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The factors affecting the illness perception in patients staying in a state hospital

Nida Kiyici*, Vocational School of Health Services, Yozgat Bozok University, 66900 Yozgat, Turkey
Zeliha Koc, Faculty of Health Sciences Institute, Ondokuz Mayis University, 55200 Samsun, Turkey
Zeynep Saglam, Faculty of Health Sciences Institute, Ondokuz Mayis University, 55200 Samsun, Turkey
Sevil Masat, Faculty of Health Sciences Institute, Ondokuz Mayis University, 55200 Samsun, Turkey

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Abstract

This study was conducted as descriptive with an aim to determine the factors affecting the illness perception in patients. The study was conducted with the participation of 130 patients receiving treatment in a state hospital between March 25 and May 11, 2018. The data were collected using a questionnaire form consisting of 20 questions and the Illness Perception Questionnaire. Kruskal–Wallis test, Spearman Correlation test in addition to descriptive statistics were used for the evaluation of the data. The item that the patients received the highest score from the Illness Perception Questionnaire was 'My treatment would be effective in healing my disease' (3.83 ± 1.21) and the lowest score was from the item 'Nothing can improve my condition' (1.93 ± 1.12). It is recommended to organise training in order to strengthen the patients to deal with the side effects of their diseases.

Keywords: Illness perception, behaviour, opinion.

* ADDRESS FOR CORRESPONDENCE: **Nida Kiyici,** Vocational School of Health Services, Yozgat Bozok University, 66900 Yozgat, Turkey. *E-mail address*: nidakyc@hotmail.com / Tel.: +354 2121190

1. Introduction

Illness is a concept that includes objective and subjective dimensions. Therefore, the reactions, perceptions and experiences related to the illness may vary from individual to individual. Individuals try to explain their illnesses according to their experiences, knowledge, values, beliefs and needs (Armay, 2007; Kocaman Yildirim, Okanli A, Yilmaz Karabulutlu, Karahisar, Ozkan, 2013; Sonmez, Kosger, Karasel, Tosun, 2015). In this process of understanding and explanation, the individual develops thoughts about the symptoms, duration and consequences of the illness using information obtained from concrete and abstract sources (Armay, Kocaman, Ozkan, Ozkan, 2007; Nabolsi, Wardam, Al-Halabi, 2015).

Although the concept of perception of illness is based on Leventhal's 'Self-Regulation Theory' (Kocaman et al., 2013; Mosleh and Almalik, 2016; Sonmez et al., 2015), this concept is the cognitive reflection of individuals' beliefs and expectations about an illness or symptom (Kocaman et al., 2013; Sonmez et al., 2015). To predict and explain the events in the external world, individuals form cognitive models in their minds. Patients also develop similar models of temporary or long-term symptoms in the event of any illness. As cited by Armay (2007), Leventhal et al. (1984) argued that patients developed their own coping mechanisms through these cognitive models. Cognitive models created by patients include beliefs about the treatment and control of the condition. The cognitive model consists of each individual's belief, interpretation, emotional and behavioural responses and is an important factor affecting the coping style, adaptation to the illness and treatment process, understanding the illness and quality of life (Kayir, 2014; Uysal and Akpinar, 2013).

Due to the increase in chronic illness rates, determination of the perception, beliefs, behaviours and attitudes of individuals about their illnesses has gained more importance, especially in recent years (Yorulmaz, Tatar, Saltukoglu, Soylu, 2013). In this respect, today, it is aimed to provide the necessary skills to individuals with chronic illnesses for them to be able to change their perceptions about their illnesses in a positive way, to manage themselves, to cope with the emotional state of the illness and to overcome the daily stress associated with the illness (Yorulmaz et al., 2013). Some studies on this subject have reported that the perception of illness is closely associated with the quality of life of patients (Goodman, Firouzi, Banya, Lau-Walker, Cowie, 2013; Nabolsi et al., 2015), psychological dimension, coping with stress, depression (Pagels, Söderquist, Heiwe, 2012), self-management (Mosleh et al., 2014), and compliance to treatment and religious beliefs (Ibrahim et al., 2012) in the patients with diabetes, osteoarthritis, dialysis (Chilhot, Norton, Wellsted, Farrington, 2012), asthma and myocardial infarction (Mosleh and Almalik, 2016). Furthermore, it was emphasised that a negative perception of illness caused an increase in morbidity and mortality rate and reduced compliance to treatment (Petrie, Jago, Devcich, 2007; Timmers et al., 2008; Kim and Evangelista, 2010). In this respect, it is considered that it is vital that health professionals evaluate the perceptions of individuals about the severity of their illnesses, personal controls, compliance to treatment, the effects of treatment on their activities of daily living and quality of life (Nabolsi et al., 2015).

1.1. The objective of the study

The present study was planned to determine the factors affecting the illness perceptions of some inpatients in a public hospital. Answers to the following questions were sought in this study:

- What are the socio-demographic and clinical characteristics of patients?
- What are the patients' perception levels of their illnesses?
- Is there a relationship between the socio-demographic and clinical characteristics of patients and their perceptions of illness?

2. Material and methods

2.1. Place and time of the research

This descriptive study was conducted at a public hospital between 25 March and 11 May 2018 with the participation of 130 inpatients who volunteered to participate and could communicate with us.

2.2. Population and sample of the research

In this study, patients were determined using simple random sampling, one of the probability sampling methods by which individuals can be selected from the universe with equal probability. Based on the previous research on the perception of illness, the sample size was calculated with a 95% confidence limit and 90% power and 0.05 error margin, and the minimum number of patients to be included in the study was calculated as 110. Considering that there might be data loss, 130 patients were reached, and the data collection process was completed. The inclusion criteria were as follows: being able to communicate, not having any illness that prevents the patient from answering the questions, being 18 and above and volunteering to participate in the study. Patients who refused to participate in the study (n: 6) and who could not communicate due to cognitive and affective changes (n: 4) were excluded from the study. In conclusion, the study was completed with the participation of 130 patients. The response rate of data collection forms is 93%.

