

Needs of Patients with Schizophrenia and Their Predictors



Abdullah Burak UYGUR¹, Ayşen ESEN DANACI²

SUMMARY

Objective: The aim of this study was to explore the needs of patients with schizophrenia and to determine the sociodemographic and clinical variables associated with these needs.

Method: The study was carried out with 94 patients diagnosed with schizophrenia and their primary caregivers. The diagnoses were established based on DSM-IV-TR (American Psychiatric Association 1994) criteria. The patients' needs were evaluated with the Camberwell Assessment of Needs Scale (CAN), which reflects both the patient and the caregiver views on needs and problems. In addition, the Positive and Negative Syndrome Scale, Calgary Depression Scale for Schizophrenia, the Personal and Social Performance Scale, the Quality of Life Scale for Schizophrenia and the Perceived Family Burden Scale were used as data collection tools.

Results: 'Psychotic symptoms' stood out as the most prevalent need to be met. 'Money' and 'intimate relations' were determined as the needs that the patients suffered most from. Being female, being married, living with families, having high school or higher education were found less associated with the needs. The variables explained 45.1% of the variance in predicting needs and 23.4% in predicting unmet needs. The Calgary Depression Scale for Schizophrenia and Perceived Family Burden Scale were significant predictors for patients and the PANSS-Positive Symptoms Scale for caregivers.

Conclusion: Any treatment targeting solely the symptoms proves to be insufficient for patients with schizophrenia. Treatment planning should focus on the needs of patients and the needs identified by patients should be at the center of the treatment. A 'needs assessment' will make an important contribution not only to the planning of individual treatments but also to the planning of a community mental health services scheme and increasing its effectiveness.

Keywords: Schizophrenia, needs, needs assessment, community, mental health services

INTRODUCTION

Schizophrenia is a major mental health problem for our country as it is for the rest of the world. Adoption of the idea of treating patients outside institutions has increased the importance of evaluating the needs of patients with schizophrenia. While the need is still an ambiguous concept without a clear-cut definition, it has been described as 'The requirements of individuals to enable them to achieve and maintain an acceptable level of social independence and quality of life' (DHSS 1991). A more useful definition of need in relation to healthcare services would be 'Anything that benefits an individual in some way in the field of healthcare' (Stevens and Gabbay 1991). In psychiatry, the concept of need is necessary to provide proper service and to plan an individual care regimen (Slade et al. 1994).

Need is a dynamic and context-dependent concept (Netten and Beecham 1993, Slade et al. 1996, Andrew and Henderson 2000). Identifying the needs of individuals with mental disorders is certainly complicated and involves many variables. Our physiological needs that are essential for survival such as food, water and warmth constitute our basic needs. Love, success, social approval, and social position are the needs we come to know about later in our lives. The hierarchy of needs theory was developed by Abraham Maslow. This theory claims that a person's needs exist in a hierarchical sequence. There are five different levels of need in this hierarchical order; physiological needs, need for safety, need for love and belonging, need for esteem, and need for self-actualization (Maslow 2000).

Due to the chronic nature of the disease and the disability it causes, patients with schizophrenia are among the patient

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¹Fac. Mem., Alanya Alaaddin Keykubat University, Faculty of Medicine, Department of Psychiatry, Antalya, Turkey. ²Prof., Celal Bayar University, Faculty of Medicine, Department of Psychiatry, Manisa, Turkey.

e-mail: burak.uygur@alanya.edu.tr

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groups that need care most in social and economic terms. Patient needs show variances in both clinical and social areas, ranging across a broad spectrum of areas from physical and psychological health, safety, an intimate relationship, family support, education, and employment to accommodation (Arvidsson et al. 2003, Holloway et al. 1994, Joska and Flisher 2005, Van der Krieke et al. 2011, Wiersma et al. 2009).

Before acceptance of the understanding that patients, should be treated outside institutions, which can be taken as a reform in psychiatry, the needs of patients were being met by the institution in which they lived. With this process enabling them to join the society and return to social life, patients started to live with their families for the most part (Haro et al. 1998). The families and friends of patients and local administrations provide assistance to the care of patients and try to meet their needs. Information is required about what these needs are and what they relate to. For this reason, scales that help identify the needs have been developed.

The most widely used scale for this purpose is the Camberwell Assessment of Need (CAN). It evaluates the problems commonly seen in patients with a severe mental disease, particularly in those with schizophrenia, in a systematic way across a broad spectrum (Phelan et al. 1995, Slade et al. 1999a, Slade et al. 1999b, Slade et al. 1996). The CAN reflects the views of both the patient and the caregiver in relation to their needs (Haro et al. 1998). When trying to identify the needs to design appropriate treatment approaches for patients with schizophrenia, it is of great importance to consider also the patient's point of view. Satisfying the expressed demands of patients with schizophrenia enables achievement of better clinical outcomes, quality of life and functioning, resulting in a reduction in the burden of disease. Deciding on a treatment approach for each patient by individualizing their clinical and psychosocial problems and improving the harmony between the caregiver and the patient makes a significant contribution to the recovery of the patient (Bellack 2006, Jose et al. 2015, Jorquera et al. 2015).

