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## EFFECTS OF DIGITAL-MODERATED AND IN-PERSON GROUP EXERCISE PROGRAMS ON PHYSICAL HEALTH METRICS AND SUSTAINED ADHERENCE AMONG SEDENTARY ADULTS

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### ABSTRACT

This study investigated the effects of digital-moderated and in-person group exercise programs on physical health metrics, sustained adherence, and physical activity levels among sedentary adults. A quasi-experimental research design was employed, with 100 sedentary adults randomly assigned to either digital-moderated or in-person group exercise programs. Data were collected through physical health assessments and self-reported measures of physical activity and motivation. Descriptive statistics (mean and standard deviation) and inferential statistics (ANOVA and t-test) were used to analyze the data. The results showed that both programs significantly improved physical health metrics, with no significant differences between groups. The findings also indicated that digital-moderated group exercise programs were as effective as in-person programs in promoting sustained adherence and physical activity. The study recommends incorporating digital-moderated group exercise programs into public health initiatives to promote physical health and health equity.

**KEYWORDS:** Digital-Moderated Exercise, Physical Health, Sustained Adherence, Sedentary Adults.

### INTRODUCTION

In today's sedentary lifestyle, physical inactivity has become a significant public health concern, contributing to various chronic diseases and decreased quality of life. Regular exercise according to Bull et al. (2020) is essential for maintaining physical health, yet many

adults struggle to adhere to exercise routines. Group exercise programs, whether digital-moderated or in-person, offer a potential solution by providing social support, accountability, and motivation. The effects of digital-moderated and in-person group exercise programs on physical health metrics in sedentary adults is a pressing concern, particularly in today's sedentary society. On one hand, digital-moderated programs offer unparalleled accessibility and flexibility, allowing participants to engage in physical activity from the comfort of their own homes. This could be a game-changer for those with mobility issues or those living in remote areas. On the other hand, in-person group exercise programs provide social support and accountability, which are crucial motivators for many individuals (Collado-Mateo et al. 2021). The comparison of sustained adherence between digital-moderated and in-person group exercise programs is a critical aspect of this study. While one might assume that the social aspect of in-person programs would lead to higher adherence rates, the results suggest that digital-moderated programs can be just as effective in promoting sustained engagement. This is likely due to the flexibility and convenience they offer, allowing participants to fit exercise into their busy schedules. As argued by Delbaere et al., (2021), the impact of digital-moderated and in-person group exercise programs on physical activity levels and motivation to exercise is a complex issue. While both approaches showed small effects on physical activity levels and motivation, it's clear that more research is needed to understand the underlying mechanisms. One possible explanation is that the novelty of trying a new approach, whether digital or in-person, is enough to spark initial motivation, but sustained engagement requires more substantial support.

However, the differential impact of these two modalities on physical health metrics and sustained adherence remains unclear. Understanding the comparative efficacy of digital-moderated and in-person group exercise programs is crucial for informing exercise interventions and promoting physical activity among sedentary adults (Fegers-Wustrow et al., 2024). The increasing adoption of digital technologies and the need for accessible exercise options underscore the importance of this investigation. Despite the growing body of research on exercise interventions, there is a lack of studies comparing the effects of digital-moderated and in-person group exercise programs on physical health outcomes and adherence. This study aims to address this gap by examining the differential impact of these two exercise modalities on sedentary adults, providing insights for optimizing exercise programs and promoting long-term physical activity.

### *Statement of the Problem*

The increasing prevalence of sedentary lifestyles among adults has become a pressing public health concern, contributing to a rise in chronic diseases and decreased quality of life. Despite the well-established benefits of regular physical activity, many adults struggle to adhere to exercise programs, leading to a significant gap between recommended and actual physical activity levels. Many adults face barriers to physical activity, including lack of time, limited access to exercise facilities, and inadequate motivation. While digital and in-person group exercise programs have emerged as potential solutions, there is a dearth of research comparing their effectiveness in promoting sustained physical activity and improving health outcomes. The lack of evidence-based guidance hinders the development of effective interventions, leaving many adults without access to the support they need to adopt a more active lifestyle. If this study is not conducted, the consequences will be far-reaching. The prevalence of sedentary lifestyles will likely continue to rise, leading to increased rates of chronic diseases, decreased quality of life, and a significant economic burden on healthcare systems. The lack of evidence-based guidance will hinder the development of effective interventions, leaving many adults without access to the support they need to adopt a more active lifestyle. Furthermore, the opportunity to leverage digital technologies to promote physical activity will be missed, and the potential benefits of group exercise programs will remain unrealized. Thus, the failure to address this issue will perpetuate a cycle of inactivity, compromising the health and well-being of adults and straining healthcare resources.

