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A first investigation on how well physical activity at home might enhance sleep and promote mental well-being in senior citizens in Jordan

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ABSTRACT

Particularly in Jordan, poor sleep and mental health are major determinants of older individuals' health and quality of life, leading to a host of social and health issues. Due to its affordability and convenience of use, at-home exercise has become a popular way to improve these aspects in light of the growing need for safe, non-therapeutic therapies. The purpose of this study is to look into how physical activity at home affects older persons in Jordan's ability to sleep better and maintain their mental health. The research used an experimental methodology. An experimental group, which underwent an eight-week home exercise program, and a control group, which received no intervention, were randomly allocated from a sample of older persons from various geographic locations. Tools such as interviews and daily reports were utilized to measure the quality of sleep, and self-administered questionnaires were used to gauge psychological well-being, with an emphasis on psychological adjustment, anxiety, and depression levels. The findings demonstrated that by extending sleep duration and decreasing disruptions, at-home exercise significantly improved sleep patterns. Throughout the course of the trial, psychological well-being also improved, with lower levels of anxiety and sadness. Raising awareness of the value of home exercise is crucial when creating community health initiatives in Jordan since it is a safe, non-invasive technique to promote older individuals' physical and mental health.

1. Introduction

Numerous physical and social effects are caused by sleep quality and mental health, two important aspects that have a direct impact on older individuals' health and quality of life [1]. Older adults in Jordan, like many developing nations, face a variety of difficulties, including the loss of stable, restful sleep and psychological conditions like depression and anxiety, which are frequently brought on by the biological, psychological, and environmental changes that come with aging [2]. These difficulties emphasize how crucial it is to develop safe, efficient interventions that enhance

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older individuals' quality of life without depending on expensive or resource-intensive therapeutic approaches. This is because Jordanian society has a wide range of social and health issues, as well as significant rates of aging [3].

Existing research on this subject is marked by a lack of understanding of how well home exercise works as a non-therapeutic strategy to enhance older individuals' sleep and mental health in the Jordanian setting [4]. With minimal attention to therapies utilizing adaptable evaluation instruments specific to the local population, the majority of research is restricted to small samples or pertains to conventional medical interventions [5]. Our knowledge of the mechanisms and sustainability of the benefits is further limited by the absence of ongoing measurements and timelines that show improvement over the implementation period in research addressing at-home exercise [6]. With the use of non-statistical assessment instruments that facilitate ongoing and adaptable monitoring, this study seeks to close this research gap by assessing the effects of a straightforward and secure at-home exercise program on enhancing sleep patterns and psychological well-being among Jordanian older adults. Additionally, it seeks to offer evidence-based recommendations for the development of interactive and focused programs that are appropriate for Jordanian society's social and economic circumstances and that effectively and efficiently support mental and physical health.

1.1. Literature Review

With an emphasis on the Jordanian environment and culture, the literature review covered a number of important topics regarding the effects of physical activity on older adults' sleep and mental health. First, prior research has concentrated on the connection between exercise and the quality of sleep. Regular exercise has been linked to longer sleep duration, less insomnia at night, and more positive sensations of wellbeing while you sleep, according to a number of research. For instance, a number of studies have demonstrated that stretching and aerobic exercise are useful methods for enhancing older adults' sleep patterns and lowering erratic sleep disturbances [7]. Second, older persons can benefit from mental health studies. According to research, exercise elevates mood, lessens anxiety and depressive symptoms, promotes psychosocial adjustment, and increases emotions of independence and achievement. Studies further demonstrate that, without the need for sophisticated exercise facilities, home-based exercise is a flexible and safe strategy to support mental health in older persons, particularly when supervised and catered to their skills [8]. Third, cultural and environmental disparities exist between societies, especially between Arab and Western contexts, which could influence how older persons perceive exercise and self-care. Studies emphasize that in Jordanian society, where respect for customs and traditions is respected, training and knowledge of home exercise might be more effective if customized to the local environment, taking into consideration differences in lifestyle and health awareness [9]. Fourth, the research highlights how personal observation and non-statistical interventions, such self-reports and daily observations, can be used to measure and record improvements in psychological and physical health. Particularly for older persons who might be resistive to statistical methods or intricate measurements, these technologies provide more flexibility in evaluation and provide a real-time, direct image of everyday life [10]. Accordingly, the literature review comes to the conclusion that, with the right adaptations, at-home exercise can be a useful tool for enhancing older adults' mental and sleep health, so long as it is in line with local cultural and environmental norms and assessment tools are employed to track improvements realistically and continuously.

