

Correlations Between Social Support and Physical Activity with Depression and Happiness in Elderly Women with Memory Impairment

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Abstract

Background: Mental health is a common concern in old age. Given the increase of aging population, it is crucial to pay attention to factors influencing elderly people's mental health. This research investigated the correlations between social support and physical activity (PA) with depression and happiness in older women with memory impairment.

Methods: A descriptive-correlational approach was used in this study. The statistical population consisted of all elderly women (over 65 years old) residing in Golestan province, Iran, between February 2022 and June 2022. The sample included 384 women with mild dementia who were selected through purposive sampling. Research variables were measured using standard instruments. Data analysis was conducted using the Pearson correlation test and regression analysis in SPSS version 26.

Results: The mean and standard deviation of social support, PA, depression, and happiness were 37.59 ± 11.09 , 1.06 ± 1.17 , 7.29 ± 2.55 , and 42.73 ± 10.64 , respectively. Regression analysis results demonstrated a negative and significant association between social support and depression (35.1%), while it showed a positive and significant association with happiness (16.5%). Furthermore, PA exhibited a negative and significant association with depression (40.9%) and a positive and significant association with joy (30.4%).

Conclusions: The findings of this study can contribute to the development of more effective health and physical education programs targeting elderly individuals with memory impairment to improve their mental health.

Keywords: Social support, Exercise, Memory disorder, Depression, Happiness

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1. Introduction

Today, the progress of medical knowledge in many cases such as vaccination, drugs, control of infectious diseases and improvement of nutritional status cause an increase in length of life and subsequently the elderly population (1). The phenomenon of old age, with all its psychological, social, cultural, and economic aspects, poses a serious and challenging issue for families and nations alike (2). Studies have shown that elderly individuals account for 60% of healthcare costs, 35% of hospital discharges, and 47% of hospitalization days (3). The rise in life expectancy comes with age-specific problems and diseases (3-4). One prominent issue in this era is the prevalence of dementia, with Alzheimer's being one of the most common forms (5). Symptoms of Alzheimer's include memory loss, impaired judgment, reasoning difficulties, changes in behavior and situations, cognitive decline, sleep

disturbances, and alterations in personality and mood. The progression of Alzheimer's ranges from mild memory impairment to moderate and advanced stages (6, 7). Today, the physiological and physical needs of the elderly with Alzheimer's are prioritized and not much attention is paid to their psychological needs. Consequently, depression emerges as one of the psychological problems faced by elderly individuals with Alzheimer's, posing a threat to their mental and physical well-being (8-10). Furthermore, the increase in mental illnesses such as depression among patients with Alzheimer's will likely decrease positive mental states like happiness (10).

One of the factors that determines health and points to the importance of the social dimension of human beings and also has received increasing attention in recent years, is social support (11, 12). Humans are social beings who require

companionship throughout their lives; this need manifests in various ways and forms. It can be argued that the root cause of all human issues, especially mental problems, stems from the quality of relationships, imagination, and associated emotions (13, 14). Social support is the knowledge that fosters a person's belief that they are respected and cared for by others. It is a valuable and esteemed component within a network of relationships and reciprocal obligations (15-17). Social support enables the elderly people to feel valued, respected, and connected within a network of relationships and responsibilities. It serves as a protective factor against the detrimental effects of stress.

Moreover, there is a direct correlation between social support and its psychophysical consequences, forming a shield-like relationship wherein social support allows the elderly people to mitigate negative experiences and promotes better health. Consequently, it is crucial to prioritize social support for the elderly individuals in addressing their psychological problems, including depression. Thus, the primary objective of this study was to examine the relationship between social support, depression, and happiness among elderly individuals with memory impairment.

In addition, it has been shown that there is a relationship between physical activity (PA) and health (18-21) and people who have regular PA preserve their physical and mental functions and lead their daily lives independently and without the help of others (22-24). Regular PA has positive effects on health and improves physical fitness related to health by influencing morphological, muscular,

and metabolic aspects (25-27). Mental health is very important in old people; ensuring the mental health of the elderly is as important as their physical health. Considering that exercise and PA play a very important role in increasing ability and preventing diseases, it can be assumed that it has positive effects on mental health status including depression and happiness among elderly with Alzheimer's.

