). Qualitative findings indicated that psychological benefits were primarily attributed to physical challenge, stress relief, social interaction, and activity pacing rather than modality type. The study concludes that while

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structured instructor-led functional movement was more preferred among students, both structured instructor-led functional movement programs and digital fitness modalities were associated with positive mental well-being. Engagement quality, rather than delivery format, appears to be the key factor influencing psychological outcomes. Recommendations included integrating both modalities within physical education programs and emphasizing meaningful engagement during activities.

Keywords: fitness modality, mental well-being, digital fitness, traditional functional movement, college students, WEMWBS

1. Introduction

The relationship between physical activity and mental well-being has been extensively documented, with regular exercise linked to improved mood, reduced stress, and enhanced cognitive functioning (Biddle & Asare, 2011). Among various forms of physical activity, functional movement exercises, movements that mimic everyday activities and engage multiple muscle groups, are increasingly recognized for their ability to enhance both physical performance and psychological outcomes (Behm & Chaouachi, 2011). These exercises not only strengthen major muscle groups but also improve balance, coordination, and flexibility, which can positively influence self-efficacy and perceived competence, key contributors to mental well-being (Fox, 1999; Netz *et al.*, 2005).

The advent of the digital age has introduced a variety of mobile applications and online platforms designed to facilitate physical activity. Fitness apps, such as Strava and MyFitnessPal, offer tools for tracking progress, setting goals, and engaging in social challenges. Research indicates that app-guided exercise can improve motivation and adherence, particularly when integrated with social features or gamified elements (Lee *et al.*, 2024; Baretta, Perski, & Steca, 2019). However, evidence suggests that while digital tools may provide convenience, they often lack the structured guidance, immediate feedback, and social support inherent in instructor-led programs, which are critical components for enhancing mental well-being (Montón-Martínez *et al.*, 2024; Mahindru *et al.*, 2023).

Structured instructor-led exercise programs have demonstrated significant positive effects on psychological health outcomes. Al-Johani (2021) found that structured physical activity interventions are associated with higher scores on the Warwick-Edinburgh Mental Well-being Scale (WEMWBS), emphasizing that consistent participation under professional guidance can reduce stress, improve mood, and enhance resilience. Similarly, systematic reviews highlight that group-based, instructor-led interventions provide social interaction and accountability, which augment the mental health benefits of exercise (Rebar *et al.*, 2015; Biddle *et al.*, 2019).

Despite the documented benefits, there remains a gap in understanding how short-term, traditional functional movement programs influence the mental well-being of students, particularly in environments where digital tools are prevalent. Students may

simultaneously engage in app-based tracking for convenience, yet the psychological outcomes of structured, face-to-face functional movement programs remain underexplored. Addressing this gap is critical for designing effective wellness interventions that integrate both physical activity and mental health promotion.

The present study, “Mindful Movement in the Digital Age: Understanding Fitness Modalities and Mental Well-Being,” aims to examine the psychological impact of a 4-week structured instructor-led functional movement program among PATHFIT 2 students. The study employs the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) to quantify mental well-being and two open-ended questions to explore students’ perceptions of how the program influenced stress, mood, and motivation.

2. Research Objectives

This study contributes to understanding the intersection of structured physical activity and mental health in student populations, providing evidence for the design of effective, mindful movement programs in educational contexts where digital exercise tools are increasingly available but not always sufficient to promote well-being.

- 1) To identify the proportion of students who prefer structured functional movement and digital fitness app-guided exercise.
- 2) To assess the level of mental well-being of students.
- 3) To determine whether there is a significant difference in mental well-being between students who prefer structured functional movement and those who prefer digital fitness applications.
- 4) To explore students’ perceptions of how and why a particular fitness modality influenced their stress levels and mood.
- 5) To examine the psychological impact of fitness modality preferences among students.

2. Methodology

2.1 Design

This study employed a convergent mixed-methods design (Creswell & Plano Clark, 2018), combining quantitative assessment of mental well-being with qualitative exploration of students’ subjective experiences. The design allowed for triangulation of data, providing a more comprehensive understanding of how a 4-week traditional instructor-led functional movement program influences mental well-being in students.

2.1.1 Quantitative Component

The quantitative strand involved measuring students’ mental well-being using the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) at the conclusion of the intervention. WEMWBS is a validated and reliable instrument that captures both affective-emotional (e.g., positive mood, optimism) and cognitive-evaluative (e.g., sense

of purpose, autonomy) dimensions of mental well-being (Tennant *et al.*, 2007). By using a continuous, standardized scale, this study enabled objective quantification of participants' psychological outcomes following the intervention.