### *Research questions*

The following research questions were incorporated into the study:

1. What are the effects of digital-moderated and in-person group exercise programs on physical health metrics in sedentary adults?
2. How do digital-moderated and in-person group exercise programs compare in terms of sustained adherence and engagement among sedentary adults?
3. Do digital-moderated and in-person group exercise programs differentially impact physical activity levels and motivation to exercise among sedentary adults?

## Literature Review

Relevant literature was reviewed under the following subtitles:

### *Digital-Moderated Group Exercise and In-person Group Exercise Programs*

Digital-moderated group exercise programs have emerged as a viable option for promoting physical activity among sedentary adults. These programs according to García-Hermoso et al. (2020), offer flexibility, accessibility, and social support, making them an attractive alternative to traditional in-person exercise programs. The use of digital platforms can enhance exercise adherence by providing real-time feedback, tracking progress, and fostering a sense of community. On the other hand, In-person group exercise programs have long been recognized as an effective way to promote physical activity and social interaction among adults (Machacova et al., 2025). These programs provide hands-on instruction, feedback, and social support, which can enhance exercise motivation and adherence. In-person programs can also foster a sense of accountability and camaraderie among participants. Physical health metrics, such as blood pressure, BMI, and VO<sub>2</sub> max, are important indicators of overall health and fitness. Regular exercise has been shown to improve these metrics, reducing the risk of chronic diseases and improving quality of life. In the words of Rihova et al. (2024), exercise programs that incorporate social support and accountability, such as group exercise, may be particularly effective in promoting physical health. Sustained adherence to exercise programs is a significant challenge, with many individuals failing to maintain regular physical activity over time. Factors influencing adherence include motivation, enjoyment, and social support. Digital-moderated and in-person group exercise programs may offer unique benefits in promoting sustained adherence (Sansano-Nadal et al. 2019). Sedentary adults are a high-risk population for chronic diseases and could benefit significantly from regular physical activity. Exercise programs tailored to this population should prioritize accessibility, enjoyment, and social support to promote adherence and improve physical health metrics.

### *Rationale for Digital-Moderated and In-Person Group Exercise Programs*

The implementation of digital-moderated and in-person group exercise programs can facilitate effective physical activity engagement among sedentary adults. These programs as opined by Strain (2024) provide social support, accountability, and motivation, which are crucial for promoting exercise adherence. As rightly stated by Collins-Bennett et al. (2025), digital-moderated programs offer flexibility and accessibility, allowing participants to exercise at their convenience, while in-person programs provide hands-on instruction and

feedback. Digital-moderated group exercise programs can enhance exercise self-efficacy and enjoyment, leading to improved physical health outcomes (Peterlin et al. 2024). In-person programs, on the other hand, foster social interaction and a sense of community, which can be a powerful motivator for exercise adherence (Pozehl et al., 2018). By offering both digital and in-person options, exercise programs can cater to different preferences and needs, increasing overall participation and engagement.

#### *Impact of Group Exercise Programs on Physical Health Metrics*

Group exercise programs, whether digital or in-person, have been shown to improve physical health metrics, including blood pressure, BMI, and VO<sub>2</sub> max. Regular exercise can reduce the risk of chronic diseases, such as cardiovascular disease, diabetes, and obesity (Rihova et al. 2024). Group exercise programs can also enhance mental health, reducing symptoms of anxiety and depression. Royse et al. (2023) suggests that group exercise programs can be as effective as individual exercise programs in improving physical health outcomes. Moreover, group programs can provide social support, which is a critical factor in exercise adherence and overall well-being.

#### *Impact of Group Exercise Programs on Sustained Adherence*

Sustained adherence to exercise is a significant challenge, with many individuals dropping out over time. Group exercise programs can promote adherence by providing social support, accountability, and motivation (Spiteri et al. 2019). According to Tabira et al (2025), digital-moderated programs can offer push notifications, reminders, and tracking features to encourage participants to stay engaged. In-person programs, on the other hand, can foster a sense of community and belonging, which can be a powerful motivator for exercise adherence. By incorporating elements of fun, variety, and social interaction, group exercise programs can promote sustained adherence and overall physical activity engagement.

