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Effect of Education on Knowledge, Attitude, and Performance of the Elderly caregiver in Nursing Homes of Mashhad City

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ABSTRACT:

Background: The population of the elderly taken care of at the nursing homes are increasing by the growth of the elderly's population. Insufficient knowledge of the caretakers can affect the quality of their care from the elderly and result in poor performance. We aimed to evaluate the effect of education on knowledge, attitude, and performance of caretakers working at nursing homes.

Methods: In this quasi-experimental study, a total of 54 caretakers participated in Four-session classes and their knowledge, attitude, and performance towards the elderly were evaluated before, immediately after, and 1 month after the education by a researcher-designed questionnaire using SPSS software version 21.

Results: The mean scores of the participants' in attitude had no significant change knowledge scores at the three intervals, respectively (P=0.001) with a significant difference after the intervention compared with before (P<0.05). The performance scores at the three intervals, respectively (P<0.001) with a significant difference after the intervention compared with before (P<0.05).

Conclusion: The significant improvement of knowledge and work performance of the elderly caretakers working at nursing homes shows the necessity of educating these individuals for better care from the elderly.

Keywords:
Knowledge; Attitude; Work Performance; Caregivers; Housing for the Elderly.

1. INTRODUCTION

Background

The population of the elderly is growing in the whole world, and a rapid increase is observed in Asian countries [1] and expected in the near future in Iran [2, 3]. The growing population of the elderly increases the disease burden and the medical expenditures and has a significant effect on the economic situation of the society [4, 5]. Therefore, paying attention to the health of the elderly is an important issue [6].

Traditionally, the elderly remained in families; but the modern change in familial and cultural structures in addition to the need for professional care of the elderly with chronic diseases make the families decide to relocate the elderly to nursing homes [7]. Most of the elderly leaving home face difficulties in coping with living at a nursing home without their family members beside them, while they lose their autonomy, privacy, and habitual activities, which may result in psychological disturbances in the elderly, especially in the first months after relocation [8]. Accordingly, making the sense of home in nursing home is of great importance, which can be achieved by preparing a

convenient environment, preservation of the elderly's habits and autonomy, providing high quality care, and friendly relationship between the staff and the elderly (Eun-Jung, 2018). Furthermore, each of the nursing home residents have a specific physical and psychological disease and require special medical care; therefore, taking care of the elderly in a nursing home is a complex issue and high knowledge of nursing science can help the caretakers provide appropriate care to the elderly [9].

Education is an efficient method to increase the individuals' knowledge and the effect of education on knowledge of the nursing home staff in terms of pain management [10], oral hygiene [11], and pressure ulcers [12] have been confirmed previously. Many of the nursing home residents in Iran are not satisfied with their conditions at the nursing homes [13], many are depressed [14], and have a poorer quality of life (QOL), compared with those living at home [15, 16], which indicate the low quality of care provided to the elderly. Previous studies also confirmed that the nursing home caretakers have poor knowledge about the general care of the elderly [17, 18]. Accordingly, the present study aimed to educate the caretakers of nursing homes of Mashhad, and study its effect on the knowledge, attitude, and performance of the caretakers immediately after and 1 month after the educational intervention.

METHODS

Study design

The present quasi-experimental interventional study was performed at Mashhad, Iran. The researcher referred to all of the nursing homes in the city based on the list provided by the Welfare Organization of Mashhad. There were a total of 20 nursing homes in this city, six were inactive, and two rejected to collaborate in this study. Thus, a total of 12 nursing homes were included in the study. The researcher gave an explanation to all caretakers about the research objectives and selected those who could read and write, did not have cognitive and learning problems, and were not participating in another research during this period. The researcher asked the eligible caretakers to read and sign the informed consent if they were willing to participate in the study. A total of 54 caretakers participated. The researcher gave a questionnaire to the caretakers after providing explanation about how to complete the questionnaire. The researcher remained beside the caretakers so that they could ask any questions they had while completing the questionnaire.

The questionnaire was designed by the research team and confirmed by the experts in this field. The first part of the questionnaire included demographic characteristics, such as sex, age, marital status, educational level, the field of study, the name of the nursing home they were working at, and the experience of living with an elderly. All caretakers with any educational level in any field were included in the study.