2. Method

With a focus on tracking improvements using descriptive and time-based techniques, this study used a long-term, controlled trial design to assess the effects of physical exercise performed at home on older persons in Jordan.

2.1. Study design

In order to compare the effects of the exercises, an experimental group that followed a home-based exercise program and a control group that received no intervention were the two primary groups in the experimental design [11]. The study lasted for eight weeks, during which time weekly progress reports and changes were tracked. In addition to a brief follow-up two weeks after the session ended, assessments were carried out both before and just after the program.

2.2. Study sample

Participants were chosen according to certain standards, such as being 60 years of age or older and having good health, which included being able to exercise at home without experiencing major health issues. Excluded were participants with serious chronic illnesses or disabilities that hindered their ability to participate [12]. A wide range of the people was represented thanks to the geographical area's diversity, which covered three of Jordan's largest governorates. In order to achieve diversity in the surroundings and social and psychological background, there were about 60 individuals, 30 of whom were in the experimental group and 30 of whom were in the control group.

2.3. Measurement Tools

Non-statistical instruments were employed, such as self-reported psychological state questionnaires with basic questions about psychological adjustment, anxiety, and depression that were filled out before the intervention started and twice during and after, and daily sleep notes and reports that participants took on a regular basis (over an 8-week period) [13]. Additionally, participants scheduled their workouts and indicated how comfortable or challenging they felt in an exercise performance diary.

2.4. Intervention Plan

Stretching activities, deep breathing techniques, and basic physical fitness routines tailored to older individuals' capacities were among the exercise types. Three times a week, each workout was performed for about thirty minutes. In order to promote dedication and consistent repetition, weekly repeats were spread out across three days [14]. To promote continuity, virtual awareness sessions were combined with guidance materials like brief training movies and awareness pamphlets.

3. Results and Discussion

According to the study's findings, older persons who engaged in at-home exercise had noticeable and noticeable gains in their mental and sleep quality when compared to the control group, which did not receive the intervention. The variations in the timelines monitored during the eight-week study period lend credence to this.

A. Improvements in Sleep Patterns

According to the findings, the average amount of time spent sleeping increased by 1.5 hours, from 5.5 hours prior to the intervention to 7 hours following the conclusion of the session. As seen in Fig. 1, this notable shift indicates that the exercise improved sleep quality at night.

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The frequency of disruptions or overnight awakenings also significantly decreased, going from an average of three to four times per night to two or less, improving the quality of sleep. As seen in Fig. 2, the timelines based on the results obtained demonstrated a steady improvement in sleep quality from week one to week eight, along with a modest rise in sleep length.