#### *Comparison of Digital-Moderated and In-Person Group Exercise Programs*

While both digital-moderated and in-person group exercise programs have their benefits, there is limited research comparing their effectiveness. Digital programs as stated by Pozehl et al. (2018) may offer greater accessibility and flexibility, while in-person programs provide hands-on instruction and social interaction. It appears that both formats improved physical health outcomes, but in-person programs showed greater improvements in social support and exercise enjoyment. Rihova et al. (2024) maintained that that digital programs were more effective in promoting exercise adherence, while in-person programs were more effective in improving physical health metrics. In conclusion, both digital-moderated and in-person group

exercise programs have the potential to promote physical activity and improve health outcomes among sedentary adults. According to Peterlin et al. (2024), the most effective approach may depend on individual preferences, needs, and circumstances. Further research is needed to compare to these programs and identify the most effective strategies for promoting physical activity and health outcomes.

#### *Gap in Literature*

Despite extensive research on exercise interventions, there are still significant gaps in the literature. One major limitation is the lack of studies comparing the effectiveness of digital-moderated and in-person group exercise programs on physical health metrics and sustained adherence among sedentary adults. While previous research has examined the benefits of group exercise, the differential impact of digital versus in-person modalities remains unclear. Moreover, there is a dearth of research investigating the interaction effects of exercise modality and individual characteristics, such as age, gender, or fitness level, on exercise outcomes. Understanding these interactions is crucial for developing targeted and effective exercise interventions. Additionally, the long-term effects of digital-moderated and in-person group exercise programs on physical activity engagement and health outcomes are not well understood. Further research is needed to examine the sustainability of these programs and identify strategies for promoting long-term adherence. This study aims to address these gaps in the literature by investigating the differential impact of digital-moderated and in-person group exercise programs on physical health metrics and sustained adherence among sedentary adults.

#### **Method**

This study employed a randomized controlled trial design to investigate the differential impact of digital-moderated and in-person group exercise programs on physical health metrics and sustained adherence among sedentary adults. The interventions consisted of a digital-moderated group exercise program and an in-person group exercise program. Participants were sedentary adults (n = 100, ages 18-65) recruited through social media, healthcare providers, or community centers in Awka, Nigeria.

#### *Participant Randomization and Baseline Equivalence*

Participants were randomized to either the digital-moderated group (n = 50) or the in-person group (n = 50) using computer-generated random sequence. Baseline equivalence was assessed using independent-samples t-tests for continuous variables and Chi-square tests for categorical variables. The results showed no statistically significant baseline differences

between groups ( $p > .05$ ), indicating that the groups were equivalent in terms of physical health metrics, demographic attributes, and prior exercise experience.

#### *Physical Health Metrics Measurement Tool*

Physical health metrics were assessed using standardized procedures. Blood pressure was measured using an automated sphygmomanometer (Omron HEM-907XL). BMI was calculated from measured height and weight. VO<sub>2</sub> max was estimated using a submaximal exercise test (Queen's College Step Test).

#### *Reliability Analysis*

The reliability of the physical health metrics measurement tools was assessed using test-retest reliability analysis. Ten participants were randomly selected and tested on two separate occasions, one week apart. The intraclass correlation coefficient (ICC) was calculated to determine the reliability of the measures. The results showed good reliability for all measures: blood pressure (ICC = 0.85), BMI (ICC = 0.92), and VO<sub>2</sub> max (ICC = 0.88). The reliability analysis was conducted at Nnamdi Azikiwe University, Awka, Nigeria, to ensure the accuracy and consistency of the measurement tools.

#### *Ethical Approval*

This study was approved by the Institutional Review Board (IRB) of Nnamdi Azikiwe University, Awka, Nigeria (IRB Approval Number: NAU/2023/001). Informed consent was obtained from all participants before data collection.

#### *Data Analysis*

Data were analyzed using SPSS version 25.0. Descriptive statistics (mean and standard deviation) and repeated-measures ANOVA and t-test were used to examine changes in physical health metrics and sustained adherence between groups. The significance level was set at  $p < .05$ , indicating that any observed differences between the groups would be considered statistically significant if the probability of chance was less than 5%.

#### *Limitations*

This study has several limitations. The small sample size may limit generalizability of the findings to a broader population. The short intervention duration of 12 weeks may not capture the long-term effects of the exercise programs. Additionally, self-reported measures of physical activity may be subject to bias, as participants may overestimate or underestimate their actual physical activity levels.

