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RESEARCH ARTICLE

Association Between Perceived Family Social Support and Self-care Behaviors in Elders with Chronic Obstructive Pulmonary Disease (COPD): A Medical Center-based Study from Iran

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Abstract:

Introduction:

One of the effective factors in the participation and cooperation of elderly patients with Chronic Obstructive Pulmonary Disease (COPD) in self-care activities is to receive medical, caring, emotional and psychological support from family members. However, an elders' perception of the received support can affect the effectiveness of family social support.

Objective:

The aim of this study was to determine the association between perceived family social support and self-care behaviors of elders with COPD.

Methods:

This is a descriptive cross-sectional study. The research setting is Omid Chronic Disease Clinic, Babol city, north of Iran. Two hundred elderly people with COPD were enrolled in the study by convenience sampling. Demographic and clinical data were recorded. Perceived Family Social Support Scale (developed by Procidona and Heller 1983) and self-care behaviors for COPD patients' questionnaire (developed by Alberto 1993) were used for data collection. Statistical analysis was performed by SPSS software version 16.

Results:

The mean age of 200 Iranian elderly people with COPD was 71.25±7.15 years and the mean duration of disease was 5.21±3.6 years. The mean score of perceived family social support was 17.69±2.74, which was considered as good and the mean score of self-care behaviors was 105.36±20.27, which was considered as good. There was a negative, significant relationship between the perception of family social support and self-care behaviors of the elderly with COPD ($r=-0.44$; $P<0.001$). Also, a positive, significant relationship was identified between self-care behaviors with gender (be male), high education level and living with family (not alone) variables ($P<0.05$).

Conclusion:

The results of this study showed that elders with COPD had good self-care behavior. But for some self-care behaviors (60-101 subjects) reported, they "rarely" performed the desired self-care behavior, which supports the need for patient and family educational interventions in the future. So, because of patient's aging and growing care needs, there is a need for planning continuing education for the elderly and their family in order to continue and improve self-care behaviors and reduce patient dependence on caregivers. It is suggested that improving the elderly's perception of the received supports should be included in patient education programs and family education programs should emphasize family support to increase the patient's motivation for self-care.

Relevance to Clinical Practice:

The assessment of the perceived family social support, and self-care behaviors of the elders with COPD should be an essential part of nursing practice. The study also provides the foundation for the conduct of future studies of self-care behavior training for managing elder patients with COPD.

Keywords: Family, Social Support, Nursing, Elderly, COPD, Self-Care Behaviors.

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1. INTRODUCTION

One of the most common diseases in the elderly is Chronic Obstructive Pulmonary Disease (COPD) [1]. There is much evidence of a close relationship between aging and COPD; 9%

of people over the age of 70 have COPD [2]. According to the World Health Organization, the COPD trend is increasing in developing countries [1]. COPD is currently the fourth leading cause of death [2]. Sharifi *et al*.'s (2019) study showed that the overall prevalence of COPD in Iran is 5% and the most affected age group is those over 55 years of age. Among Iranian provinces, Kerman, Tehran, Khuzestan, Mazandaran and Khorasan-e-Razavi had the highest frequency of disease[3].

1.1. Background

COPD with symptoms such as shortness of breath and hypoxia can lead to fatigue, depression and inability to take self-care in the elderly. In addition, frequent hospitalizations, lack of knowledge of self-care methods and lack of ability to control the disease make the elderly patients more dependent on the family [3, 4]. Long-term and comprehensive care needs in elderly people with COPD require family social support. Family social support, especially in old age, plays a more important role in maintaining physical and psychological security in the elderly than other supportive resources [5]. The investigations show that family members - due to their sense of belonging, commitment and responsibility towards each other - have the most supportive role for the elderly in different aspects of care such as physical, mental, social and economic [5, 6]. However, protective consequences of family support for the elderly are dependent on the elderly's perception of support [7]. In this regard, the results of studies show that the perception of social support is more effective in coping with the disease than the amount of support received from the family [8, 9]. Perceived family social support can increase an elderly's participation in treatment and self-care, leading to improved performance and promoting adaptive behaviors [10]. Perceived family social support means that the elderly believe that there are people in the family who can potentially help him/her in times of distress [11].