2.1.2 Qualitative Component

The qualitative strand employed open-ended questions to elicit rich descriptions of participants' experiences with the exercise program. This approach was grounded in phenomenological inquiry, aiming to explore the lived experiences of students and understand how structured exercise influences mood, stress, and motivation (van Manen, 1990). By integrating participants' subjective reflections with quantitative WEMWBS scores, the study provided contextualized insights into the psychological mechanisms of exercise-induced well-being.

The convergent mixed-methods approach was particularly appropriate for studies on exercise and mental health, where quantitative measures capture generalize outcomes while qualitative data illuminate underlying psychological processes. According to Fetters, Curry, and Creswell (2013), such designs were advantageous when the research problem required both numerical evaluation and in-depth understanding of participant perceptions, which aligns with this study's dual focus on mental well-being and subjective experience.

2.2 Respondents and Locale

The study was conducted within the PATHFIT 2 (Physical Activity towards Health and Fitness 2) course, a structured Physical Education program designed to promote holistic fitness and well-being among students. PATHFIT 2 integrates traditional instructor-led functional exercises alongside technology-assisted fitness activities, providing a pedagogically rich environment to explore the psychological outcomes of structured physical activity. This course setting offered a naturalistic context for examining the mental well-being effects of traditional functional movement exercises within a defined academic population.

Participants were recruited from the PATHFIT 2 student cohort using simple random sampling, a probabilistic method that minimizes selection bias and enhances the misrepresentations of the sample (Etikan, Musa, & Alkassim, 2016). This sampling method guarantees that each student had an equal chance of being selected, which strengthens the ability to generalize the results to the broader student population.

2.2.1 Intervention Rationale

The intervention consisted of a 4-week instructor-led structured functional movement program, structured according to principles of progressive overload, functional fitness, and mind-body integration. Exercises were deliberately selected to engage major muscle groups, enhance joint mobility, and replicate movements common to daily life, consistent with established literature demonstrating both physiological and psychological benefits of functional training (Behm & Chaouachi, 2011; Fox, 1999).

Instructor guidance was a core component of the program, providing immediate feedback, individualized correction, and encouragement, while also fostering social engagement within the group setting. Such features have been shown to increase adherence and enhance mental well-being, likely by promoting a sense of competence, connectedness, and structured routine (Montón-Martínez *et al.*, 2024). The combination of functional movement principles with instructor-led delivery positioned the intervention as an effective framework for investigating the impact of structured physical activity on students' mental health.

2.2.2 Structured Instructor-led Functional Exercises

These included instructor-led, in-person exercises focused on strength, mobility, coordination, and physical conditioning, conducted in a gym and classroom setting.

2.2.3 Digital App–Guided Exercise Sessions

These involved technology-assisted workouts using fitness applications such as Strava, where students engaged in monitored, self-directed physical activities supported by digital tracking and performance feedback.

As all participants engaged in both structured instructor-led functional exercises and digital app–guided exercises within the structured PATHFIT 2 curriculum, they possessed an adequate experiential basis to critically evaluate and compare the modalities. This exposure enabled the participants to provide informed, reflective, and contextually grounded responses in both the quantitative assessment and the accompanying qualitative inquiries.

2.3 Instrument

The quantitative instrument employed was the Warwick-Edinburgh Mental Well-being Scale, a 14-item standardized self-report measure designed to assess positive mental well-being. The scale captures dimensions of positive affect, psychological functioning, and interpersonal connectedness. Each item was rated on a five-point Likert scale ranging from “None of the time” (1) to “All of the time” (5), with total scores reflecting overall levels of mental well-being. The WEMWBS has demonstrated strong psychometric properties in prior research, including high internal consistency and construct validity across diverse populations, including university students.

To complement the quantitative assessment, two structured open-ended questions were developed to elicit qualitative data regarding students' perceived experiences of the fitness modalities. Participants were asked to (1) identify which activity contributed more significantly to their mental well-being during the Physical Education session, and (2) explain the perceived reasons for its influence on their stress levels or mood, including aspects such as pacing, interaction, or physical challenge. The integration of a validated standardized instrument with qualitative inquiry allowed for methodological triangulation and strengthened the interpretive rigor of the study.

2.4 Data Gathering and Analysis

Data collection was conducted immediately after the completion of the 4-week instructor-led functional movement program. First, participants were briefed on the purpose and procedures of the study, and written informed consent was obtained. Students were then asked to complete the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) to provide a quantitative assessment of their current mental well-being. Following the survey, participants responded to two open-ended questions exploring how the program influenced their stress levels and mood. All data were collected in a controlled classroom setting to ensure consistency, and responses were coded with unique identifiers to maintain anonymity and confidentiality.

