

Perception of Aging Modifies Social Adjustment of Iranian Veterans: a Randomised Controlled Trial

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Abstract

Background: Retirement is a challenge for veterans during their life course. The aim of this study was to investigate the effect of educational intervention on the perception of aging and social adjustment during retirement.

Methods: This quasi-experimental study was performed on 100 military retirees in Shiraz, Iran. Data collection tools included a demographic questionnaire, Perception of Aging, and Social Adjustment. The educational intervention used included six training sessions on the subject of mindfulness, physical and psychological changes of aging, health and self-care management, attitudes toward aging, and social and family relationships in old age. Data were collected at the beginning of the study and two months after the intervention and then analyzed using SPSS version 25.

Results: The results showed no significant difference between the control and intervention groups in terms of demographic variables, perception of aging, and social adjustment before the educational intervention. However, the perception of aging significantly decreased, and social adjustment increased in the intervention group after the educational intervention. Improving the perception of aging and parents' perceived role can positively affect social adjustment. Multiple regression analysis indicated a predictive model for social adjustment in later life.

Conclusions: With increased knowledge of the retirees on self-care, their perceptions of aging and their role in later life improved and predicted social adjustment.

Introduction

We can separate a veteran from war; however, we cannot detach the war from him. With the abundant interest in their service time, many stuntmen view this period as the most meaningful epoch of their lives. They may feel sad and depressed when reflecting on this period [1]. The passage from military to civilian life is important during soldiers' life and embraces a transition and adjustment period. A transition is accompanied by changes in jobs, relationships, and self-images besides worryment [2–4]. Joining the army is a crucial turning point in early adulthood, and war experiences influence individuals' aging manner [5]. The elderly retirees of military forces (veterans) have experiences different from others. Soldiers face mental problems, war, and trauma, some stressors such as recurrent changes in residences, difficult physical and mental training, detachment from family members, and physical harm threats. All of which impact their somatic, mental, and social dimensions. A wide range of retirees cannot adjust themselves to retiring and aging conditions. Thus, they suffer from different mental problems [5]. Psychological problems include isolation and loss of friends in the social domain and reduced self-esteem and self-confidence in the personal domain [6–7]. There are some positive or negative psychological phenomena during the transition conditions, and the utilization of different adjustment strategies helps with the emergence of a higher level of performance during this period [8].

Unlike the objective conditions, it is necessary to positively perceive old ages for better adjustment with aging variations [9]. However, possessing a negative perception from old age can destructively impact the somatic, spiritual, behavioral, and social performance of elderlies. Oldsters, with an extensive social network, may enjoy a more positive sense regarding their aging process. According to studies, social performance is a key component of the positive aging perceptions [3, 10]. The most comprehensive definition for the aging perceptions explains that the awareness of old ages indicates one's satisfaction with their oldness and adjustment to the related changes [11]. The main point is that the person conceives himself as a member of the elderly community; i.e., he accepts his oldness [12]. Robertson et al. (2016) showed that aging perception might predict social interaction in the future life. Their study provided initial evidence for the effect of oldness perception on social behaviors [13]. According to investigations, it is necessary to pay attention to the potential role of aging perceptions and carry out behavioral and cognitive interventions to moderate the attitudes towards old ages to promote the physical and mental health of elderlies in general critical conditions and pandemics [8, 14]. The effective concepts and factors in the aging perceptions of elderlies shape a suitable predictor for health conditions and a factor determining the satisfaction rate in old ages and adjustment with oldness-related changes in veterans [15–16]. The relationships between parents and their children noticeably change over time. In the initial years, parents cater for the growth and fostering of their children. As the youngsters pass from maturity to adulthood, the nature of this relationship changes and moves from a dependent parent-child to an equal relationship with the mutual support between two adults. The main points are the acceptance and continuation of this role in old parents and their effect on their health and social adjustment senses [8, 15–16]. This study aims to enhance the aging perceptions and acceptance of the parenting role in retirement in old military retirees as an approach to develop higher social adjustment.