Issues of 'Psychotic symptoms, house chores, daily activities/work and psychological problems' have drawn attention in studies as the most frequently determined items needing to be met (Wiersma et al. 1998, Hansson et al. 2001, McCrone et al. 2001, Ochoa et al. 2003, Rosales 1999, Hosakova and Hosak 2015, Ganesh and Gupta 2017, Grover et al. 2015). An 'unmet need' refers to unsuccessful or insufficient provision of mental health services and assistance in meeting that need. The need prevails despite such services and assistance. While 'relationships, psychological distress and money' appear to be the areas in which the fulfillment of needs is most unsatisfactory, 'accommodation, food-meals per day, psychotic symptoms and house work' are the areas where the needs are met relatively successfully (Ochoa et al. 2003, Middelboe et al. 2001).

When the relationship between sociodemographic variables and needs were evaluated, some studies did not determine any relationship between these variables (Bengtsson-tops and

Hansson 1999, Ruggeri et al. 2004). However, some other studies noted that needs were more in male patients (Ochoa et al. 2003, Ochoa et al. 2005, Nakanishi et al. 2007, Brewin et al. 1987, Usall et al. 2002), in unemployed patients (Grinshpoon and Ponizovsky 2008), and with advancing ages (Middelboe et al. 2001, Hansson et al. 1995). Inpatients were also found to have more needs compared to patients living in the community (Nakanishi et al. 2007). When the relationship between needs and clinical variables were reviewed, the severity of psychopathology (Bengtsson-tops and Hansson 1999, Grinshpoon and Ponizovsky 2008, Ochoa et al. 2003, Ochoa et al. 2005), negative symptoms (Grinshpoon and Ponizovsky 2008, Ruggeri et al. 2004), and mood symptoms (Grinshpoon and Ponizovsky 2008) were found significantly correlated with needs.

All these studies point out that the needs of patients with schizophrenia differ greatly depending on the cultural and geographical environment. The aim of this study was to determine the needs of schizophrenia patients and to predict these by establishing links between the observed needs and sociodemographic and clinical variables. The present study intends to make a contribution to the planning of mental health services and the regulation of the rehabilitation processes of the patients.

METHODS

With the participation of Celal Bayar University (CBU) Department of Psychiatry, Manisa Mental Health and Diseases Hospital (MMHDH) and Manisa Community Mental Health Center (MCMHC), the study was designed as a cross-sectional multicentred study involving patients with schizophrenia and their primary caregivers.

The study enrolled patients between 18 and 65 years of age, who were diagnosed with schizophrenia minimally one year previously, according to the DSM-4-TR criteria (American Psychiatric Association 2000), not hospitalized for psychotic flare ups in the past 6 months, and not having any comorbid neurological or mental disease, and their primary care givers above the age of 18 years, and not diagnosed with any neurological disease or mental retardation.

Approval for the study was obtained from the Local Ethics Committee of Celal Bayar University Medical School (CBUMS). The patients and their caregivers were informed about the study and their written informed consents were obtained. The scales were administered to the patients and caregivers who met the inclusion criteria. The study sample consisted of patients and caregivers who presented to the psychiatry-psychosis outpatient clinic of CBUMS and to the outpatient clinic of MMHDH on the 3rd, 13th and 23rd days of every month and who received assistance from MCMHC in a period of 4 months and who met the inclusion criteria. The study sample included a total of 94 patients and caregivers, 35 from the psychiatry outpatient clinic of CBUMS, 39 from the psychiatry outpatient clinic of MMHDH and 20 from MCMHC.

Data Collection Instruments

1. Questionnaire for Sociodemographic Data: This is a questionnaire prepared to collect the sociodemographic and disease-related data of the patients. It provides information on age, gender, marital status, level of education, accommodation, age at the onset of the disease, duration of the disease, number of hospitalizations, number of children, current employment status, family type, the type of relationship between the caregiver and the patient and the caregiver's education level.
2. The Camberwell Assessment of Need (CAN): The CAN is a semi-structured scale consisting of 22 domains (Slade et al. 1995). There are other versions of it with 20 or 21 domains. The CAN evaluates the presence of needs in 22 areas including: accommodation, daytime activities, work, specific psychotic symptoms, psychological distress, patients' level of knowledge on their general conditions and treatments, medications, food-meals/day, skills of house work, self-care and appearance, risk to self, risk to others, money, child care, physical health, alcohol, drugs, basic education, relationships, telephone, transport, benefits and sexual expression. The CAN is composed of 4 sections:

Section 1 assesses whether the need is present or not (0 = no problem and 1 = there is a problem). According to the assessment procedure "0" indicates that there is no need and "1" that there is a need. The response "9" (not known) is considered as there is no need in the data analysis.

Section 2 assesses the level of help received from friends and relatives in the indicated area of need (0 = no help, 1 = low level of help, 2 = moderate level of help and 3 = high level of help).