2.3. Data collection tools

Data were collected using the Personal Information Form and the 'Illness Perception Questionnaire'. The Personal Information Form consists of 20 questions to determine the socio-demographic and clinical characteristics of the patients. The questionnaire was tested with a group of 10 people, who were not included in the sample of the study. The data were collected by the researchers after the patients included in the study were informed and written informed consent was obtained from them.

2.3.1. Illness perception questionnaire

The Illness Perception Questionnaire was developed by Weinmann, Petrie, Moss-Morris, Horne (1996) to assess the illness perception of individuals with physical illnesses (Weinmann et al. 1996). It was revised in 2002 by Moss-Morris et al. (2002). The validity and reliability of the Turkish Version of the questionnaire, which can be used in many physical illnesses, was performed by Armay et al. (2007). The Illness Perception Questionnaire consists of three dimensions: the type of the illness, patients' views on the illness and the causes of the illness.

Type of the Illness: This dimension contains the symptoms of 14 most common illnesses (pain, sore throat, nausea, breathlessness, weight loss, fatigue, stiff joints, sore eyes, wheeziness, headaches, upset stomach, dizziness, sleep difficulties and loss of strength).

Patients' views on the illness: This dimension consists of thirty-eight 5-point Likert-type items (I strongly disagree, I disagree, neither disagree nor agree, I agree and I strongly agree). It also includes seven sub-dimensions: Duration (Acute/Chronic), Consequences, Personal Control, Treatment Control, Understanding the Illness, Time (Cyclical) and Emotional Representations. The Duration sub-dimension assesses the patient's perception of the duration of the illness. The Consequences sub-dimension

assesses patients' perceptions of the severity of the illness and their physical, psychological and social functioning. The Personal Control sub-dimension assesses patients' perception of internal control over the duration, course and treatment of the illness. The Treatment Control sub-dimension assesses patients' beliefs about the effectiveness of the treatment. Understanding the illness sub-dimension investigates to what extent patients understand their illnesses. The Emotional Representations sub-dimension aims at determining patients' negative feelings related to the illness.

Causes of the Illness: This dimension includes eighteen 5-point Likert type items to investigate the possible causes of illnesses. This dimension also includes the following four sub-dimensions that explore one's thoughts about the possible causes of his/her illness: Psychological References (e.g., worry/stress, family problems, individual characteristics), Risk Factors (e.g., hereditary, smoking, alcohol use, ageing), Immunity (e.g., microbes/viruses, low body resistance) and Accident or Bad Luck (e.g., injury, bad luck, etc.). At the end of the scale, patients are asked to write three factors which they consider to be the most important causes of their illness. The total score of the scale is not determined but the average score of each sub-dimension is calculated.

Armay et al. (2007) calculated the Cronbach Alpha reliability coefficient of the Type of the Illness dimension as 0.89, of the Views about the Illness dimension as 0.69–0.77 and the Causes of the Illness dimension as 0.25–0.72. In the present study, on the other hand, the Cronbach Alpha reliability coefficient of the Type of the Illness dimension was calculated as 0.89, of the Views about the Illness dimension as 0.79 and the Causes of the Illness dimension as 0.82. Permission was obtained from Armay et al. to use the Turkish Version of the Illness Perception Questionnaire in this study.

2.4. Data collection

The patients were told that it was entirely up to them whether or not to participate in the research, that their names would not be written on the questionnaire forms, and that the data to be collected from this study would be used only within the scope of the research. To collect the data, informed consent was obtained from the nurses included in the study and written permission from the managers in the hospital where the study was conducted. The data collection took approximately 15–20 minutes.

2.5. Data analysis

The statistical analysis of the data about the factors affecting the patients' illness perceptions was performed by SPSS 21 software. Descriptive statistics and the Mann–Whitney *U* test, Kruskal–Wallis test and Spearman Correlation test were used to analyse the data.

3. Results

Of the patients included in the study, 43.1% were female, 56.9% were male, 76.9% were married, 43.1% were literate, 30 were housewives, 59.2% had a nuclear family, 84.6% had social security, 57.7% had incomes equal to expenditures and 41.5% lived in city centres. Also, 38.5% of the patients had a chronic illness other than present illness, 23.1% diagnosed with diabetes, 20.8% were diagnosed with hypertension, 33.8% had family members/close relatives diagnosed with a chronic illness, 74.6% smoked, 95.4% not used alcohol, 60% present to a hospital only when they have a health problem, 73.8% defined their health as good and 73.8% had previously been hospitalised (Table 1).

Table 1. Distribution of socio-demographic and clinical characteristics of patients

Characteristics		***n***	**%**
Age groups 52 (18–85)	18–34 years	24	18.5
	35–51 years	37	28.5
	52–68 yeas	40	30.8
	69–85 years	29	22.2
Sex	Female	56	43.1
	Male	74	56.9
Marital status	Married	100	76.9
	Single	30	23.1
Social security	Yes	110	84.6
	No	20	15.4
Number of children	3 (1–9)		
Educational level	Illiterate	29	22.3
	Literate	56	43.1
	Primary school	12	9.2
	Secondary school	12	9.3
	High school	18	13.8
	University	3	2.3
Job	Housewife	39	30.0
	Worker	21	16.2
	Civil Servant	10	7.7
	Self-employed	24	18.5
	Retired	22	16.9
	Student	9	6.9
	Unemployed	5	3.8
Place of residence	City centre	54	41.5
	District	39	30.0
	Village	37	28.5
Family type	Extended family	53	40.8
	Nuclear family	77	59.2
Socioeconomic status	Income less than expenditures	43	33.1
	Income equal to expenditures	75	57.7
	Income more than expenditures	12	9.2
The people the patient lives with	Spouse	30	23.1
	Spouse and children	17	13.1
	Children	58	44.6
	Alone	8	6.2
	Others (friends, siblings, parents)	17	13.0
The presence of a chronic Illness	Yes	50	38.5
	No	80	61.5
*Chronic illnesses	Diabetes	30	23.1
	Hypertension	27	20.8
	Heart Disease	8	6.2
	Kidney Disease	1	0.8
	COPD	5	3.8
	Other (Asthma, Hepatitis B, Rectum Ca)	3	2.3

