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Effect of Mindfulness Training Program on Life Satisfaction and Resilience among Elderly People at Zagazig City

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Abstract

Advanced age is associated with decline in life satisfaction and resilience because of multiple factors such as physical limitations, increased dependency on others, lack of financial resources, the most difficult events in life, the decrease of assistance from society, and feeling of weakness and hopelessness. While some elderly people can compensate for these changes, others can't adequately self-regulate and manage them, which subsequently affects their life satisfaction and resilience. The present study aimed to assess the effect of mindfulness training program on life satisfaction and resilience among elderly people at Zagazig city. A quasi-experimental study was established at the geriatric social club at El-Qawmia in Zagazig City. A purposive sample of 60 elderly people. Four tools were used: Structured Interview Questionnaire composed of two sections (demographic characteristics and socio-economic level of the studied elderly people), The Kentucky Inventory of Mindfulness Skills, Satisfaction with Life Scale, and Resilience scale. Pre-program, the majority of studied elderly people had low levels of total mindfulness, life satisfaction, and resilience. While, post-program, there were highly statistically significant enhancements in elderly people' mindfulness, life satisfaction, and resilience. Moreover, there were highly statistically significant positive correlations between the studied elderly people's mindfulness, life satisfaction, and resilience post-program. The applied mindfulness-training program was effective in enhancing mindfulness skills and improving life satisfaction and resilience among the studied elderly people. Therefore, it is recommended to conduct a mindfulness training program at different social clubs on a large sample size to achieve successful aging, improve life satisfaction, and increase resilience.

Keywords: Mindfulness training Program, Life satisfaction, Resilience, Elderly people.

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1. Introduction

Aging is defined as a normal, ongoing process that causes physical, cognitive, and neurodegenerative changes. Aging is associated with physical, emotional, and psychological restrictions, which increase reliance on others [1]. Furthermore, depending on chronological age, old age is often defined as 60 or 65 years and older. For the first time in history, older people are predicted to exceed children under the age of 15 by 2060 [2]. Elderly people now constitute an increasing proportion of the population because they are lived for a long time, and the global population is growing. In 2019, there were 703 million older individuals globally, and the World Health Organization (WHO) predicts that by 2050, this number will rise to 1.5 billion [3]. In January 2022, Egypt's overall population was 102,872,283 million. The elderly aged 60 years and older are 6,839,950 million people which represents 6.7% of the total population [4]. Life satisfaction is an optimistic perspective on the world in which an individual lives. In other words, life satisfaction is an overall appraisal of life and a process that is dependent on personal

assessment, whereas individual assesses his or her level of life based on individual standards.

Furthermore, people report an elevated level of life satisfaction when their living circumstances meet the standards they have set for themselves. Life satisfaction can be considered as an overall appraisal of a person's life condition [5]. Life satisfaction is a major indicator of general wellness particularly in older age. Also, a variety of socioeconomic factors influence life satisfaction, including sex, education, health, and income. For instance, older people who are retired, have minimal financial resources, live alone, have low educational attainment, and are in poor physical or mental health tend to have lower levels of life satisfaction. Thus, social assistance has a favorable relationship with life satisfaction [6]. Resilience is the ability to deal with difficulties and challenges throughout an individual's life, and improving resilience is an important step in ensuring the elderly's health. Resilience, which entails having the psychological skills for effective aging, has been linked to improved emotional and physical health in the elderly. Whereas resilient seniors can get older properly regardless their physical constraints and structural hurdles.

With increased resilience, older people may be able to adapt to their decline in functional capability and somatic wellbeing. Older people can improve their resilience regardless of their economic status, personal circumstances or declining health [7]. Consequently, numerous interventions have been utilized to promote life satisfaction and resilience among seniors, such as mindfulness based stress reduction [8]. Mindfulness is described as the capacity to maintain concentration in a specific way: purposefully, in current moment, and nonjudgmentally. Additionally, mindfulness can be regarded as an attribute. In that sense, mindfulness can be seen as a reasonably constant but trainable skill [9]. Besides, mindfulness entails discarding incorrect conclusions based on previous events, guarding against difficult future expectations, and focusing on present moment. People who meet those criteria highly mindful and enjoy present moment, resulting in enhanced life satisfaction.

As well, highly mindful people have improved mental wellness and ability to cope. Also, mindfulness has a good link with positive feelings, which might improve life satisfaction [10]. Furthermore, mindfulness practice boosts an individual's resilience, which is important in dealing with difficulties and has protective effects. It also has positive effects on somatic and psychological health in daily life. Furthermore, practicing mindfulness can help individuals become resilient in the face of potentially unpleasant conditions like a pandemic [11]. The psychiatric nurse can improve life satisfaction and resilience among elderly people by encouraging them to adopt positive ideas about stress and challenges, as well as by assisting them in changing negative beliefs about these topics. Also, encourage older persons to join social clubs, such as leisure groups, to have more connections with others in society and promote sense of community among them. In addition to promoting familial assistance for elderly people, which not only enhances their life satisfaction but also improves their resilience [12].

1.1. Significance of this study

The globe is experiencing a demographic transformation; lifespan has increased by over twenty years since 1950, and the number of elderly people has increased significantly. This represents a mix of consequences, such as greater longevity, decreased fertility, and population aging. These advances in life span and standard of life for seniors present a difficulty. So, to help older people live longer, healthier, better, and happier. Mindfulness training and increasing life satisfaction and resilience are of immense importance [13]. In January 2022, Egypt's overall population was 102,872,283 million. The elderly adults who are 60 years old and above are 6,839,950 million people which represents 6.7% of the total population [4]. Advanced age is associated with a decline in life satisfaction and resilience because of multiple factors such as physical limitations, increased dependency on others, a lack of financial resources, the most difficult events in life, a lack of assistance from society, and a feeling of weakness and hopelessness [14]. As a result, it is vital to assist the elderly in maintaining their life satisfaction, resilience, and aid them gain optimal strategies to better cope with the environment and these changes and achieve successful aging [5]. Thus, this study was applied to assess the effect of mindfulness training program on life satisfaction and resilience among elderly people at zagazig city.

1.2. Study aim

To assess the effect of mindfulness training program on life satisfaction and resilience among elderly people at Zagazig City.

2. Subjects and Methods

2.1. Research hypotheses

H1: After application of the mindfulness-training program, mindfulness level would be improved among elderly people.
H2: After application of the mindfulness-training program, life satisfaction and resilience levels would be improved among elderly people.