Section 3 assesses whether or not any help is received from local services (public enterprises) (0 = I receive no help and 1 = I receive help) and how much help is needed from the local services (0 = no need, 1 = low level of help, 2 = moderate level of help and 3 = high level of help).

Section 4 assesses whether or not the help received is of the right and appropriate type (0 = no and 1 = yes) and whether or not the patient is satisfied with the help given (0 = no and 1 = yes).

The CAN is the most commonly used assessment scale in psychiatric studies in the eastern and western countries for the analysis of needs. Since the scale has many examples worldwide, it enables comparison of data with other countries. The version consisting of 20 domains was used in our study. The need areas of 'daytime activities and work' were evaluated together and 'sexual expression' was not included. The scale was adapted to the Turkish language by Sungur et al. (2011).

3. The Positive and Negative Syndrome Scale (PANSS): The PANSS is used to assess positive and negative symptoms in schizophrenia and the general psychopathology, and to measure the severity of such symptoms (Kay et al. 1987). It is mainly administered to patients with schizophrenia or

other psychotic disorders. It consists of 30 items in total and rates severity on a 7-point scale. From these items, 7 relate to positive symptoms, another 7 to negative symptoms and 16 to general psychopathological symptoms. The scale was translated into the Turkish language and its validity and reliability study was conducted by Kostakoğlu et al. (1999).

4. The Calgary Depression Rating Scale for Schizophrenia (CDSS): This is a semi-structured scale developed specifically for schizophrenia to measure and differentiate the presence and severity of depression independently of the extrapyramidal or psychotic symptoms (Addington et al. 1990). The scale is composed of 9 items assessing depressive mood, hopelessness, self-depreciation, guilty ideas of reference, pathological guilt, morning depression, early awakening, suicide and observed depression. Each item is scored from 0 to 3 (0=absent, 1=mild, 2=moderate, 3=severe) and they are summed up to obtain a total score. It is used to assess depression in patients with schizophrenia and to measure the level and variances of depressive symptom severity. The scale was translated to the Turkish language and its validity and reliability study was conducted by Aydemir et al. (2000).
5. The Personal and Social Performance Scale (PSP): It provides a practical measurement of social functioning in patients with severe mental disorders (Morosini et al. 2000). It is administered to patients with severe mental disorders, particularly those with schizophrenia, bipolar disorder and obsessive-compulsive disorder. The PSP gives a personal and social functioning score between 1 and 100, higher scores indicating better functioning. The functioning level is determined in 4 domains on a 6-point scale (between absent and very severe). These 4 domains are socially beneficial activities, personal and social relationships, self-care and disturbing and aggressive behavior. After each domain is rated, evaluations are made between 0 and 10 points depending on the combination of the distortion and degree of these domains. There is a detailed instruction for these assessments. Based on these, a functioning score is given by taking into account the general judgment of the clinician. The scale was translated to the Turkish language and its validity and reliability study was conducted by Aydemir et al. (2009).
6. The Quality of Life Scale for Patients with Schizophrenia (QLS): The QLS assesses the richness of personal experiences, the nature of interpersonal relationships, the productivity in occupational roles and daily activities in patients with schizophrenia (Heinrich et al. 1984). The 'lost' syndrome in schizophrenia constitutes the institutional basis of the scale. The 21 items in the scale are based on the 'lost' syndrome of schizophrenia and are covered conceptually by one of the four domains. These domains are interpersonal relationships (1-8), occupational role (9-12), psychological findings (13-17, 20, 21) and daily object use / activities (18-19). Determining the degree of quality of life enables assessment of the outcomes of the services and treatment

provided. Higher scores obtained from the scale indicate higher quality of life and good or unimpaired adaptation, whereas lower scores indicate poorer quality of life and poor or impaired adaptation. The scale was translated to the Turkish language and its validity and reliability study was conducted by Soygür et al. (2000).

7. The Perceived Family Burden Scale (PFBS): This scale was developed to assess family burden in families having a member diagnosed with schizophrenia (Levene et al. 1996). Consisting of 24 items, the scale is completed by relatives of the patient. It has 3 sub-scores, which are subjective, objective and total scores. The objective score is calculated on the amount of disease-related behaviors (e.g. refusal to eat, refusal to take drugs and meaningless speech) during the past month and the subjective score is based on the extent to which such behaviors disturbed the patient's relatives. The scale was translated to the Turkish language and its validity and reliability study was conducted by Arslantaş et al. (2011).

Statistical Analysis

The t-test was used to compare the descriptive variables forming two independent groups in terms of total number of needs and number of unmet needs, if the distributions and variances of the groups satisfied the appropriate conditions; if not, the Mann Whitney U test, the non-parametric counterpart of t-test, was used. To compare descriptive or ordinal variables that may form more than two independent groups in terms of total number of needs and number of unmet needs, one-way ANOVA (variance analysis) was used if the distributions and variances of the groups satisfied the appropriate conditions; if not, Kruskal-Wallis test, the non-parametric counterpart of ANOVA, was used. To compare the means of two dependent groups (to compare the observations of patients and caregivers in terms of total number of needs and number of unmet needs) the t test was used if the distributions of the groups satisfied the appropriate conditions; if not, Wilcoxon test, the non-parametric counterpart of t-test, was used. The Multiple Linear Regression Analysis was used to determine how the sociodemographic and clinical variables were associated with the needs and unmet needs and to identify the predictive variables of the needs and unmet needs. Statistical analyses of the data was carried out using the SPSS 15.0 software (IBM Corp. Armonk, NY). Statistical significance was set at $p < 0.05$.