Research findings indicate that perceived family social support increases physical, mental and social health [6], increases motivation to adhere to treatment regimens, increases life expectancy, decreases hospitalization and mortality [7], increases functional capacity, reduces depression and anxiety, increases willingness to participate in self-care activities, and reduces family caregiver burden [5, 10]. Of the factors that influence the self-care behaviors of older people with COPD, less research has been conducted on the role of elderly's perceptions of family social support. In this regard, the results of the study conducted by Riegel *et al*. (2009) and Xiaolian *et al*. (2002) showed that there is a direct relationship between the perceived family social support with adherence to treatment regimen and self-care behaviors [5, 12]. However, the results of the study conducted by Kaşıkçı and Alberto (2007) showed that there is a weak to moderate relationship between self-care behaviors and perceived family social support in patients with COPD [7].

Elderlys' perceptions of family social support may vary depending on culture, gender, type of chronic illness, duration of care by the family caregiver, family caregiver's birth rate, and family caregiver's relationship with the elderly [6]. Given the prominent role of nurses in providing comprehensive and high-quality care to the elderly with COPD as well as the viewpoints of nursing theorists such as Orem to identify the factors affecting elderly self-care behaviors, the present study aimed to determine the relationship between perceived family social support and self-care behaviors in Iranian elderly with COPD.

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2. METHODS

2.1. Study Design

This is a descriptive cross-sectional study conducted in February-August 2019 in Babol city, North of Iran.

2.2. Study Population

The study population included all Iranian elderly people with COPD referred to the Omid Chronic Disease Clinic in Babol, north of Iran. This clinic was chosen because most of the elderly people with COPD come to this clinic for periodic examinations in Babol.

The sample size considered 200 people that was calculated by pilot study and considering the effect size 0.25, alpha 0.05, S^2=49 and d^2=1. For sampling, the researcher received the list of elderly patients referring to the clinic and convincingly enrolled them. Patients enrolling continued until the population reached 200. The details and objectives of the study were presented to each of the elderly and their family and then written informed consent was obtained.

2.3. Inclusion Criteria

Elderly being 60 years and older, with a history of at least one year of COPD, score higher than 8 in Abbreviated Mental Test (AMT) [13], Farsi speaking, no acute physical illness (self-reported and according to the patient's medical file), and score above 11 on Activities of Daily Living Questionnaire [14] were include in the study.

2.4. Exclusion Criteria

Elderly with severe comorbidities in the heart, lungs, liver, kidneys and nervous system, or psychiatric disorders, and elderly who were unable to complete the questionnaire even with the help of the researcher were excluded from the study.

2.5. Data Collection

After enrolling elderly with COPD and obtaining written informed consent, demographic and clinical data were recorded by the researcher. Then, Questionnaires including Self-Care Behavior Questionnaire for COPD Patients and Perceived Social Support Scale – Family (PSS-FA) were completed with face-to-face interviews with the elderlies by the researcher in the Clinic.

2.6. Researcher Designed Questionnaire for Collection of Demographic and Clinical Data

This questionnaire was designed by the researchers to obtain general descriptive data such age (years old], gender (male/female), income adequacy (Yes/No], employment status (Retired, labour, self-employ), marital status (Married, single, widow, divorced), education level (illiterate/ school/ diploma/ higher education), living status (alone or with family), insurance (Yes/No), duration of illness (years) and use of respiratory devices (Yes/No).

2.7. Self-Care Behaviors Questionnaire for COPD Patients

This 35-item questionnaire was first developed and scored by Alberto (1993) on the basis of a 4-point Likert scale (always=1 and not at all=4) [15]. Scores ranged from 35 to 140. A score of 35-70 indicated poor, a score of 71-105 indicated moderate, and a score of 106-140 indicated good self-care behavior. The validity and reliability of this questionnaire in Iran were confirmed by Abedi *et al*. (2012) in patients with COPD (α=0.82) [4]. In the present study, the reliability of this questionnaire was confirmed by the test-retest method and Cronbach's alpha coefficient greater than 70%.