History of chronic illnesses in thefamily	Yes	44	33.8
	No	86	66.2
Smoking	Yes	33	25.4
	No	97	74.6
Alcohol	Yes	6	4.6
	No	124	95.4
The frequency of general medical examinations	Once a month	6	4.6
	Every three months	12	9.2
	Every six months	8	6.2
	Once a year	10	7.7
	When I have a health problem	78	60.0
	When my doctor recommends me to do	14	10.8
	Never	2	1.5
How s/he perceives her/his health status	Very often	5	3.8
	Good	96	73.8
	Bad	26	20.0
	Very bad	3	2.4
History of hospitalization	Yes	96	73.8
	No	34	26.2
The frequency of hospitalization	Very often	3	3.1
	Often	10	10.4
	Rarely	46	47.9
	At irregular intervals	34	35.4
	Other (due to surgery)	3	3.2

*More than one answer.

Table 2. Distribution of the item frequency of the type of the illness dimension

Sub-dimensions	**I've had this symptom since the onset of my illness.**		**This symptom is related to my illness**	
	n	**%**	***n***	**%**
1.Pain	94	72.3	89	68.5
2.Sore throat	14	10.8	20	15.4
3.Nausea	39	30.0	35	26.9
4.Breathlessness	32	24.6	30	23.1
5. Weight loss	50	38.5	44	33.8
6. Fatigue	72	55.4	65	50.0
7. Stiff joints	29	22.3	33	25.4
7. Stiff joints	26	20.0	24	18.5
9. Wheeziness	20	15.4	16	12.3
10. Headaches	38	29.2	35	26.9
11. Upset stomach	42	32.3	42	32.3
12. Sleep difficulties	55	42.3	50	38.5
13. Dizziness	48	36.9	49	37.7
14. Loss of strength	73	56.2	68	52.3
Mean ± SD	4.86 ± 3.37		4.61 ± 3.58	
Test value	*t*:1.493 *p* = 0.138			

Table 3. The mean scores of the sub-dimensions of the views about the illness dimension

Sub-dimensions	Mean ± SD
Duration (Acute/Chronic)	17.42 ± 3.55
Consequences	15.40 ± 4.79
Personal control	16.91 ± 4.50
Treatment control	15.61 ± 3.57
Understanding the illness	12.51 ± 3.68
Duration (cyclical)	10.96 ± 3.66
Emotional representations	16.20 ± 5.78
Total score	105.05 ± 17.17

According to the responses of the patients to the Type of the Illness dimension, patients mostly experienced symptoms of pain (72.3%), fatigue (55.4%) and loss of strength (56.2%) (Table 2). The total score of the Views about the Illness dimension was found to be 105.05 ±17.17. The total scores for the sub-dimensions of the Views about the Illness dimension, namely, Duration (Acute/Chronic), Consequences, Personal Control, Treatment Control, Understanding the Illness, Duration (Cyclical) and Emotional Representations were found to be 17.42 ± 3.55, 15.40 ± 4.79, 16.91 ± 4.50, 15.61 ± 3.57, 12.51 ± 3.68, 10.96 ± 3.66 and 16.20 ± 5.78, respectively. The findings indicate that the highest total scores were obtained from the Duration (Acute/Chronic), Personal Control and Emotional Representation sub-dimensions, whereas the lowest scores were obtained from the Understanding the Illness and Duration (Cyclical) sub-dimensions (Table 3). Furthermore, the patients obtained the highest score from the item of 'My treatment will be effective in curing my illness' (3.83 ± 1.21), whereas they obtained the lowest score from the item of 'There is nothing which can help my condition' (1.93 ± 1.12) (Table 4).

Table 4. The mean scores of the items of the views about the Illness dimension

Views about the İllness	Mean ± SD
1. My illness will last a short time	3.05 ± 1.31
2. My illness is likely to be permanent rather than temporary	2.31 ± 1.30
3. My illness will last for a long time	2.59 ± 1.35
4. This illness will pass quickly	3.37 ± 1.38
5. I expect to have this illness for the rest of my life	2.39 ± 1.34
6. My illness is a serious condition	2.51 ± 1.39
7. My illness has major consequences on my life	2.73 ± 1.43
8. My illness does not have much effect on my life	2.46 ± 1.34
9. My illness strongly affects the way others see me	2.53 ± 1.31
10. My illness has serious financial consequences	2.46 ± 1.39
11. My illness causes difficulties for those who are close to me	2.70 ± 1.33
12. There is a lot which I can do to control my symptoms	2.84 ± 1.29
13. What I do can determine whether my illness gets better or worse	3.24 ± 1.27
14. The course of my illness depends on me	3.03 ± 1.34
15. Nothing I do will affect my illness	2.20 ± 1.15
16. I have the power to influence my illness	2.92 ± 1.30
17. My actions will have no effect on the outcome of my illness	2.66 ± 1.36
18. My illness will improve in time	3.69 ± 1.23
19. There is very little that can be done to improve my illness	2.50 ± 1.32
20. My treatment will be effective in curing my illness	3.83 ± 1.21