Materials & Methods

The present randomized controlled educational trial is a study conducted on 100 army-retired men in Shiraz city. The participants were selected by systematic, regular random sampling and the random number table (e.g., a list of the center members was compiled, and their number was divided by the number of the required sample.) We selected the primary outset using the NCSS PASS 15 software and obtained other individuals using the number computed by the previous formula. We estimated the sample size at 90 relying on Taghinezhad et al.'s study, entitled 'The Effectiveness of Collaborative Assisting Intervention by Training Social Skills on Social Adjustment of Elderlies' and considering the mean difference formula in trial studies. However, the sample size was estimated at 100 due to participant loss probability [17]. In the case of subjects' immigration, dissatisfaction, non-cooperation with the programs, absences above one session, and reoccupation, they were omitted from the study. The samples were randomly assigned into two equal groups of intervention and control by the NCSS PASS software. Those assigned to the intervention group took part in the educational sessions.

The data collection instruments were a researcher-made questionnaire about the demographic information, an aging perceptions scale, and the short-form Bell adjustment inventory. The demographic information included the names and surnames of individuals; if they were inclined, age, residence,

ethnicity, marital status, the number and gender of children, education, and incomes. The aging perceptions questionnaire is a self-report tool measuring an individual's evaluation of oldness and has two parts. The first involves 32 items, measuring four dimensions of beliefs about aging. The second part measures the experiences related to the health changes by 17 two-part questions. The short-form Bell Adjustment Questionnaire (BAI) is comprised of 32 questions; each is answered by either 'Yes,' 'No,' and 'I do not know' options. The first part of APQ is measured based on a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The second part, which is in the form of yes/no, is scored by either 0 or 1 point. The scoring spectrum of this questionnaire ranges from 1 to 194. The scoring of the short-form Bell Adjustment Inventory is according to the normalized table. In this test, only yes or no responses receive scores. Based on the normalized table, the selected option is scored 0 or 1. An individual's adjustment score is obtained by the sum of points obtained from all questions. Barker et al. used the test-retest method and estimated the average reliability of the aging perceptions questionnaire at 0.76. Mir Emadi et al. (2017) calculated the Cronbach alpha coefficient for all questionnaire dimensions between 0.64 and 0.81. They obtained the test's reliability coefficient between 0.65 and 0.96 in a two-week time interval using the test-retest method. This research showed that the aging perceptions questionnaire enjoyed suitable validity and reliability. The reliability of the short-form Bell Adjustment inventory was calculated at 0.88, determined by the correlation between odd and even items and use of the Spearman-Brown predictor formula. This questionnaire was validated and standardized in Iran by Delavar for athlete stuntmen. The third questionnaire was perceived parental role designed by Vasalo et al. (2009). This instrument has 12 items scored by a 5-point Likert scale. The scoring spectrum is from 12 to 60. The validity of this instrument was estimated by Cronbach alpha at 0.91 and ICC of 0.89.

Before the intervention, the participants filled out the informed consent, demographic characteristics, aging perceptions, and adjustment questionnaires. After data analysis and discovery of individuals' most-needed education in the area under investigation, the intervention started in the form of an educational course in six sessions once a week with 10 participants per session. The topics of the educational sessions were as follows: first session: mindfulness; second session: familiarity with the somatic changes in old ages; third session: familiarity with psychological changes in old ages; fourth session: health management and self-care; fifth session: attitudes towards old ages and the role of the elderly in the family and adult children; and sixth session: social relationships in the retirement period. Every session lasted 60 minutes.

The time of classes was adapted to the perspectives of the participants. In the sixth session, a psychologist was invited and asked to discuss the relationships between the subjects and their children and parents. The rest of the subjects was trained by educational power points. The training was specific to the experimental group, and the control group received no intervention. Power points, films, and educational clips, and pamphlets were employed in different sessions. The participants were given a workbook and asked to write down their practices during different days. Eight weeks after the intervention, the tests were repeated. The subjects filled out the informed consent and demographic information questionnaires, and the aging perceptions and adjustment questions were asked from the participants in the form of interviews. At the end of the sessions, the educational manual, including all

trained topics, were rendered to the individuals for commemoration and accessibility. Eventually, some educational sessions were held for the control group, and the educational manual and pamphlets were delivered to them. The perspectives of several health education specialists were employed in the design of classes and implementation manner of the intervention.