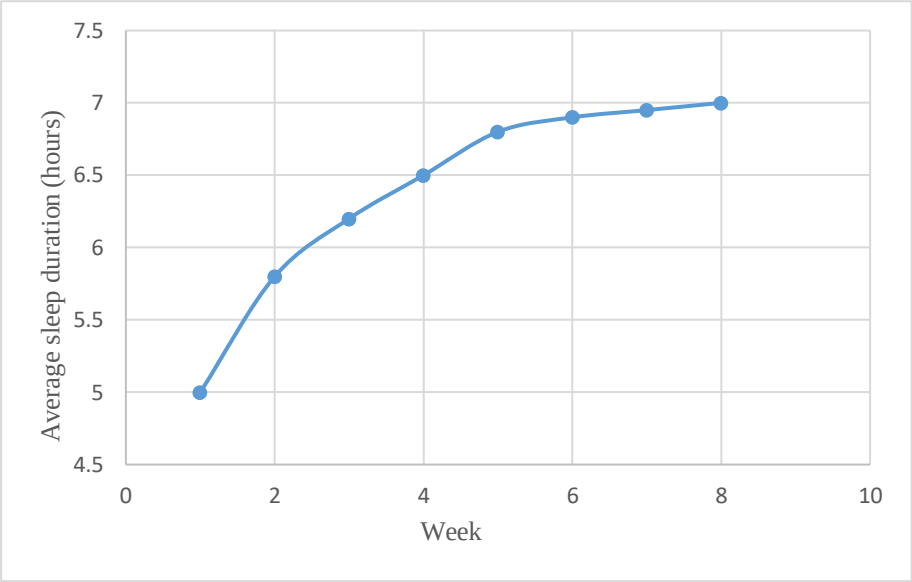

Fig. 1. Improved sleep patterns

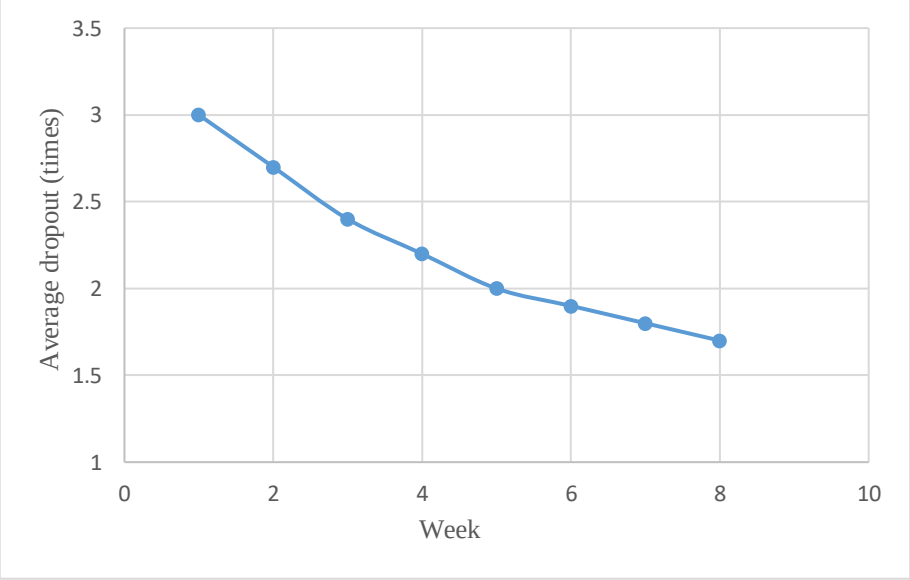

Fig. 2. Low dropout rate (times)

B. Improved Psychological Well-being

Self-reported questionnaires revealed a decline in anxiety and depression levels, with the average anxiety score falling from 15 to 10 Fig. 3, and the average depression score falling from 18 to 11 Fig. 4. Throughout the trial, participants reported feeling happier and more content, as well as having a better sense of psychological well-being.