21. The negative effects of my illness can be prevented (avoided) by my treatment	3.72 ± 1.22
22. My treatment can control my illness	3.62 ± 1.31
23. There is nothing which can help my condition	1.93 ± 1.12
24. The symptoms of my condition are puzzling to me	2.37 ± 1.19
25. My illness is a mystery to me	2.12 ± 1.15
26. My illness is a mystery to me	2.39 ± 1.30
27. My illness doesn't make any sense to me	2.33 ± 1.29
28. I have a clear picture or understanding of my condition	3.28 ± 1.27
29. The symptoms of my illness change a great deal from day to day	2.87 ± 1.34
30. My symptoms come and go in cycles	2.63 ± 1.30
31. My illness is very unpredictable	2.38 ± 1.27
32. I go through cycles in which my illness gets better and worse.	3.07 ± 1.30
33.I get depressed when I think about my illness	2.89 ± 1.38
34. When I think about my illness, I get upset	2.99 ± 1.40
35. My illness makes me feel angry	2.45 ± 1.45
36.My illness does not worry me	2.53 ± 1.37
37. Having this illness makes me feel anxious	2.75 ± 1.43
38. My illness makes me feel afraid	2.58 ± 1.45

Table 5. The mean scores of the sub-dimensions of causes of my illness dimension

Sub-dimensions	Mean ± SD
Psychological references	13.17 ± 5.18
Risk factors	14.27 ± 5.01
Immunity	6.58 ± 2.95
Accident or bad luck	3.94 ± 1.96

On the other hand, the average scores from the Psychological References, Risk Factors, Immunity and Accident/Bad Luck sub-dimensions of the Causes of the Illness dimension were found to be 13.17 ± 5.18, 14.27 ± 5.01, 6.58 ± 2.95 and 3.94 ± 1.96, respectively (Table 5). When we examine the average scores from the Possible Causes of the Illness of the Illness Perception Questionnaire, we can see that, as the possible causes of their illness, the patients mostly stated risk factors such as overwork, stress or ageing (14.27 ± 5.01) and psychological factors such as worry and stress (13.17 ± 5.18), whereas they least stated accident or bad luck (3.94 ± 1.96) (Table 6).

Table 6. The mean scores of the items for possible causes

Items	Mean ± SD
1.Stress or worry	2.61 ± 1.47
2.Hereditary—it runs in my family	2.26 ± 1.40
3.A Germ or virus	1.90 ± 1.11
4.Diet or eating habits	2.14 ± 1.30
5.Chance or bad luck	2.29 ± 1.38
6.Poor medical care in my past	1.95 ± 1.23
7.Pollution in the environment	2.22 ± 1.39
8.My own behaviour	2.21 ± 1.34
9. My mental attitude, e.g., thinking about life negatively	2.09 ± 1.21
10.Family problems or worries caused my illness	2.00 ± 1.23

11.Overwork	2.21 ± 1.33
12.My emotional state, e.g., feeling down, lonely, anxious, empty	2.21 ± 1.38
13. Ageing	2.40 ± 1.46
14.Alcohol	1.56 ± 1.11
15.Smoking	1.73 ± 1.23
16.Accident or injury	1.65 ± 1.21
17.My personality	2.03 ± 1.28
18.Altered immunity	2.46 ± 1.41

It was found that the median scores of the sub-dimensions of Duration (Acute/Chronic), Personal Control, Understanding the Illness and Duration (Cyclical) of the Views about the Illness dimension did not differ according to age, sex, educational level, socioeconomic status, self-perceived health, the presence of a chronic illness other than present illness and whether the patient had previously been hospitalised ($p > 0.05$) (Table 7).

Table 7. Comparison of some socio-demographic and clinical characteristics of the patients with their illness perception questionnaire scores

Characteristics	**The sub-dimensions of the views about the illness**						
	Duration (Acute/Chronic) Median (Min–Max)	**Consequences Median (Min–Max)**	**Personal control Median (Min–Max)**	**Treatment control Median (Min–Max)**	**Understanding the illness Median (Min–Max)**	**Duration (Cyclical) Median (Min–Max)**	**Emotional representations Median (Min–Max)**
Age groups							
18–34 years	18.0 (9–26)	14.5 (6–30)	17.0 (6–25)	16.0 (5–23)	12.5 (5–21)	11.5 (4–18)	16.0 (6–26)
35–51 years	17.0 (7–26)	17.0 (6–23)	18.0 (6–25)	16.0 (5–25)	13.0 (5–19)	12.0 (4–20)	16.0 (6–30)
52–68 years	17.5 (11–30)	14.0 (6–24)	18.0 (6–23)	16.0 (8–21)	10.5 (7–20)	12.0 (4–18)	15.0 (6–30)
69–85 years	17.0 (11–27)	16.0 (8–23)	16.0 (6–28)	15.0 (10–21)	13.0 (8–20)	12.0 (4–16)	17.0 (8–30)
χ^2	0.277	4.081	3.580	1.720	2.424	0.138	0.155
p	0.964	0.253	0.311	0.632	0.489	0.987	0.985
			Sex				
Female	18.0 (11–30)	15.0 (6–22)	18.0 (6–24)	15.0 (5–25)	13.0 (5–20)	12.0 (4–20)	16.5 (6–30)
Male	17.5 (7–27)	15.0 (6–30)	18.0 (6–28)	17.0 (5–21)	12.0 (5–21)	11.0 (4–18)	15.0 (6–30)
Z	−0.166	−0361	−0.573	−2.975	−0.792	−0.700	−1.286
p	0.868	0.718	0.566	0.003	0.428	0.484	0.198
Educational level							
Illiterate	17.0 (11–22)	15.0 (8–22)	17.0 (6–28)	16.0 (9–20)	11.0 (5–19)	10.0 (4–20)	16.0 (6–30)
Literate	18.0 (7–30)	15.5 (6–24)	18.0 (6–24)	16.0 (5–25)	12.0 (5–20)	11.0 (4–18)	16.0 (6–30)
Primary school	17.0 (9–27)	18.5 (6–23)	18.0 (9–25)	17.0 (12–21)	12.0 (8–18)	14.0 (4–16)	13.0 (8–21)
Secondary school	18.0 (9–23)	14.0 (6–30)	17.5 (8–25)	16.0 (5–21)	13.0 (5–21)	12.0 (4–18)	20.5 (10–26)
High school	17.5 (12–26	15.0 (7–24)	19.0 (13–22)	16.0 (5–23)	14.5 (8–19)	12.0 (8–15)	16.5 (6–26)
University	17.0 (16–21)	14.0 (11–15)	17.0 (12–18)	16.0 (14–16)	15.0 (11–16)	12.0 (8–12)	12.0 (6–16)
χ^2	0.620	4.569	3.619	2.749	6.815	8.046	5.960
p	0.961	0.334	0.460	0.601	0.146	0.090	0.202
Socioeconomic status							
Income less than expenditures	17.0 (11–30)	15.0 (6–22)	17.0 (6–23)	16.0 (8–21)	12.0 (7–19)	12.0 (4–17)	16.0 (6–30)

