

Traditional Versus Modern Educational Methods; Which One Is More Effective On Health Literacy Of Caregivers Of Patients With Cancer? A Randomized Controlled Trial

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Abstract

Purpose: Cancer is the main cause of death in developed countries and is the third leading cause of death in Iran. The aim of this study was to compare the effect of traditional versus modern educational methods on the health literacy of caregivers of patients with cancer.

Methods: This study was a randomized controlled trial in which 93 caregivers of patients with cancers referred to Ayatollah Khansari Hospital of Arak (Iran) participated. Simple random allocation to either the intervention group (n=45) which consisted of education using modern virtual social networks (Telegram messenger) or the control group which included using traditional face-to face education methods (n=48) was completed. At baseline and at two weeks post intervention, health literacy questionnaire was completed by participants in both groups.

Results: The mean health literacy in the two groups did not differ significantly at baseline ($p > 0.05$). At two weeks post intervention the average health literacy in the intervention group was significantly higher than the control group ($p < 0.05$).

Conclusion: The social network intervention was more effective in improving the health literacy of caregivers of people with cancer compared to usual face-to-face methods. Thus, the use of these methods is recommended. New educational methods provide a valuable strategy for nurses and other health professionals to improve health literacy, attitudes and knowledge of cancer patient's families.

Trial registration: Iranian Registry of Clinical Trials (IRCT20161223031522N11)

Background

Despite significant advances in medical science, cancer remains one of the most prevalent diseases of the present century (1). Cancer, after cardiovascular disease, is known to be the second leading cause of death in developed countries (2) and is the third leading cause of death after cardiovascular disease and accidents in Iran (3). Iran, located in the Middle East, is a developing country. In recent years, it has rapidly become an industrialized country. Industrial modernization cause alterations in the life-styles of peoples and leads to incidence of a variety of chronic diseases, such as malignancies (4). Cancer treatments involve a wide range of procedures that include therapies, such as chemotherapy, radiotherapy and surgery (5). One of the most basic and common treatments of cancer is chemotherapy which has many complications (1).

Due to the many physical, social and psychological problems of patients with cancer, support and assistance from family caregivers is often required (6, 7). However, caregivers are expected to have a high level of health literacy in order to provide appropriate and adequate care for these patients (8). Health literacy is defined as cognitive skills and social determinants of motivation and the ability to learn, understand and use information for the development and maintenance of health. This concept has two dimensions: personal and social; personal dimensions including self-care and social information

including culture, ethnicity, family influences and economic conditions that can affect health behaviors (8, 9).

The family is recognized as an interdependent unit, with its members having a profound effect on each other (10). In people with cancer caregivers have a variety of potential roles which might be related to nutritional support, personal hygiene, prevention of infection, prevention of bleeding, fatigue and oral hygiene. Therefore, family care education is necessary. Nursing care should include the patient's family (11). One of the factors that can improve the health status of patients with cancer is the education of caregivers. It is believed that health education, through increasing the knowledge and attitudes of individuals, causes changes in health behaviors. Also, the number and duration of training courses which increase knowledge can affect the sustainability of these behaviors (12). As noted, family is recognized as an interdependent unit, and its members have a profound effect on each other. It seems that, in view of the different needs of cancer patients' families to learn about the complications associated with chemotherapy, family education is necessary in this regard. Education to improve nutrition, oral care, prevention of infection and bleeding, fatigue should be provided to promote patients care (13–15).

Comparing health education methods such as individual and group education, audiovisual training, is useful in health centers (16, 17). In order to empower family caregivers of cancer patients, the use of modern educational methods in addition to traditional education methods, is likely to be useful. Several studies have been conducted on the use of a variety of educational methods on quality of life, drug and nutritional compliance in various patients, including cancer patients. However, few studies comparing two traditional teaching methods on health literacy among family caregivers of cancer patients have been carried out. Since education is a non-invasive, easy and inexpensive method that it can be used in order to reduce the complications of treatment and improve the quality of life of patients. The aim of this study was to compare the traditional and modern educational methods on health literacy of caregivers of patients with cancer.

Methods

Overall design and participants

The present study was a randomized controlled trial. This study was carried out between May 2018 to January 2019 in two Oncology departments of Ayatollah Khansari Hospital in Arak, Iran. The CONSORT guidelines for reporting randomized controlled trials has been used to describe the methods. Participants in this study were family caregivers of patients with cancer receiving chemotherapy. After obtaining informed consent form, participants were assigned to either control (n=48) or intervention (n=45) groups using simple random allocation methods. Inclusion criteria for caregivers included: aged between 18 and 65, ability to communicate verbally and to read, able to access to a Phone and the Internet, taking care of a family member a patient with a diagnosis of cancer for at least 6 months and receiving chemotherapy.