2.8. Perceived Social Support Scale–Family (PSS-FA)

This questionnaire was developed by Procidona and Heller (1983] [16] and included 20 questions, scores with "yes", "no" and "do not know". Each item indicating perceived social support was counted as "+1". The scores were in a range of 0-20. The option "I don't know" received a score of 0. The total score was calculated from the sum of the scores for the total questions. The perception of family social support was divided into two levels based on a score more or less than the median. A score below the median indicated a poor perceived family social support and a score above the median indicated a good perceived family social support. In the present study, the validity of the questionnaire was evaluated by face and content validity. Validity of the instrument was confirmed and its reliability coefficient was 0.84.

2.9. Statistical Analyses

The normality of the data was evaluated using the Kolmogorov-Smirnov test. The means of normal distribution data were analyzed using parametric tests such as Student t-test, and ANOVA. Besides, P-values < 0.05 were considered as statistically significant.

2.10. Ethical Considerations

This study was approved by the Ethics Committee of Babol University of Medical Sciences (MUBABOL.HRI. REC.1396.125]. Declaration of Helsinki as a statement of ethical principles was considered. All the details and study objectives were presented to all elders and their family and then written informed consent was obtained. In the current survey, completion of the questionnaires did not disrupt the process of providing treatment and care to the elderlies. All information was maintained confidentially in the datasheets. All data will be published in bulk and without the name.

3. RESULTS

3.1. Descriptive Statistics

A total of 200 elderly people with COPD participated in the study. The questionnaires were completed by the researcher through face-to-face interviews, so all the questionnaires were completely completed. The mean age of the elderly people was 71.25±7.15 years. The mean duration of the disease was 5.21±3.6 years. The frequency of other variables is shown in Table **1**.

The mean score of self-care behaviors was 105.36±20.27. Of the 200 elderly people with COPD, 2 (1%) had moderate self-care behaviors and 188 (99%) had good self-care behaviors. The mean score of perceived family social support in the elderly was 17.69±2.74; 128 (65%) had a score higher than median (good perceived family social support] and 71 (35%) had a score lower than the median score (poor perceived family social support).

Among self-care behaviors, the highest percentage (50.5%) was related to "regular flu vaccine uptake" and the lowest percentage (8.5%) to "I do sedation or something to relax every day" behavior. Other self-care behaviors, such as "avoidance of colds", "enough fluid intake", and "covering nose and mouth in cold" were also reported in over 90% of people. The results showed that self-care behaviors related to "lung rehabilitation exercises during shortness of breath", "performing relaxation exercises" and "referring to a physician in the case of weight gain" were less frequently performed by the elderly (Table **2**).

3.2. Analytical Statistics

The results of Kolmogorov-Smirnov test showed that perceived family social support had abnormal distribution ($p<0.001$) and self-care behaviors had normal distribution ($p<0.067$). The findings showed that there is a moderate, negative and significant relationship between perceived family social support and self-care behaviors of the elderly with COPD ($r=-0.44$, $p<0.001$).

To investigate the relationship between self-care behaviors and demographic variables in the elderly with COPD, independent t-test and one-way ANOVA showed a significant relationship between self-care behaviors with gender (P=-0.04), educational level (P=0.001), living status (P=0.009). Also, the results showed that there was no statistically significant relationship between self-care behaviors with having insurance (P=0.32) and income adequacy (P=0.06).

4. DISCUSSION

In the current study, Iranian elderly with COPD had good self-care behaviors. This good score could be due to the fact that in recent years, medical education programs for patients with chronic diseases have been implemented in Iranian medical centers and that education is an important factor for increasing the frequency of self-care behaviors in older people with COPD. On the other hand, frequent hospitalizations or follow-up visits to specialist clinics provide the opportunity for elders to receive self-care training.

Table 1. Demographic and clinical data of elderly patients with COPD (n=200).