Two weeks after the intervention, the individuals in both groups filled out the questionnaires. To observe ethical principles, we provided the control group with the content of the educational sessions in the form of pamphlets. All participants entered the study with their informed consent. The present study received an ethics code of 19522 and was conducted according to Helsinki declaration and CONSORT after adopting a license from the Ethics Committee of Shiraz University of Medical Sciences (IR.SUMS.REC.1398.960). The data were analyzed by the SPSS 25 software, wherein the significance level was considered at 5%. To investigate the significance of the difference between the groups, we employed the independent T-test, and to develop the predictor model, we used multivariate regression analysis using the enter method.

Results

The normal distribution of the collected data was examined and confirmed by the Kolmogorov-Smirnov test ($p < 0.005$). One hundred retired veterans participated in this study. According to Table 1, the mean and standard deviations of age in the experimental and control groups is 63.08 ± 11.33 and 67.20 ± 8.65 , respectively. In both groups, the educational levels of participants were above the associate degree. A high number of the participants in the intervention group (80%) and the control group (92%) were married. Regarding Fisher's exact test results, there was a significant difference between the two groups in their marital status ($P \leq 0.001$). Fifty-six percent of the intervention group participants and 52% in the control group had chronic diseases. A high percentage of the participants in the intervention group (92%) and control group (88%) reported their health conditions as good to very great.

Table 2 displays the mean scores and SD of aging perceptions in both intervention and control groups. Before the intervention, an intergroup disclosed no significant difference between the groups in their total mean score of aging perceptions and the eightfold subscales ($P \leq 0.001$).

After the intervention, the total mean score of aging perceptions and the subscales, except for two subscales of acute/chronic and rotational timelines, were significantly different in both groups ($p = 0.001$). After the intervention, an intragroup comparison revealed a significant increase in the total mean score of the aging perceptions and the negative and positive control subscales, besides a significant decrease in the subscales of feeling disclosure and health changes. In the control group, only the negative control subscales significantly decreased ($P \leq 0.001$).

Table 3 displays the mean and SD of scores related to the social adjustment of retired veterans in both intervention and control groups. An intergroup pre-intervention comparison of the mean social adjustment scores of the groups revealed that they were not significantly different ($P = 0.169$). However, after the intervention, this score was significantly different in these groups ($P \leq 0.001$). Concerning the

intragroup post-intervention comparison, the mean social adjustment score increased significantly in the intervention group ($P \leq 0.001$). However, no significant increase happened in the mean score of the control group ($P = 0.071$).

Table 4 demonstrates the pre-and post-intervention PPR in both groups. According to the independent t-test, the two groups were not significantly different in their total scores and subscale PPR scores ($P = 0.235$) before the intervention. However, the PPR scores significantly enhanced in the experimental group after the intervention ($P \leq 0.001$). Based on the paired sample T-test, the PPR mean scores did not significantly change in the control group than in the pre-intervention time ($P = 0.561$). However, the increase was significant in the intervention group ($P \leq 0.001$). The Pearson coefficient showed that the correlations between social adjustment and aging perceptions ($r = -0.556$), and that between social adjustment and health changes ($r = -0.467$) were negative and significant, and the correlation between aging perceptions and health changes was positive and significant ($r = 0.725$).

Table 5 shows the results of multiple regression analysis in the enter method to determine the predictive power of main variables for explaining changes in BAI scores in the veterans. According to the results, the model was extracted, and the sum of the entered variables can explain up to 43% of the variance change of veterans' BAI within the samples. The model's accuracy was ≥ 74.5 , and chi-square was ≥ 12.101 ($P \leq 0.001$), and the model was the most predictive one. According to the results of the above table, by increasing the standard deviation in the AGR, MAR, APQ 1, and APQ 2, the BAI score will increase by 0.366, 0.206, 0.243, and 0.317 SD score respectively. Also, the effective variables, i.e., AGR, MAR, APQ 1, and APQ 2, with an effect size of 0.334, 0.258, 0.309, and 0.211, have the most impact on variance change in BAI, respectively.