Intervention

At the beginning of the study, the health literacy questionnaire was completed by participants.

Educational content in both groups included: correction of false nutritional habits, personal hygiene, oral care, prevention of infection and bleeding and overall management of chemotherapy complications (18). Educational content was developed using authoritative resources developed by Academic members of Arak University of Medical Sciences in the field of nutrition and nursing care. The content was checked by four faculty members of Arak University of Medical Sciences. Educational content was identical in the two groups. Educational materials were presented in a simple and appropriate manner to the level of perceptions of individuals to be practically used for people with different levels of knowledge.

The control group received usual face to face education (3 times a week for 30 minutes). Workshops were held in the training room of the departments and the content was individually tailored to the caregiver.

The intervention group was educated via social network software (Telegram ver. 5.12.0) by creating a group channel during two cycles of chemotherapy (Chemotherapy cycle intervals were 3 weeks) (19).

Instruments

The data collection tools included a socio-demographic information form and the Iranian health literacy questionnaire. The demographic information form includes variables such as age, sex, marital status, educational level, occupational status, duration of chemotherapy, type of cancer, drug use, and so on. The Iranian Health Literacy Questionnaire (IHLQ) was used to determine the level of health literacy. The questionnaire contains 9 sub-items: 1- Access to information resources 2- Information acquisition 3- Reading ability 4- Ability to comprehend 5- Judgment and assessment 6- Decision-making ability and communication 7- Knowledge 8- individual empowerment; and 9- social empowerment. The final health literacy score is based on the scale of zero to twenty. A score of less than 10 is poor, 10 to 14 moderate, and over 14 indicates sufficient health literacy (20). This questionnaire has a global standard and its validity and reliability in Iranian populations has been confirmed. The validity of the Persian version of the questionnaire has been approved in Haghdoost et al. study (20). Cronbach's alpha for the IHLQ total score for the current sample was 0.84.

The intervention was performed during two cycles of chemotherapy (42 days) and two weeks after completion of training (56th day), the questionnaires were completed again by participants of both groups.

Process Of Study

Figure 1 shows the CONSORT flow diagram of participants from enrollment to analysis. Of the 136 enrolled participants, 26 were excluded. Of the 110 randomized participants, 55 were allocated to the control and 55 to the intervention group. Then 4 caregivers in the control and 7 caregivers in intervention groups were excluded. Also, 5 participants in the follow up phase were excluded.

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) 16.0. Before the analysis, the distribution of data was checked conducting the Kolmogorov-Smirnov test and normality was approved. To test internal consistency, Cronbach's alpha (0.84) was used. The characteristic information of participants was demonstrated using frequency, percentage, mean and Standard Deviation (SD). Independent t-test and chi-square tests were used to compare the quantitative data such as age and qualitative data such as sex, and level of education, respectively. Chi-square test was conducted to test differences in categorical data between two groups. Repeated measures of Analysis of Variance (ANOVA) and paired t-test were used to determine the effect of the intervention on health literacy of caregivers.

Results

In this study, 93 family caregivers of cancer patients participated. The mean age of the participants was 38.01 ± 12.45 years. The mean duration of patients living with cancer was 7 ± 1.4 months. 16% of participants were employed; 25% were self-employed; 30% were housewives; 25% were unemployed and 4% were retired. The majority of participants (68%) had private homes. Independent t-test and Chi-square test showed no statistically significant difference in terms of sex, age, marriage status, types of cancer and level of education between the two groups ($P > 0.5$) (Table 1).

The results of this study demonstrated that health literacy of participants was weak at the outset of the study with average scores of 68% of participants less than ten. There was no significant difference in the mean of health literacy before the intervention between the two groups. However 56 days after intervention, the comparison of mean health literacy in each group before and after education showed a statistically significant increase in both groups ($P < 0.001$). This increase was higher in the intervention group than in the control group (Table 2).

Table 1

Demographic variables of the participants.

Variables	Category	Groups		P-value
		Control (n=48)	Intervention (n=45)	
		n (%)	n (%)	
Sex	Male	25 (26.87)	24 (25.82)	0.71 ^a
	Female	23 (24.74)	21 (22.55)	
Marital status	Single	8 (8.61)	11 (11.82)	0.43 ^a
	Married	30 (32.27)	27 (29.02)	
	Widowed	7 (7.52)	8 (8.61)	
	Divorced	2 (2.15)	0 (0.00)	
Level of education	Primary school	21 (22.59)	21 (22.59)	0.65 ^b
	Secondary school	6 (6.45)	11 (11.83)	
	High school	11 (11.83)	8 (8.6)	
	Academic education	7 (7.53)	8 (8.6)	
Types of cancer	Breast	7 (14.59)	5 (11.12)	0.97 ^a
	Colorectal	8 (16.66)	8 (17.77)	
	Leukemia	4 (8.34)	3 (6.66)	
	Hodgkin lymphoma	1 (2.08)	2 (4.45)	
	Prostate	5 (10.41)	6 (13.33)	
	Cervix	4 (8.34)	3 (6.66)	
	Uterus	2 (4.16)	3 (6.66)	
	Melanoma	1 (2.08)	0 (0)	
	Lung	7 (14.59)	5 (11.12)	
	Pancreas	2 (4.16)	1 (2.23)	
	Stomach	3 (6.25)	4 (8.88)	
	Brain Tumors	4 (8.34)	5 (11.12)	
		Mean (SD)		
Age (year)		34.75 (14.87)	41.28 (17.32)	0.76 ^c