Variable	-	Frequency	Percentage
Gender	Male	180	90
	Female	20	10
Marital status	Married	194	97
	Single	1	0.5
	Widow	4	2
	Divorced	1	0.5
Education level	Illiterate	87	43.5
	School	62	31
	Diploma	42	21
	Higher education	9	4.5
Living status	Wife	70	35
	Wife and children	92	46
	Children	25	12.5
	Relatives	1	0.5
	Alone	12	6
Insurance	Yes	176	88.5
	No	24	11.5
Income adequacy	Yes	30	15
	No	159	79.5
	Somewhat	11	5.5
Employment status	Retired	194	97
	Labour	1	0.5
	Self-employment	5	2.5
Use respiratory aids	Yes	161	80.5
	No	39	19.5

Table 2. Frequency and percentage of self-care behaviors in the elderly with COPD (n=200).

	Agree Strongly	Agree Moderately	Agree Rarely	Disagree
I avoid people who have a cold.	95 (48)	88 (44.4)	14 (7.1)	1 (0.5)
I leave the place where they smoke.	82 (41.6)	55 (27.9)	54 (27.4)	6 (3)
Avoid exposure to polluted air.	71 (35.5)	53 (26.5)	72 (36)	2 (1)
Take time to breathe deeply throughout the day.	70 (35)	66 (33)	60 (30)	2 (1)
During my daily activities, I rest periodically.	47 (23.5)	75 (37.5)	75 (37.5)	1 (0.5)
I regularly control my breathing pattern.	68 (34)	83 (41.5)	46 (23)	1 (0.5)
When I have shortness of breath, I take certain actions (siting, use oxygen, Diaphragmatic breathing, *etc*.).	22 (11)	82 (41)	93 (46.5)	1 (0.5)
Drink enough water.	92 (46)	77 (38.5)	28 (14)	1 (0.5)
I do some exercise at least three times a week such as hiking, biking, swimming, *etc*.	32 (16)	62 (31)	99 (49.5)	5 (2.5)
Sleep at least 7 hours per night	85 (42.5)	67 (33.5)	45 (22.5)	1 (0.5)
I do hand exercise at least three times a week.	47 (23.5)	54 (27)	92 (46)	5 (2.5)
I perform relaxation exercises every day (lying down or sitting and relaxing all the muscles, looking at a picture or listening to relaxing music, *etc*.).	17 (8.5)	71 (35.5)	101 (50.5)	9 (4.5)
I participate in group activities at least once a week.	48 (24)	80 (40)	69 (34.5)	1 (0.5)
If I have a persistent health problem for more than one to two days, I will go to health centers.	43 (21.5)	90 (45)	62 (31)	1 (0.5)
I adjust my inhalation and exhalation as needed (for example, I don't deep breathing in a polluted place).	60 (30)	98 (49)	37 (18.5)	5 (2.5)
I get the flu and pneumonia vaccine regularly	101 (50.5)	57 (28.5)	37 (18.5)	5 (2.5)
When I'm anxious and short of breath, I turn away from the person or thing that bother me	63 (31.5)	70 (35)	61 (30.5)	1 (0.5)
I sit on a chair while showering	50 (25)	98 (49)	44 (22)	2 (1)
I sit on a chair while doing my homework	54 (27)	71 (35.5)	66 (33)	4 (2)

(Table 2) contd.....

