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Investigating the Impact of Environmental Design on Reducing Depression and Anxiety Sensitivity of the Elderly

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Abstract

Purpose: The purpose of this study is to investigate the effect of environmental design on reducing depression and anxiety sensitivity of the elderly. **Method:** This research is a semi-experimental method with a pre-test-post-test design with a control group, and the statistical population includes all elderly people 60 years old and older living at home in Isfahan city. 30 elderly people were randomly selected and an equal number (15 people) were placed in two experimental and control groups. Data collection tools include Depression, Anxiety and Stress Questionnaire and Anxiety sensitivity Questionnaire by Floyd et al. (2005). **Findings:** The analysis of the obtained data using covariance analysis indicates that the effective components on the design of environmental spaces have a significant effect on reducing depression and anxiety sensitivity in the elderly. **Conclusion:** The design of environmental spaces can play an important role in reducing depression and anxiety sensitivity in the elderly and can be effectively used in psychological interventions for the health of the elderly. Designing a relaxing and happy environment for the elderly is necessary in order to create positive attitudes and empowerment towards a healthy and high-quality life.

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Introduction

Aging is a global phenomenon that will be raised as one of the most important social and welfare challenges of developing countries in the near future. For this reason, it is necessary to pay attention to the issues and problems of this course. One of the most important disorders in the elderly is mental disorders, which show themselves gradually (1). One of the main ones is depression, which if not prevented from developing, this disorder causes more mental and even physical problems. Reports show that about one third of the world's population suffers from a mild period of depression at some point in their lives (2). Depression can be seen in any way, it defines the way a person sees himself, others and the world. Depression weakens judgment and causes irrational behavior. In each of the cases, the patient cannot have a normal daily life (3). Depression can cause the patient to suffer from various physical and mental diseases. When dysfunctional assumptions are activated, the thoughts themselves trigger negative action. These thoughts may be interpretations of current events or predictions about

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future events or reminders of issues that have happened in the past, which in turn produce other symptoms of depression that the progress of depression, negative spontaneous thoughts come to the personal mind more and more, logical thoughts also disappear over time (4).

One of the most obvious problems that can affect elderly people when negative thoughts are activated is anxiety sensitivity. Anxiety sensitivity is a cognitive style that involves intense fear of anxiety symptoms. People who are very sensitive to anxiety symptoms believe that anxiety symptoms lead to dangerous or catastrophic consequences such as physical and mental illnesses, loss of control and embarrassment in life (5). Anxiety is a central phenomenon around which many psychological theories have been formed. Therefore, the term "anxiety" plays a central role in the theory of psychiatry, as well as in research focused on neuroscience and different schools of thought under the influence of cognitive-behavioral principles. Anxiety disorders are associated with many complications and are often chronic and resistant to treatment (6). Anxious people tend to selectively pay attention to some things around them and ignore the rest (7). Anxiety sensitivity is a construct of individual differences in which a person fears physical symptoms associated with anxiety arousal (increased heart rate, shortness of breath, dizziness) and is primarily derived from the belief that these symptoms are related to potential consequences. It leads to social, cognitive, and physical harm (8). People with high anxiety sensitivity react with care and attention to environmental stimuli (internal and external environment). In these people, facing scary stimuli leads to an anxiety reaction, such as a feeling of panic, interrupted and short breathing, and heart palpitations, which these people interpret as a sign of danger or anxiety and such an interpretation of physiological arousal leads to an increase in anxiety symptoms, such as increased heart rate or blushing (9).

In this regard, by creating happy and desirable spaces for the elderly through the use of environmental psychology, it is possible to help maintain the high status of the elderly, their mental health, and increase their life expectancy (10). Today, considering the impact of environmental psychology concepts with the aim of better environmental management on the life and mental development of the elderly, it is important to pay attention to this category in the design of care and treatment spaces in order to achieve a favorable environment for the elderly (11). In order to gain satisfaction and preserve the dignity of the elderly, both in the moral sense and in the design of the environment, it is necessary to pay attention to the creation of spaces that are necessary in the literal sense, not only in the sense of canopy, shelter and shelter; Rather, it should provide the possibility of establishing favorable social relations and welfare-recreational conditions in order to remain active, cheerful and satisfied (12). Therefore, in this research, the effect of environmental design on reducing depression and anxiety sensitivity of the elderly is investigated.

Ahmadi et al. (2022) investigated the effect of coloring Mandala designs on the depression, anxiety and stress of the elderly who referred to the daily rehabilitation center for the elderly in Tehran. Data analysis showed that coloring has significantly reduced the level of depression, anxiety and stress. The state of depression, anxiety and stress of the elderly improved significantly after the intervention by coloring Mandala motifs. Considering the increase in the elderly population in Iran, as well as the prevalence of depression, anxiety and stress disorders among the elderly, using this method can be used as a simple and affordable solution to improve the mental health and quality of life of the elderly (13).