2.2. Research design

A Pre- and post- test quasi-experimental design was utilized. A quasi-experimental design, which divides participants into groups in a non-random manner, is a helpful instrument in cases where Real experimentations won't be utilized for moral or practical considerations [15].

2.3. Subjects

A Purposive sample consisted of 60 elderly people who had a minimal level of mindfulness and life satisfaction or resilience was selected as follow: 80 elderly were selected in the pre-test. Consistent with the statistical analysis findings of the pre-test, 60 elderly people who had a low level of mindfulness, life satisfaction, or resilience were selected in the post-test, from the aforementioned settings and who met the subsequent inclusion criteria: age 60 years and older, agreement to engage in the study, no history of a mindfulness training program, low level of mindfulness, life satisfaction, or resilience, being free of communication impairments (speech and hearing issues) and regular attendance at the geriatric social club (the study setting).

2.4. Sample size

The mean score of seniors' life satisfaction at the pre-intervention phase was (18.8±6.08) and at the post-intervention phase was (23.8±6.19) [5]. Confidence level is 99%, with the power of study being 95%. The sample size calculated using Open Epi is 60 elderly people.

2.5. Tools of data collection

Four tools were utilized for collecting data

Tool I: Interview questionnaire composed of two parts

Part 1: Demographic characteristics: This part was established by the investigator to gather information on the socio-demographic attributes of the elderly people, including name, age, gender, residence, marital status, educational level, current job, previous job, with whom do you live, and source of family income.

Part 2: Socio-economic level: This part was established by Fahmy et al., [16] to assess the socio-economic level of the elderly as it served to collect information considering family income, a healthy environment at home, computer availability, the number of family members, and the number of rooms in the house.

Scoring system: To identify socioeconomic status of seniors, a score of less than 40% was regarded a low socio-economic class, a score of 40% to less than 70% was regarded a middle class, and score of 70% or more regarded a high social class.

Tool II: The Kentucky Inventory of Mindfulness Skills (KIMS)

It was established by Baer et al., [17] for measuring mindfulness skills. It is composed of 39 items divided into four subscales, which include observing (12 items), describing (8 items), act with awareness (10 items), and accept without judgment (9 items). There were reversed items in describe (3 items), in act with awareness (6 items), and in accept without judgment (9 items).

Scoring system: Items were rated on a 5-point Likert-type scale ranging from: 1 (never) to 5 (always). The level of mindfulness was categorized as follows: low (39-91), moderate (>91-143), and high (>143-195).

Tool III: Satisfaction with Life Scale (SWLS)

It was established by Diener et al., (1985) [18] to assess overall cognitive judgments of one's life satisfaction. It is composed of five items.

Scoring system: Items were ranked on a 5-point Likert-type scale ranging from 1 (disagree) to 5 (agree). Life satisfaction was categorized as follows: dissatisfied (<50), neutral (50-75), and satisfied (>75).

Tool IV: Resilience Scale (CD-RISC)

It was established by Connor & Davidson [19] to assess the resilience of elderly people. It included 25 items.

Scoring system: Items were rated on a 5-point Likert-type scale ranging from (0) not true at all to (4) true nearly all of time. The scale was assessed according to how the participant felt throughout the previous month. The overall score varied from 0 to 100, with higher numbers indicating stronger resilience. Cut off point 50%. The resilience was categorized as follows: low if percent was > 50%, moderate if the percent was (50-75%), and high if the percent was > 75%.

2.6. Pilot study

A pilot study was applied on eight seniors, accounting for 10% of the total number of sample. The purpose was to determine the time required to complete the data collection forms, as well as the viability and clearness of the instruments themselves. According to the pilot study findings, the average period to complete the tool was 30-45 minutes. Older subjects from the pilot study were incorporated in the main study population because no changes were required to the data collection form.

2.7. Content validity and reliability

A group of three psychiatric academic staff from Zagazig University's nursing and medicine faculties evaluated the tools for transparency, implementation, importance, broadness, comprehension, and simplicity of use. The reliability of the instruments was investigated by measuring test-retest reliability and calculating internal consistency. Cronbach alpha coefficients were utilized to examine the tools' internal consistency. The Cronbach alpha coefficient values for the Kentucky Inventory of Mindfulness Skills (KIMS) (a = 0.721), Satisfaction with Life Scale (SWLS) (a = 0.730), and Resilience Scale (CD-RISC) (a = 0.807) all show high reliability.

2.8. Fieldwork

Once approval to conduct the study was given, the researcher began to set up the data gathering schedule. The fieldwork continued six months, starting from the beginning of March 2023 up to the end of August 2023. The investigator scheduled two days per week (Sunday and Wednesday) from 10 a.m. to 12 p.m. The researcher divided study subjects into four groups, meeting two groups on Sunday and the other two groups on Wednesday. The researcher was meeting with the elderly people in a wide hall for the members' social sitting. The study was performed through the subsequent phases: assessment, planning, implementation, and evaluation.

2.9. Assessment phase (pre-intervention data collection)

This phase includes gathering pre-program data for baseline evaluation. Researcher interviewed participants, presented herself, briefly explained goal of research, requested their consent, and reassured them that data acquired would be absolutely secret and utilized for study purposes. The investigator read and described each item of the study scales to elderly, then recorded their response to each one. The time used to complete study tools ranged from 30 to 40 minutes. Assessment phase carried out on 80 elderly people. Depending on the assessment phase results, mindfulness-training program (pre-posttest) carried out on 60 elderly people, and 20 elderly people were excluded because they had a high baseline level of mindfulness, life satisfaction, and resilience. This phase continued for one month from, the beginning of March 2023 to end of March 2023.

2.10. Planning phase

According to the results of assessment phase data analysis, a Purposive sample of 60 elderly with a low level of mindfulness and life satisfaction, or resilience was chosen to participate in post-test, and the researcher developed mindfulness-training program (mindfulness-based stress reduction) in accordance with the elderly's needs and study objectives. Identified needs, requirements, and limitations were converted into program goals and objectives, which were then placed in the form of an illustrative colored booklet delivered to each of elderly participants as a guide for all relevant intervention data. This booklet is composed of two main sections. The first theoretical section consisted of five sessions that involved information about aging phase, life satisfaction, resilience, and mindfulness. Second practical part, composed of ten sessions, addressed health messages to

maintain the physical and psychological health of elderly people, exercises to increase life satisfaction, exercises and techniques of positive thinking to build and improve resilience, and mindfulness based stress reduction exercises including body scanning, mindful sitting, mindful walking, deep breathing exercises, mindful eating…etc. Teaching methods: Throughout program, the researcher used a variety of learning techniques such as cooperative lectures and group debates, role-playing, and brainstorming sessions to facilitate idea exchange between seniors and investigator. Teaching media: Teaching media included videos, posters, and photos. To facilitate the learning process, researcher developed an illustrated booklet and delivered it to all participants.