RESULTS

The sociodemographic and clinical characteristics of the patients are shown in Tables 1 and 2. Approximately two-thirds of the patients were male (69.1%) and the mean age of the patients was 42.36 ± 12.02 years. The majority of the patients were single (61.7%), with only one-fifth being married (20.2%) and one-fourth had children (25.5%). Most of the patients (62.8%) lived in a community and the rest (37.2%) lived in nursing homes. The mean length of education was

Table 1. The Sociodemographic Characteristics of The Patients (N=94)

	N	%
Gender		
Female	29	30.9
Male	65	69.1
Educational status		
Literate	5	5.3
Primary school graduate	30	31.9
Secondary school graduate	19	20.2
Lyceé graduate	26	27.7
University graduate	14	14.9
Marital status		
Married	19	20.2
Single	58	61.7
Divorced/widowed	17	18.1
Accommodation		
Living with parents	37	39.4
Living with spouse, children, siblings	19	20.2
Living in a nursing home	35	37.2
Living alone	3	3.2
Having children	24	25.5
Employed	16	17
Family type	81	86.2
Educational status of caregivers		
Illiterate	5	5.3
Literate	4	4.3
Primary school graduate	26	27.7
Secondary school graduate	13	13.8
Lyceé graduate	39	41.5
University graduate	7	7.4

The sample size, N = 94.

In the percentage calculations, the sample size, 94 was accepted as a denominator

Table 2. The Clinical Characteristics of The Patients (N=94).

	Mean	Standard Deviation (SD)
Age	42.36	12.02
Age at onset of disease	24.73	8.67
Duration of disease in years	17	10.82
Number of hospitalizations	4.62	3.95
Length of education in years	8.71	3.69
PSP-total score	58.08	18.33
CDSS-total score	1.90	3.02
PANSS-positive symptoms score	11.75	4.66
PANSS-negative symptoms score	13.06	5.59
PANSS-general psychopathology score	22.60	6.50
PANSS-total score	47.42	13.96
PFBS-subjective score	11.87	11.01
PFBS-objective score	5.15	4.03
PFBS-total score	17.03	14.93
QLS-interpersonal relations score	23.75	7.67
QLS-occupational role score	13.11	5.17
QLS-personal object use/activity score	6.87	2.17
QLS-psychological symptoms score	25.64	6.47
QLS-total score	69.39	19.65

The sample size, N = 94. Values are presented with mean $\pm$ standard deviation (SD) values. PANSS: Positive and Negative Syndrome Scale, PSP: Personal and Social Performance Scale, CDSS: Calgary Depression Rating Scale for Schizophrenia, PFBS: Perceived Family Burden Scale, QLS: Quality of Life Scale for Patients with Schizophrenia.

Table 3. Number and Percentage of Patients With Total Needs, Met Needs and Unmet Needs as Rated by Patients (CAN section 1, N=94)

Need Areas Patient view	Total Needs		Met Needs		Ratio of Met/ Total Needs	Unmet Needs		Ratio of Unmet/ Total Needs
	N	%	N	%	%	N	%	%
Psychotic symptoms	84	89.4	72	76.6	85.7	12	12.8	14.3
House work	64	68.1	58	61.7	92.1	6	6.4	7.9
Intimate relationships	59	62.8	35	37.2	59.3	24	25.5	40.7
Daily activity/work	54	57.4	41	43.6	75.9	13	13.8	24.1
Psychological distress	54	57.4	39	41.5	72.2	15	16	27.8
Money	40	42.6	4	4.3	10	36	38.3	90
Risk to self	39	41.5	24	25.5	61.5	15	16	38.5
Food-meals	36	38.3	31	33	86.1	5	5.3	13.9
Accommodation	36	38.3	19	20.2	52.8	17	18.1	47.2
Physical health	22	23.4	17	18.1	77.3	5	5.3	22.7
Benefits	17	18.1	4	4.3	23.5	13	13.8	76.5
Risk to others	16	17	12	12.8	75	4	4.3	25
Telephone	15	16	8	8.5	53.3	7	7.4	46.7
Education	10	10.6	7	7.4	70	3	3.2	30
Information	7	7.4	5	5.3	71.4	2	2.1	28.6
Transport	5	5.3	4	4.3	80	1	1.1	20
Drugs	4	4.3	2	2.1	50	2	2.1	50
Alcohol	2	2.1	1	1.1	50	1	1.1	50
Child care	2	2.1	0	0	0	2	2.1	100
Self care	1	1.1	1	1.1	100	0	0	0

The Camberwell Assessment of Needs Scale (CAN), Section 1.
The sample size, N = 94.

