

**FULL PAPER**

# Investigating the effect of collaborative care model on the mental health of the elderly

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One of the ways to improve health is to use nursing care models, among which are Collaborative Care Model (CCM). This study was conducted to determine the effect of CCM intervention on the mental health of the elderly. This work was a semi-experimental study conducted on elderly people group. The tools used included demographic profile form, Goldberg General Health Questionnaire (GHQ). General health questionnaire by Goldberg included a 28-item questionnaire. The elderly were randomly assigned to experimental and control groups. Routine care was done for the control group and educational interventions including CCM were done for the test group. The results of this study showed that there was no difference between the test and control groups in all areas of public health as well as the overall score of public health in the stage before the implementation of the CCM model. However, with the implementation of this model in the elderly group, in all areas of the mentioned questionnaire and the overall score, the general health status was improved ( $P=0.000$ ). Therefore, it is recommended to carry out this intervention to improve health.

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**KEYWORDS**

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**Introduction**

According to the available statistics, currently the number of elderly people over 60 years old in the world is about 600 million people, and according to the predictions, this amount will double in 2025. Also, in the prediction made, between the years 2000 and 2050, the proportion of people over 60 years old will increase twice. Likewise, in Iran, it is predicted that the elderly population will increase to about 19% by 2031 so that the number of elderly people in 2015 reached more than 6 million and in 2015 it reached more than 4.7 million [1-4].

Old age is an inevitable stage in human life, which is accompanied by suffering due to

problems such as illness, disability, feeling the need for others, as well as many other physical and mental problems [5,6]. Accordingly, it can be mentioned that the increase in the elderly population can increase the need for medical services in the world, which is an important challenge in the field of healthcare. Elderly patients are exposed to frequent hospitalizations due to the existence of risk factors such as the use of high-risk drugs, the use of multiple drugs, specific diseases, as well as the risks associated with demographic diseases such as gender, income, etc. [7,8].

Aging is a biological process that is characterized by a progressive decrease in the function of most of the physical systems which ultimately leads to the inability to meet the

body's needs in lifetime. On the other hand, with increasing age, chronic diseases have increased, and the prevalence of these diseases is associated with a decrease in the normal functioning of the body, dependence on others, isolation, disability, and a decrease in life satisfaction [9,10]. If the elderly are hospitalized in medical centers, it will result in consequences such as an increase in the financial burden on patients and hospitals, an increase in the workload of hospitals, an increase in the care pressure of elderly caregivers, hospital infections, and also the creation of psychological problems for the elderly [11,12].

According to the results of numerous reports conducted in Iran and other countries, if a person is infected with any kind of disease, the person's health will undergo changes and will leave physical and mental problems for him [13-18]. Due to the existence of chronic diseases in the elderly and aging, these people face challenges related to mental health [19,20]. In fact, the number and variety of stress faced by people in old age is very high and their mental health may be affected according to the type of response of a person to these stresses. In fact, to face these stresses, the elderly use different strategies with the aim of improving mental health [21-23]. Mental health is one of the pillars of health that is necessary for a useful, effective, and satisfying life. It is also mentioned that a person can act as a high level of their abilities and achieve their life goals by using their full potential [24-26].

One of the ways to improve health is to use nursing care model, among which is Collaborative Care Model (CCM). This model aims to promote effective, interactive and continuous communication between team members in the process of care and treatment, increase satisfaction, motivation, and responsibility among people and reduce complications and risk factors of diseases. The aim of this model was effective, interactive, and persistent communication between clients to

maintain and promote health and includes several steps including motivation, preparation, engagement and evaluation [27-33].

### *Aim*

Concerning the importance of the phenomenon of aging and the role of mental health of the elderly in the health of society, this study was conducted with the aim of determining the effect of educational intervention on the mental health of the elderly in Ilam City.

## **Experimental**

### *Methods*

This work was a semi-experimental study that was approved by the University's Research Ethics Committee and was conducted in the group of elderly people living in Ilam City. According to previous studies, the sample size was 80 elderly people (40 in the control group and 40 in the control group), which were selected according to the inclusion criteria.