2.11. Implementation phase

The mindfulness training was carried out in the manner of small group meetings. Fifteen sessions, each lasting approximately 30 to 45 minutes. For 16 weeks, once every week for each study group. The studied 60 elderly people were assigned into four groups, each composed of 15 elderly people. Each session had its own title and aim based on its content. The duration of each meeting differed based on the elderly people's ability to absorb content, which varied according to educational level, response, time availability, and session content. However, to make sure that all elderly people had the same learning experience, they were all given the same information utilizing, the same teaching approaches, media, discussions, and booklet. This phase continued for four months, from the beginning of April 2023 to the end of July 2023. The initial session was utilized to introduce the program's purpose and general objectives, as well as to establish ground rules for session leadership. Then, each meeting began with a brief overview of what had been debated in the prior meeting and the goals of the new one, with a focus on using basic language to accommodate the elderly's level of understanding. Motivation and reinforcement strategies, such as praise and acknowledgment, were employed throughout the session to increase active involvement and stimulate learning. The sessions were supported by images, posters, and the program booklet.

2.12. Evaluation phase

The efficacy of the mindfulness-training program was assessed after its implementation using a post-test that was applied immediately after the program's completion, using the same data gathering tools as the pre-test. This phase continued for one month, from the beginning of August 2023 to the end of August 2023.

2.13. Limitations of the study

It has taken a great deal of effort to gather data from the elderly, and an effort was put into applying the program to them due to poor concentration.

2.14. Data Analysis

All data were gathered, presented in tables and statistically examined with SPSS 20.0 for Windows (SPSS Inc., Chicago, IL, USA, 2011). Quantitative data were presented as mean ± SD, whereas qualitative data were presented as absolute and relative frequencies (number and percentage). Marginal homogeneity was utilized to compare two dependent categorical data groups. A paired t-test was employed to compare two dependent groups with normally distributed variables. The percentages of categorical variables were compared using the Chi-square test or Fisher's exact test, as appropriate. The person correlation coefficient was calculated to evaluate the relation between research variables; (+) indicates direct correlation, and (-) indicates inverse correlation. Multiple linear regression (step-wise) was also utilized to predict variables that influence life satisfaction and resilience. The Cronbach alpha coefficient was determined to assess the reliability of the tools based on their internal consistency. P-values < 0.05 was regarded as statistically significant; p-values < 0.001 was considered highly statistically significant; and p-values > 0.05 was considered statistically non-significant.

3. Results and discussion

3.1. Results

Considering the socio-demographic attributes of participants, Table 1 displays that 80.0% of participants aged less than 70 years old with a Mean ± SD of 67.42 ± 5.19. Also, 75.0% of them were females, and 83.3% of them were residing in urban areas. Moreover, 66.7% of them were unmarried, and 50.0% of them had a high level of education. As well, the same table reveals that 100% of participants were unemployed, while 68.3% of them were previously unemployed. Additionally, 80.0% of them live with family, and 93.3% of them based on their pension as a source of monthly income. As Figure 1 clarifies, 58.30% of studied elderly people were in the middle class. Meanwhile, only 16.70% had a low socio-economic level. As displayed in figure 2, 85% of elderly people had a low level of mindfulness pre-program, while only 15% had a moderate level of mindfulness. Post-program, 68.3% of elderly people had a high level of mindfulness, and 31.7% of them had a moderate level of mindfulness. As well, the same table demonstrates that there was a highly statistically significant enhancement in the post-training program mean score of mindfulness (146.88±17.35) when compared to the pre-training program mean score of 83.50±6.33 at $p < 0.001$.

Figure 3 displays that 90.0% of the studied elderly people were dissatisfied at the pre-training program phase, while only 10.0% were neutral. These were reversed at the post-training program phase, where 75.0% of the studied elderly people were satisfied, and 25.0% were neutral. As clarified in figure 4, 88.3% of the studied elderly people had a low level of resilience at the pre-training program phase, while only 11.7% had a moderate level. These were reversed at the post-training program phase, where 73.3% of elderly people had a high level of resilience and 26.7% of them had a moderate level. At pre- program phase, Table 2 demonstrates only a highly statistically significant relation between elderly people's mindfulness and resilience scores ($p = 0.001$). Meanwhile, no statistically significant relations could be demonstrated between elderly people's mindfulness and life satisfaction scores. The same table also shows a highly statistically significant relation between elderly people' mindfulness and both life satisfaction and resilience scores at $p = 0.001$ at the post-training program phase.

Table (3) reveals that only a highly statistically significant positive correlation was detected between elderly people's scores of life satisfaction and resilience at the pre-training program phase ($r = 0.336$) at $p = 0.001$. Table (4) presents that at the post-training program phase, the mindfulness score was highly statistically significant and

positively correlated with the life satisfaction score(r = 0.690 at p = 0.001) and the resilience score(r = 0.717 at p=0.001). The same table also reveals that a highly statistically significant positive correlation was detected between elderly people's resilience and life satisfaction (r = 0.827 at p = 0.001). Table (5): Multiple Linear Regression Model to Predict Factors That Affect Life Satisfaction Score Throughout Study Phases (n=60). In multivariate analysis (Table 5), elderly people's previous job was a highly statistically significant negative indicator of life satisfaction at the pre-training program phase. Conversely, elderly people's resilience, previous job, age, and healthy environment were highly statistically significant positive predictors at the post-training program phase.

Table (6): Multiple Linear Regression Model to Predict Factors That Affect Resilience Score Throughout Study Phases (n=60). Table 6 illustrates that elderly people's educational level was a statistically significant positive predictor of resilience. While elderly people's marital status and crowding index were statistically significant negative predictors of resilience. The same table also reveals that elderly people's life satisfaction and mindfulness scores were highly statistically significant positive predictors of resilience at the post-training program phase.

