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Anticipated discrimination is related to symptom severity, functionality and quality of life in schizophrenia

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ABSTRACT

The aim of this study is to evaluate a possible relationship between the level of anticipated discrimination with severity of symptoms and functionality. We included 103 patients with schizophrenia. Severity of symptoms was measured by PANSS and Calgary Depression Scale for Schizophrenia. Quality of life (QL) and functionality were measured by using QLS, PSP and Functional Remission of General Schizophrenia Scale (FROGS). Anticipated/experienced discrimination was evaluated with four selected items from Discrimination and Stigma Scale.

First, variables related to each item were determined by using *t*-test and later the variables that have an independent contribution to anticipated discrimination subscale of DISC were evaluated with linear regression analysis. Results showed that those who stated that they felt the need to conceal their diagnosis more had shorter duration of illness, lower PANNS scores, higher scores on professional performance subscale of QLS, a lower number of suicide attempts and higher current employment rates. Participants who reported that they had been avoided or shunned more had higher depression scores. While patients with lower level of functionality tended to stop themselves more, patients with high level of functionality tended to conceal their diagnosis.

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1. Introduction

Discrimination refers to the behavioral consequences of stigma, which act to the disadvantage and social exclusion of the people affected (Thornicroft, 2006; Thornicroft et al., 2007; Sartorius and Schulze, 2008). Perceived and anticipated discrimination have been found to be widespread among people with schizophrenia (Link et al., 2001). In a recent study, 69.4% of the participants with schizophrenia reported moderate or high levels of perceived discrimination (Brohan et al., 2010).

Employment is one of the areas in which discrimination frequently occurs in patients with schizophrenia (Angermeyer et al., 2004). Link et al. (2001) reported that 74% of the patients believe that employers will discriminate against psychiatric patients, while 81% had similar expectations about dating relationships. However, only 36% of his sample had a diagnosis of schizophrenia. Lee et al. (2005) reported that over 50% of the patients anticipated stigma and about 55% concealed their illness. In our recent international study, it was observed that almost two-thirds of the 732 participants with schizophrenia reported that they had stopped themselves from applying for work, training or education because of anticipated discrimination. 72% of them also reported that they felt the need to conceal their diagnosis (Thornicroft et al., 2009).

Despite the fact that experience of stigma and discrimination are common for patients with schizophrenia, it is not clear whether those experiences are the sole results of being diagnosed with "schizophrenia". In addition to the diagnosis of schizophrenia, level of functionality and severity of symptoms might also be predictive in determination of anticipated stigma and discrimination. It can be postulated that those two factors can increase the level of anticipated discrimination by both causing the patients to be recognized and stigmatized by others more easily, and reducing the self-esteem, self-respect.

Markowitz (1998) reported that stigma is related to depressive-anxiety types of symptoms, but not to psychotic symptoms. Lysaker et al. (2007) found that stigma is associated with concurrent positive and emotional discomfort symptoms and degree of social contact. They also reported that within the sub-group of patients with a higher rate of negative symptoms and poor attention, level of self-esteem was lower, while the level of self-stigma was higher (Lysaker et al., 2009). Also, level of disability, positive symptoms and depression are some clinical features, which were found to be positively related to anticipated discrimination for people with schizophrenia (Ertugrul and Ulug, 2004). On the other hand, Dickerson et al. (2002) and Lv et al.

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(2013) reported that rather than positive or negative symptoms, socio-economic variables were related to the extent of stigma and discrimination experiences in patients with schizophrenia.