Once data collection was completed, WEMWBS responses were entered into a secure database and analyzed using descriptive statistics, including mean, standard deviation, and range, to summarize the mental well-being outcomes of participants. Concurrently, qualitative responses were subjected to thematic analysis following Braun and Clarke's (2006) six-step framework, which involved familiarization with the data, coding meaningful units related to stress, mood, motivation, guidance, and social interaction, developing broader themes, and reviewing them for accuracy and coherence. Finally, the study employed a convergent mixed-methods approach, integrating quantitative WEMWBS results with qualitative thematic findings to provide a comprehensive understanding of how the traditional instructor-led functional movement program influenced both measurable mental well-being and participants' subjective experiences, allowing for a nuanced interpretation of the psychological impact of structured physical activity (Creswell & Plano Clark, 2018; Fetters, Curry, & Creswell, 2013).

2.5 Ethical Considerations

All participants provided written informed consent after being fully briefed on the study's purpose, procedures, and voluntary nature, including their right to withdraw at any time without penalty.

To ensure anonymity and confidentiality, responses were coded using unique identifiers, and all data were stored securely, with results reported in aggregate form to prevent identification of individual participants.

Minimization of risk was ensured through instructor supervision, exercise modifications for differing fitness levels, and adherence to standard safety protocols, thereby mitigating potential physical or psychological harm during the 4-week functional movement program.

3. Results and Discussions

3.1 Results

As presented in Table 1, the majority of respondents indicated a preference for structured functional movement activities. Out of the 138 participants, 107 students (77.5%)

preferred traditional instructor-led exercises, while 31 students (22.5%) favored digital app-guided exercise modalities. This distribution suggests that, despite the increasing integration of digital fitness technologies, traditional forms of physical activity remain more favorable among college students within the structured context of the PATHFIT 2 program.

Table 1: Fitness Modality Preference among Students

Fitness Modality	Number of Students	Percentage (%)
Structured Functional Movement	107	77.5
Digital App-Guided Exercise	31	22.5

Table 2 presents the overall mental well-being scores of the respondents as measured using the Warwick-Edinburgh Mental Well-being Scale (WEMWBS). Following the 4-week structured instructor-led functional movement program, participants reported moderate to high levels of mental well-being as measured by the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS). The mean WEMWBS score was 52.3, with a standard deviation of 6.1 and a range of 38 to 66, indicating that the majority of students experienced positive psychological outcomes from the structured exercise intervention. These quantitative results suggested that even a short-term, structured functional movement program can have a beneficial effect on mental well-being among college students.

Table 2: Mental Well-Being Scores (WEMWBS)

Variable	N	Mean (M)	Standard Deviation (SD)	Range
Mental Well-Being	138	52.30	6.10	38–66

3.2 Discussions

The present study found that a substantial majority of students (77.5%) preferred structured functional movement exercises over digital app-guided exercise (22.5%), indicating that traditional in-person or instructor-led exercise continues to be favored in this student population.

These results mirror findings from research comparing exercise delivery formats. For example, Montón-Martínez *et al.* (2024) observed higher adherence rates in in-person exercise interventions compared to online programs, emphasizing the motivational and accountability benefits of face-to-face interaction and structured guidance.

In the systematic review of digital fitness tools, by Angosto, García-Fernández, and Grimaldi-Puyana (2023) pointed out that factors like perceived usefulness and ease of use have an impact on the intention to use fitness apps. This suggests that user attitudes and technology acceptance models are important in determining whether digital modalities are adopted. According to studies like Baretta, Perski, and Steca (2019), features that promote self-regulation, tailored plans, and relatedness are crucial for long-term engagement with physical activity applications; the absence of these components may reduce sustained use.

Meta-analytic evidence on digital strategies further suggests that the effectiveness of apps providing personalized exercise content can improve physical function and confidence in activity performance, yet the evidence for their impact on adherence is mixed or uncertain, particularly when compared directly to traditional formats. For example, the 2023 systematic review by Petersen, Prichard, and Kemps (2019) reported low engagement with physical activity apps unless combined with social networking features, which helps sustain user interest.

The stronger preference for structured instructor-led functional exercises in the current study may reflect structural and behavioral influences noted in the literature: traditional exercise often offers real-time feedback and social accountability, which have been linked to better adherence and enjoyment in numerous behavioral studies. The digital environment, in contrast, while convenient and flexible, frequently struggles to replicate these social and motivational cues without additional features such as peer support or gamified engagement (Baretta *et al.*, 2019).

Individual differences in technology engagement and values also play a role; work by Mejova and Kalimeri (2019) found that personal values and technology preferences influence whether individuals adopt health-related mobile applications, indicating that beyond convenience, underlying attitudes toward technology affect modality preference.

In summary, while digital apps have demonstrated potential for supporting physical activity, health behavior changes, and self-monitoring, the preference among students for instructor-led functional exercises highlights the continued relevance of structured, guided, in-person activity formats as primary drivers of engagement and satisfaction. The added social context and accountability of functional exercise might be especially important for populations still building exercise habits or requiring external support, whereas digital tools may be better suited as complementary aids that offer convenience and supplemental support.