Income equal to expenditures	18.0 (7–27)	15.0 (6–30)	18.0 (6–28)	16.0 (5–25)	13.0 (5–21)	12.0 (4–20)	16.0 (6–30)
Income more than expenditures	18.0 (9–21)	13.5 (6–23)	18.5 (13–25)	15.5 (9–21)	14.0 (8–20)	11.5 (6–18)	15.0 (9–20)
χ^2	0.110	1.828	3.054	0.362	0.466	0.169	0.895
p	0.947	0.401	0.217	0.835	0.792	0.919	0.639
Health status perception							
Very often	18.0/7–26)	10.0 (7–18)	17.0 (12–19)	14.0 (6–17)	13.0 (9–13)	10.0 (6–16)	12.0 (7–20)ad
Good	17.5 (9–30)	15.0 (6–30)	18.0 (6–25)	16.5 (5–25)bc	12.0 (5–21)	12.0 (4–18)	16.0 (6–30)bd
Bad	17.0 (11–21)	17.0 (6–24	17.0 (6–28)	14.0 (10–18)cb	14.0 (5–19)	12.0 (6–20)	14.0 (6–30)cd
Very bad	18.0 (18–19)	20.0 (13–23)	18.0 (11–21)	18.0 (17–21)	13.0 (12–21)	17.0 (13–18)	24.0 (23–26)abcd
χ^2	0.946	7.825	1.264	14.546	5.340	5.546	10.874
p	0.814	0.050	0.738	0.002	0.149	0.136	0.012
Chronic illness							
Yes	17.0 (11–30)	17.0 (8–23)	18.0 (6–28)	15.0 (8–21)	13.0 (5–20)	11.5 (4–20)	16.0 (6–30)
No	18.0 (7–27)	14.0 (6–30)	18.0 (6–25)	17.0 (5–25)	12.0 (5–21)	12.0 (4–18)	16.0 (6–30)
Z	−0.877	−2.552	−0.492	−2.104	−1.335	−0.269	−1.041
p	0.380	0.011	0.623	0.035	0.182	0.788	0.298
History of hospitalization							
Yes	17.0 (9–26)	15.0 (6–24)	18.0 (6–24)	16.0 (5–23)	12.5 (8–21)	11.0 (4–18)	16.0 (6–30)
No	18.0 (7–30)	15.5 (6–30)	18.0 (6–28)	16.0 (5–25)	13.0 (5–21)	12.0 (4–20)	15.5 (6–30)
Z	−0.899	−0.871	−0.548	−0.410	−0.386	−0.972	−0.096
p	0.369	0.384	0.584	0.682	0.699	0.331	0.924

a-b-c-d= There is a difference between groups with the same letters, Min.: Minimum, Max.: Maximum.

Moreover, it was found that the Consequences sub-dimension of the Views about the Illness dimension differed according to the presence of a chronic illness other than present illness: the median scores of the patients with chronic illnesses from the Consequences sub-dimension were higher. The median scores of the Consequences sub-dimension did not differ according to age, sex, educational level, socioeconomic status, self-perceived health and whether the patient had previously been hospitalised ($p > 0.05$) (Table 7).

It was found that the median score of the Treatment Control sub-dimension of the Views about the Illness dimension differed according to sex, self-perceived health and the presence of a chronic illness other than present illness. Also, the median score of male patients, those who perceived their health as good, and those who did not have any chronic illnesses from the Treatment Control sub-dimension were found to be higher. Moreover, the median scores of the Treatment Control sub-dimension did not differ according to age, educational level, socioeconomic status and whether the patient had previously been hospitalised ($p > 0.05$) (Table 7).

The Emotional Representations sub-dimension of the Views about the Illness dimension was found to differ according to self-perceived health. The median score of the patients who perceived their health status as good from the Emotional Representations sub-dimension was higher. The median scores of the Emotional Representations sub-dimension did not differ according to age, sex, educational level, socioeconomic status, the presence of a chronic illness other than present illness and whether the patient had previously been hospitalised ($p > 0.05$) (Table 7).

Among the sub-dimensions of the Views about the Illness dimension, a weak, positive and significant relationship was found between the Duration (acute/chronic) sub-dimension and the

Consequences (r = 0.208, p < 0.05) sub-dimension. It was found that as the duration of the illness increased, individuals' controls on the illness increased and the negative effects of the consequences of the illness on the physical, social and psychological functions increased. In addition, a weak, positive and significant relationship was found between the Duration (acute/chronic) sub-dimension and the Immunity sub-dimension (r = 0.224, p < 0.05) of the Causes of the Illness dimension and it was seen that as the causes of the illness increased, the duration of the illness increased and the illness became chronic (Table 8).