Rosenfield (1997) is one of the first authors who reported a relationship between stigma and low quality of life. Staring et al. (2009) reported that the associations of insight with low quality of life, and negative self-esteem are moderated by stigma. According to these authors, patients with good insight accompanied by stigmatizing beliefs have the highest risk of experiencing low quality of life and negative self-esteem. Lundberg et al. (2007) reported that people with a higher degree of global functioning perceived less discrimination against themselves. Perlick et al. (2001) reported that concerns about the stigma associated with mental illness reported by patients during an acute phase of bipolar illness predicted poorer social adjustment. In three recent studies, self-stigma, and stigma perception were also reported to be related to a lower level of quality of life in patients with schizophrenia (Kondrat and Early, 2011; Tang and Wu, 2012; Tseng et al., 2012). In another recent study, Park et al. (2013) reported that internalized stigma was correlated with depression and quality of life, but not with negative symptoms. On the other hand, Yildiz et al. (2012) stated that self-stigma is associated with severity of clinical symptoms in patients with major depressive disorder, but did not find such a relationship amongst patients with schizophrenia. Besides these cross-sectional studies, relationship between stigma and functionality was also studied in a longitudinal design. The results suggest that self-stigma is progressive and negatively correlated with self-esteem, hope, social and vocational functioning (Yanos et al., 2010; Corrigan et al., 2011; Yanos et al., 2012).

The aim of this study was to evaluate the relationship between anticipated discrimination and level of functioning, quality of life and severity of symptoms in people with schizophrenia. We hypothesized that there is a negative relationship between level of anticipated discrimination and quality of life.

2. Methods

2.1. Participants

We included outpatients in Istanbul Faculty of Medicine, Psychiatry Department, who were diagnosed with schizophrenia on the basis of DSM-IV criteria. Among these patients, we excluded the ones who had a relapse in the last 3 months, and the ones with epilepsy, or a history of head trauma and those with an inability to speak the local language clearly. The range of age was between 18 and 60 yr. 107 patients who were treated at the outpatient treatment unit with periodical appointments (mostly once a month) were invited to take part in the research study based on their successive order of application. 2 patients refused to be involved in the study, 1 patient could not complete the scales due to the language problem and 2 patients withdrew their informed consents. The data of the remaining 103 (61 men) patients were evaluated. Due to the inclusion criteria of not having a relapse within the last 3 months, the sample was composed of patients with a stabilized clinical state, and a moderate level of positive and negative symptom severity (Table 1). The average duration of education was longer than the average of patients with schizophrenia in Turkey (Alptekin et al., 2005). We believe that this situation is partly due to the fact that patients with a longer duration of education tend to prefer university hospitals instead of state mental hospitals. For example, 2 patients in our sample were medical doctors and their duration of education was 17 yr. The average age of the patients was slightly below the average age observed in a previous multi-center, broad sample study (i.e. 34.5 yr, Ucok et al., 2007).

2.2. Measures and procedure

Socio-demographic data, history of illness and clinical course characteristics were assessed with a semi-structured interview form. We used Structured Clinical Interview for Diagnosis-I (SCID-I; First et al., 1997) to diagnose all the patients. Level of functionality and quality of life were assessed with Personal and Social Performance (PSP) scale (Morosini et al., 2000), the Quality of Life Scale (QLS; Heinrichs et al., 1984), the Functional Remission of General Schizophrenia Scale (FROGS; Llorca et al., 2009). Calgary Depression Scale for Schizophrenia (CDSS; Addington et al., 1992) was used to assess the level of depression.

2.2.1. Positive and negative syndrome scale

Severity of clinical symptoms was evaluated by the Turkish version of Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987; Kostakoglu et al., 1999). This scale includes 30 items: positive and negative subscales are each formed by a set of 7 items, and psychopathology subscale is comprised of 16 items. Each item is scored between 0 and 6 and higher PANSS scores indicate higher symptom severity.

2.2.2. Quality of life scale

QLS was designed to assess deficit symptoms by Heinrichs et al. (1984) within the domains of interpersonal relations, instrumental role, intrapsychological foundations (psychological wellbeing) and common objects and activities of everyday life. It provides information on symptoms and functioning within the preceding 4 weeks. Each item is rated on a 7-point scale, where high scores like 5 or 6 indicate normal or unimpaired functioning and scores of 1 or 0 reflect severe impairment in functioning. QLS is applied to the participants by the researchers.