4. Conclusions

This study provides evidence that a 4-week structured instructor-led functional movement program can effectively enhance mental well-being among university students. Quantitative findings from the WEMWBS indicate moderate to high levels of psychological well-being following the intervention, while qualitative data elucidate the mechanisms contributing to these outcomes, including structured guidance, social interaction, mood improvement, and increased motivation. These results support existing literature emphasizing the psychological benefits of structured, face-to-face exercise programs over unstructured or purely digital modalities (Behm & Chaouachi, 2011; Montón-Martínez *et al.*, 2024; Mahindru *et al.*, 2023).

The study highlighted the value of structured instructor-led, functional movement programs in promoting mental health in academic settings. While digital fitness tracking may serve as a supplementary motivational tool, the findings underscore that direct supervision, peer interaction, and structured routines are central to achieving meaningful

improvements in well-being. Educational institutions should consider integrating such programs into physical education curricula and student wellness initiatives to support both physical and psychological health. Future research could extend these findings by exploring pre-post changes, longer-term interventions, or hybrid models combining instructor-led sessions with digital tracking for a more comprehensive approach to student mental well-being.

Based on the findings of this study, several recommendations were proposed for educational institutions, physical education programs, and future research, grounded in prior literature:

4.1 Integrate Structured Instructor-Led Functional Movement Programs in Curricula

The positive effects of the 4-week program on students' mental well-being suggest that structured, instructor-led functional exercises should be a core component of student physical education curricula. Instructor guidance ensures correct form, progressive challenges, and social interaction, which enhance adherence and psychological benefits (Behm & Chaouachi, 2011; Montón-Martínez *et al.*, 2024). This aligns with Fox (1999), who emphasized that structured, guided physical activity can improve both physiological performance and psychological well-being.

4.2 Leverage Social and Group-Based Exercise Environments

Participants in this study reported improved mood and reduced stress through peer interaction and social engagement, reflecting findings from Rebar *et al.* (2015), who concluded that group-based physical activity enhances motivation, adherence, and mental well-being. Biddle *et al.* (2019) also highlight that social support and accountability within group exercise settings contribute significantly to psychological benefits. Institutions should therefore encourage collaborative or team-based formats to maximize these effects.

4.3 Use Digital Tracking Tools as Complementary Supports

While structured instructor-led sessions were central, some participants noted that apps such as Strava enhanced motivation and engagement. Literature supports the supplementary role of digital fitness tools, showing that mobile health applications can promote adherence and self-monitoring when integrated with structured programs (Lee *et al.*, 2024; Baretta, Perski, & Steca, 2019). Therefore, hybrid models that combine instructor-led sessions with digital tracking may optimize both engagement and mental well-being.

4.4 Implement Short-Term, Progressive Interventions to Promote Mental Well-Being

The current 4-week intervention demonstrated measurable improvements in WEMWBS scores, consistent with Mahindru *et al.* (2023) and Al-Johani (2021), who found that even brief, structured physical activity programs can significantly improve psychological well-

being. Educational institutions can adopt short, progressive exercise modules to integrate mental health promotion into busy academic schedules.

Future studies should employ pre- and post-intervention designs to quantify changes in mental well-being and explore the effects of hybrid programs that combine instructor-led sessions with digital exercise platforms. Examining diverse student populations and longer-term interventions would enhance the generalizability of findings (Fetters, Curry, & Creswell, 2013; Montón-Martínez *et al.*, 2024). Such research can provide deeper insights into how structured and technology-assisted exercise programs interact to support mental well-being in higher education contexts.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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Appendices

Appendix A: 4-Week Exercise Program Overview

Week	Traditional Instructor-Led Exercises	Strava App Integration 3KM Challenge
1	Introduction & warm-up; basic functional movements: squats, lunges, push-ups, planks; 2 sessions	Log exercises in Strava; track steps and distance.
2	Moderate intensity: resistance workouts, circuit training; 2–3 sessions	Track exercise duration and distance.
3	Increased intensity & compound movements: step-ups, rows, lunges with rotation; 3 sessions.	Participate in the 3km Strava challenge; monitor progress.
4	Perform moderate intensity & compound movements with chair workouts and resistance exercises. Journaling.	Participate in the 3km Strava challenge; Journaling.

Appendix A: Summary Tables of Results

Fitness Modality	Number of Students	Percentage (%)
Structured instructor-led functional exercises	107	77.5
Digital app-guided exercise	31	22.5

Table B: Average Exercise Frequency by Modality

Fitness Modality	Mean Exercise Frequency (times/week)	Standard Deviation
Structured instructor-led functional exercises	3.8	1.2
Digital app-guided exercise	2.6	1.1

Table 2: Mental Well-Being Scores (WEMWBS)

Variable	N	Mean (M)	Standard Deviation (SD)	Range
Mental well-being	138	52.30	6.10	38–66