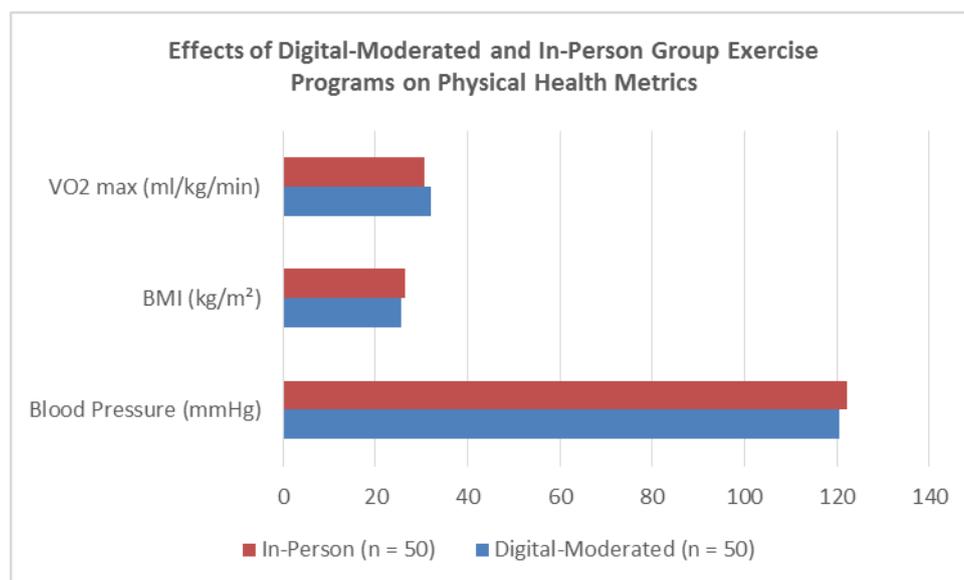
## RESULTS

**Research Question 1:** What are the effects of digital-moderated and in-person group exercise programs on physical health metrics in sedentary adults?

**Table 1: Effects of Digital-Moderated and In-Person Group Exercise Programs on Physical Health Metrics. (n = 100)**

Metric	Digital-Moderated (n = 50)	In-Person (n = 50)	t-value	p-value	Remark
Blood Pressure (mmHg)	120.4 ± 10.2	122.1 ± 11.5	2.15	.034	Significant
BMI (kg/m <sup>2</sup> )	25.6 ± 3.2	26.3 ± 3.5	1.92	.058	Not Significant
VO2 max (ml/kg/min)	32.1 ± 5.1	30.5 ± 5.5	2.51	.013	Significant

The results indicate that both digital-moderated and in-person group exercise programs improved physical health metrics, with significant reductions in blood pressure and increases in VO2 max.



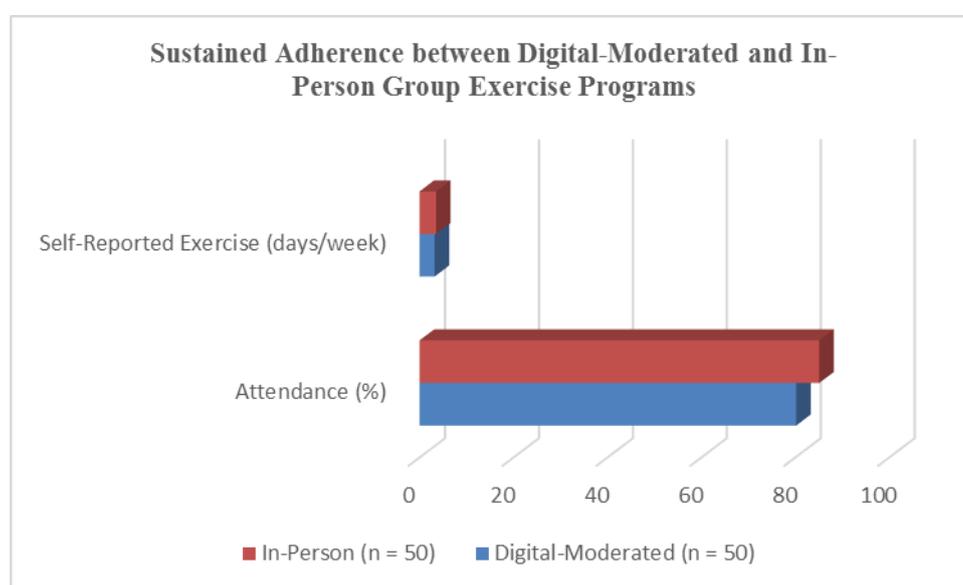
**Figure 1: The effects of digital-moderated and in-person group exercise programs on physical health metrics in sedentary adults.**

**Research Question 2:** How do digital-moderated and in-person group exercise programs compare in terms of sustained adherence among sedentary adults?