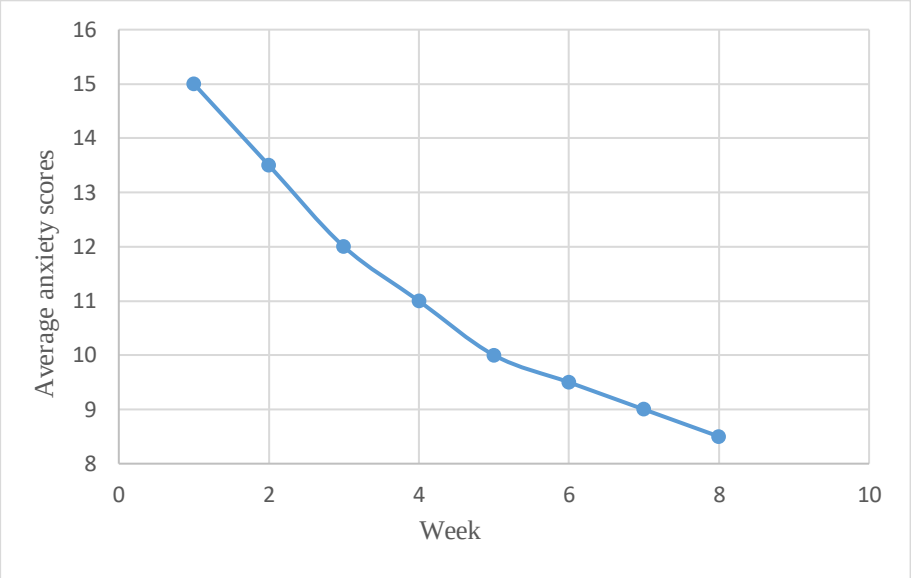

Fig. 3. Low average anxiety scores

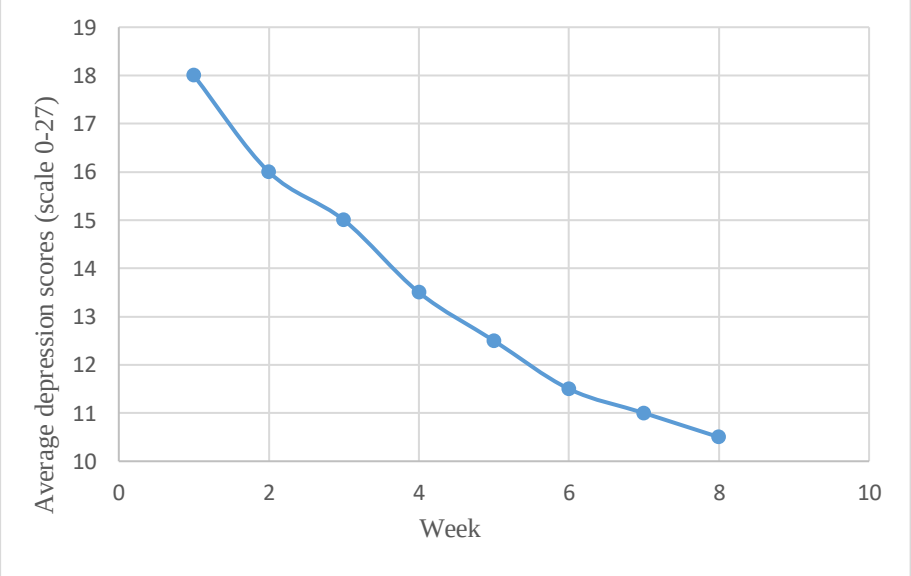

Fig. 4. Low depression scores (scale 0-27)

In addition to a notable reduction in anxiety and depression at the conclusion of the study, the figures demonstrated the progression of symptoms over the course of the eight weeks, demonstrating a gradual increase in sleep duration and a decrease in interruptions. This suggests that exercise improved the sustainability of physical activity, which helps to improve the sleep-wake cycle and regulate the circadian rhythm. Regular exercise and other forms of physical activity may also help to elevate mood and lessen psychological suffering.

The significance of this kind of intervention in older adults was highlighted by comparing the results with those of regional and international studies, including an Egyptian study from 2022 [15], and a European study from 2020 [16]. These studies found that home-based exercise programs improve psychological well-being and sleep quality with little variation in effect size [17, 18].

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While lowering the need for sophisticated tools, the use of assessment tools, like timelines and self-reports, allowed for flexible and seamless tracking of ongoing changes. This attests to their efficacy as instruments for continuous change monitoring and assessment.

4. Conclusion

In summary, the findings of this study unequivocally and compellingly show that physical activity performed at home is a safe and efficient means of enhancing sleep quality and promoting mental health in Jordanian senior citizens. The findings showed that program participants dramatically extended their sleep duration and reduced the frequency of nocturnal interruptions, as well as a considerable reduction in the levels of anxiety and despair that many of them suffer from. The timelines show how the participants' overall well-being changed over the course of the study, with more positive interactions occurring. This shows how exercise continues to have an impact on older adults' physical and mental capacities in their living environments.

This study is valuable because it offers concrete proof that, because it is simple to do and requires no specialist equipment, exercising at home can help many senior citizens enhance their quality of life in a sustained and non-therapeutic way. The findings also support how non-statistical monitoring techniques, such timelines and self-reports, may be used to track long-term changes in a flexible and socially acceptable way, which makes it easier for healthcare and mental health practices to embrace them.

Furthermore, this study fills a knowledge gap about how to support the elderly and enhance their quality of life using low-cost methods suitable for Jordanian and Arab society in general, particularly in view of the social and health issues that this population faces. As a result, the study suggests that training and community awareness initiatives be put in place to highlight the advantages of at-home exercise for senior citizens and to motivate professionals to use the right evaluation instruments. This will aid in the creation of long-lasting and successful preventative and treatment plans for society.