Table 4. Number and Percentage of Patients With Total Needs, Met Needs and Unmet Needs as Rated by Caregivers (CAN section 1, N=94)

Need Areas Caregiver view	Total Needs		Met Needs		Ratio of Met/ Total Needs	Unmet Needs		Ratio of Unmet/ Total Needs
	N	%	N	%	%	N	%	%
Psychotic symptoms	85	90.4	78	83	85.7	7	7.4	8.2
Intimate relationships	70	74.5	49	52.1	92.1	21	22.3	30
House work	63	67	56	59.6	59.3	7	7.4	9.7
Daily activities/work	58	61.7	45	47.9	75.9	13	13.8	22.4
Psychological distress	58	61.7	44	46.8	72.2	14	14.9	24.1
Money	41	43.6	6	6.4	10	35	37.2	85.4
Risk to self	39	41.5	25	26.6	61.5	14	14.9	35.9
Food-meals	37	39.4	36	38.3	86.1	1	1.1	2.7
Accommodation	36	38.3	35	37.2	52.8	1	1.1	2.8
Physical health	22	23.4	17	18.1	77.3	5	5.3	22.7
Risk to others	19	20.2	12	12.8	23.5	7	7.4	36.8
Benefits	17	18.1	2	2.1	75	15	16	88.2
Information	10	10.6	9	9.6	53.3	1	1.1	10
Telephone	10	10.6	8	8.5	70	2	2.1	20
Education	9	9.6	7	7.4	71.4	2	2.1	22.2
Drugs	6	6.4	3	3.2	80	3	3.2	50
Transport	5	5.3	2	2.1	50	3	3.2	60
Self care	4	4.3	2	2.1	50	2	2.1	50
Alcohol	2	2.1	1	1.1	0	1	1.1	50
Child care	1	1.1	1	1.1	100	0	0	0

The Camberwell Assessment of Needs Scale (CAN), Section 1.
The sample size, N = 94.

8.71±3.69 years. Only 17% of the patients were employed. The mean age at onset of disease was 24.73±8.67 years and the mean duration of disease was 17±10.82 years.

In the sample of 94 patients diagnosed with schizophrenia, subjective needs and perceived help were measured using the Camberwell Assessment of Need (CAN). The total needs and unmet needs were reported by the patients as 6.22±2.38 and 2.04±1.86, respectively, and by the caregivers as 6.29±2.12 and 1.63±1.89, respectively. 'Psychotic symptoms, house work, relationships, daytime activities/work and psychological distress' were found to be the most common areas of need. The needs reported by both the patients and caregivers were similar. The needs, met needs and unmet needs identified by the patients and caregivers are shown in Tables 3 and 4.

Needs Expressed by Caregivers Compared With respect to Sociodemographic Data

Results, based on analyses using the One-way ANOVA, post hoc tukey and tukeyb tests, showed that: The needs of married patients were less by an average of -1.70 ($p=0.006$) as compared to single patients and was less by an average of -1.92 ($p=0.015$) as compared to patients separated from their spouses. The needs of patients with education at lycée level or above were less by an average of -1.26 ($p=0.022$) than those with primary school education, and were less by an average of -1.73 ($p=0.008$) than those with secondary school education. The patients living in nursing homes had an average of 1.62 ($p=0.001$) more needs than the patients living with their parents and an average of 2.27 ($p=0.0001$) more needs than the patients living with their first degree relatives other than their parents.

The patients living in nursing homes had an average of -2.14 ($p=0.0001$) less unmet needs than the patients living with their parents and an average of -1.86 ($p=0.0001$) less unmet needs than the patients living with their first degree relatives

other than their parents, as determined by comparison analyses of the Kruskal Wallis and Mann-Whitney U tests.

Female patients had an average of -1.62 ($p=0.0001$) less needs than male patients as determined by comparisons were made on the t test for independent groups.

Needs Expressed by Patients Compared With Respect to Sociodemographic Data

Female patients were found to have an average of -1.81 ($p=0.0001$) less needs than male patients as determined by comparisons were made on the t test for independent groups. The other comparisons did not yield statistically significant inter group differences.

Regression Analyses for Prediction of Needs

Four different models were formed, two for the needs identified by the patients and their caregivers (Table 5) and two for the unmet needs identified by the patients and their caregivers (Table 6).