The questionnaire used for assessing the caretakers' knowledge and attitude was that designed by Askaryzadeh M. and colleagues [19], which evaluates the knowledge of taking care of the elderly in 61 questions by true or false answers, scored by 1 or 0. A score <12 was considered as unacceptable, 12-13.99 as poor, 14-16.99 as moderate, and 17-20 as good knowledge. The content validity of the questionnaire was confirmed in this study and the calculated Cronbach's alpha coefficient=0.77 confirmed its reliability.

The performance of the caretakers was evaluated by a researcher–designed questionnaire, which evaluated 21 skills; each question was answered by three options: can do (scored as 2), can do with help (scored as 1), and cannot do (scored as 0), resulting in a minimum score of 0 and maximum of 42. A score <12 was considered as unacceptable, 12-13.99 as poor, 14-16.99 as moderate, and 17-20 as good performance. The content validity of the questionnaire was confirmed in this study and the calculated Cronbach's alpha coefficient=0.77 confirmed its reliability.

The educational sessions were held at the working place of the caretakers by an expert nurse; four 90-minute sessions were held twice a week, at 10-11:30 a.m. Before initiation of the educational session, the caretakers completed the questionnaires, and their skills were recorded using the observational method (observation by the researcher). The educational content included definition of the elderly, taking care of the elderly in cognitive areas, being aware of keeping the health of the elderly, food requirements, sleep and rest, how to give the medications to the elderly, prevention of falling, bedsore, urinary infection, how to interact with the elderly, knowing the common medical/physical problems of the elderly, observation of safety instructions, and environmental stimuli.

The questionnaires were completed by the participants at three intervals: before education (T1), after the end of the last session of the education (T2), and 1 month after the education (T3). Any participant who missed one session, did not refer for follow-up or refused to continue the study was excluded from the study.

Statistical analysis

Descriptive results were presented by mean±standard deviation (SD) for quantitative variables and by frequency (percentage) for categorical variables. Kolmogorov–Smirnov test was used to assess the normal distribution of the data, and as the results confirmed the normal distribution of the data, comparison of continuous variables was performed using independent sample *t* test between two groups and using one way ANOVA among three intervals. Comparison of the change in the scores of the questionnaire at three time points was performed using repeated-measures ANOVA. Bonferroni post hoc test was used for pairwise comparison of the groups when the results of ANOVA were significant. For evaluating the association of variables, Pearson's correlation coefficient was reported. For the statistical analysis, the statistical software IBM SPSS Statistics for Windows version 21.0 (IBM Corp. 2012. Armonk, NY: IBM Corp.) was used. P values of <0.05 were considered as statistically significant.

RESULTS

A total of 53 participants were included in the statistical analysis, as one caretaker was excluded (due to resignation from her job during the study period). The demographic characteristics of the participants are shown in table 1. Most participants were women (85.7%). The mean±SD of the participants' age was 32.46±8.46 years, and that of work experience was 24.4±5.45 years.Table 1 show demographic data.

The mean±SD of the participants' scores in knowledge was 5.07±2.41, 6.94±3.16, and 6.36±1.64 at T1, T2, and T3, respectively, with a significant difference based on the results of repeated measures ANOVA (P=0.001). Pairwise comparison by Bonferroni post hoc test showed a significant difference between T2 and T1 (P=0.002) and T3 and T1 (P=0.01), but not between T3 and T2 (P=0.73). The mean±SD of the participants' scores in attitude was 55.17±9.97, 54.04±8.61, and 55.29±10.38 at T1, T2, and T3, respectively (P=0.73).

The mean±SD of the participants' scores in performance was 3.87±5.34, 15.49±4.92, and 16.57±2.70 at T1, T2, and T3, respectively with a significant difference based on the results of repeated measures ANOVA (P<0.001). Pairwise comparison by Bonferroni post hoc test showed a significant difference between T2 and T1 (P<0.001) as well as between T3 and T1 (P<0.001), but not between T3 and T2 (P=0.51). The trend of changes in knowledge and performance of the caretakers at the three intervals are shown in figure 1.

Before the education, the scores of performance were different in the caretakers based on the participants' educational level (P=0.03); pairwise comparison showed a significant difference in the mean score of performance between bachelors caretakers (mean: 8.19) and caretakers with an educational level below high school (mean; 3.66). The mean scores of performance was neither different at other intervals in caretakers with different educational level, nor based on the other demographic characteristics of the participants, including caretakers' sex, marital status, and experience of living with an elderly at the three intervals, as shown in table 2.