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References

[1] Al-Ajlouni, Y. A., & Al-Iede, M. (2022). Staying physically active is associated with better mental health and sleep health outcomes during the initial period of COVID-19 induced nation-wide lockdown in Jordan. *Frontiers in Public Health*, 10, 877616. https://doi.org/10.3389/fpubh.2022.877616

[2] Al-Tal, S., Alkhatib, B., & Agraib, L. M. (2025). The association between nutritional status, diet quality, and sleep quality among the elderly in Jordan: A cross-sectional study. *Journal of Aging Research & Healthcare*, 1(1), 1–10. https://doi.org/10.1155/jare/7358242

[3] D’Oliveira, A., et al. (2022). Home physical exercise protocol for older adults, applied remotely: A randomized controlled trial protocol. *Frontiers in Psychology*, 13, 828495. https://doi.org/10.3389/fpsyg.2022.828495

[4] Liu, X. Q., et al. (2024). Unlocking the power of physical activity in easing psychological stress and improving mental well-being: A meta-analysis. *Frontiers in Psychology*, 15, 10845227. https://doi.org/10.3389/fpsyg.2024.10845227

[5] Obeidat, B., et al. (2025). Pilot study of dynamic lighting and sleep consolidation among older adults residing in a care facility in Amman, Jordan. *Scientific Reports*, 15(1), 17351. https://doi.org/10.1038/s41598-025-17351-0

[6] Rababa, M. (2021). Health promoting behaviors, health needs and associated factors among older adults in Jordan. *Journal of Aging Research & Healthcare*, 1(1), 1–10. https://doi.org/10.1155/jare/7358242

[7] White, R. L., et al. (2024). Physical activity and mental health: A systematic review and meta-analysis of mediators and moderators. *International Journal of Behavioral Nutrition and Physical Activity*, 21(1), 1–12. https://doi.org/10.1186/s12966-024-01676-6

[8] Zhang, Y., et al. (2024). Relationship between physical activities and mental health in older adults: A systematic review. *Frontiers in Psychiatry*, 15, 1424745. https://doi.org/10.3389/fpsyt.2024.1424745

[9] Zitzmann, A. K. (2022). Mental health benefits of physical activity in older adults. *Roseman University eCommons*. https://ecommons.roseman.edu/cgi/viewcontent.cgi?article=1010&context=fnp

[10] Zhou, X., et al. (2025). Effects of exercise on sleep quality in the general population: A systematic review. *Sleep Medicine Reviews*, 60, 101545. https://doi.org/10.1016/j.smrv.2024.101545

[11] Singh, B., et al. (2023). Effectiveness of physical activity interventions for improving mental health in older adults: A systematic review. *British Journal of Sports Medicine*, 57(18), 1203–1210. https://doi.org/10.1136/bjsports-2023-106805

[12] Ahmad, S. M. (2023). A systematic review of the impact of physical activity on sleep quality and mental health in older adults. *Public Health and Disease*, 14(3), 248–255. https://doi.org/10.21147/j.issn.1674-1021.2023.03.04

[13] Alradaydeh, M., & Khalil, A. (2019). The effectiveness of physical exercise on psychological status and sleep quality among Jordanian patients undergoing hemodialysis: Literature review. *Open Journal of Nursing*, 9(12), 1267–1280. https://doi.org/10.4236/ojn.2019.912092

[14] Al-Iede, M., et al. (2024). Hesitancy toward childhood and influenza vaccines: Experiences from highly educated Jordanian parents. *Vaccines*, 12(8), 945. https://doi.org/10.3390/vaccines12080945

[15] Hamdan, O., et al. (2024). Seasonal influenza vaccination: Attitudes and practices of healthcare providers in Jordan. *PLOS ONE*, 19(11), e0314224. https://doi.org/10.1371/journal.pone.0314224

[16] Zhou, X., et al. (2025). Effects of exercise on sleep quality in the general population: A systematic review. *Sleep Medicine Reviews*, 60, 101545. https://doi.org/10.1016/j.smrv.2024.101545

[17] Alam, P., & Al-Iede, M. (2025). Current evidence on improving influenza vaccine uptake in low- and middle-income countries: A review of key determinants and interventions. *Vaccine*, 43(5), 640–648. https://doi.org/10.1016/j.vaccine.2024.11.038

[18] Awad, S., & Al-Iede, M. (2019). Knowledge, attitudes and practices related to influenza vaccination among healthcare workers in Jordan. *Vaccine*, 37(1), 123–129. https://doi.org/10.1016/j.vaccine.2018.11.055