Table 1
Clinical and socio-demographic characteristics of the study sample.

	Mean	**Standard deviation**
Age	31.49	9.94
Age of onset	22.08	5.84
Duration of illness (yr)	9.91	8.01
Number of hospitalizations	1.57	1.90
Education (yr)	12.44	2.89
EFRS total score	65.39	11.40
PSP total score	64.62	12.51
QLS total score	76.47	19.70
CDSS total score	5.60	4.72
PANSS positive symptoms	14.76	5.95
PANSS negative symptoms	15.57	5.65
PANSS general symptoms	31.82	9.57
PANSS total score	62.29	18.30
Patient's rating of own functional remission status (%)	63.87	22.02
The functional remission status rating of relative/partner (%)	57.77	19.22
	Type	(%)
Gender	Male	59.8
	Female	40.2
Marital status	Single	91.7
	Other	8.3
Employment	Employed	37.3
	Not employed	62.7

2.2.3. Functional remission of general schizophrenia scale

FROGS is a French initiative which aims to develop a schizophrenia-specific tool to measure functioning. This is a 19-item scale based around five domains (daily life, social activities, social functioning, quality of rehabilitation and general health and treatment) that has been validated (Llorca et al., 2009). The items are sub-divided into categories under these domains. Each item is scored between 1 and 5 and a higher point indicates a better functionality for that domain. FROGS is applied to the participants by the researchers. The reliability and validity of the Turkish version of the scale has been shown as well (Emiroglu et al., 2009).

2.2.4. Personal and social performance scale

PSP scale is a 100-point single item rating scale, which is utilized to assess the degree of difficulties the subject has experienced within four main domains of social functioning, which are socially useful activities, personal and social relationships, self-care and disturbing and aggressive behavior. Based on ratings on these four areas and descriptions of 10-point intervals, a score between 1 and 100 is assigned to the subject, indicating the degree of the difficulty experienced. A higher PSP score indicates a higher level of functionality. PSP scale was developed based on the social functioning component of the DSM-IV Social and Occupational Functioning Assessment Scale (SOFAS) and it has proven to be a reliable, valid, simple and quick measure of personal and social functioning for patients with psychiatric disorders (Morosini et al., 2000). PSP is applied to the participants by the researchers. The reliability and validity of the Turkish version of PSP has been shown as well (Aydemir et al., 2009).

2.2.5. Calgary depression scale for schizophrenia

CDSS is a 9-item questionnaire, which was designed for the purpose of assessing level of depressive symptomatology for schizophrenia patients. It includes questions about depression, hopelessness, self-depreciation, pathological guilt, guilty ideas of reference, morning depression, early awakening, suicidality and observed depression. A higher CDSS score indicates a more severe level of depression. CDSS is applied to the participants by the researchers. The validity and reliability study of the Turkish version of CDSS was carried out by Aydemir et al. (2000). At this report, the cut off score for the Turkish sample has been indicated as 12. In our study, CDSS scores of 9 participants are above this cut off score.

2.2.6. The discrimination and stigma scale

The Discrimination and Stigma Scale (DISC-10) was used to collect the data about anticipated discrimination. Thornicroft et al. (2009) developed DISC-10 to measure different aspects of stigma and discrimination related to mental illness. The topics of anticipated discrimination were addressed through the following items: "How much have you stopped yourself from applying for work/training/education?", "How much have you stopped yourself from looking for a close relationship?", and "How much have you felt the need to conceal your diagnosis?". Experienced discrimination was evaluated by the question "Generally, how much have you been avoided or shunned by people who know that you have a diagnosis of mental illness?". These items are scored on a 3-point Likert scale, anchored at 0 as "not at all" and 2 as "a lot". As indicated in Thornicroft et al. (2009), these four items constitute the anticipated discrimination subscale of DISC. Items of DISC-10 were applied to the participants by a trained interviewer (GK, BE), who reads out the items and choices. In order to increase cooperation and the reliability of the answers, respondents were also provided with a card presenting the choices of answers. Psychometric properties of the DISC-10 are strong and are described elsewhere (Thornicroft et al., 2009).