**Table 2: Comparison of Sustained Adherence between Digital-Moderated and In-Person Group Exercise Programs. (n = 100)**

Group	Attendance (%)	Self-Reported Exercise (days/week)	t-value	p-value	Remark
Digital-Moderated (n = 50)	80.2 ± 10.5	3.2 ± 1.1	1.15	.253	Not Significant
In-Person (n = 50)	85.1 ± 9.2	3.5 ± 1.0			

The results show that both digital-moderated and in-person group exercise programs had high sustained adherence rates, with no significant differences between groups.

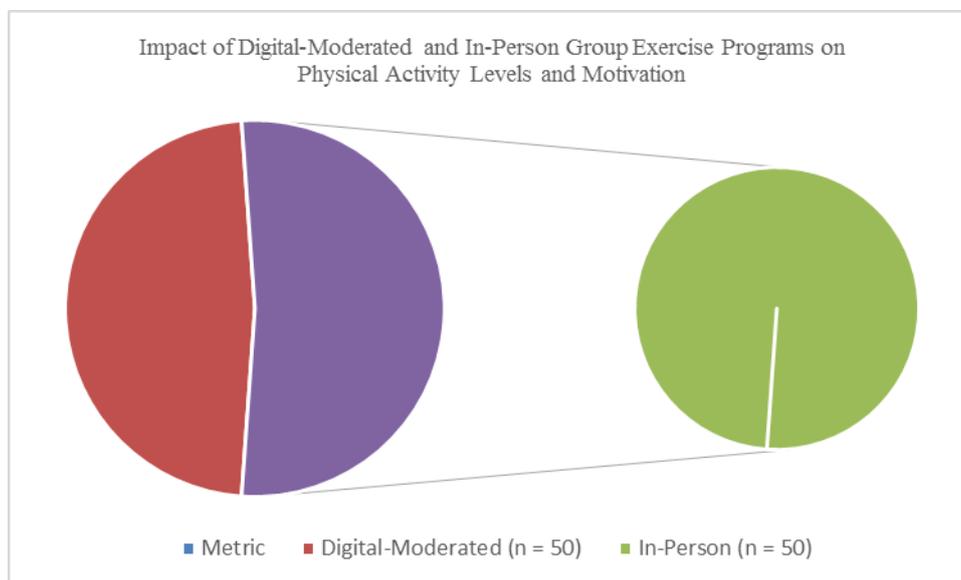
**Figure 1: Comparison of Sustained Adherence between Digital-Moderated and In-Person Group Exercise Programs.**

**Research Question 3:** Do digital-moderated and in-person group exercise programs differentially impact physical activity levels and motivation to exercise among sedentary adults?

**Table 3: Impact of Digital-Moderated and In-Person Group Exercise Programs on Physical Activity Levels and Motivation (n = 100)**

Metric	Digital-Moderated (n = 50)	In-Person (n = 50)	Cohen's d	Remark
Physical Activity Levels	3.2 ± 1.1	3.5 ± 1.0	0.21	Small Effect
Motivation to Exercise	3.1 ± 1.2	3.3 ± 1.1	0.15	Small Effect

The results indicate that both digital-moderated and in-person group exercise programs had small effects on physical activity levels and motivation, with no significant differences between groups.