The scores of attitude were not different based on the educational level at T1 (P=0.99), T2 (P=0.94), or T3 (P=0.54). The mean scores of the questionnaire was not different based on the related or unrelated field of study at the three intervals (P>0.05; data not shown), while the mean scores of performance before the education was higher in caretakers with the related field of study (mean: 10.29±7.49) than caretakers with the unrelated field of study (1.97±2.31; P<0.001). As shown in table 3, the results of Pearson's correlation coefficient showed positive association between performance and work experience before the education (r=0.42, P<0.001) and after the education (r=-0.25, P=0.04), while the other scores of the questionnaires were not associated with age or work experience of the caretakers (P>0.05; table 3).

DISCUSSION

The present study showed that the caretakers working at the nursing homes of Mashhad had unacceptable knowledge, attitude, and performance in terms of the elderly care, and the provided education in this study could significantly improve their knowledge and performance with persisting effect after 1 month. These results indicate the necessity of educating the caretakers of nursing homes. A closer look into the scores obtained in the present study indicates that the mean scores of knowledge was still low immediately and 1 month after the education (6.94±3.16 and 6.36±1.64, respectively) and in the category of unacceptable (<12) based on the scoring system of the questionnaire [19], although it was significantly higher than the baseline knowledge score of the caretakers (5.07±2.41). This finding shows the severity of lack of knowledge in the caretakers that could not reach the next level after four sessions of education and suggest that continuing the education could result in a more noticeable increase in the caretakers' knowledge scores. Previous studies have also shown poor knowledge of the caretakers of nursing

homes [17, 20, 21]. In the qualitative study by Yektatalab and colleagues (2012), the nurses working at a nursing home of Shiraz had limited knowledge about the aspects of care for residents of the nursing home with Alzheimer's disease and provided unprofessional care to these patients [17]. The results of this study confirm that of the present study regarding the unacceptable knowledge of the caretakers at T1, although Yektatalab and colleagues only considered the professional care for Alzheimer's disease patients and did not study the effect of education. In another study, Amanian et al. used a 35-item questionnaire (researcher-designed) for evaluation of knowledge of the caretakers working at nursing homes and provided three 20-session educational classes to the caretakers; the authors reported that the knowledge level of the caretakers significantly improved after education with persisting effect until 3 months that had a favorable effect on the job stress level of the caretakers, as well [18]. The results of this study also confirm that of the present study, considering the favorable effect of education on the knowledge of the caretakers working at nursing homes regarding elderly care, although the duration of the provided education was longer in the study by Amanian et al than that in the present study. Also, studies in other countries have proven the improvement of nursing home staff knowledge after education about care for the elderly with dementia at the end of life [22] and elderly's oral care [11], which confirm the results of the present study, although the details of the provided education and the medical conditions of the residents of the nursing homes differed. Others have also confirmed that proper education and training is an efficient method to prevent elder abuse and neglect in nursing homes [23].

Although the knowledge level of the caretakers did not reach the next level in the present study, the mean scores of the caretakers' performance significantly improved from unacceptable at baseline to moderate level immediately and 1 month after the education. These results showed the efficacy of the provided education and suggested that the provided education increased the awareness of the caretakers to perform their tasks with greater precision. This is while some have reported that increasing knowledge and/or attitude does not necessarily result in improvement of performance in the nurses [24], which can be because of the fact that performance can be related to factors other than knowledge, as well, such as the staff-patient ratio and the workload of the staff [25]. In our study, despite the significant improvement of knowledge and performance, no statistically significant change was observed in the attitude of the caretakers after education. This finding is in line with the notion, suggesting the role of other factors affecting the attitude of the nurses, such as behavior and beliefs, for which increasing knowledge does not seem enough [26].