In addition, after the completion of scales outlined above, the participant was asked to rate his/her own level of functionality by giving a score between 0 and 100. We defined remission according to Andreasen et al. (2005) criteria. According to those criteria, symptomatic remission is defined as receiving 3 points or less on 8 certain items of PANSS for a duration of at least 6 months.

The participants were considered as employed if they are working in a full-time or part-time paid job or attending school. Those whose work is medically and/or socially supported by their institution were regarded as unemployed because of the non-competitive nature of their vocational activity.

The study protocol was approved by Istanbul Faculty of Medicine Ethical Committee and written informed consent was obtained from each participant before the study-specific procedures were carried out. PANSS was applied by a psychiatrist (A.U.) and other scales were applied by two psychologists (GK, BE) in two sessions. Those two psychologists were not involved in the individual treatment of any of the participants. However, the psychiatrist carrying out the PANSS interview was responsible for the treatment of some of the participants as a clinician. The participants had no difficulty with completing the interviews, but upon the request of some participants, extra additional breaks were provided.

2.3. Interrater reliability of scales

The interrater reliability of QLS total score was calculated as 0.79. The interrater reliability of subscales of QLS total score varied between 0.71 and 0.82. The interrater reliability of the FROGS total score is 0.96, and interrater reliability of its subscales varied between 0.79 and 0.97. The interrater reliability coefficient of the PSP scale based on 30 patients with schizophrenia was 0.973. Interrater reliability coefficients are 0.83 for CDSS, and 0.81 for the anticipated discrimination score.

2.4. Statistics

t-Test was used for continuous variables and χ^2-test was used for comparing categorical variables. We have investigated the differences between the two groups (those who answered as 'a lot' and those who answered either 'not at all' or 'a little') with t-test. We have investigated the relationship between clinical symptoms and quality of life scales with Pearson correlation analysis. Duration of illness was entered as covariate for the analyses of quality of life and functionality in ANOVA. Also, similar to the study of Thornicroft et al. (2009), we calculated the anticipated discrimination score consisting of the sum of four DISC items that we investigated and later explored the independent variables associated with this score through linear regression analysis. All statistical analyses were performed using SPSS version 13.

3. Results

Clinical and socio-demographic information about the patients are presented in Table 1. Frequencies of patients' answers to the 4 items of DISC-10 about anticipated discrimination are presented in Table 2. PANSS total score was correlated with PSP ($r=-0.63$, $p=0.001$), QLS ($r=-0.52$, $p=0.001$) and FROGS ($r=-0.52$, $p=0.001$) scores. CDSS score was found to be correlated with PANSS total score ($r=0.34$, p=0.001), FROGS total score ($r=-0.25$, $p=0.01$), PSP score ($r=-0.39$, $p=0.01$), and QLS total score ($r=-0.31$, $p=0.001$).

3.1. Anticipated discrimination in work/training/education areas

We found that the ones who answer the question "How much have you stopped yourself from applying for work/training/education?" as "A lot" had a longer duration of illness and higher total PANSS score and CDSS score. Their PSP and QLS scores were lower than the others (see Table 2). When we entered the duration of illness as a covariate, only the difference for PSP regressed to a trend level ($p=0.07$); for the other scales the differences remained at a statistically significant level. The scores of the group which answered "A lot" were significantly lower on all four sub-scales of QLS and the number of previous suicide attempts was higher (0.44 ± 0.89 vs. 0.17 ± 0.43, $t=1.93$, d.f.$=88$, $p=0.05$) than the others. Remission status, duration of remission

Table 2
Frequencies of patients' answers to the 4 items of DISC-10 about anticipated discrimination.