The first regression analysis was made by taking the needs identified by the patients as the dependent variable. The regression model explained 45.1% of the variance (Table 5), where 6.3% was by accommodation ($p=0.020$), 11% ($p=0.001$) by gender, 16.5% ($p=0.0001$) by the score on Calgary Depression Rating Scale for Schizophrenia, 8.4% ($p=0.001$) by the score on the Perceived Family Burden Scale, and 3% ($p=0.04$) by the score on the PANSS-Positive Symptoms Scale. When the β correlation coefficients of the variables were evaluated, the needs identified by the patients were found to be positively correlated with living in a nursing home (25%, $p=0.001$), being a male patient (29%, $p=0.001$), the score on the Calgary Depression Rating Scale for Schizophrenia (30.7%, $p=0.001$), the score on the Perceived Family Burden

Table 5. Regression Model for the Number of Total Needs Reported by Patients and Caregivers and Standardized β Coefficients of the Predictors

Predictors - Patient view	R	R square	Corrected R square	R Square Change	F Change	p	β coefficient
Accommodation	.251	.063	.052	.063	5.650	.020	.250**
Gender	.416	.173	.153	.110	11.021	.001	.290***
CDSS total score	.581	.338	.313	.165	20.384	.0001	.307***
PFBS total score	.649	.421	.393	.084	11.733	.001	.217*
PANSS-positive symptoms score	.672	.451	.417	.030	4.359	.040	.207*
Predictors - Caregiver view	R	R square	Corrected R square	R Square Change	F Change	p	β coefficient
Accommodation	.426	.182	.172	.182	18.635	.0001	.201*
Gender	.530	.281	.263	.099	11.428	.001	.220**
PANSS-positive symptoms score	.705	.496	.478	.215	35.134	.0001	.190*
PSP total score	.758	.574	.553	.078	14.774	.0001	-.537***
PANSS-negative symptoms score	.782	.611	.587	.037	7.593	.007	-.344***
CDSS total score	.804	.646	.619	.035	7.858	.006	.210**
PFBS total score	.821	.673	.644	.027	6.454	.013	.206*

The sample size, N=94, r: Pearson correlation coefficient, p: statistical significance $p<0.05$. Regression Model - patient view, R=0.672, R square=0.451, F=13.157, $p=0.0001$, ANOVA. Regression Model - caregiver view, R=0.821, R square=0.673, F=22.957, $p=0.0001$, ANOVA. Statistical significance for standardized β coefficients: $p<0.05^*$, $p<0.01^{**}$, $p<0.001^{***}$ PANSS: Positive and Negative Syndrome Scale, PSP: Personal and Social Performance Scale, CDSS: Calgary Depression Rating Scale for Schizophrenia, PFBS: Perceived Family Burden Scale.

Table 6. Regression Model for the Number of Unmet Needs Reported by Patients and Caregivers and Standardized β Coefficients of the Predictors

Predictors - Patient view	R	R square	Corrected R square	R Square Change	F Change	p	β coefficient
PFBS total score	.439	.193	.183	.193	20.099	.0001	.340**
PANSS-general psychopathology score	.484	.234	.216	.041	4.448	.038	.226*
Predictors - Caregiver view	R	R square	Corrected R square	R Square Change	F Change	p	β coefficient
Accommodation	.562	.316	.308	.316	38.819	.0001	-.647***
Gender	.592	.350	.334	.034	4.344	.040	.150*
PANSS-positive symptoms score	.725	.526	.509	.176	30.419	.0001	.302***
PFBS total score	.767	.588	.567	.062	12.146	.001	.282***

The sample size, N=94, r: Pearson correlation coefficient, p: statistical significance $p < 0.05$. Regression Model - patient view, R=0.484, R square=0.234, F=12.686, $p = 0.0001$, ANOVA. Regression Model - caregiver view, R=0.767, R square=0.588, F=28.872, $p = 0.0001$, ANOVA. Statistical significance for standardized β coefficients: $p < 0.05^*$, $p < 0.01^{**}$, $p < 0.001^{***}$ PANSS: Positive and Negative Syndrome Scale, PFBS: Perceived Family Burden Scale.

Scale (21.7%, $p = 0.024$), and the PANSS-Positive Symptoms Scale (20.7%, $p = 0.040$).

The second regression model was made by using the needs identified by the caregivers as the dependent variable. The regression model explained 67.3% of the variance (Table 5), with the contributions of 18.2% ($p = 0.0001$) by accommodation, 9.9% ($p = 0.001$) by gender, 21.6% ($p = 0.0001$) by the scores on the PANSS-Positive Symptoms Scale, 7.8% ($p = 0.0001$) on the Personal and Social Performance Scale, 3.7% ($p = 0.007$) on the PANSS-Negative Symptoms Scale, 3.5% ($p = 0.006$) on the Calgary Depression Rating Scale for Schizophrenia, and 2.7% ($p = 0.013$) on the Perceived Family Burden Scale. When the β correlation coefficients of the variables were evaluated, the needs identified by the caregivers were found to be positively correlated with living in a nursing home (20.1%, $p = 0.021$), being a male patient (22%, $p = 0.002$), the scores on the Perceived Family Burden Scale (21.7%, $p = 0.024$), on the PANSS-Positive Symptoms Scale (19%, $p = 0.021$), on the Calgary Depression Scale for Schizophrenia (21%, $p = 0.005$), on the Perceived Family Burden Scale (20.6%, $p = 0.013$); and negatively correlated with the scores on the Personal and Social Performance Scale (53.7%, $p = 0.0001$) and the PANSS-Negative Symptoms Scale (34.4%, $p = 0.001$).