3.2. Discussion

Regarding demographic data, present study's results demonstrated that above three-fourths of studied elderly people less than 70 years old. In addition, three-fourths of them females. Though greater percent of females may represent the gender proportion of geriatric social club, this is most likely owing to our recruitment of participants at community centers, which are more typically frequented by women. It may also represent women's longer life expectancy in general, as revealed in a Central Intelligence Agency (CIA) report, in which male lifespan was 73.5 years and female life expectancy was 76 years [20]. These findings were, to some extent, in agreement with the study performed by Kukihara et al., [21] in Japan, which found that majority of studied elderly people were under 70 years old, with females accounting for almost two-thirds. Considering residence, most of elderly participants in study lived in urban areas. This might be because culture of joining a club is more prevalent in cities than rural places. Additionally, this might be due to geriatric club location, which is present in an urban area. As for current marital status, about two-thirds of studied seniors were unmarried (widowed or divorced). A potential rationale for this could be that as people age, they are more susceptible to lose their partner, considering life expectancy in Egypt.

Moreover, they went to the club to meet their friends and to avoid staying alone at home and feeling bored. The current study result was in line with the study performed by Hsiung et al., [22] in Taiwan, who found that the majority of seniors were unmarried (widowed, divorced, and single) and from urban areas (northern and central Taiwan). As well, all of studied elderly people were currently unemployed, as all of them were retired. Moreover, this study's findings showed that the sample's socio-economic level was representative of the Egyptian community, with more than half of them were in middle class, with smaller percentages at the low and high extremes. Also, three-fourths of the studied elderly people reported having sufficient income. However, this makes them more vulnerable to the financial problems associated with retirement since retirement pension is much lower compared with their current salaries. A similar situation was found by Xie et al., [6] in a study in China, who found that on average, older adults reported a moderate amount of pension. Concerning the total mindfulness level of studied seniors, this study's results showed that most of studied seniors had a low level of mindfulness pre- program. While post-program, there was a highly statistically significant improvement, where two-thirds of studied elderly people had a high level of mindfulness and slightly below one-third of them had a moderate level of mindfulness.

This indicated great success of this study program. This success can be attributed to the training program's content, which was designed to address the stated needs of senior individuals. Furthermore, the program assisted them in selecting alternate activities to maintain their health, such as mindfulness exercises, which improved their life satisfaction and resilience. In line with current study result, a study by Zhao et al., [23] in China examined the effectiveness of mindfulness-based cognitive therapy on insomnia symptoms demonstrated a significant improvement in mindfulness skills for participants after application of six weekly 90-minute sessions of a mindfulness program. Conversely, this finding was in disagreement with Zaki et al., [24], who performed a mindfulness-based intervention program for seniors with colon cancer in Sohag, Egypt, and found that most studied seniors had a high mindfulness level at the pre-intervention phase, while the majority of them had a moderate mindfulness level, and under one third of them had a high level at the post-intervention phase. This difference might be due to the use of a different measurement tool or the application of a mindfulness program to a healthy people. Regarding life satisfaction, pre-training program findings of the existing study pointed out that most of the studied elderly people were dissatisfied with their lives.

This could be attributed to numerous stressors and losses associated with aging, such as death of a lover or friend, declined somatic and psychological wellness, reliance on children, a reduced capacity to participate in rewarding and enjoyable events, and necessary help to preserve their general life quality [25]. In line with these study findings, study of Jafaraghaee et al., [26] in Iran revealed that most of studied seniors had a low level of life satisfaction. On other hand, this study finding was inconsistent with Basanti, [27] who found that Asian Indians older adults living in America were satisfied with their life. This might be explained by difference in living circumstances between two communities and higher level of life quality in the United States of America than in Egypt. Meanwhile, the application of the mindfulness-training program was successful in significantly increasing the level of life satisfaction among elderly people. Thus, post-test showed that three-fourths of studied elderly people were satisfied, and only one-fourth of them were neutral. Additionally, mean score of life satisfaction improved and this improvement was highly statistically significant. This is because mindfulness has a direct and noteworthy impact on life satisfaction. Persons with an elevated degree of mindfulness more likely to actively embrace themselves and the circumstances in their lives; thus, they are more willing to embrace issues they cannot alter, such as their appearance and ideas, than people with poor mindfulness [28].

In agreement with the current study results, Pandya, [29] conducted a study in India that indicated that the

mindfulness program was a successful intervention for significantly promoting the life satisfaction of retired older adults. Moreover, Kertapati et al., [30] concluded that the use of mindfulness interventions, particularly chair yoga, was an effective proactive approach to improving life satisfaction in older persons, whereas the intervention group had a considerably upper mean score for life satisfaction than the control group. Regarding resilience, this study found that most of the examined elderly people had a minimal level of resilience at the pre-training program phase. This might be due to adverse conditions such as lacking of sufficient care and emotional support from significant others leading to adverse psychological outcomes, as well as feeling of loneliness and sadness, which affected their resilience. Moreover, resilience decreases with advancing age, which is supported by Palmes et al., [31] in the Western Philippines, who found that age was negatively correlated with resilience, indicating that younger people tend to be more resilient. These study findings were supported by El Shirbeny et al., [32] in Egypt, who found that most of the examined seniors had a minimal level of the resilience. After the application of the mindfulness-training program, the existing study results demonstrated that there was a highly statistically significant improvement in resilience level of elderly people.

Whereas, the post-test showed that nearly three-fourths of elderly people had a high level of resilience, and slightly above one-fourth of them had a moderate level. Moreover, the mean score of resilience improved and this improvement was highly statistically significant. Thus, the mindfulness program boosts resilience to stress and improves well-being in older people [33]. In line with the aforementioned study result regarding the post-intervention improvement in studied elderly people's resilience level, a study in Malaysia showed the efficiency of mindfulness-based interventions in improving resilience [34]. Furthermore, another study in Iran showed that mindfulness-based stress reduction intervention (MBSR) significantly improved the resilience level of the studied elderly women [35]. Regarding the correlation among studied variables at different study periods, the present study findings displayed that only a highly statistically significant positive relation was established between elderly people's mindfulness and resilience scores at pre-intervention. This result indicated that elderly people with higher degrees of mindfulness were more resilient. This could be because people with higher degrees of mindfulness may adopt a detached viewpoint in difficult situations, which is useful for building resilience.