	Agree Strongly	Agree Moderately	Agree Rarely	Disagree
Tell my doctor or nurse if my sputum changes in color and amount	64 (32)	50 (25)	80 (40)	1 (0.5)
If my breathing is shorter than usual, see a doctor	64 (32)	78 (39)	53 (26.5)	5 (2.5)
I will tell my doctor or nurse if I get tired of doing routine activities so sooner than usual.	63 (31.5)	65 (32.5)	67 (33.5)	5 (2.5)
I take my medication as directed by a doctor.	88 (44)	69 (34)	38 (19)	5 (2.5)
If I have any doubts about how to take medicine, I will consult my doctor.	66 (33)	69 (34.5)	60 (30)	5 (2.5)
I check-up myself every year.	53 (26.5)	35 (17.5)	98 (49)	9 (4.5)
Avoid inhaling harmful airborne particles (paints, perfumes, and aerosols).	88 (44)	74 (37)	32 (16)	1 (0.5)
When I am afraid and anxious, I do Pursed-lips Breathing.	66 (33)	73 (36.5)	56 (28)	5 (2.5)
When needed, I can use my breathing apparatus (spray, oxygen device, *etc*.).	83 (41.5)	67 (33.5)	43 (21.5)	2 (1)
When I want to go out in the cold, I wrap a scarf or napkin around my mouth and nose.	91 (45.5)	68 (34)	36 (18)	5 (2.5)
In emergencies, I take appropriate action (spray, rest, *etc*.).	34 (17)	75 (37.5)	81 (40.5)	5 (2.5)
If I gain 1.5–2.5 kg within 1 week, I will see a doctor.	18 (9)	66 (33)	99 (49.5)	12 (6)
I attend rehabilitation courses.	66 (33)	64 (32)	61 (35.5)	4 (2)
I take corticosteroids as recommended by my doctor / nurse.	67 (33.5)	74 (37)	52 (26)	2 (1)
I adjust my daily activities according to my physical condition.	64 (32)	76 (38)	54 (27)	1 (0.5)
I will help others if needed.	81 (40.5)	62 (31)	42 (21)	4 (2)

Although the average self-care behaviors in the elderly were good in this study, for some self-care behaviors (60-101 subjects) reported, they "rarely" performed the desired self-care behavior, which supports the need of the patient and family educational interventions in the future. It is necessary to continue or increase the number of self-care behaviors and reduce elderly dependence on their caregivers, increase their level of awareness and perception of self-care behaviors, and increase their learning level [17]. In addition, the attention of the treatment team, and especially the nurses, to the cultural context of the elderly with COPD calls for continuous education and efforts to change the attitudes of the elderly and caregivers regarding self-care behaviors [17,11]. This finding is inconsistent with the results of Kaşıkçı and Alberto [2007] who reported poor and moderated scores for similar populations [7]. This discrepancy may be due to the difference in mean "duration of disease" in the two studies. In the Kaşıkçı and Alberto study, the mean duration of the disease was 9.98 years and in the current study, 5.21 years.

The results of the present study showed that "avoidance of colds" and "regular flu vaccine uptake" behaviors were most frequent. This result is in contrast with the study conducted by Chen *et al*. (2017) [10] who found that self-care behaviors were less frequently observed by patients. The reason for this difference could be the easier and cheaper availability of the influenza vaccine in Iran. In health education provided by health centers for the elderly, family physicians and mass media in Iran emphasize the avoidance of colds and injecting the flu vaccine in the cold common seasons. Therefore, education has helped people to better understand the benefits of self-care behaviors.

In the present study, self-care behaviors of "lung rehabilitation exercises in times of shortness of breath", "performing relaxation exercises" and "referring to a physician in the case of weight gain" were less frequently performed by the elders. These findings are in agreement with the results of Abedi *et al*. (2012) [3] and are in disagreement with the study by Chen *et al*. (2017) [10]. This finding may be due to the fact that pulmonary rehabilitation training should be taught to the patient by the treatment team-especially nurses-and other inform-ation sources may not be effective. Also, the population of this study are the elderly and learning and changing attitudes of this age group require numerous educational sessions and assessment of individual learning in order to self-care behaviors. In the current study, the research setting was the only specialized clinic that provides care to COPD patients in Babol city (north of Iran), therefore, patient overcrowding and lack of human resources restricted the opportunity to provide training in pulmonary rehabilitation self-care behaviors.

Based on the results of the present study, the elderly with COPD have a good perception of family social support, which is better than the study of Kaşıkçı and Alberto (2007). In the Kaşıkçı and Alberto study, most elderly scored higher than the median score [7], indicating that respect for the elderly in Turkey, like Iran, led them to receive family social support. In the culture of Iranian society, there is a great deal of emotional connection between parents and children, which can reduce the level of care expectation and support from family members. On the other hand, most of the elderly lived with their spouse or children, which increased the level of social support and perception of family support.