Table 8. The relation between the sub-dimensions of the illness perception questionnaire.

Sub-dimensions		Duration (Acute/Chronic)	Consequences	Personal Control	Treatment Control	Understanding the illness	Duration (Cyclical)	Emotional Representations	Psychological references	Risk factors	Immunity	Accident/bad luck
Duration	*r*	----	0.208	0.138	0.283	0.048	0.120	0.127	0.097	0.084	0.224	-0.053
(Acute/Chronic)	*p*		0.018*	0.117	0.001**	0.586	0.173	0.148	0.271	0.343	0.011*	0.546
Consequences	*r*		-----	0.253	0.068	0.474	0.308	0.428	0.186	0.224	0.230	0.123
	p			0.004**	0.440	0.000**	0.000**	0.000**	0.034*	0.011*	0.008**	0.163
Personal Control	*r*			-----	0.125	0.319	0.396	0.133	0.089	0.130	0.239	0.150
	p				0.157	0.000**	0.000**	0.132	0.313	0.139	0.006**	0.089
Treatment Control	*r*				----	0.999	0.069	0.115	0.041	0.823	0.083	0.135
	p					0.000**	0.438	0.191	0.645	0.020*	0.348	0.127
Understanding the	*r*					----	0.347	0.137	0.353	0.361	0.347	0.277
illness	*p*						0.000**	0.120	0.000**	0.000**	0.000**	0.001**
Duration (Cyclical)	*r*					0	-----	0.344	0.219	0.283	0.217	0.187
	p							0.000**	0.012*	0.001**	0.013*	0.034*
Emotional	*r*							-----	0.149	0.203	0.234	0.252
Representations	*p*								0.091	0.020*	0.007**	0.004**
Psychological	*r*								-----	0.671	0.696	0.440
references	*p*									0.000**	0.000**	0.000**
Risk factors	*r*									------	0.634	0.566
	p										0.000**	0.000**
Immunity	*r*										------	0.483
	p											0.000**
Accident/bad luck	*r*											------
	p											

r: Spearmen's correlation, *p < 0.05, **p < 0.01.

A weak, positive and significant relationship was found between the Consequences sub-dimension of the Views about the Illness dimension and the Personal Control (r = 0.253, p < 0.01), Understanding the Illness (r = 0.474, p < 0.01), Duration (Cyclical) (r = 0.308, p < 0.01) and Emotional Representation (r = 0.428, p < 0.01) sub-dimensions. In this respect, it was found that as the negative consequences of the illness increased, the patients developed a deeper understanding of their illnesses and their levels of control over the illness increased, the illness entered into a cyclical process and the illness was more frequently associated with negative emotions. In addition, a weak, positive and significant relationship was found between the Consequences sub-dimension and the Psychological References (r = 0.186, p < 0.05), Risk Factors (r = 0.224, p < 0.05) and Immunity (r = 0.230, p < 0.01) sub-dimensions of the Causes of the Illness dimension. It was determined that as the possible causes that the patients associated with their illnesses increased, their body resistance decreased and negative consequences of the illness increased (Table 8).

A weak, positive and significant relationship was found between the Personal Control sub-dimension and the Understanding the Illness ($r = 0.319$, $p < 0.01$) and the Duration (Cyclical) ($r = 0.396$, $p < 0.01$) sub-dimensions of the Views about the Illness dimension. In this respect, it was determined that when the illness entered into a cyclical process, patients developed a deeper understanding of their illnesses and their control over the illness increased. Also, a weak, positive and significant relationship was found between the Personal Control sub-dimension and the Immunity sub-dimension ($r = 0.239$, $p < 0.01$) (Table 8).

On the other hand, a high, positive and significant relationship was found between the Treatment Control sub-dimension and the Understanding the Illness sub-dimension ($r = 0.999$, $p < 0.01$) of the Views about the Illness dimension. In this respect, it was determined that patients' control in the treatment process increased as they developed a deeper understanding of their illnesses. In addition, a high, positive and significant relationship was found between the Treatment Control sub-dimension and the Risk Factors ($r = 0.823$, $p < 0.05$) sub-dimension of the Causes of the Illness dimension. (Table 8).

In addition, a weak, positive and significant relationship was found between the Duration (Cyclical) sub-dimension and Understanding the Illness ($r = 0.347$, $p < 0.01$) and Emotional Representation ($r = 0.344$, $p < 0.01$) sub-dimensions of the Views about the Illness dimension. In this respect, it was observed that when the illness entered into a cyclical process, patients developed a deeper understanding of their illnesses and the illness was more frequently associated with negative emotions. In addition, a weak, positive and significant relationship was found between the Duration (Cyclical) sub-dimension and the Psychological references ($r = 0.219$, $p < 0.05$), Risk Factors ($r = 0.283$, $p < 0.01$), Immunity ($r = 0.217$, $p < 0.05$) and Accident/Bad Luck ($r = 0.187$, $p < 0.05$) sub-dimensions of the Causes of the Illness dimension (Table 8).

Finally, a weak, positive and significant relationship was found between the Emotional Representations sub-dimension of the Views about the Illness dimension and the Risk Factors ($r = 0.203$, $p < 0.05$), Immunity ($r = 0.234$, $p < 0.01$) and Accident/Bad Luck ($r = 0.252$, $p < 0.01$) sub-dimensions of the Causes of the Illness dimension. In this respect, it was observed that as the causes causing the illness increased, the patients were more likely to associate their illness with negative emotions (Table 8).