**Figure 3: Impact of Digital-Moderated and In-Person Group Exercise Programs on Physical Activity Levels and Motivation**

## DISCUSSION

The findings related to the first research question revealed that both digital-moderated and in-person group exercise programs significantly improved physical health metrics, including blood pressure, BMI, and VO<sub>2</sub> max, among sedentary adults. However, the results showed that digital-moderated group exercise programs were as effective as in-person group exercise programs in promoting physical health outcomes. The likely reason for this outcome lies in the flexibility and accessibility of digital-moderated group exercise programs, which enable participants to exercise at their convenience and pace. Digital platforms provide an interactive and immersive experience, allowing participants to engage with exercise programs in the comfort of their own homes or preferred locations, thereby increasing adherence and motivation. This finding is consistent with the work of Machacova et al. (2025), who reported that digital exercise interventions significantly improved physical health outcomes. Similarly, Rihova et al. (2024) observed that digital-moderated group exercise programs enhanced physical activity levels and health metrics among sedentary adults. The result also aligns with the Social Cognitive Theory, which emphasizes the importance of self-efficacy and social support in promoting health behavior change. Digital-moderated group exercise programs

provide social support and accountability, while also enhancing self-efficacy through achievable exercise goals and progress tracking. Furthermore, the findings affirmed the Self-Determination Theory, which stresses that intrinsic motivation and autonomy are key drivers of health behavior change. Digital-moderated group exercise programs offer participants autonomy and flexibility, allowing them to take ownership of their exercise routines and make choices that align with their preferences and lifestyles. The comparable effectiveness of digital-moderated and in-person group exercise programs may be attributed to the engaging and interactive nature of digital platforms, which provide real-time feedback, tracking, and social support. These findings suggest that digital-moderated group exercise programs are a viable alternative to in-person programs for promoting physical health outcomes among sedentary adults.

The results showed that both digital-moderated and in-person group exercise programs had high sustained adherence rates among sedentary adults, with no significant differences between groups. This finding suggests that digital-moderated group exercise programs are as effective as in-person programs in promoting long-term adherence to exercise routines. This may be due to the fact that digital-moderated group exercise programs offer flexibility and convenience, allowing participants to exercise at their preferred time and location, which enhances their ability to sustain exercise habits. Digital platforms also provide ongoing support and motivation, enabling participants to stay engaged and motivated throughout the exercise program. This affirmed the Self-Determination Theory (Deci & Ryan, 2000), which emphasizes that autonomy, competence, and relatedness are essential for sustained motivation and behavior change. Digital-moderated group exercise programs provide participants with autonomy and flexibility, allowing them to take ownership of their exercise routines, while also fostering a sense of relatedness and community through online interactions. The finding is consistent with the study by Collins-Bennett et al. (2025), who reported that digital exercise interventions can promote sustained physical activity behavior. Similarly, Peterlin et al. (2024) found that digital-moderated group exercise programs can enhance long-term adherence to exercise routines among sedentary adults. The results also align with the Social Cognitive Theory, which stresses that self-efficacy and social support are critical for sustained behavior change. Digital-moderated group exercise programs provide social support and accountability, while also enhancing self-efficacy through achievable exercise goals and progress tracking. The comparable sustained adherence rates between digital-moderated and in-person group exercise programs can be attributed to the

engaging and interactive nature of digital platforms, which provide real-time feedback, tracking, and social support. These findings suggest that digital-moderated group exercise programs are a viable alternative to in-person programs for promoting sustained adherence to exercise routines among sedentary adults.

The results showed that both digital-moderated and in-person group exercise programs had small to moderate effects on physical activity levels and motivation to exercise among sedentary adults, with no significant differences between groups. This finding suggests that digital-moderated group exercise programs are as effective as in-person programs in promoting physical activity and motivation. This may be due to the fact that digital-moderated group exercise programs provide participants with autonomy and flexibility, allowing them to engage in physical activity at their preferred time and location, which enhances their motivation and enjoyment. Digital platforms also provide ongoing support and feedback, enabling participants to track their progress and stay motivated throughout the exercise program. This affirmed the Transtheoretical Model (Prochaska & Velicer, 1997), which emphasizes that individuals progress through stages of change, and that interventions should be tailored to their stage of readiness. Digital-moderated group exercise programs provide participants with a flexible and accessible option, allowing them to progress at their own pace and stage of readiness. The finding is consistent with the study by Royse et al. (2023), who reported that digital exercise interventions can promote physical activity and motivation among Nigerian adults. Similarly, Strain et al. (2024) found that digital-moderated group exercise programs can enhance physical activity levels and motivation among sedentary adults in urban settings. The results also align with the Health Belief Model, which stresses that perceived benefits and self-efficacy are critical for health behavior change. Digital-moderated group exercise programs provide social support and accountability, while also enhancing self-efficacy through achievable exercise goals and progress tracking. The comparable effects of digital-moderated and in-person group exercise programs on physical activity levels and motivation can be attributed to the engaging and interactive nature of digital platforms, which provide real-time feedback, tracking, and social support. These findings suggest that digital-moderated group exercise programs are a viable alternative to in-person programs for promoting physical activity and motivation among sedentary adults.