One of the important findings in the present study was that the baseline performance scores of the caretakers with a bachelor's degree were significantly higher than the scores of caretakers with an educational level below high school. Also, the baseline performance scores of the caretakers with a related field of study were higher than those with an unrelated field of study. These findings emphasize the significant effect of educational level and field of study on the performance of the caretakers that suggest the necessity of recruiting eligible caretakers with sufficient educational levels for better performance. More than half of the caretakers in the present study had below high school education, which could be the reason for the low knowledge, attitude, and performance of the participants. However, the performance scores of the caretakers were similar immediately and 1 month after the education, which showed that sufficient education could compensate for the differences in educational levels and field of study of the caretakers. Demarre´ and colleagues reported that nursing assistants at the nursing homes had a lower attitude in terms of care from pressure ulcer compared with nurses with similar knowledge [12], although in our study, caretakers with different educational levels had similar attitude at the three intervals. Furthermore, the caretakers' scores in the three dimensions, knowledge, attitude, and performance, were not different based on the other demographic characteristics of the participants, including caretakers' sex, marital status, and experience of living with an elderly at the three intervals. Other studies have also shown that the knowledge and attitude of nurses towards the elderly were not associated with their demographic characteristic [19, 27-29]. In the meantime, some have suggested that the work experience of the nurses (>15 years) has a positive impact on their knowledge, attitude, and performance considering the elderly care [28, 30]. However, in the present study, such an association was not observed, which could be because of the fact that most of the caretakers in our study were young and did not have sufficient work experience.

In this study, we included all of the active nursing homes in the city that could provide us with a broad perspective towards the issue of caretakers' knowledge, attitude, and performance towards the elderly care in this city. One of the limitations of the present study was that we did not compare the results of the effect of education with a control group that did not receive education, in order to study the pure effect of education and eliminate the effect of confounders on the results of the study. The personal and psychological characteristics of the caretakers could also affect the results of the study, which were out of the control of the researcher.

CONCLUSION

The results of this study showed the low knowledge, attitude, and performance of the caretakers working at the nursing homes of Mashhad city that emphasize on the necessity of attention of health policymakers to this issue. As suggested by the results, the education of the caretakers can have a favorable effect on their knowledge and performance. Therefore, continuous education and training of the caretakers seem an efficient option for increasing the knowledge, attitude, and performance of the caretakers working at the nursing homes that should be considered by the managers and be included in the nursing home programs for the caretakers.

List of abbreviations

Not applicable

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee of Shiraz University of Medical Sciences, Shiraz, Iran (No. IR.SUMS.REC.1397.701). All the participants were informed about the study objectives and signed written informed consents for taking part in the study. They were also reassured that not participating in the study had no effects on their status. Besides, they were free to leave the study at any time. Moreover, the participants' privacy and confidentiality were observed all through the study.

Consent for publication

All presentations of this study must have consent for publication.

Availability of data and materials

Data available by Corresponding author by request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

F V, F B, I J: Conceptualization, Methodology, Software , Data curation, Writing- Original draft preparation, Visualization, Investigation, Supervision, Validation, Writing- Reviewing and Editing. PG: Conceptualization, Methodology, Investigation, Supervision.

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Table 1. The demographic characteristics of the participants

Variable	Categories	Number	Frequency
Sex distribution	**Male**	6	10.7
	Female	48	85.7
Marital status	**Single**	17	30.4
	Married	22	39.3
	Divorced and widow	12	21.4
Educational level	**Below high school**	47	83.9
	High school diploma and associate degree	6	10.7
	Bachelor's degree	1	1.8
Experience of living with an elderly	**Yes**	15	26.8
	No	38	67.9

Table 2. The difference in the mean values of questionnaire's scores in the three dimensions based on the demographic characteristics of the participants