Individuals with a high level of mindfulness can quickly step back from negative feelings. As a result, they may perceive the present moment, allowing them to objectively assess their current emotional state as witnesses. As a result, when faced with adversity, individuals who trained on mindfulness are less prone to become trapped in apathetic feelings. Which is beneficial for developing resilience [36]. This finding was in harmony with the foregoing; a study implemented by Choudhary et al., [37] in India confirmed the significant and positive correlation between mindfulness and resilience among older people. Similarly, the present study found a highly statistically significant positive relation between elderly people's mindfulness and both their life satisfaction and resilience scores following intervention. This could be because mindfulness shields the detrimental influence of unavoidable incidents on emotional discomfort, while resilience protects against the harmful effects of traumatic circumstances on mental wellness [38]. Furthermore, mindfulness can improve the standard of living and life satisfaction by avoiding evaluationt, having deliberate consciousness, paying attention to the current moment, and eliminating worries about both the previous and next events, and decreasing responses to harmful feelings and ideas [39]. This reinforced by study of Diachenko et al., [40] in Denmark, revealed an improvement in resilience and life satisfaction scores among Mindfulness-Based Stress Reduction (MBSR) subjects compared to control group, not only after intervention (after four months) but also at 12-month follow-up.

This study discovered there a highly statistically significant positive correlation between senior's scores of life satisfaction and resilience before and after intervention. This study finding supported by opinion of Kütük et al., [10] in Turkey, who demonstrated positive correlation between life satisfaction and resilience among Turkish participants and emphasized that a wise and resilient person may overcome harmful impacts of adverse events by focusing on present moment and being happier with his life. Finally, in multivariate analysis, present study's finding clarified that elderly people's previous jobs a highly statistically significant negative predictor of life satisfaction before intervention, whereas two-thirds of them previously unemployed. As well, unemployment has a significant detrimental effect on personal happiness, and satisfaction with life. Whereas, having a job is not only vital for fulfilling basic bodily needs or earning money, but it also essential for giving one meaning in life and a critical part of social identity [41]. Conversely, elderly people's resilience, previous job, age, healthy environment highly statistically significant positive predictors of life satisfaction after intervention. This means that after intervention, more resilient older people more satisfied they were with life. Furthermore, as age increases, life satisfaction increases, and older people who had a healthy environment at home were satisfied with their lives.

This was supported by Park & Kang, [42] in Korea, who confirmed that a proper and healthy environment is an important factor in elderly's life satisfaction. Therefore, elderly people who live in a healthy and cheerful environment report greater life satisfaction than those who do not. This study result is consistent with the study applied by Fenzel & Richardson, [43] in the United States, which revealed that resilience was a substantial positive indicator of one's overall life satisfaction and noted that this finding emphasizes the necessity of learning to face difficulties via flexibility and learning from life's disappointments and setbacks. Additionally, this study was in agreement with the study of Bužgová et al., [44] in the Czech Republic, which demonstrated that employment a positive indicator of life satisfaction, and older people who working reported a higher level of life satisfaction. Also, a study conducted by Tavares, [45] in Portugal revealed that life satisfaction increased with age, and older people indicated greater degrees of life satisfaction. Moreover, multivariate analysis in this study revealed that before intervention, elderly people's educational level a statistically significant positive predictor of resilience. Crowding index and marital status statistically significant negative predictors of resilience, this means that older people without partners had a higher degree of resilience.

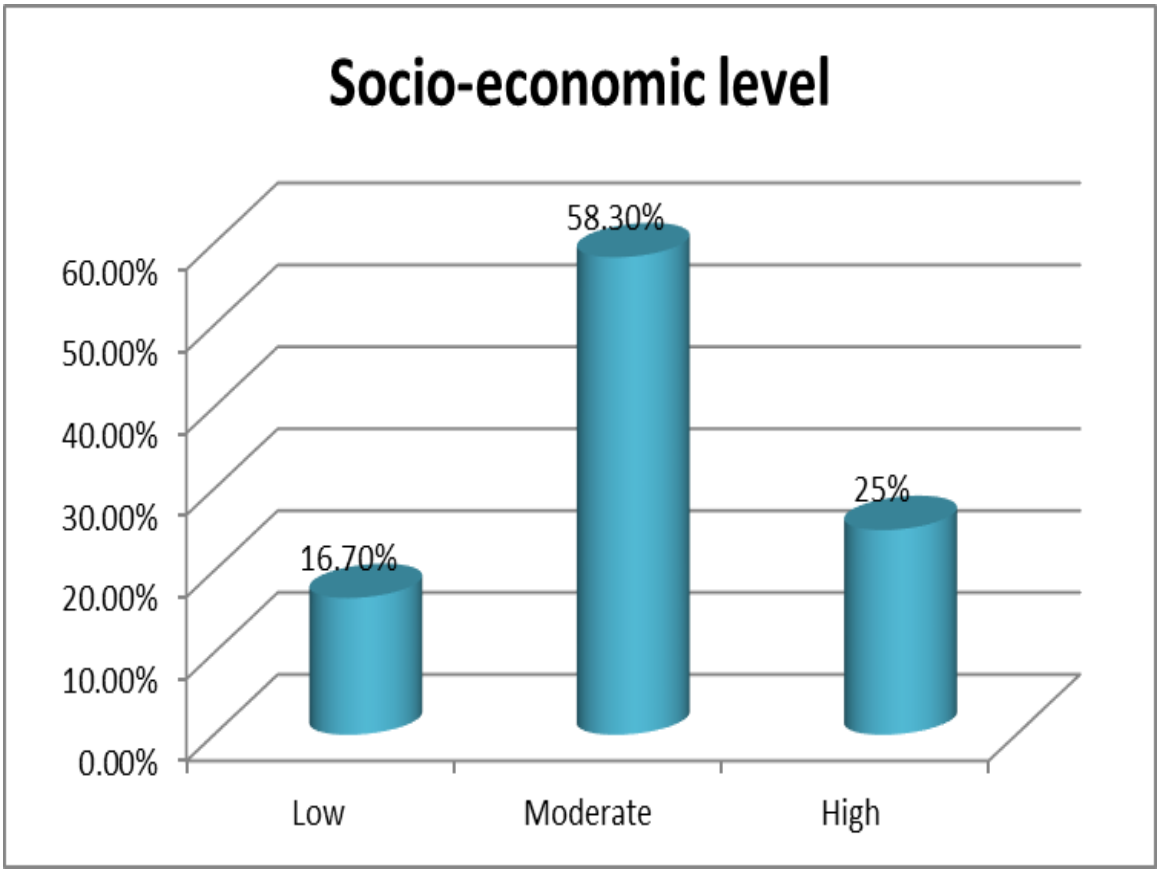

Figure 1. Percent of Socio-economic Level of Studied Elderly People (n=60).