Hashemi Fasharaki and Tabatabaeian (2021) investigated how to improve the quality of the environment of care centers for the elderly in order to improve their disability. In order to increase the quality of the environment of care centers for the elderly, three main effective components can be stated: a. The performance component that includes sub-components such as facilities for all the elderly, dignity of the elderly, dynamics, personalization, care and control of the elderly; b. The aesthetic component, which includes the sub-components of distance from isolation, mobility and activity, the possibility of movement, usefulness, design according to physical limitations and thermal sensitivity; J. The environmental component that includes the sub-components of clarity, freshness and vitality, comfort and morale enhancement. These three components have been categorized and used in the form of policies and strategies for the design of physical environment architecture to improve the disability of the elderly (14).

Mersa et al. (2020) conducted a research titled comparative study of stress, anxiety and depression in the elderly living in nursing homes and at home. The average and standard deviation of anxiety, stress, and depression of the elderly living in nursing homes were more than the elderly living at home, and these differences are significant. The results of this study showed that stress, anxiety and depression are more common in elderly people living in nursing homes than in elderly people at home. Therefore, the participation of the family in order to provide the well-being and mental comfort of the elderly, the support of the authorities with suitable insurance coverage for the elderly, the creation of care centers and daily services, and the support of family caregivers to reach a higher level of mental health in this group, can be effective (15). In their

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research, Zarghami et al. (2015) examined the environmental characteristics effective in increasing the quality of life of residents of nursing homes. The results of the research indicate that among the five identified factors related to residents' satisfaction with the environment (learnability, collectability, ease of access, ability to walk and exercise, similarity of nursing home to home), the ability to walk and exercise has the greatest effect on increasing the satisfaction and quality of life of the elderly (16).

Palazzolo (2015) states in his research that the anxiety and depression of the elderly as a result of factors such as pain, weakness, drug use, lack of social relationships or emotional support as a result of the death of a spouse or isolation and distance from others, functional disability, feeling alone and Worry about death. Also, financial issues and the presence of mental illnesses or previous traumatic experience increase fear and anxiety in the elderly and can activate anxiety and depression disorders (17).

Research method

The current research is a semi-experimental method with a pre-test-post-test design with a control group. The statistical population of the research consists of all elderly people 60 years old and older living at home in Isfahan city. 30 elderly people were randomly selected and an equal number (15 people) were placed in two experimental and control groups. The questionnaires used in this research are:

- Depression Anxiety Stress Scales (DASS-21): this tool was prepared in 1995 by Lavibond and Lavibond. This scale "anxiety", "depression" and "stress" has two forms. The short form has 21 items that evaluate each of the psychological constructs by 7 different expressions. There are 4 options to answer. The range of responses varies from never to always. Scoring is from 0 to 3. Lavibond and Lavibond (1995) in order to evaluate the psychometric properties of this scale, implemented it on a non-clinical sample of 2914 people. The reliability of this scale was obtained by Cronbach's alpha for depression, anxiety and stress subscales at an acceptable level of 84%, 84% and 91% respectively. The validity of the depression, anxiety and stress scales using correlation with the scores of the tests that were administered at the same time was equal to 78%, 62% and 72%, respectively (Crawford and Henry, 2003). In Afzali et al.'s study (2006), Cronbach's alpha calculated for anxiety scale was 98%, depression scale was 84% and stress was 93% (18).

- Floyd et al.'s Anxiety Sensitivity Index: The anxiety sensitivity questionnaire was designed by Floyd et al. (2005). This questionnaire has 16 questions and 3 components of fear of physical concerns, fear of not having cognitive control and fear of being observed by others and based on a broad range of Likert options with questions such as (When I can't focus my attention on a task I worry that I might go crazy) measures anxiety sensitivity. In this study, Cronbach's alpha of the entire questionnaire was 0.78.

To carry out the research, first, the questions of the questionnaires were read as a pre-test for each elderly person and the raw scores were calculated by the researcher. Experiments were conducted in groups, two sessions a week for ten sessions and each session lasted thirty minutes. After completing the tests, the questions of the questionnaires were read again for the subjects as a post-test, the raw scores were calculated and recorded, and at the end, the results of the tests were calculated using SPSS software.

Research results

In the present study, the number of 30 people was examined, and 15 people were placed in each group after matching in terms of age. The age range is between 60 and 70 years with an average of 64.37 ± 1.523 years. Independent T-test was used to check the difference between the two groups in terms of age in the baseline and there was no significant difference in the two groups in terms of the variables mentioned in the baseline (P=0.487).

Levine's test was used to check the normality of the variable distribution.

Table 1. Presumption of normality of distribution of variables

group	Number	Mean ± standard deviation	Levin	
		Age	depression	Anxiety sensitivity
experiment	15	64.37 ± 1.523	0.151	0.284
Control	15	64.37 ± 1.523		

The results show that in the two experimental and control groups, the condition of equality of variance is acceptable from the point of view of the research variables.

Based on the descriptive findings, the dispersion indices and central tendency of the research variables by group and test type are shown in Tables 1 and 2.

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The obtained results show that the average scores of depression and anxiety sensitivity in the control and experimental groups are almost equal, and the results show that the experimental and control groups do not differ much from each other.