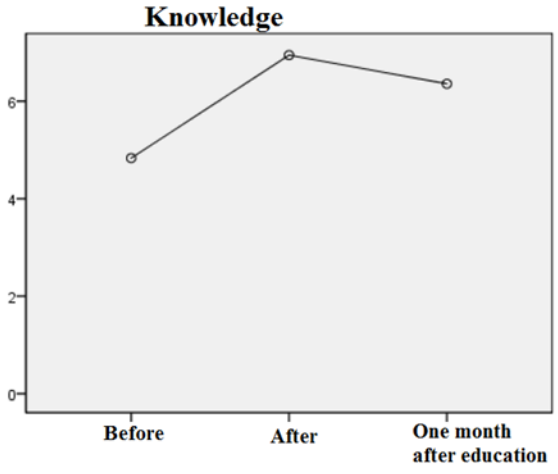
Variable	Categories	Before education			After education			After education		
		Attitude	Knowledge	Performance	Attitude	Knowledge	Performance	Attitude	Knowledge	Performance
Sex	**Male**	54.42±9.65	5.57±1.65	5.37±6.12	58.09±8.48	5.75±2.08	16.12±2.12	56.33±9.04	5.93±1.46	17.95±1.69
	Female	55.14±12.37	5.09±2.08	4.09±5.26	54.03±8.05	6.84±3.11	14.76±5.59	55.09±10.71	6.44±1.67	16.29±2.79
	P–value*	0.85	0.45	0.45	0.13	0.27	0.43	0.75	0.41	0.09
Marital status	**Single**	57.38±18.25	4.87±2.33	3.13±3.16	54.84±8.04	6.42±2.31	15.29±4.71	56.71±11.87	6.38±1.90	17.04±2.29
	Married	55.04±10.07	5.39±1.90	4.17±5.53	56.29±7.59	6.67±2.79	15.55±4.94	55.2±10.09	6.48±1.57	16.76±2.66
	Divorced & widow	52.82±8.22	4.87±2.03	5.54±6.49	50.64±8.98	6.98±4.21	13.19±6.13	53.50±9.23	6.06±1.46	15.49±3.22
	P–value†	0.47	0.46	0.33	0.09	0.87	0.35	0.72	0.77	0.29
Educational level	**Below high school**	55.00±15.72	5.37±2.15	3.66±4.47	54.39±6.62	6.44±2.13	15.18±5.49	55.92±11.29	6.29±0.99	15.89±2.94
	High school and associate	55.11±9.84	5.12±2.14	3.78±5.22	55.00±9.15	6.39±3.19	15.15±4.82	55.91±10.39	6.36±1.96	17.01±2.41
	Bachelor's degree	54.91±8.52	4.62±0.89	8.19±7.13	54.10±7.41	8.90±3.28	13.97±6.45	51.75±9.09	6.43±1.21	16.01±3.37
	P–value†	0.99	0.56	**0.03**	0.94	0.26	0.80	0.59	0.98	0.36
Experience of living with an elderly	**Yes**	55.13±16.67	5.28±2.19	4.86±5.66	56.62±8.87	7.01±3.40	16.51±2.86	56.00±11.73	6.30±1.55	16.64±2.74
	No	55.00±9.01	4.89±1.65	3.96±5.23	53.83±7.81	5.90±1.53	14.28±5.86	55.05±10.01	6.51±1.93	16.54±2.72
	P–value*	0.96	0.39	0.45	0.19	0.16	0.10	0.77	0.69	0.91

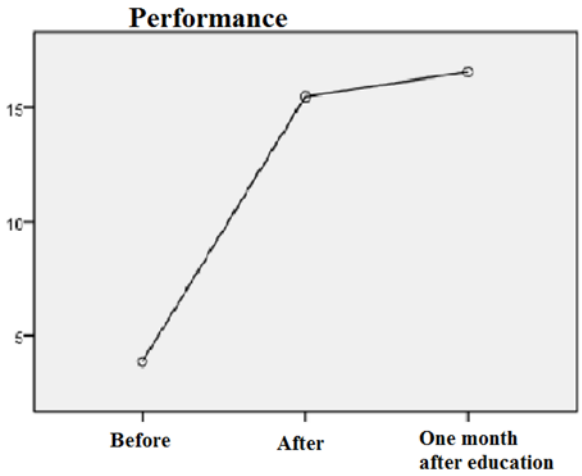
*The results of independent samples t test, †The results of one way ANOVA; all test results are considered significant at P–values <0.05; all values are presented as mean ±SD

Table 3. The Pearson's correlation for the association of participants' age and working experience with the questionnaire's scores in the three dimensions

		Age		Working experience	
		r*	P–value	r*	P–value
Before education	**Attitude**	-0.09	0.36	-0.09	0.69
	Knowledge	0.02	0.83	0.04	0.69
	Performance	0.14	0.17	0.42	<0.001
After education	**Attitude**	0.01	0.91	0.07	0.57
	Knowledge	-0.003	0.98	-0.09	0.44
	Performance	0.13	0.28	-0.25	0.04
One month after education	**Attitude**	0.03	0.81	0.44	0.74
	Knowledge	-0.06	0.66	0.32	0.82
	Performance	-0.03	0.81	-0.09	0.49

*r indicates the Pearson's correlation coefficient, P–values <0.05 are considered statistically significant





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