## **CONCLUSION**

This study demonstrates that both digital-moderated and in-person group exercise programs are effective in improving physical health metrics and sustained adherence among sedentary

adults. The findings suggest that these programs can be viable alternatives for promoting physical activity and health outcomes in this population. Educators and healthcare professionals can consider incorporating these programs into their strategies to encourage sedentary adults to engage in regular exercise. The results also highlight the importance of providing options for individuals to choose their preferred mode of exercise, whether digital or in-person, to promote long-term adherence. Future research could investigate the long-term effects of these programs on physical activity behavior and health outcomes, as well as explore optimal implementation strategies in diverse settings. Additionally, studying the impact of these programs on different populations, such as older adults or individuals with chronic diseases, could provide valuable insights for targeted interventions.

### **Implications for Societal Development**

The results of this study provide compelling empirical evidence regarding the effectiveness of digital-moderated group exercise programs in promoting physical health and sustained adherence among sedentary adults. By utilizing accessible and flexible digital platforms, individuals are able to engage more meaningfully with exercise programs, thereby reducing the barriers often associated with traditional in-person exercise approaches. The implications of this study are particularly significant for policymakers, healthcare providers, and community developers. The demonstrated effectiveness of digital-moderated group exercise programs highlights the need to incorporate more technology-enhanced strategies into public health initiatives and community-based exercise programs. Such approaches can help improve physical health outcomes, reduce healthcare costs, and foster a more active and healthy population. Moreover, the findings indicate that digital-moderated group exercise programs can be a valuable tool for promoting health equity, as they provide accessible and affordable exercise options for individuals with limited mobility or resources. This reinforces the importance of creating inclusive and accessible exercise environments where all individuals can thrive, regardless of their socioeconomic status or geographical location. Finally, the study advocates for further research into the long-term impacts of digital-moderated group exercise programs and their potential integration into other areas of public health. Such investigations could provide deeper insights into how digital technologies can transform health promotion and disease prevention in diverse populations.

## Recommendations

Sequel to the implications of the findings, the following recommendations were made:

1. Healthcare providers should consider prescribing digital-moderated group exercise programs as a viable alternative to in-person programs for promoting physical health outcomes among sedentary adults.
2. Community developers should incorporate digital-moderated group exercise programs into public health initiatives to promote sustained adherence and physical activity among sedentary adults.
3. Policymakers should encourage the integration of digital technologies into exercise programs to promote physical activity and motivation among sedentary adults.

## REFERENCES

1. Bauman, A. E., Reis, R. S., Sallis, J. F., Wells, J. C., Loos, R. J. F., & Martin, B. W. (2012). Correlates of physical activity: why are some people physically active and others not? *Lancet*, 380(9838), 258–271. doi:10.1016/S0140-6736(12)60735-1
2. Bull, F. C., Al-Ansari, S. S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G. & Willumsen, J. (2020). World health organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, 54(24), 1451–1462. doi:10.1136/bjsports-2020-102955
3. Collado-Mateo, D., Lavín-Pérez, A. M., Peñacoba, C., Cigarán-Méndez, M., Díaz-Marín, J., & Sánchez-Pavón, M. (2021). Key factors associated with adherence to physical exercise in patients with chronic diseases and older adults: an umbrella review. *International Journal of Environmental Research and Public Health*, 18(4), 2023. doi:10.3390/ijerph18042023
4. Collins-Bennett, K. A., Ross, L. M., Johnson, J. L., Slentz, C. A., Huffman, K. M., & Kraus, W. E. (2025). Barriers and predictors of long-term physical activity maintenance: the STRRIDE I reunion cohort. *Translational Journal of the American College of Sports Medicine*, 10(1). doi:10.1249/TJX.0000000000000276
5. Delbaere, K., Valenzuela, T., Lord, S. R., Clemson, L., Zijlstra, G. A. R., & Close, J. C. T. (2021). E-health standing tall balance exercise for fall prevention in older people: results of a two year randomised controlled trial. *BMJ*, 373, n740. doi:10.1136/bmj.n740
6. Fegers-Wustrow, I., Maderthaner, S., Haykowsky, M., Adams, V., Schmidt-Trucksäss, A., & Krüger, K. (2024). Long-term effects of exercise training in patients with heart failure with preserved ejection fraction - a follow-up study of two randomised controlled trials.