4. Discussion

The findings of the present study conducted to determine the factors affecting the illness perceptions of the inpatients in a public hospital in the central Black Sea Region of Turkey have been discussed in the light of the related literature. It was determined that of the participants in this study, 43.1% were literate, 38.5% had a chronic illness other than their present illness, 23.1% were diagnosed with diabetes, 20.8% were diagnosed with hypertension and 60% presented to hospitals only when they had a health problem. In a study to determine the factors affecting the illness perception in chronic illnesses, Kayacan (2012) reported that 75% of the patients were literate, 64% had a chronic illness, 34% were diagnosed with diabetes, 20% were diagnosed with hypertension and 28% presented to hospitals when they had a health problem or once every 3 months. In another study to determine the factors affecting the illness perception in hypertensive patients, Iscan Ayyildiz (2016) reported that 84.4% of the patients were literate and that 26.8% never presented to hospitals other than when they had health problems. The fact that most of the patients in this study stated that they do not present to hospitals if they do not have a health problem may be attributed to the low literacy rate and low levels of knowledge among the participants.

In this study, the results of the Type of the Illness of the Illness Perception Questionnaire showed that patients experienced pain (72.3%), fatigue (55.4%) and loss of strength (56.2%) most frequently. Consistent with the findings of the present study, previous studies reported that patients most frequently experienced pain (Kayis, 2009; Sonmez et al., 2015), fatigue (Iscan Ayyildiz, 2016; Karadag,

Sevinc, Karatay, 2016; Kayis, 2009; Kim and Evangelista, 2010; Sonmez et al., 2015; Yorulmaz, Tatar, Saltukoglu, Soylu, 2013; Yilmaz Karabulutlu and Karaman, 2015), loss of strength (Karadag et al., 2016; Kayis, 2009; Kim and Evangelista, 2010; Yorulmaz et al., 2013), dizziness (Karadag et al., 2016; Kim and Evangelista, 2010; Yilmaz Karabulutlu and Karaman, 2015) and sleep difficulties (Iscan Ayyildiz, 2016; Sonmez et al., 2015).

In this study, the total score of the Views about the Illness dimension was determined as 105.05 ± 17.17. In addition, in the same dimension, the highest scores were obtained from the Duration (Acute/Chronic) (17.42 ± 3.55), Personal Control (16.91 ± 4.50) and Emotional Representations (16.20 ± 5.78) sub-dimensions, whereas the lowest score from the Time (cyclical) (10.96 ± 3.66) sub-dimension. High scores from the Duration (Acute/Chronic), Personal Control and Emotional Representations may be attributed to patients' belief that their illness is long-term and that they have personal control over their illness as well as to the fact that as the duration of the illness increases, they associate their illness with negative feelings such as worry, sadness and anger.

Consistent with the findings of the present study, some studies on the illness perception reported high mean scores for the Duration (Acute/Chronic), Personal Control and Emotional Representation (Chen, Tsai, Lee, 2009; Giannousi, Manaras, Georgoulias, Samonis, 2010; Iscan Ayyildiz, 2016; Kayacan, 2012; Kayis, 2009; Kim and Evangelista, 2010). On the other hand, inconsistent with the findings of the present study, Yilmaz Karabulutlu and Karaman (2015) and Karadag et al. (2016) reported higher scores for the Consequences sub-dimension, which may be caused by the negative effects of the illness on the physical, social and psychological functions of the patients (Armay et al., 2007; Yorulmaz et al., 2013). This difference between the results of the study may be due to the socio-demographic and clinical characteristics of the patients and the extent to which the illness affects the patients' activities of daily living.

In addition, in the present study, the patients obtained the lowest score from the Duration (Cyclical) sub-dimension. The low mean score from the Duration (Cyclical) sub-dimension indicates that the symptoms of the illness do not change, that they are not getting any better or worse and they are always following the same cyclical process (Armay et al., 2007; Iscan Ayyildiz, 2016; Yorulmaz et al., 2013). Consistent with the findings of the present study, some of the previous studies also reported the lowest scores for the duration (Cyclical) sub-dimension (Chen et al., 2009; Iscan Ayyildiz, 2016; Kim and Evangelista, 2010; Kayacan, 2012; Yilmaz Karabulutlu and Karaman, 2015).

If we examine the mean scores of the items of Possible Causes of the Illness, we can see that the most frequently stated causes are risk factors (14.27 ± 5.01)and psychological references (13.17 ± 5.18), whereas the least frequently stated ones are accident/bad luck (3.94 ± 1.96). Also, the patients listed stress or worry (2.61 ± 1.47), altered immunity (2.46 ± 1.41) and ageing (2.40 ± 1.46) as the possible causes of their illness. Consistent with the findings of the present study, previous studies on this subject reported that individuals listed stress, negative thoughts about their lives, problems in the family, overwork, loneliness or nervousness, heredity, dietary habits, ageing, risk factors such as alcohol and smoking and psychological problems as the possible causes of their illnesses (Altiok, 2014; Chen et al., 2009; Iscan et al., 2016; Karadag et al., 2016; Yilmaz Karabulutlu and Karaman, 2015).

In this study, the male patients, those who perceived their health status as good and those who did not have a chronic illness obtained higher scores from the Treatment Control sub-dimension of the Views about the Illness dimension. Consistent with the findings of the present study, Kayacan (2012) found that the patients who did not have a chronic illness had more positive perceptions about the effectiveness of the treatment. However, some other studies on this subject reported that the median score of the Treatment Control sub-dimension did not differ according to sex (Iscan Ayyildiz, 2016; Kayacan, 2012; Kayir, 2014; Karadag et al., 2016; Oksuz, 2018). In addition, in a study by Kucukbakar (2011) conducted with the patients who were diagnosed with cancer recently and those with cancer recurrence to determine their illness perceptions, it was found that the median score of the Treatment Control sub-dimension did not differ according to sex among the patients who were diagnosed with cancer recently, and that the female patients with a more frequent cancer recurrence

had more positive perceptions about the effectiveness of the treatment. This difference between the studies may be attributed to the differences in socio-demographic characteristics, clinical status, the degree of symptoms and cultural characteristics of individuals.