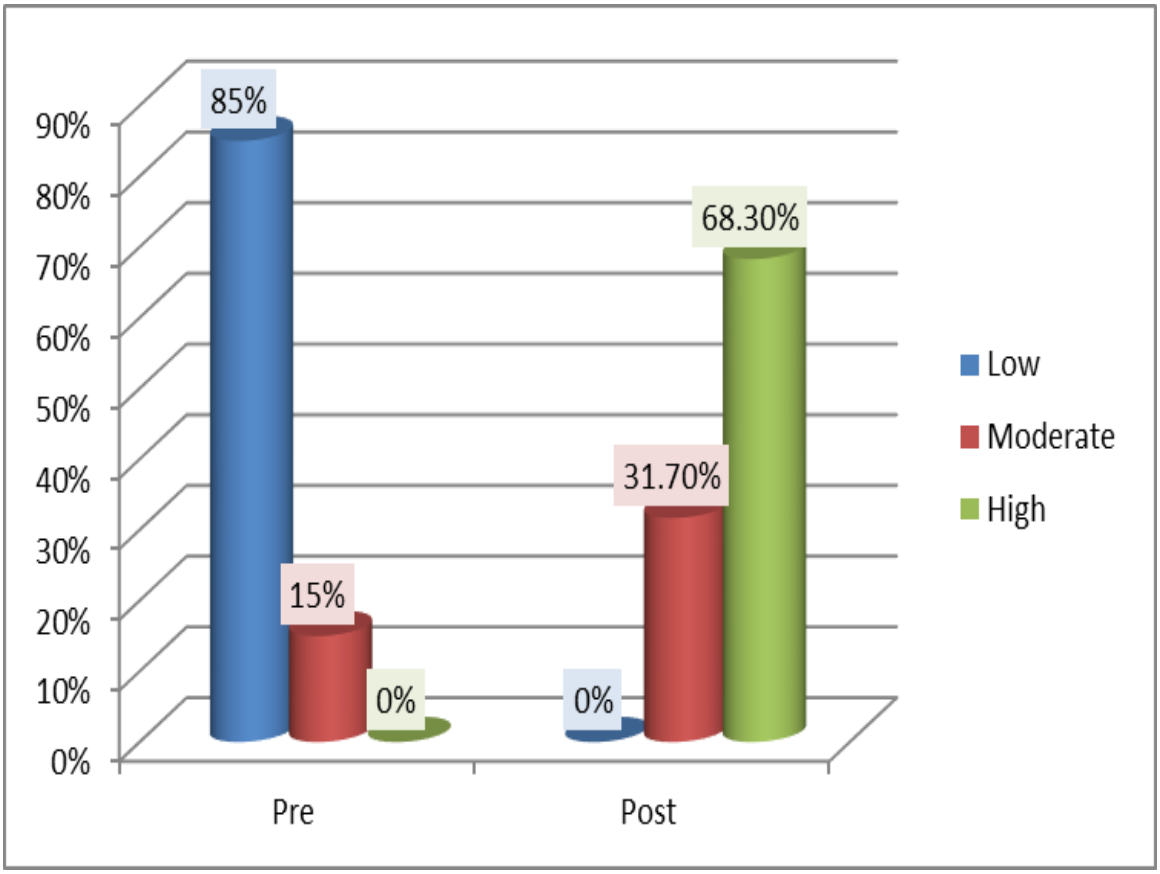

Figure 2. Mindfulness Level of Studied Elderly People at the Pre and Post Training Program (n=60).

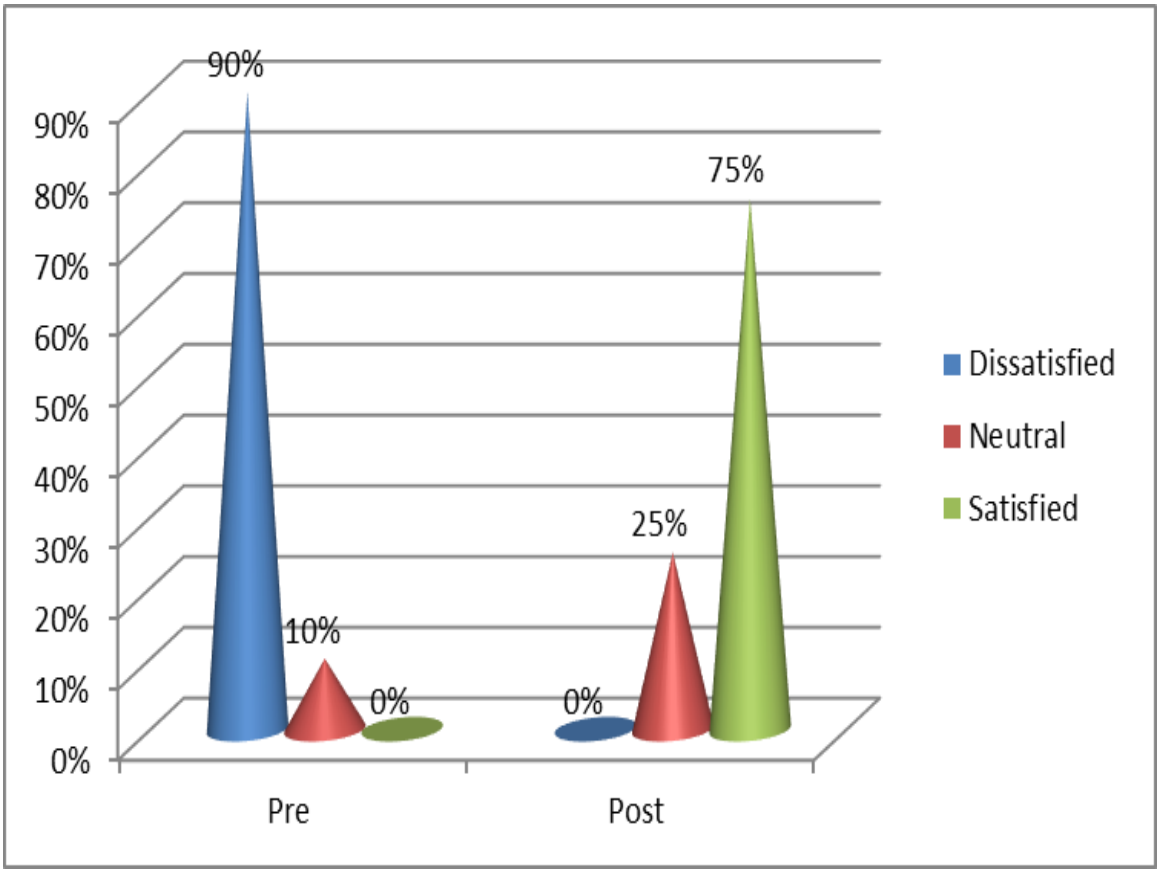

Figure 3. Life Satisfaction Level of Elderly People at the Pre and Post Training Program (n=60).