The criteria for entering the study included the maximum age of 65 years, living in Ilam city, informed consent to participate in the study, being literate, having the ability to communicate, not suffering from a known mental illness, and the ability to speak Kurdish or Persian. The criteria for withdrawing from the study include the creation of new psychological problems or any type of crisis (self-illness or those around you, death of those around you, etc. for an elderly person during the intervention), unwillingness to participate in the study, absenteeism more than from 2 sessions of predetermined programs and the death of the elderly person.

The tools used included the following: 1- Demographic profile form, 2- Goldberg General Health Questionnaire (GHQ). General health questionnaire by Goldberg, which included a 28-question questionnaire. The GHQ tool has 4

subscales that examine physical symptoms (7 questions), anxiety symptoms (7 questions), social functioning (7 questions), and depression symptoms (7 questions) in people. The scores of the instrument are scored on a multiple-choice Likert scale with the option of no (with a score of zero) and high (with a score of 3). Each person's score in each of the subscales is between 0-21 and the overall score is between 0-84. In this tool, the scores obtained are between 0-84, which means having the lowest level of mental health if a score of 84 is obtained [34].

The elderly were randomly assigned to experimental and control groups. Routine care was done for the control group and educational interventions including CCM were done for the test group. To obtain the goals of this model, the stages including familiarization, sensitization, control, and evaluation were carried out. In the first stage of interventions and in the initial visit, which was the motivation, people were informed about health and health-related behaviors so that the necessary matters in the field of familiarizing the elderly person with the period of old age, mental health in the period of old age, things that threaten and improve mental health, as well as the signs and symptoms of psychological disorders, etc. were discussed. In the second visit, which was a preparation, during a meeting on the CCM, the timing of the model, its nature, the time required for each visit and its goals were discussed. In the third stage, which has been engagement, it was done in the form of collaborative educational visits and continuous participation in the test group. Likewise, the necessary trainings included health promotion methods and necessary interventions in the field of necessary ways to improve health. At this stage, it was emphasized to increase mental health and necessary solutions to improve mental health. In the last stage of this model, which is evaluation, evaluation was done in two forms, staged and final evaluation. Staged evaluation

actually started from the first visits of continuous participation and through staged evaluation, programs were modified at each visit. Evaluation had an effective role in motivating and encouraging the client to continue participating in the disease control and follow-up program. Finally, the final evaluation was completed to determine the impact of the model on the mental health status of the patients using the questionnaires used three months after the intervention [27-33].

Ethical considerations in research include obtaining informed consent, obtaining a code of ethics in research, confidentiality of information, randomization of the test and control group, compliance with the provisions of the Helsinki and Belmont Declarations, putting all the training done to the control group in the form of a booklet and also exiting the study was carried out at any time. The data was analyzed using SPSS version 16 software.

## Results

Of the 80 patients included in the study, they were divided into two groups of 40 people, control and test. Out of the 40 patients in the control group, 1 person was excluded from the study, and 2 out of the 40 patients in the test group were also excluded from the study. Data analysis was done with 39 people for the control group and 38 people for the test group. According to Table 1, there was no significant difference in any of the demographic variables between the elderly in the test and control groups ( $P>0.05$ ).

As it can be seen in Table 2, there was no difference between the experimental and control groups in all areas of public health as well as the overall score of public health in the stage before the implementation of the CCM model. However, with the implementation of this model in the elderly group, in all areas of the mentioned questionnaire and the overall score, the general health status was improved ( $P=0.000$ ).

**TABLE 1** Comparison of the demographic characteristics of the elderly in two groups

Variable		Group		P-value
		Experimental N (%)	Control N (%)	
Sex	Man	16(42.1)	17(43.6)	0.89
	Female	22(57.9)	22(56.4)	
Age	65-70	16(42.1)	12(30.8)	0.46
	71-75	14(36.8)	18(46.2)	
	76-80	4(10.5)	4(10.3)	
	81-85	3(7.9)	3(7.7)	
	>85	1(2.6)	2(5.1)	
	Illiterate	16(42.1)	14(35.9)	
Education	Elementary	15(39.5)	18(46.2)	0.66
	Diploma	6(15.8)	5(12.8)	
	University	1(2.6)	2(5.1)	
Income status	Weak	27(71.1)	28(71.8)	0.49
	Medium	8(21.1)	11(28.2)	
	Good	3(7.9)	0(0)	
place of living	City	19(50)	17(43.6)	0.57
	Village	19(50)	22(56.4)	
Smoking	Yes	23(60.5)	21(53.8)	0.56
	No	15(39.5)	18(46.2)	