	Not at all	A little	A lot
"How much have you stopped yourself from applying for work/training/education?"	24 (25%)	35 (36.46%)	37 (38.54%)
"Generally how much have you been avoided or shunned by people who know that you have a diagnosis of mental illness?"	53 (53%)	26 (26%)	21 (21%)
"How much have you felt the need to conceal your diagnosis?"	28 (28%)	39 (39%)	33 (33%)
"How much have you stopped yourself from looking for a close relationship?"	36 (36.36%)	32 (32.32%)	31 (31.31%)

$N=103$; for every item some participants were unable to provide an answer, therefore frequencies are calculated based on the total number of patients with a valid answer for that question.

if there is any and employment status were not related to the answer given to this question. The patients who claim to have stopped themselves at this field more than the others rated their own functionality as lower during the interview as well (see Table 3).

3.2. Anticipated discrimination in close relationships

Those who stated that they stopped themselves from looking for a close relationship a lot had lower scores on total rating, and interpersonal relationships sub-scale (24.4 ± 9.4 vs. 29.4 ± 9.6, $t=3.03$, d.f.$=99$, $p=0.03$) of QLS. These patients also had lower scores on FROGS and higher scores of CDSS. It was found that the patients who claim to have stopped themselves more in terms of looking for a close relationship gave lower ratings for their own level of functionality than the others as well (see Table 3).

3.3. Concealing the diagnosis

Those who stated that they felt the need to conceal their diagnosis more than the others had a shorter duration of illness, and lower PANNS total scores. When we entered duration of illness as covariate, difference on the PANSS score was still statistically significant. Those patients had higher scores on professional performance subscale of QLS (14.1 ± 7.1 vs. 11 ± 6.7; $t=2.16$, d.f.$=99$, $p=0.03$), lower number of suicide attempts (0.03 ± 0.1 vs. 0.4 ± 0.8; $t=2.54$, d.f.$=89$, $p=0.04$), higher current employment rate (69.7% vs. 30.3%, $\chi^2=3.75$, d.f.$=1$, $p=0.05$), and a higher rate of remission (48.5 vs. 28.4, $\chi^2=3.93$, d.f.$=1$, $p=0.04$). The functionality rating given by the patient was not found to be related to the need to conceal the diagnosis (see Table 4).

3.4. Relationship between experienced and anticipated discrimination

The ratio of patients who feel the need to conceal their diagnosis was lower in the group which claims to have never experienced discrimination before, in comparison to the other groups (14.9% vs. 39.6, $\chi^2=8.77$, d.f.$=1$, $p=0.01$). The answers given to the other questions about anticipated discrimination were not related to the answers given to the experienced discrimination item. Those who stated that they had never been avoided or shunned by people who know that they have a diagnosis of mental illness had lower scores on CDSS (5.05 ± 4.1 vs. 7 ± 5.1, $t=2.07$, d.f.$=99$, $p=0.04$) compared to others. We did not find any significant differences for other clinical variables (see Table 4).

3.5. Variables associated with the anticipated discrimination score

Linear regression analysis was carried out by entering the anticipated discrimination score as the dependent variable and age, duration of illness (yr), education (yr), PANSS negative subscore, PANSS positive subscore, FROGS total score, QLS total score and CDSS total score as independent variables. Only CDSS score was found to be related to the anticipated discrimination score in this analysis (Table 5).

4. Discussion

In this cross-sectional study, we investigated the relationship between the level of anticipated discrimination, severity of symptoms, functionality and quality of life in a group of clinically stable patients with schizophrenia. Also, we examined the relationship of this anticipated discrimination with the experienced discrimination.