Table 2. Mean and standard deviation of the variables before designing the environmental spaces in the two experimental and control groups

Variables	mean (standard deviation) examination Group	mean (standard deviation) control group
depression	(2.19)72.83	(2.79) 73.35
Anxiety sensitivity	(2.03) 23.62	(1.69) 22.42

Table 3. Average and standard deviation of the variables after designing the environmental spaces in the two experimental and control groups

Variables	mean (standard deviation) examination Group	mean (standard deviation) control group
depression	(2.61) 66.95	(4.00) 72.99
Anxiety sensitivity	(2.03) 18.48	(1.25) 22.82

Table 4. The results of univariate covariance analysis on pre-test-post-test scores of anxiety sensitivity variable

Source of changes	sum of squares	Degrees of freedom	mean square	F	Significance level
pre-Test	19.00	1	0.19	0.7	0.05
group	101.08	1	101.08	57.32	0.001
error	95.85	27	2.71		
Total	0.20808	30			

Table 5. Results of univariate covariance analysis on pre-test-post-test scores of depression variable

Source of changes	sum of squares	Degrees of freedom	mean square	F	Significance level
pre-Test	57.6	1	57.6	0.51	0.350
group	39.127	1	39.127	14.24	0.001
error	97.310	27	0.4011		
Total	12.136417	30			

The findings of the table show that the average scores of the variables in the experimental group are lower than the control group. In other words, the effective components in the design of environmental spaces have caused a decrease in the average scores in the variables of depression and anxiety sensitivity, while no significant difference was observed in the control group.

The results of the first hypothesis test that "effective components in the design of environmental spaces have an effect on the level of anxiety sensitivity" are presented as follows:

According to the obtained results, after adjusting the pre-test scores, there is a significant effect in the factor between the subjects of the group (F=32.57, P=0.001). The scores show that the average of the experimental group that has been exposed to the treatment has decreased significantly. Therefore, it can be concluded that the effective components in the design of environmental spaces have an effect on the level of anxiety sensitivity in the elderly and increase it significantly. Therefore, the first hypothesis of the research is confirmed.

The results of the second hypothesis test that "effective components in the design of environmental spaces have an effect on depression" are presented in Table 5.

The obtained results show that after adjusting the pre-test scores, there is a significant effect in the factor between the subjects of the group (F=14.42, P=0.001). The scores show that the average of the experimental group that has been exposed to the treatment has decreased significantly. Therefore, it can be concluded that the effective components in the design of environmental spaces have an effect on depression in the elderly and increase it significantly. Therefore, the second hypothesis of the research is confirmed.

Discussion

The purpose of this research is to investigate the effect of environmental design on reducing depression and anxiety sensitivity of the elderly. The results obtained from the hypothesis test are as follows:

- The effective components on the design of environmental spaces have an effect on the level of anxiety sensitivity in the elderly and reduce it significantly. Based on the obtained results, the scores show that the average of the experimental group that

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has been exposed to treatment has decreased significantly. Therefore, it can be concluded that the effective components in the design of environmental spaces have an effect on the level of anxiety sensitivity in the elderly and increase it significantly (5). Therefore, the first hypothesis of the research is confirmed.

- The effective components on the design of environmental spaces have an effect on the level of depression in the elderly and reduce it significantly (7). The scores show that the average of the experimental group that has been exposed to the treatment has decreased significantly. Therefore, it can be concluded that the effective components in the design of environmental spaces have an effect on depression in the elderly and increase it significantly. Therefore, the second hypothesis of the research is confirmed.

Conclusion:

The design of environmental spaces creates conditions for the elderly, which is the basis of their freshness and hope. Varied and happy spaces are very penetrating and by eliminating negative attitudes, it makes the elderly feel relaxed with pleasant and favorable perceptions. This causes the factors that cause depression and anxiety sensitivity of the elderly to fade away and the surrounding environment and designed environmental spaces can provide the opportunity to find a relaxing and happy environment in order to create positive attitudes and empowerment in the direction of life. Provide healthy and high-quality food to the elderly (16). Therefore, getting rid of the negative burden of thoughts and positive thinking provides a suitable tool to reduce these disorders. Creating positive thinking in the elderly will lead to positive feelings and, as a result, positive performance. Inducing positive thinking in people affects their mental state and increases their well-being and mental peace. The goal of health psychology and positive thinking is not to deny sadness and negative or unpleasant aspects of life, nor is it an attempt to highlight these negative aspects in life, but rather to study and investigate the ways in which the elderly feel happy and enjoy themselves. Psychological disorders will be distanced. This research shows that designing a suitable and pleasant environment can facilitate the achievement of this goal in order to reduce depression and anxiety sensitivity of the studied elderly.

One of the limitations of the research is the lack of proper cooperation of the elderly due to the length of the treatment sessions. Also, the limited sample size and the implementation of research in limited age groups are among the most important limitations of this research. In order to conduct future researches, it is suggested that the effect of environmental spaces and its design components on other psychological variables of health should also be done. Also, a similar research was conducted on elderly people living in nursing homes and compared with these results.

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Authors Contributions:

The author contributed to the data analysis. Drafting, revising and approving the article, responsible for all aspects of this work.

Ethical Consideration:

The research data and literature have not been copied from any worksauthor upon reasonable request.

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