**TABLE 2** Comparison of mental health scores in patients of two groups before and after the intervention

Variable		Before intervention	After the intervention
Physical symptoms	Experimental	17.15(1.06)	16.12(1.21)
	Control	17.52(1.20)	10.18(2.03)
	P-value	0.15	0.000
Anxiety symptoms	Experimental	16.71(1.09)	17.10(1.98)
	Control	16.52(0.86)	9.44(3.47)
	P-value	0.39	0.000
Social Performance	Experimental	16.51(1.09)	17.33(0.98)
	Control	16.13(1.41)	11.28(4.63)
	P-value	0.19	0.000
Symptoms of depression	Experimental	15.82(1.27)	16.66(2.34)
	Control	15.84(1.21)	13.57(2.28)
	P-value	0.94	0.000
Overall mental health score	Experimental	66.20(2.64)	67.23(4.05)
	Control	66.02(2.80)	44.5(5.35)
	P-value	0.37	0.000

## Discussion

Paying attention to variables related to mental health is important and mental health is important in improving the health of patients [35-38]. The results showed that conducting an educational intervention in accordance with CCM can lead to the promotion and improvement of all areas of mental health. In the study of Mirlohi *et al.*, which investigated

the effect of the CCM model on the state of fear of falling and the frequency of its occurrence in the elderly, 72 elderly people in Isfahan city were investigated. For the control group, two 60-minute training sessions and for the CCM group, necessary trainings and interventions including 12 weeks in the form of the CCM model were carried out. In the mentioned study, M(SD) of fear of falling before the intervention was equal to 33.41(6.78),

immediately after the intervention was equal to 29.61(4.8), three months after the intervention was equal to 25.56(4.7). Also, in the control group, it was 33.25 (7.97) before the intervention, 33.75 (8.13) immediately after the intervention, and 32.69 (8.73) three months after the intervention [27]. In addition, in the study of Shorakie *et al.*, where this model was performed on the quality of life of heart patients, the quality of life of the patients increased after the implementation of the CCM model [39]. Furthermore, in the study of Sadeghi *et al.*, it was shown that the quality of life of patients with diabetic foot ulcers increased [40]. According to the mentioned studies, the educational interventions in accordance with CCM had led to improve the health of patients.

In various studies, the effect of the CCM model on the state of mental health has been used so that in the study of Parvininasab *et al.*, the CCM model was conducted on the depression status of adolescents with beta-thalassemia major and the relevant data were collected using a depression questionnaire. In the mentioned study, the samples were placed in two groups of 30 people in a non-random way and the necessary training was done according to the CCM model. Moreover, the evaluation was done in two stages and at the end of each stage. Based on the results, the M(SD) depression score in the control group was 8.43(3.54) before the intervention and decreased by 7.13(1.47) after the intervention, but this decrease was not significant while the reduction in the test group was significant and its P was equal to 0.0001 [41]. In Rahgoi *et al.*'s study, the CCM model was performed on the psychological well-being of 66 patients (33 control and 33 experimental) during 2 weeks. Likewise, M(SD) score of psychological well-being before the intervention was 3.37(0.38) in the intervention group and 3.42(0.49) in the control group. Also, after the intervention, it was 3.98(0.41) in the test group and 3.39(0.38) in the control group [31]. Concerning the effect

of this model on improving the health of patients, it is recommended to implement this model.

## Conclusion

To sum up, conducting an educational intervention according to the collaborative care model can lead to the promotion and improvement of all areas of mental health, including the areas of physical symptoms, anxiety symptoms, social functioning, and symptoms related to depression in the elderly. Therefore, it is recommended to carry out this intervention in order to improve health.

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## Authors' Contributions

All authors contributed to all stages of preparing this article.

## Conflict of Interest

The authors declare that they have no conflict of interest in this study.

## Data Availability

All data produced and examined are incorporated in this article.

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