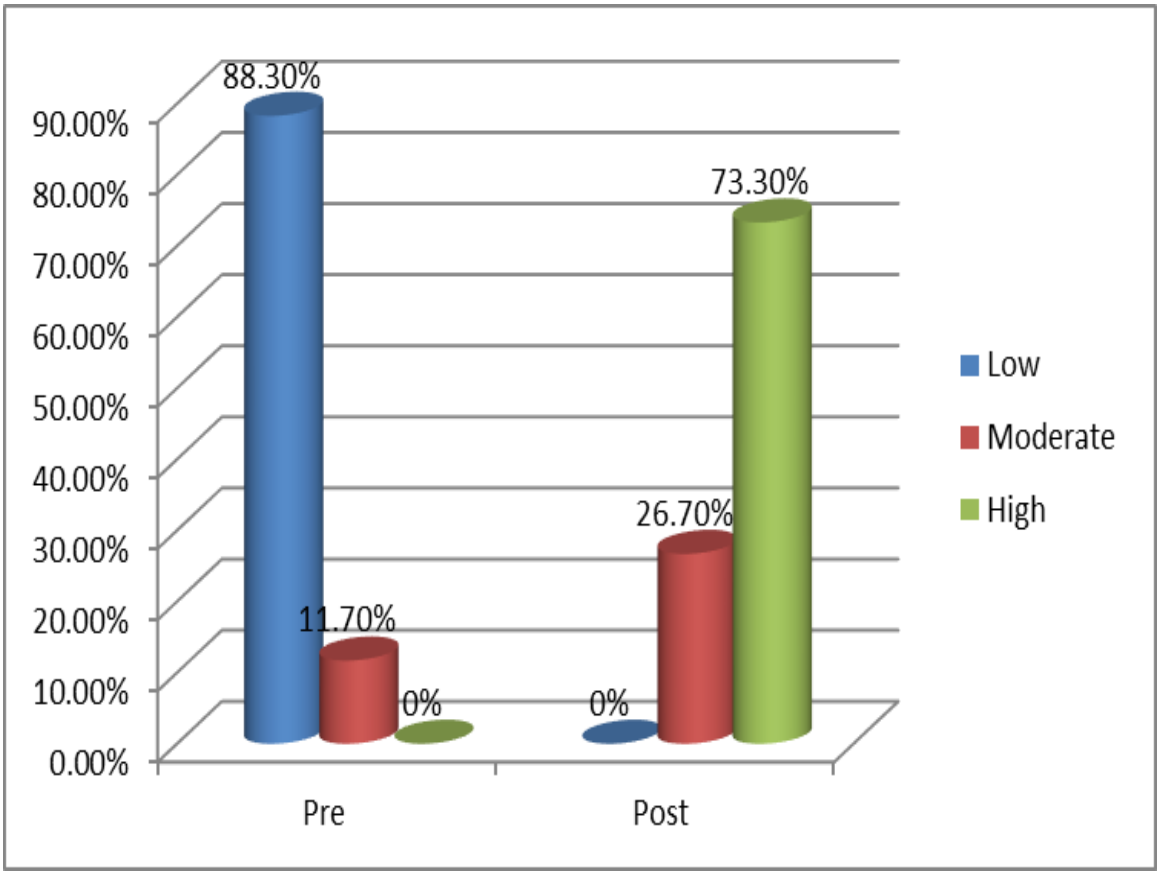

Figure 4. Resilience Level of Elderly People at the Pre and Post Training Program (n=60).

Table 1. Socio-Demographic Characteristics of Participants Included in the Intervention Program (n=60).

Socio-demographic Characteristics	No.	%
Age (years)		
60-<70	48	80.0
≥70	12	20.0
Mean ± SD	67.42±5.19	
Gender		
Male	15	25.0
Female	45	75.0
Residence:		
Rural	10	16.7
Urban	50	83.3
Current marital status		
Unmarried	40	66.7
Married	20	33.3
Educational level		
Basic	20	33.3
Intermediate	10	16.7
High	30	50.0
Current job:-		
Employee	0	0.0
Un employee	60	100.0
Previous job		
Employee	19	31.7
Un employee	41	68.3
Living with family		
Yes	48	80.0
No	12	20.0
Source of monthly income		
Pension	56	93.3
property income	4	6.7
Social assistance	0	0.0
Assistance from relatives	0	0.0

Table 2. Relation between Mindfulness, Life Satisfaction and Resilience Scores Throughout Study Phases (n=60).

Items	Pre mindfulness score				^{FET}p-value
	Low=51		Moderate=9		
	No	%	No	%	
Pre-life satisfaction					
▪ Dissatisfied	46	90.2	8	88.9	0.99
▪ Neutral	5	9.8	1	11.1	
Pre-Resilience					
▪ Low	51	100.0	2	22.2	0.001**
▪ Moderate	0	0.0	7	77.8	
Items	**Post- mindfulness score**				^{FET}p-value
	Moderate=19		High=41		
	No	%	No	%	
Post-life satisfaction					
▪ Neutral	14	73.7	1	2.4	0.001**
▪ Satisfied	5	26.3	40	97.6	
Post-resilience					
▪ Moderate	15	78.9	1	2.4	0.001**
▪ High	4	21.1	40	97.6	

FET: Fisher exact test, Non-significant (p>0.05), **: statistically highly significant (p<0.001)

Table 3. Correlation Matrix of Elderly People' Mindfulness, Life Satisfaction, and Resilience Scores at Pre-Training Program Phase (n=60).