^aFisher's exact test, ^bChi-square, ^ct-test

Table 2

Comparison of mean and standard deviation of Health literacy of two groups before and after Intervention.

Variable	Times	Groups		P-value
		Control	Intervention	
		Mean (SD)	Mean (SD)	
Health literacy	Before intervention	9.23 (2.56)	8.76 (1.75)	0.17 ^a
	After intervention	10.09 (2.21)	15.21 (2.11)	0.01 ^a
P-value		0.03 ^b	0.001 ^b	
^a t-test, ^b Paired t-test				

Discussion

The aim of this study was to compare the effect of traditional versus modern education methods on the health literacy of caregivers of cancer patients undergoing chemotherapy. The results showed that the two groups were homogeneous in terms of gender, level of education, occupation, history of disease and marital status. The health literacy of caregivers of cancer patients was weak at baseline in both groups. The results of other studies have demonstrated a varied range of health literacy in other patient groups. For instance, consistent with the results of this study, Van Der Heide et al. assessed the level of adult health literacy of the general population in the Netherlands using the HALS5 tool and found that 43% of subjects had weak health literacy (19). In contrast, Ghanbari et al. determined that health literacy and its relationship to cancer screening behaviors among staff of the Guilan University of Medical Sciences, Iran of many participants was favorable (57% favorable and 43% moderate). In their study, poor health literacy was not been reported (21).

In this study health literacy in the caregivers of both groups did not differ significantly at baseline, but following education, the increase in mean health literacy in the intervention group was significantly higher than the control group. Kamali et al. showed that two weeks after education, the health literacy of subjects in the education group was significantly higher than the control group (22). Also, Sheikh Abumasoudi et al. in their study aimed at comparing the effect of face to face and electronic educational methods on depression, anxiety and stress in breast cancer patients, showed a significant difference in the mean of depression, anxiety and stress before and after education in the experimental group, with no significant difference in the mean scores of depression, anxiety and stress before and after in the control group (23). In another study, Jalali showed a significant positive relationship between general health and health literacy in patients with leukemia. In a recent report, health literacy has been identified as one of the greatest determinants of health (24). Health literacy of caregivers is one of the important factors

impacting on the overall health of cancer patients (25). For example having good health literacy increases the chances of patients receiving chemotherapy and ultimately improves health care (26). In another study with cancer patients, higher levels of health literacy led to improved care and, overall, had a positive impact on the treatment process (27).

The findings of this study show that modern educational methods have a greater impact on the health literacy of caregivers of cancer patients than traditional methods. Therefore, it is proposed that these methods are given consideration in the education of caregivers of patients. Often they are viewed as more user-friendly and available. Health literacy includes a range of simple and complex skills that allow patients and their caregivers to participate in healthcare decision-making processes. Hence, it encourages patients and family caregivers to request more information, seek treatment, and may ultimately improve the quality of life of patients (28).

Healthcare teams can use the results of this study in order to find approaches to improve the health literacy of patients with cancer and their families.

Study Limitations

A limitation of this work was the short duration of the study. The authors suggest that future work should be conducted with larger sample sizes and for a longer duration.

Conclusions

Health literacy is one of the key components of effective care. Promoting the health literacy of families and caregivers is an important factor in the development of self-care and individual independency in patient care. The growth of health literacy in patients and their families has reduced the costs of re-admission and can be an important component of a country development. This study found that the modern educational methods were more effective than traditional education in increasing the health literacy of family caregivers of cancer patients. Therefore, due to the low level of health literacy among family caregivers of cancer patients and considering the simplicity, and effectiveness of modern educational methods, the use of these methods in educating these caregivers is recommended.

Declarations

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Authors' contributions: Study concept and design: MS, VNS, and HN. Acquisition of data: VNS, and ANN. Analysis and interpretation of data: VNS, and EP. Conduction of intervention: VNS, and MS. English editing of manuscript: HN, and AF. All authors critically prepared and revised the manuscript and approved the final version. All authors had full access to data and Vahid Naseri-Salahshour is the guarantor of the study.