In this study, it was determined that the median score from the Emotional Representations sub-dimension of the Views about the Illness dimension did not differ according to age, sex, educational level, socioeconomic status, the presence of a chronic illness other than present illness and whether the patient had previously been hospitalised. This suggests that feelings such as anger, sadness and worry that one feels when one thinks of his/her illness do not vary according to the socio-demographic characteristics and some clinical features. Consistent with the findings of the present study, some studies on this subject reported that these feelings do not vary according to age (Yorulmaz et al., 2013), sex (Kayacan, 2012), educational level (Karadag et al., 2016; Kayacan, 2012; Kayis, 2009; Kucukbakar, 2011), socioeconomic status (Kayacan, 2012; Kucukbakar, 2011); Iscan Ayyildiz, 2016) and the presence of a chronic illness (Kayacan, 2012). However, inconsistent with the findings of the present study, some other studies reported that the median score of the Emotional Representations sub-dimension differed according to age (Iscan Ayyildiz, 2016; Karadag et al., 2016; Kucukbakar, 2011; Yilmaz Karabulutlu and Karaman, 2015; Yorulmaz et al., 2013), sex (Karadağ et al., 2016; Kucukbakar, 2011; Yilmaz Karabulutlu and Karaman, 2015; Yorulmaz et al., 2013) and socioeconomic status (Karadag et al., 2016; Yorulmaz et al., 2013). This difference between the studies may be attributed to the socio-demographic characteristics of participants, the stage of their illnesses, the degree of symptoms, the level of knowledge about the illness and the meanings attributed to the illness.

In addition, a weak, positive and significant relationship was found between the Consequences sub-dimension and the Duration (acute/chronic) ($r = 0.208$, $p < 0.05$), Personal Control ($r = 0.253$, $p < 0.01$), Understanding the Illness ($r = 0.474$, $p < 0.01$), Duration (Cyclical) ($r = 0.308$, $p < 0.01$) and Emotional Representations ($r = 0.428$, $p < 0.01$) sub-dimensions of the Views about the Illness dimension. In this respect, it was observed that as the negative consequences of the illness increased, the patients developed a deeper understanding of their illnesses and their control over their illnesses increased, illnesses entered a cyclical process and the patients associated their illnesses with negative emotions more frequently. Consistent with the findings of the present study, the study by Kayis (2009) reported a positive relationship between the Emotional Representations and Duration (acute-chronic-cyclical) and Consequences sub-dimensions and stated that as the duration of the illness increased, their negative consequences increased and individuals associated their illnesses with negative emotions more frequently.

Consequently, illness perception is an individual's perception and identification of his/her illness. Psychopathology plays an important role in a patient's compliance with treatment. The experience of illnesses varies from person to person, and many factors affect this difference. Patients try to explain their illnesses through their experiences, knowledge, values, beliefs and needs, and different reactions can be seen in each patient (Armay et al., 2007; Kayis, 2009; Kucukbakar, 2011). Also, how a person perceives his/her illness and the symptoms caused by the illness affects his/her well-being (Yilmaz Karabulutlu and Karaman, 2015).

5. Conclusion

In this study, the findings obtained from the Type of the Illness dimension indicate that the patients experienced pain (72.3%), fatigue (55.4%) and loss of strength (56.2%) most frequently. The total score from the Views about the Illness dimension of the Illness Perception Questionnaire was found to be 105.05 ± 17.17 and the total scores from the Duration (Acute/Chronic), Consequences, Personal Control, Treatment Control, Understanding the Illness, Duration (Cyclical) and Emotional Representations sub-dimensions of the Views about the Illness dimension were found to be 17.42 ±

3.55, 15.40 ± 4.79, 16.91 ± 4.50, 15.61 ± 3.57, 12.51 ± 3.68, 10.96 ± 3.66 and 16.20 ± 5.78, respectively. It was found that the median score of the Consequences sub-dimension of the Views about the Illness dimension differed according to the presence of a chronic illness other than present illness (p = 0.011) and that the patients who had a chronic illness obtained higher scores from the Consequences sub-dimension.

Also, the median score of the Treatment Control sub-dimension of the Views about the Illness dimension differed according to sex, self-perceived health and the presence of a chronic illness other than present illness and the median score of the Emotional Representations sub-dimension of the Views about the Illness dimension differed according to self-perceived health. In addition, a weak, positive and significant relationship was found between the Consequences sub-dimension and the Duration (acute/chronic) (r = 0.208, p < 0.05), Personal Control (r = 0.253, p < 0.01), Understanding the Illness (r = 0.474, p < 0.01), Duration (Cyclical) (r = 0.308, p < 0.01) and Emotional Representations (r = 0.428, p < 0.01) sub-dimensions of the Views about the Illness dimension. In line with the findings of the present study, we can say that illness perception is an important factor affecting the treatment process, compliance with treatment and quality of life besides the diagnosis and symptoms. In this respect, it is vital that nurses determine the cognitive and emotional factors that affect patients' illness perception and plan and implement the nursing interventions in which the family is involved in accordance with the findings. Especially nurses among healthcare professionals can guide and give consultation to patients on how to cope with the problems associated with the illness.

6. Limitation of the research

The present study is the first to determine the factors affecting the illness perceptions of the inpatients in a public hospital in the central Black Sea region of Turkey, which constitutes the strength of the study. In the study, the data were collected through self-report questionnaires. The fact that the findings were not obtained from concurrent interviews with the patients and that the patients could not be observed for a long time for the factors affecting their illness perception is the limitation of the study. We recommend that subsequent studies utilise qualitative research methods when collecting data and conduct focus group interviews with patients.

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