In the third regression model, the regression analysis was made using the unmet needs identified by the patients as the dependent variable. The regression model explained 23.4% of the variance (Table 6), with contributions of 19.3% ($p = 0.0001$) and 4.1% ($p = 0.038$), respectively, by the scores on the Perceived Family Burden Scale and the PANSS-General Psychopathology Scale. When the β correlation coefficients of the variables were evaluated, the unmet needs identified by the patients were found to be positively correlated with the Perceived Family Burden Scale (34%, $p = 0.002$) and the PANSS-General Psychopathology Scale (22.6%, $p = 0.038$).

In the fourth regression model, the regression analysis was made using the unmet needs identified by the caregivers as the dependent variable. The regression model explained 58.8% of the variance (Table 6), with contributions of 30.8% ($p = 0.0001$) by accommodation, 3.4% ($p = 0.04$) by gender, 17.6% ($p = 0.0001$) by the scores on PANSS-Positive Symptoms Scale and 6.2% ($p = 0.001$) by the Perceived Family

Burden Scale. When the β correlation coefficients of the variables were evaluated, the unmet needs identified by the caregivers were found to be positively correlated with being a male patient (15%, $p = 0.043$), the scores on the PANSS-Positive Symptoms Scale (30.2%, $p = 0.0001$) and on the Perceived Family Burden Scale (28.2%, $p = 0.001$); and negatively correlated with living in a nursing home (64.7%, $p = 0.0001$).

DISCUSSION

In our study, the mean number of the needs of patients with schizophrenia was found to be around 6. One third of these needs were unmet according to the patients and one fourth of them were unmet according to the caregivers. The need areas identified by the patients and caregivers were similar. 'Psychotic symptoms' stands out as the most common need to be remedied; the other common needs being 'house work, relationships, daytime activities/work and psychological distress' (Table 3 and 4). These results are consistent with those of many studies exploring the needs of patients with schizophrenia (Wiersma et al. 1998, Hansson et al. 2001, McCrone et al. 2001, Ochao et al. 2003, Rosales 1999, Hosakova and Hosak 2015, Ganesh and Gupta 2017, Grover et al. 2015). Other common needs were reported to be physical health (Wiersma et al. 1998, Hansson et al. 2001), information on patient's general condition and treatment (Wiersma et al. 1998, Hansson et al. 2001) and food-meals/day (Ochao et al. 2003). In our study, 'money, risk to self, accommodation and food-meals' were also identified as the common need areas (Tables 3 and 4).

'Met need's can be seen as an indicator of the success of the health system. The concept of 'met need' is understood as the fulfillment of a patient's need through the help or service they receive from their families, friends or the healthcare system. In this study, the areas where needs were met at the highest rate according to the patients were 'psychotic symptoms, house work, daytime activities/work and psychological distress'. According to caregivers, 'accommodation and food-meals' should also be added to these needs (Tables 3 and 4). These results are also compatible with the results of previous studies (Mideelboe et al. 2001, McCrone et al. 2001, Ochao et al.

2003, Grover et al. 2015, Hosakova and Hosak 2015, Ganesh and Gupta 2017).

According to our patients, 'money and relationships' were the needs they suffered most from. More than one fifth of the patients reported unmet needs in these two areas. The caregivers had the same opinion with the patients in this matter. The other noteworthy unmet need areas were 'accommodation, risk to self, psychological distress and benefits' (Tables 3 and 4). Similar results have been obtained in previous studies (Middelboe et al. 2001, Ochoa et al. 2003, Grover et al. 2015, Ganesh and Gupta 2017).

The aim of our study was to predict the needs and unmet needs by establishing links between the needs we identified and the sociodemographic and clinical variables. Need is a subjective concept (DHSS 1993). From a social point of view, need is not a concept about which only one viewpoint is correct (Slade 1994). Patients and caregivers are the two basic components in these evaluations. A complete consistency did not exist between patients and caregivers in previous studies. When identifying needs and particularly unmet needs, disagreements can often be observed between patients and caregivers (Slade et al. 1998, Middelboe et al. 1998, Hansson et al. 2001, Ochoa et al. 2003, Ochoa et al. 2005). The views of patients and caregivers may differ due to cultural, social or educational differences (Slade et al. 1998). Considering that there can not be a completely objective need assessment, the most appropriate approach to the needs of patients would be the assessments made by considering both the patient and caregiver perspectives and comparing the differences between them. For this reason, separate prediction models were formed for the patients and caregivers in our study.

It was found that 45% of the needs and 23% of the unmet needs from the patients' point of view could be predicted, which were found to be 67% and 58%, respectively, on the caregivers' point of view (Tables 5 and 6). In similar studies, only 11% to 30% of the variance were possible to predict. Although the scales assessing psychopathology, functioning and quality of life in our study were also used in the studies conducted by Ochoa et al. (2003) and Middelboe et al. (2003), the scales assessing mood and family burden were included only in our study. Inclusion of more variables that may affect needs in our study appears to have enabled us to explain a larger portion of the variance.