The purpose of this study was to investigate the correlation between PA and depression as well as happiness among elderly individuals with memory impairment. This study examined the relationships between social support, PA, depression, and satisfaction in older memory-impaired women. Conceptual model of the present study is presented in Figure 1.

2. Methods

2.1. Design and Participants

A descriptive-correlational approach was utilized in this study to investigate the correlations between social support and physical activity with depression and happiness among older women experiencing memory impairment. The statistical population comprised all older women (over 65 years old) residing in Golestan (specifically Gorgan and Gonbad-Kavous Cities), Iran, from February 2022 to June 2022. According to the sample size calculation for correlational studies (28), with $\alpha=0.05$, $\beta=0.05$, and $r=0.20$, the required sample size was determined to be 319 individuals. For the present study, a sample of 384 women with mild dementia and memory impairment was selected.

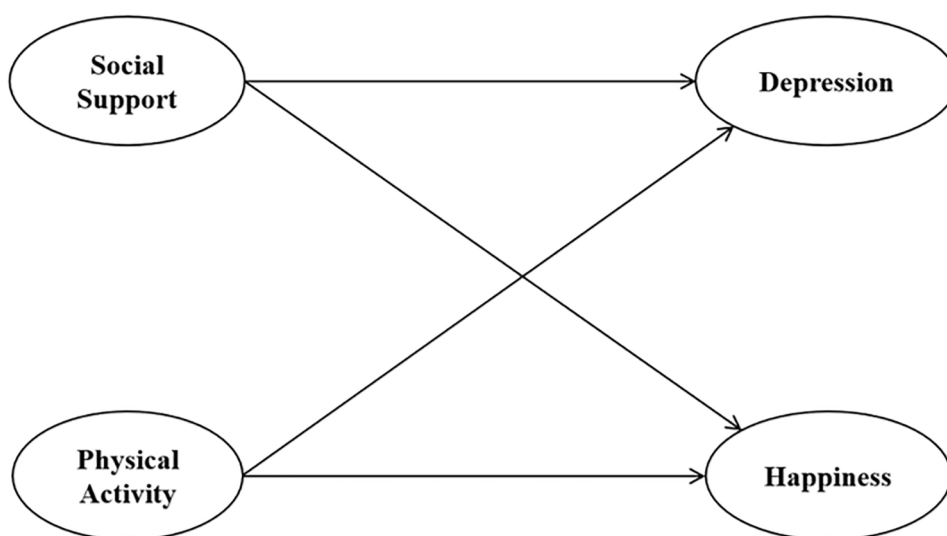


Figure 1: The figure shows the conceptual model of the study.

After coordinating with the health centers in Gorgan and Gonbad-Kavous Cities, 42 centers were randomly chosen. Subsequently, the individuals or their caregivers were contacted using the contact information provided by the centers. Once the purpose of the research was explained, and upon the subjects' agreement to participate, they were asked to complete the questionnaires independently or with the assistance of the examiner, as per their preference. The inclusion criteria were as follows: 1) age over 65 years, 2) Mini-Mental State Examination (MMSE) score ranging from 20 to 24, and 3) lack of mental and physical disabilities. The exclusion criteria included: 1) incomplete responses of questionnaire and 2) failure to provide written consent to participate in the study. The sample selection was carried out using purposive sampling. The questionnaires were completed by the participants via phone.

2.2. Measures

The Perceived Social Support Scale (PSSS) assessed social support (29). The PSSS consists of 12 questions, scored on a 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree). The total score on the PSSS ranges from 12 to 72, with a higher score indicating a higher perceived level of social support. In the current study, the questionnaire's validity was confirmed by experts (CVI=0.92, CVR=0.92). Furthermore, the Cronbach's alpha coefficient for the scale was 0.89.

Rapid Assessment of Physical Activity (RAPA) scale was employed to measure physical activity (30). This scale comprises 7 items which is answered with a 'Yes' or 'No' response. The total score on the RAPA scale ranges from 0 to 7. In the current study, the validity of the questionnaire was established by experts (CVI=0.94, CVR=1.00). Additionally, the Cronbach's alpha coefficient for this scale was 0.87.