Discussion

According to the findings, an increase in elderlies' awareness of their psychological and physical self-cares decreases the rate of negative aging perceptions. Although no study investigating the effect of educational intervention on the perception of aging was found, health conditions, capability in doing daily activities, and life quality are among the main effective components determining aging perceptions in old ages [18–19]. It was shown in Brown et al.'s (2020) study that undesirable health conditions can increase the negative aging perceptions by four times. Besides, this rate increments by 3.3 times in the case of corporal disabilities [11]. Runnals et al. (2014) showed that oldsters with better health conditions enjoyed more positive aging perceptions [21]. If oldsters receive health-promoting interventions, they will have more positive perceptions. Also, a sense of perceived control mediates the relationship between aging perceptions and health conditions. Hence, if interventions in the health domain cannot improve oldsters' health conditions significantly, they can make aging perceptions more positive by increasing disease and health-controlling senses [21]. After the intervention, the positive control over the oldness subscale and health changes significantly improved, and this perception became more positive. In a study on 792 oldsters, Shenkin et al. (2014) claimed that depression and anxiety reduction were significantly

associated with positive aging perceptions [22]. The current study also employed several approaches to control elderly's anxiety and depression, causing an improvement in aging perceptions.

This study found a significant increase in the social adjustment of military retirees after the intervention. Lou et al. (2020) also disclosed a similar finding in their study. The utilization of educational interventions based on social skills can cause the enhancement of elderly's social adjustment [23]. In Cheng's (2020) study, the educational intervention on positive attitudes, memory reviews, problem-coping skills, and fear and reality acceptance could significantly improve the social adjustment of oldsters [24]. The intervention applied in the present study was self-care training on mental and physical health. Based on previous studies, an increase in the adjustment of elderly with aging problems positively correlates with physical and mental health. According to the present study, the adjustment enhancement of oldsters could be attributed to their increased self-care. Another reason for retirees' high adjustment was ascribed to the effect of mindfulness enhancement. According to studies, when elderly focus on the negative aspects of aging, they suffer from mental rumination, reducing their adjustment. Social adjustment in old ages is related to the positive acceptance of changes, positive reassessment, and declined concentration on the negative aspects of oldness [25–27]. The present study employed some approaches to increase positive attitudes and decrease negative attention. Xu (2018) argues that adjustment in old ages lies at the center of the triangle of accepting changes, preserving integration, and attempting to grow and understand [28]. That is why retirees' social adjustment scores significantly improved due to the changes in the negative attitudes of retirees towards oldness.

This study discovered a significant correlation between aging perceptions and health changes ($r = 0.725$). It means negative health changes turn down aging perceptions in elderly. In Cheng's (2017) study, oldsters' aging perceptions were significantly correlated with the perceived health and infection by chronic diseases. In that study, aging perceptions negatively correlated with having chronic diseases ($r = -0.06$), and negative aging perceptions had a negative correlation with infection by chronic diseases ($r = 0.24$) [24]. Another finding of this study was the significant correlation between social adjustment and aging perceptions ($r = -0.556$). Hence, an increase in the social adjustment of oldsters can result in more positive aging perceptions and vice versa. In justifying this result, studies claim that the main factor determining the attitudes of oldsters to aging is negative social clichés and beliefs towards oldness. Negative clichés about oldness can increase the negative aging perceptions by 83% [29].

In Cheng's (2014) study, the positive aging perceptions had relationships with the growth and promotion of mental and social capacities [21]. Tiller et al. (2019) showed that increases in the resilience and adjustment of oldsters with oldness problems positively correlated with body health ($r = 0.2$) and mental health ($r = -0.6$) [29], and the enhancement of positive aging perceptions and PPR could increase social adjustment. In Cheng's (2014) study, positive attitudes to oldness were related to the growth and promotion of mental and social capacities, such as change acceptance [22]. Tiller et al. (2019) revealed that the increases in the resilience and adjustment of oldsters with aging problems had positive correlations with body health ($r = 0.2$) and mental health ($r = 0.6$) [30]. Hence, the findings of this study conform to the results of previous studies highlighting the relationships among adjustment, health, and

aging perceptions. This study showed that aging perceptions, social adjustment, and parenting relationships during retirement are three interrelated categories that influence and are influenced by health. They can play a crucial role in determining the well-being of military retirees.