In our study, female gender, being married, living in a community and having a high school or higher education level were found associated with less need. These findings are in line with those of many studies made on needs in schizophrenia (Ochoa et al. 2003, Ochoa et al. 2005, Nakanishi et al. 2007, Brewin et al. 1987, Usall et al. 2002, Wiersma et al. 1998, Wiersma et al. 2006, Ruggeri et al. 2004, Ernest et al. 2012).

It has been often stressed in the literature that patients living in protected homes and nursing homes have more needs and unmet needs (Slade et al. 1998, Hansson et al. 2001, Nakanishi et al. 2007). More needs were identified also in our study

among the patients living in nursing homes compared to those living in a community ($p=0.0001$). However, the finding that these patients living in nursing homes had less unmet needs than patients living in a community ($p=0.0001$) seems to be inconsistent with other studies. One explanation for this could be that the first-degree relatives with much stronger emotional ties with the patient over estimate the patient's position in the relevant area of need despite its actually being met. Another explanation would be that the nursing home employees in our country consider the patient's needs as having been met although not having fully met them. Significant contributions can be made to the treatment and rehabilitation processes of patients through a short and effective training to be provided by mental health professionals so that caregivers from families and nursing staff can correctly identify the unmet needs of patients and assist them in these respects.

Depressive symptoms that are difficult to distinguish in schizophrenia because of the nature of the disease can sometimes be highly associated with the needs of patients. The Calgary Depression Rating Scale for Schizophrenia was the most predictive variable explaining 16.5% of the variance in the needs identified by the patients ($p=0.0001$). Similar results were found in the study conducted by Grinshpoon and Ponizovsky (2008). It seems that patient needs can be reduced if physicians recognize depressive symptoms and treat them correctly and appropriately. The PANSS-Positive Symptoms Scale was the most predictive variable explaining 21.5% of the variance in the needs and 17.6% of the variance in the unmet needs identified by the caregivers ($p=0.0001$). These results are also consistent with those of many previous studies (Bengtsson et al. 1999, Grinshpoon and Ponizovsky 2008, Ochoa et al. 2003, Middelboe et al. 2001, Ruggeri et al. 2004, Nakanishi et al. 2007). The clinical symptoms of the disease seem to be of greater importance to caregivers than to patients.

The most unsuccessful model for prediction was based on the unmet needs identified by the patients. Only 23.4% of the variance could be explained (Table 6). The Perceived Family Burden Scale, which explained 19.3% of the variance, was the most predictive variable in this area ($p=0.0001$). As the burden of caregivers increased, the needs also increased. Similar results were found in the studies conducted by Ernest et al. (2012) and Kulhara et al. (2010) in India. Compared to the western societies, the families of patients with schizophrenia play a very important role in patient care in the eastern societies, including our country. Psychosocial approaches to the caregivers of patients with schizophrenia have been shown in studies to be useful especially in improving social functioning, family relationships and quality of life (Doğan et al. 2002). This shows how valuable and effective the efforts to reduce family burden is in schizophrenia. The community mental health services should certainly include a subtitle for the families and provide them with more effective services.

Only the employees of healthcare institutions were included in other studies as caregivers instead of the families. Our study included patients living both in nursing homes and in a community; and both healthcare staff and families as caregivers.

It was made possible in this way to compare different patient and caregiver groups with respect to needs and unmet needs. The findings of the present study have implications for both planning treatment and psychosocial rehabilitation of patients with schizophrenia. Treatments targeting only the symptoms remain inadequate for patients with schizophrenia. A treatment should be planned focusing on the needs of the patient, putting the needs identified by the patient at the center of the treatment. Identification of needs and unmet needs will provide significant contributions to the planning of treatment and at the same time to the planning of mental health services and increasing the effectiveness of such services.

In this cross-sectional study, the associations between the results and the variables were examined. Inferences of causality will be possible only through follow-up studies of the same patient group. In order to determine the sample correctly in our study, patients were included not only from our own university hospital but also from other institutions (MMHDH and MCMHC) that provide mental health services in Manisa. The aim was to enroll at least 30 patients from each institution, but only 20 patients could be enrolled at Manisa Community Mental Health Center as being the only eligible patients diagnosed with schizophrenia. Out of the 39 patients included in the study from the outpatient clinic of Manisa Mental Health and Diseases Hospital, 35 were living in nursing homes. The numbers enrolled from the outpatient clinic of MMHDH were low as the patients tended to be reluctant to participate in the study, given the reasons of the long duration of using the psychometric tests, and the difficulty of associating with people they did not know. Our sample included 94 patients, consisting of 29 females and 65 males. Considering that the proportion of female patients is equal to that of male patients in schizophrenia, our sample did not exactly reflect the population.

In conclusion, there is insufficient research on the needs of schizophrenia patients living in Turkey. Our study is the first in our country to evaluate both the needs of schizophrenia patients and the possible factors affecting such needs. 'Female gender, being married, living in society, having a high school or higher education level' were found associated with less need. 'The Calgary Depression Rating Scale for Schizophrenia and the Perceived Family Burden Scale' from the patient points of view and the 'PANSS-Positive Symptoms Scale' from the caregiver points of view were significant predictors of the needs.

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