Pre-phase	Mindfulness		life satisfaction	
	r	p	r	p
life satisfaction	0.012	0.925		
Resilience	0.158	0.229	0.336	0.001**

Non-significant (p>0.05), **: statistically highly significant (p<0.001), r: correlation coefficient

Table 4. Correlation Matrix of Elderly People' Mindfulness, Life Satisfaction, and Resilience Scores at the Post-Training Program Phase (n=60).

post-phase	Mindfulness		life satisfaction	
	r	p	r	p
life satisfaction	0.690	0.001**		
Resilience	0.717	0.001**	0.827	0.001**

**: statistically highly significant (p<0.001), r: correlation coefficient

Table 5. Multiple Linear Regression Model to Predict Factors That Affect Life Satisfaction Score Throughout Study Phases (n=60).

Pre-phase	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	8.065	.396		20.358	.000	7.272	8.859
previous job	-1.118-	.227	-.543	-4.929	0.001**	-1.572	-.664-

****: highly statistically significant (p<0.001)**
R-square=0 .295, ANOVA: F= 24.293 , P<0.001
Variables entered and excluded: age, gender, residence, marital status, education , living with, source of income, family income, healthy environment at home, computer availability, crowding index, Socio-economic level, pre-mindfulness score and pre-resilience score

Post-phase	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-5.475-	3.285		-1.667	.101	-12.055-	1.105
Post resilience	.167	.015	.733	11.422	0.001**	.138	.196
previous job	2.452	.509	.315	4.818	0.001**	1.432	3.471
Age	.138	.044	.197	3.150	0.001**	.050	.226
Healthy environment	.365	.108	.416	3.383	0.001**	.149	.582

****: highly statistically significant (p<0.001)**
R-square=0 .790, ANOVA: F= 70.291 , P<0.001
Variables entered and excluded: gender, residence, marital status, education , living with, source of income, family income, computer availability, crowding index, socio-economic level and post mindfulness score

Table 6. Multiple Linear Regression Model to Predict Factors That Affect Resilience Score Throughout Study Phases (n=60).

Pre phase	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**	
	B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
(Constant)	47.038	6.156		7.640	.000	34.700	59.375
Education level	2.653	1.112	.285	2.385	0.021*	.424	4.883
Marital status	-5.313-	2.041	-.299-	-2.603	0.012*	-9.404-	-1.222-
Crowding index	-3.778-	1.867	-.226-	-2.024	0.048*	-7.519-	-.037-
*: statistically significant (p<0.05) R-square=0 .454, ANOVA: F= 11.428 , P<0.001 Variables entered and excluded: age, gender, residence, living with, source of income, family income, healthy environment at home, computer availability, socio-economic level, pre mindfulness and life satisfaction scores							
Post phase	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-20.230-	9.000		-2.248-	.029	-38.259-	-2.200-
Post life score	3.075	.412	.700	7.468	0.001**	2.250	3.899
Post mindfulness	.312	.086	.338	3.624	0.001**	.140	.485
previous job	-7.363-	2.649	-.215-	-2.780-	0.001**	-12.669-	-2.056-
****: highly statistically significant (p<0.001)** **R-square=0 .759, ANOVA: F= 58.656 , P<0.001** **Variables entered and excluded: age, gender, residence, marital status, education , living with, source of income, family income, healthy environment at home, computer availability, crowding index, and socio-economic level**							

This might be clarified by fact living alone without a partner makes seniors independent and helps them deal with difficulties without asking for help. Also, regarding functioning, resilience has linked to capacity to remain active and avoid symptoms of depression in face of challenge. These study findings in partial agreement with study results indicated by [46] in Germany, indicated a higher educational level associated with a higher degree of resilience. Though single and separated subjects showed lower resilience than married participants living with their partners, widowed subjects exhibited resilience equal to that of married subjects living together. Present study findings supported by findings of scoping review performed by [47], which reported that overcrowding had a negative influence on overall mental wellbeing and linked to increased stress and decreased resilience. Moreover, present study findings exhibited that, after intervention, studied elderly people's life satisfaction and mindfulness scores highly statistically significant positive predictors of resilience.

These study findings consistent with findings from a study applied by Oh et al., [34] in Malaysia, which indicated that a mindful participant had a high degree of resilience and low degrees of emotional stress, indicating a robust relation between mindfulness and resilience. Furthermore, people who exercised mindfulness were more probable to have a positive relation with obstacles they confronted, which helped to their ability to deal with difficulty and uncertainty. Also, current study result was similar to study results reported by Deng et al., [48] in China, which showed that life satisfaction was significantly and positively associated with resilience, and individuals with more life satisfaction tended to be resilient and acquire stronger life resources, as well as having more emotional processing and ability to suppress unpleasant feelings.

4. Conclusions

According to the outcomes of the current study and the answers to hypotheses, it was concluded that the applied mindfulness-training program was efficient in enhancing the studied elderly people's mindfulness, improving life satisfaction, and resilience.

List of Abbreviations

(WHO): World Health Organization, (KIMS): The Kentucky Inventory of Mindfulness Skills, (SWLS): Satisfaction with Life Scale, (CD-RISC): Connor & Davidson Resilience scale, (CIA): Central Intelligence Agency, (MBSR): mindfulness-based stress reduction.

Declarations: Ethics approval and consent to participate

Official approval for data collecting and training program execution was obtained through sending formal letters from the Dean of the Faculty of Nursing at Zagazig University to the director of the Geriatric Social Club in Zagazig City. Furthermore, investigator visited the study site, talked with club's director, described study's purpose and value, and requested her assistance. Research Ethics Committee of the Faculty of Nursing, Zagazig University, accepted study protocol with code M DZUnur/113/15/11/2022. Following fully clarifying goal of research, each elderly subject verbally gave their informed consent to participate. Participants given choice to refuse participation and advised that they could pull out at any time during information gathering meetings; they also promised that material would be kept secret and utilized solely for study purposes. Investigator guaranteed privacy and privacy of the participants' data. The investigator's phone number and all available communication options disclosed to participants, who might return at any moment for an explanation.

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Challenging interests: There is no overlapping interests.

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Authors' contributions

The study methodology was established and evolved by all investigators, the manuscript was written and edited, analysis of the data was revised, and the study methodology was developed, the researchers also everyone participated in information collection, interpretation, and editing of article. Each contributor read final draught and approved it.

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