The results showed that there was a moderate, negative and significant relationship between the perception of family social support and self-care behaviors of the elderly with COPD. In Chen *et al*.'s study, there was a relationship between perceptions of family social support with some self-care behaviors, such as lung rehabilitation, reduction of cigarette smoking and injec-ting pneumonia vaccine, but perceptions of family social support were not associated with medication adherence behaviors (inhaler drugs), use of respiratory aids and injections of influenza vaccine in patients with COPD [10]. In the study of Kaşıkçı and Alberto (2007), the association between self-care behaviors and perceived family support in patients with COPD was weak and moderate but positive and significant [7].

The findings showed that there was a significant relationship between self-care behaviors and variables such as gender (be male), high education level and living with family (not alone). These findings were consistent with the results of Chen *et al*.'s study (2017) [10]. As the population gets older, caring behaviors decrease as the older person's abilities decline and his/her dependence increases. In addition, higher education levels - due to greater awareness and fear of the consequences of not doing self-care behaviors - make the educated elderly with COPD more inclined to do self-care behaviours than illiterate or less educated elderly [18]. The results of the studies by Cassimatis *et al*. (2014), Misra *et al*. (2009], Xu *et al*. (2010) and Bohanny *et al*. (2013) also show that higher education encourages one to do self-care behaviors because of their ability to learn and better understand possible consequences [19 - 22]. Concerning the relationship between the living status and self-care behaviors, the results of Chung's (2013] study showed that the elderly living with family had better self-care behaviors than the elderly living alone because family mem-bers remind the elderly of behaviors such as adherence to diet, nutrition, physical activity, and avoidance of harmful factors to reduce the severity of symptoms [23]. The results of Chen's study (2017] showed that in married people and patients living with family, participation in lung rehabilitation and doing physical activity were more prevalent than people living alone and self-care strategies (reduced hospitalization, disease control] are more desirable in married people [10].

CONCLUSION

The results of this study showed that the elderly with COPD had good self-care behavior. But for some self-care behaviors (60-101 subjects) reported, they “rarely” performed the desired self-care behavior, which supports the need for patient and family educational interventions in the future. Then, because of the patient's aging and growing care needs, there is a need for planning the continuing education for the elderly and the family in order to continue and improve their self-care behaviors and reduce elderly dependence on caregivers. It is imperative that health care providers incorporate training programs into the care of the patient and his/her family at the time of hospitalization in clinical centers that provide a good opportunity for patient education.

Nurses can consider the promotion of the elderly's perceptions of received support in their patient education programs, and may also emphasize family support to increase the patient's motivation for self-care in family education programs. Face-to-face training appropriate to the elderly patient's understanding of lung rehabilitation exercises and how relaxation can lead to reduced morbidity and increased patient care.

LIMITATIONS

The majority of the elderly in the current study were male, married, illiterate, insured, and without sufficient income. This makes it difficult to generalize the findings. Therefore, it is recommended that future studies investigate the frequency of self-care behaviors in the elderly with a variety of socio-economic variables.

Also, the elderly were selected from one of the northern cities of Iran. Due to specific cultural structures of this area such as extended families and elderly living with family members, it may be difficult to generalize the results of the study.

APPLICATION OF FINDINGS

Identifying the factors affecting the self-care behaviors of older people with COPD can help effective interventions to increase this group's understanding of the support received.

The results of this study can be used by hospital nursing managers and ward authorities. Nursing managers, for example, can emphasize the importance of factors affecting self-care behaviors in the elderly with COPD in in-service training sessions or daily or weekly introductory sessions with nurses.

Installing educational posters in departments where elderly people are hospitalized with COPD or providing educational pamphlets on factors affecting self-care behaviors such as patients' perception of family social support by educational supervisors can be helpful.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Ethics Committee of Babol University of Medical Sciences (MUBABOL.HRI. REC.1396.125].

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures were followed in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent has been obtained from all the participants.

AVAILABILITY OF DATA AND MATERIALS

The authors confirm that the data supporting the findings of this study are available within the article.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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