Limitations

The results of this study should be generalized cautiously due to the below reasons:

1. Implementing the intervention on a community of military retirees and ignoring others
2. Implementing the intervention on males and neglecting the military female retirees' minority
3. Not examining the effect of the intervention on follow-up courses

Suggestions

Other researchers are asked to conduct similar studies to complement the limitations of this research and increase their awareness in this domain. Temporal limitations in executing this study made the researcher avoid probing the results in the long-term follow-up courses. Thus, other researchers are suggested to evaluate the results of the present study in the long run.

Declarations

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Authors' Contributions

FM has contributed to the design, performed the interviews, collecting data and written the *Introduction* section; AA has prepared the *Methods* and interpreted the *Results* section; LM has supervised the program and written the sections of *Discussion & Conclusion*. All authors have approved the final manuscript as well.

Ethics Approval and the Funding

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Patient Consent

Written and verbal consent of samples was obtained before participating in the study.

Data Availability

The datasets generated and/or analysed during the current study are not publicly available due to military secret principles but are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Tables

Table 1
Demographic Characteristics of Participants (N=100)

Variables and their subdomains		Groups				P value
		Case		Control		
		Mean	SD	Mean	SD	
Age		63.08	11.33	67.20	8.65	0.059
education	Only reading	1	2	5	10	0.120
	Primary	8	16	4	8	
	Graduate	11	22	12	24	
	Postgraduate	20	40	23	46	
	Bachelor	10	20	6	12	
	Master	0	0	0	5.3	
	Ph.d	0	0	0	0	
maritalstatus	Divorced	6	12	2	4	0.025
	Widowed	4	8	2	4	
	Married	40	80	46	92	
healthoverall	Very good	13	26	10	20	0.856
	Good	18	36	17	34	
	Medium	15	30	17	34	
	Poor	4	8	6	12	
Having Chronic disease	Yes	28	56	26	52	0.532
	No	22	44	24	48	

Table 2
The mean scores of perception of aging before and after the intervention

Variables	Time	Groups				P value
		<i>Case</i>		<i>Control</i>		
		Mean	SD	Mean	SD	
Negative results	Pre	17.64	4.40	18.41	3.72	0.922
	Post	7.46	2.57	17.12	4.14	0.001
	P-value of Paired Samples t-test	0.123		0.007		
Positive results	Pre	13.12	7.71	12.24	2.26	0.239
	Post	13.20	1.67	11.65	2.64	0.001
	P-value of Paired Samples t-test	0.942		0.285		
Show emotions	Pre	17.18	5.15	18.39	4.44	0.512
	Post	14.06	3.88	17.90	2.52	0.001
	P-value of Paired Samples t-test	0.001		0.523		
Negative control	Pre	13.32	3.95	15.04	3.55	0.821
	Post	16.16	2.67	13.48	2.74	0.001
	P-value of Paired Samples t-test	0.001		0.001		
Positive control	Pre	20.16	6.52	20.41	3.26	0.474
	Post	23.36	1.28	19.90	6.93	0.003
	P-value of Paired Samples t-test	0.001		0.653		
Acute/persisten time line	Pre	18.68	2.78	18.12	2.78	0.345
	Post	17.52	3.66	18.73	3.70	0.312
	P-value of Paired Samples t-test	0.103		0.058		
Rotational timeline	Pre	19.30	4.06	19.21	3.72	0.366
	Post	18.14	2.37	19.48	3.72	0.117
	P-value of Paired Samples t-test	0.057		0.661		
Health changes	Pre	19.50	12.53	22.58	9.94	0.354

	Post	12.68	9.23	22.92	9.53	0.001
	P-value of Paired Samples t-test	0.001		0.561		
Total score	Pre	138.90	30.59	144.43	24.50	0.054
	Post	122.58	13.30	141.18	22.11	0.001
	P-value of Paired Samples t-test	0.001		0.081		

Table 3
The mean scores of social adjustment before and after the intervention

Variables	Time	Groups				P value
		Case		Control		
		Mean	SD	Mean	SD	
Social adjustment	Pre	17.10	5.80	18.63	4.48	0.169
	Post	23.44	3.67	19.54	3.27	0.001
	P-value of Paired Samples t-test	0.001		0.071		

Table 4

The mean scores of Perceived role of parents in retirees before and after the intervention