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Data availability: The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

Compliance with ethical standards

Disclaimer: The funder had no role in the study concept and design, data collection, analysis, and the decision to publish of manuscript.

Conflict of interest: No conflict of interest declared by the authors.

Ethics approval and consent to participate: The study was approved by the Ethics Committee of Arak University of Medical Sciences (Ethical approval ID: IR.ARAKMU.REC.1398.041) and registered in the Iranian Registry of Clinical Trials (IRCT No.: IRCT20161223031522N11). All subjects voluntarily participated in the study. During the study, no financial costs were incurred for the participants. The purpose and process of the study was explained to caregivers of patients, nurses and authorities of Oncology departments. Questionnaires were completed confidentially, without naming participants.

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Figures

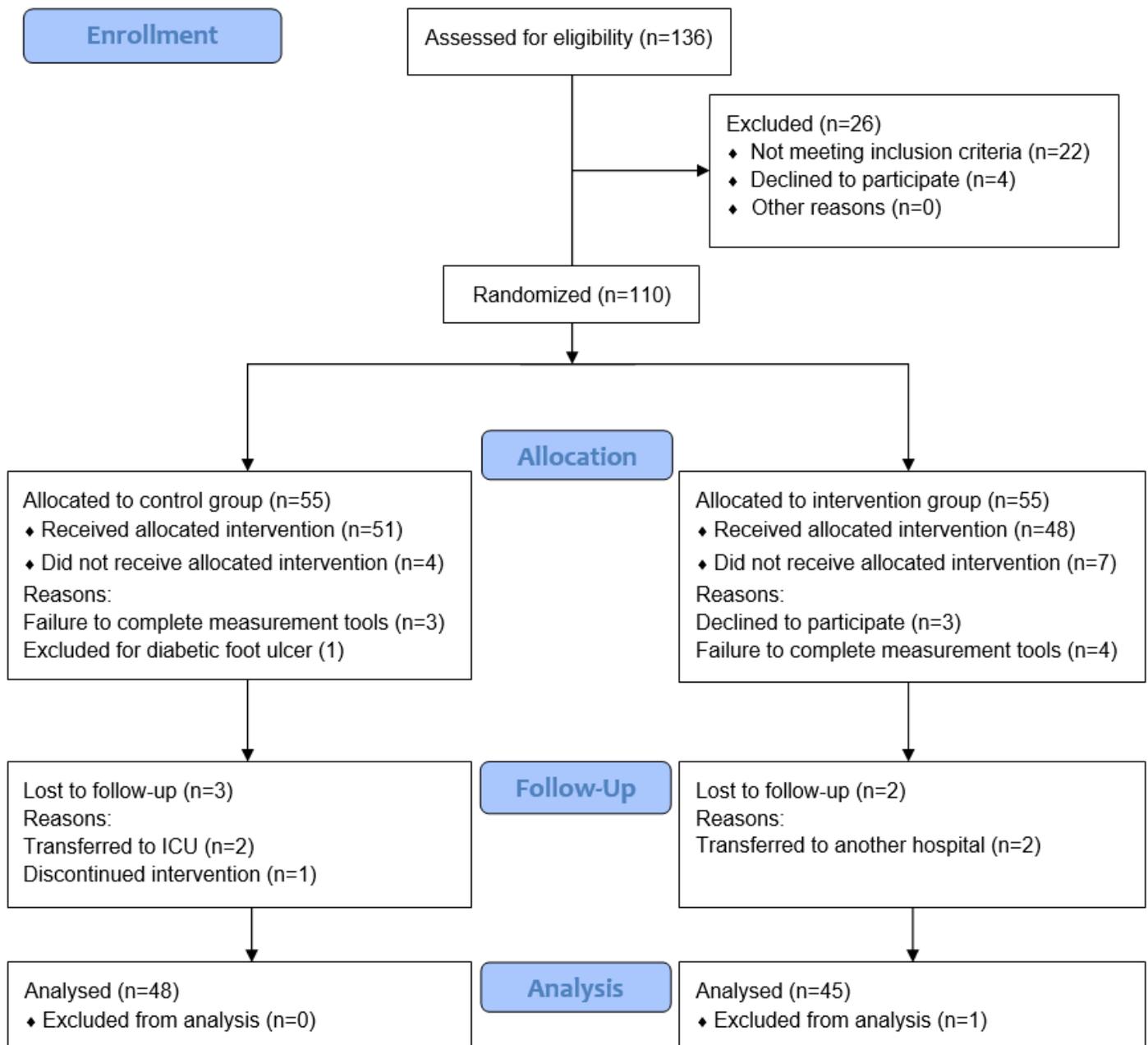


Figure 1

Process of study from enrollment to analysis