The Geriatric Depression Scale (GDS) was used to evaluate the participants' levels of depression, consisting of 15 questions (31). Each item is answered with a 'Yes' or 'No' response. Scores below 5 indicate a normal condition, scores between 5 and 9 indicate moderate depression, and scores between 10 and 15 indicate severe depression. In the current study, the validity of the questionnaire was confirmed by experts (CVI=0.88, CVR=0.90). Furthermore, the Cronbach's alpha coefficient for this scale was 0.93.

The Oxford Happiness Questionnaire (OHQ) was applied to measure the participants' happiness levels, comprising 29 questions (32). A four-point scale ranging from zero to three was used to score the questions, resulting in a total score ranging from zero to 87. In the current study, the validity of the questionnaire was confirmed by experts (CVI=0.84, CVR=0.92). Additionally, the Cronbach's alpha coefficient for this scale was 0.90.

2.3. Data Analysis

SPSS version 26 was utilized for data analysis. Descriptive statistics, including mean and standard deviation, were computed. The Kolmogorov-Smirnov test was employed to assess the normality of the data distribution and the Pearson correlation test was conducted to examine the relationships between variables. Additionally, multiple linear regression analysis with forward selection was performed. The significance level was set at $P < 0.05$ to determine statistical significance.

3. Results

Kolmogorov-Smirnov tests indicated that the data about social support [$z=0.045$, $P > 0.05$], PA [$z=0.023$, $P > 0.05$], depression [$z=0.009$, $P > 0.05$], and happiness [$z=0.038$, $P > 0.05$], followed a normal distribution.

Analysis of the demographic data revealed that most participants (85%) fell within the age range of 65-70, 55% were married, 49.5% had completed high school education, and 65% were homemakers; also, 52% of the participants were overweight.

Descriptive statistics (Table 1) indicated a moderate social support score (37.59). Physical activity (PA) levels were deficient, with an average score of 1.06. The female participants in this study exhibited moderate levels of depression, with a mean score of 7.29. Lastly, the intermediate happiness level was also average, with a mean score of 42.73.

Furthermore, as illustrated in Table 1, social support exhibited a significant negative correlation with depression ($P < 0.001$), whereas it demonstrated a significant positive correlation with happiness ($P < 0.001$). Similarly, PA showed a significantly negative correlation with depression ($P < 0.001$) and a significantly positive correlation with satisfaction ($P < 0.001$).

Table 1: Mean and SD of the research variables as well as the results of Pearson correlation tests

| | Mean±SD | 1 | 2 | 3 | 4 |
|----------------------|-------------|---------------------|---------------------|---------------------|---|
| 1. Social support | 37.95±11.09 | - | | | |
| 2. Physical activity | 1.06±1.17 | r=0.259 P<0.001 | - | | |
| 3. Depression | 7.29±2.55 | r=-0.593 P<0.001 | r=-0.640 P<0.001 | - | |
| 4. Happiness | 42.73±10.64 | r=0.407 P<0.001 | r=0.552 P<0.001 | r=-0.710 P<0.001 | - |

Table 2: Results of multiple linear regression analysis to discover the link between social support and physical activity with depression and happiness

| | | Coefficient | SE | Standardized Coefficient | P values |
|-------------------|------------|-------------|------|--------------------------|----------|
| Social support | Depression | -0.593 | 6.55 | -0.482 | <0.001 |
| | Happiness | 0.407 | 5.19 | 0.337 | <0.001 |
| Physical activity | Depression | -0.640 | 8.16 | -0.621 | <0.001 |
| | Happiness | 0.552 | 6.02 | 0.522 | <0.001 |

SE: Standard Error

Results of regression analysis with forward selection (Table 2) revealed that social support had a significantly negative association with depression (P<0.001), while it displayed a significantly positive association with happiness (P<0.001). Additionally, PA exhibited a significantly negative association with depression (P<0.001) and a significantly positive association with satisfaction (P<0.001).

4. Discussion

The current research investigated the correlations between social support and physical activity (PA) with depression and happiness in elderly women with memory impairment. The results of this study revealed a significantly negative correlation between social support and depression, indicating that increasing the amount of social support decreases depression among elderly women with memory impairment. Additionally, social support was found to have a positive relationship with happiness. These findings support our hypotheses and are consistent with previous studies (11, 12, 16).