Variables	Subscales	Time	Groups				P value
			Case		Control		
			Mean	SD	Mean	SD	
Parenting	Advice and Guide Role(AGR)	Pre	12.14	3.43	11.22	3.19	0.193
		Post	14.28	3.86	11.90	4.27	0.001
		P-value of Paired Samples t-test	0.006		0.124		
	Material Aid Role(MAR)	Pre	8.96	3.02	8.41	2.42	0.353
		Post	11.68	3.51	9.19	2.90	0.001
		P-value of Paired Samples t-test	0.001		0.09		
Total Score	Pre	22.42	5.20	21.14	4.87	0.235	
	Post	27.28	4.00	21.51	5.69	0.001	
	P-value of Paired Samples t-test	0.001		0.561			

Table 5

Results of Multiple Linear Regression Analysis in predicting BAI

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Effect Size
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			
1	(Constant)	10.28	1.060		3.334	.001	
	AGR	0.158	0.041	0.366	0.562	.005	0.334
	MAR	0.223	0.992	0.206	1.712	.000	0.258
	APQ 1	0.211	0.039	0.243	0.396	.003	0.309
	APQ 2	0.310	0.286	0.317	0.155	.007	0.211

Method: Enter, adj R square $\geq .435$ in the model, $P \leq 0.001$, $F 0.873$, $df = 4.37$, $VIF \leq 1.2$, Tolerance ≥ 0.77 , Effect Size: Eta Sqr. Dependent variable is BAI. AGR = Advice and guidance role, MAR = Material aid role. AGR and MAR are subdomains of PPR.

Figures

CONSORT 2010 Flow Diagram

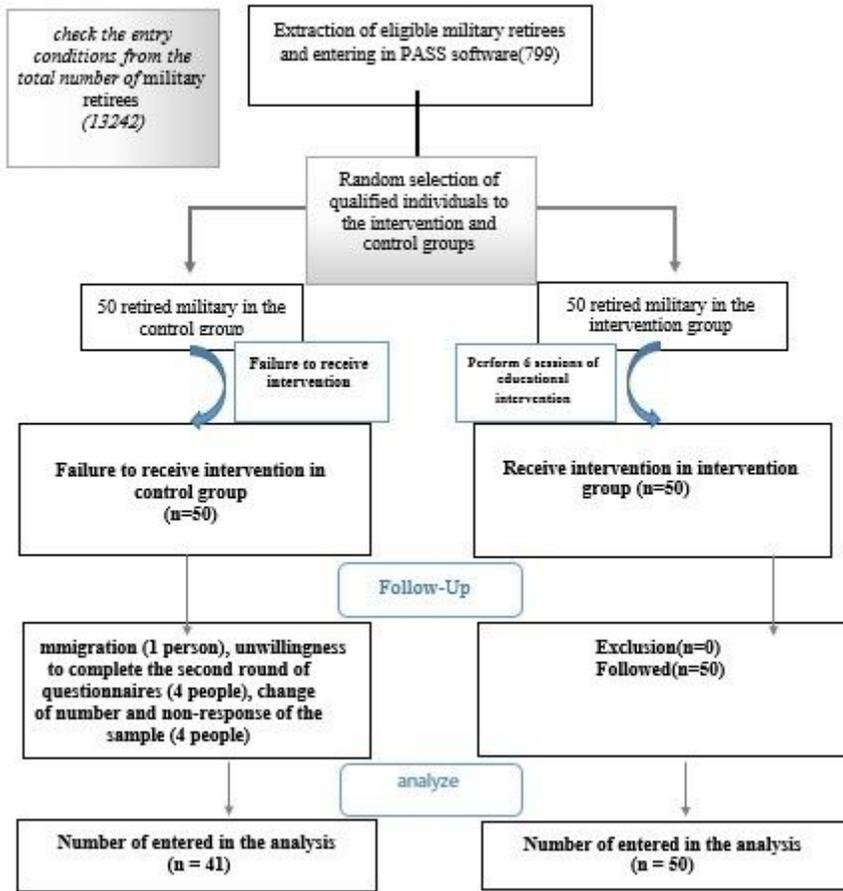


Figure 1

Flowchart of the study