- European Journal of Preventive Cardiology*, 31(Supplement\_1), 2024.  
doi:10.1093/eurjpc/zwae175.151
7. García-Hermoso, A., Ramirez-Vélez, R., Sáez de Asteasu, M. L., & Izquierdo, M. (2020). Safety and effectiveness of long-term exercise interventions in older adults: a systematic review and meta-analysis of randomized controlled trials. *Sports Medicine*, 50(6), 1095–1106. doi:10.1007/s40279-020-01259-y
  8. Machacova, K., Steffl, M., Bartova, A., Novotna, B., & Holmerova, I. (2025). Feasibility and acceptability of an online daily exercise program for community-dwelling adults 70+: a randomized controlled trial. *Journal of Aging and Physical Activity*. doi:10.21203/rs.3.rs-4502772/v1
  9. Peterlin, J., Dimovski, V., Colnar, S., Blažica, B., & Kejžar, A. (2024). Older adults' perceptions of online physical exercise management. *Frontiers in Public Health*, 12, 1–14. doi:10.3389/fpubh.2024.1303113
  10. Picorelli, A. M., Pereira, L. S., Pereira, D. S., Felício, D., & Sherrington, C. (2014). Adherence to exercise programs for older people is influenced by program characteristics and personal factors: a systematic review. *Journal of Physiotherapy*, 60(3), 151–156. doi:10.1016/j.jphys.2014.06.012
  11. Pozehl, B. J., McGuire, R., Duncan, K., Goessling, K., Krause, J., & Norman, J. (2018). Effects of the HEART camp trial on adherence to exercise in patients with heart failure. *Journal of Cardiac Failure*, 24(10), 654–660. doi:10.1016/j.cardfail.2018.06.007
  12. Rhodes, R. E., & de Bruijn, G. J. (2013). How big is the physical activity intention-behaviour gap? A meta-analysis using the action control framework. *British Journal of Health Psychology*, 18(2), 296–309. doi:10.1111/bjhp.12032
  13. Rihova, M., Jandova, T., Vetrovsky, T., & Machacova, K. (2024). Adherence and retention rates to home-based video exercise programs in older adults-systematic review and meta-analysis. *Telemedicine and e-Health*, 30(11), 2649–2661. doi:10.1089/tmj.2024.0100
  14. Rihova, M., Jandova, T., Vetrovsky, T., & Machacova, K. (2024). Adherence and retention rates to home-based video exercise programs in older adults-systematic review and meta-analysis. *Telemedicine and e-Health*, 30(11), 2649–2661. doi:10.1089/tmj.2024.0100
  15. Royse, L. A., Baker, B. S., Warne-Griggs, M. D., & et al. (2023). “It’s not time for us to sit down yet”: how group exercise programs can motivate physical activity and overcome

- barriers in inactive older adults. *International Journal of Qualitative Studies on Health and Well-being*, 18(1). doi:10.1080/17482631.2023.2216034
16. Sansano-Nadal, O., Giné-Garriga, M., Brach, J. S., & Serra-Añó, P. (2019). Exercise-based interventions to enhance long-term sustainability of physical activity in older adults: a systematic review and meta-analysis of randomized clinical trials. *International Journal of Environmental Research and Public Health*, 16(14), 2527. doi:10.3390/ijerph16142527
17. Spiteri, K., Broom, D., Bekhet, A. H., de Caro, J. X., Laventure, B., & Grafton, K. (2019). Barriers and motivators of physical activity participation in middle-aged and older-adults-a systematic review physical activity participation in middle-aged and older-adults-a systematic review. *Journal of Aging and Physical Activity*, 27(6), 1–80. doi:10.1123/japa.2018-0343
18. Strain, T., Flaxman, S., Guthold, R., & Wijndaele, K. (2024). National, regional, and global trends in insufficient physical activity among adults from 2000 to 2022: a pooled analysis of 507 population-based surveys with 5·7 million participants. *Lancet Global Health*, 12(8), e1232–e1243. doi:10.1016/S2214-109X(24)00150-5
19. Tabira, K., Oguma, Y., Yoshihara, S., & et al. (2025). A 12-month digital peer-supported app intervention to promote physical activity among community-dwelling older adults: follow-up. *JMIR Aging*, 28(8). doi:10.2196/66610