For instance, Bai and colleagues (11) found that social support positively influences the physical and mental health of elderly individuals in China. Therefore, having social connections and adequate social support plays a crucial role in providing positive and fulfilling experiences, ultimately enhancing one’s self-worth and reducing the likelihood of experiencing depression (13). Social support is considered a critical social factor determining mental health. Humans are

social beings who require companionship and communication throughout their lives. If a person feels a sense of belonging to society, it can lead to a reduction in depression (14, 15). In contrary, poor social support can be linked to loneliness and depression. Additionally, the need to belong is a fundamental motivation in humans, influencing their thoughts, emotions, and behaviors in interpersonal contexts. This need encompasses a desire to establish and maintain positive, stable, and meaningful interpersonal connections (11). Although there are individual differences in the intensity of the need to belong and how to fulfill it, the satisfaction of this need requires a lot of positive interactions with other people in a sustainable situation that leads to the happiness (12, 15, 16).

Therefore, people who are unable to establish social relationships, they probably experience a sense of depression. Accordingly, it is evident that establishing social connections and having sufficient social support contribute to an increased sense of happiness among the elderly people.

In addition, the results of this study showed that there was a significant and inverse correlation between physical activity and depression, and a significant and direct correlation between physical activity and happiness. Thus, PA is closely linked to life expectancy and depression and can reduce depression in older adults. Research has shown that people with higher life expectancy choose long-term goals and plan to achieve them (33-36). Consequently, it can be inferred that PA has the

most vital relationship with the life expectancy of older adults. Hence, the undeniable correlation between PA and other treatment methods lies in their ability to decrease depression and increase happiness in older people. Implementing a sports program and engaging in regular and continuous PA can enhance various aspects of quality of life and facilitate the aging process.

Lastly, the participants in this study exhibited deficient levels of PA, with an average score of 1.06 out of 7. Older adults typically engage in less PA due to their age and physical condition, resulting in prolonged periods of inactivity. Insufficient PA can lead to detrimental health consequences in the elderly, including heart diseases, joint diseases, cancer, and mental illnesses such as depression (18-20, 23, 25). All these factors contribute to a decline in the quality of life for older adults. Therefore, adopting a physically active lifestyle is highly recommended to improve older people's physical and mental well-being significantly. Consequently, health practitioners should pay particular attention to the biological activity behavior of older adults, especially those with memory impairment. In this regard, identifying interventions and strategies that can increase PA levels in elderly individuals with memory impairment is essential.

4.1. Limitations

One of the limitations of this research is that a questionnaire was used to measure PA. Due to the inherent bias in self-reported tools, it is suggested that future studies employ device-based measurements, such as accelerometers, to measure PA. Future studies should utilize digital devices to measure PA to build upon this study's findings. Additionally, due to the low levels of PA observed in the participants, we strongly recommend that practitioners implement programs and interventions to improve PA levels in elderly individuals with memory impairment.

5. Conclusion

In conclusion, the findings of this study suggested that elderly women with mild memory impairment experience moderate levels of depression and happiness and engage in low PA. Furthermore, social support can be considered one of the social determinants of mental health (i.e., depression and happiness) among the elderly

people. Moreover, increased PA is recommended to improve the mental health status of the elderly individuals.

Ethical Approval

This study was conducted in accordance with the ethical guidelines of Helsinki. The participants voluntarily participated in the present study and written informed consent was obtained from all the individuals. Moreover, this study was approved by Ethics Committee of Islamic Azad University of Aliabad Katoul with the code of IR.IAU.AK.REC.1398.002.

Authors' Contribution

Tayebeh Baniyasi: Substantial contributions to the conception and design of the work, acquisition, analysis, and interpretation of data for the work, drafting the work. Sheida Ranjbari: Substantial contributions to the conception and design of the work, drafting the work and reviewing it critically for important intellectual content. Sedigheh Khajeaflatoon Mofrad: Substantial contributions to the conception and design of the work, drafting the work and reviewing it critically for important intellectual content. Saeed Ghorbani: Substantial contributions to the conception and design of the work, acquisition, analysis, and interpretation of data for the work, drafting the work. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such that the questions related to the accuracy or integrity of any part of the work.

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Conflict of Interest: None declared.

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