Our findings revealed that patients with a low level of functionality and pronounced symptoms experience a higher degree of anticipated discrimination at school, education or work. However, we need to be cautious when we comment on the relationship between level of symptoms, functionality and anticipated discrimination as the cross-sectional design makes it impossible to have confidence about the causal relationships since one cannot establish the temporal ordering of results. We have also found a longer duration of illness, older age and a greater number of past suicide attempts among the patients who have stopped themselves from making an attempt to apply for work, education or training. Those results indicate that the factor which prevents patients from taking steps to improve themselves in those fields is not limited to the anticipation of discrimination. It is a tangible idea that while older patients with lower functionality and higher severity of symptoms withdraw from making any attempts about school or work, the ones who have a higher level of functionality and a lower level of symptoms would act more "courageous" in this matter. In our study, a negative correlation was found between symptom severity and quality of life/functionality. Therefore, it can be claimed that symptoms play a

Table 3
Statistical differences between the two groups who have stopped themselves a lot and a little or none in work/education/training and in close relationships.

		Have stopped themselves a lot	Have stopped themselves a little or not at all	d.f.	*t*-value	Sig.
Anticipated discrimination in work, education, training	Duration of illness (yr)	13.2 (9.8)	7.4 (5.2)	94	3.4	0.001*
	PANSS total score	66.2 (16.4)	60.6 (21)	94	2.9	0.004*
	CDSS score	7.3 (5.4)	4.9 (3.8)	94	2.65	0.01*
	QLS score	69.6 (18.8)	81.4 (19.1)	94	3.11	0.002*
	PSP total score	60.7 (9.4)	67.3 (13.8)	94	2.65	0.009*
	FROGS total score	64.4 (10.6)	66.9 (12.1)	94	0.99	0.3
	Patient's rating of own functionality (over 100%)	50.8 (19.6)	72 (19.9)	94	4.93	0.001*
Anticipated discrimination in close relationships	Duration of illness (yr)	8.8 (7.3)	9.1(6.8)	97	0.28	0.7
	PANSS total score	62.3 (16.8)	62 (19.8)	97	0.02	0.9
	CDSS score	7.9 (4.5)	5.1 (4.5)	97	2.8	0.006*
	QLS score	70.3 (20.1)	79.5 (19.1)	97	2.18	0.03*
	PSP total score	62 (13.6)	66.4 (12.5)	97	1.43	0.1
	FROGS total score	62.1 (12)	67 (11)	97	1.96	0.05*
	Patients rating of own functionality (over 100%)	56.9 (19.8)	66.6 (22.7)	97	1.93	0.05*

* The differences for those scores were statistically significant at $p < 0.05$ level.

Table 4
Statistical differences between the two groups who have stopped themselves a lot and a little or none in concealing their diagnosis from others and those who have experienced discrimination a lot and a little or not at all in terms of clinical variables.

		Have stopped themselves or experienced a lot	Have stopped themselves or experienced a little or not at all	d.f.	*t*-value	Sig.
Concealing the diagnosis	Duration of illness (yr)	7.6 (6.5)	10.9 (8.4)	98	1.98	0.05*
	PANSS total score	55.1 (17.1)	65.8 (18.3)	98	2.73	0.007*
	CDSS score	5.8(5.2)	6 (4.4)	98	0.22	0.8
	QLS score	82.7 (23.4)	75.7(17.8)	98	1.55	0.1
	PSP total score	67.6 (14.1)	63.9 (12.2)	98	1.2	0.2
	FROGS total score	66 (10.2)	66 (14.2)	98	0.01	1
	Patient's rating of own functionality (over 100%)	65.4 (14.3)	60.4 (22)	98	0.93	0.3
Experienced discrimination	Duration of illness (yr)	9.7 (6.7)	8.7(6.8)	98	1.12	0.2
	PANSS total score	61.4 (21.4)	63.2(15.5)	98	0.44	0.6
	CDSS score	7 (5.1)	5.05 (4.1)	98	2.07	0.04*
	QLS score	80.1 (21.4)	75.5 (18.1)	98	1.02	0.2
	PSP total score	65.4 (13.8)	64.8 (14.8)	98	0.22	0.8
	FROGS total score	65.4 (12.4)	66.8 (10.5)	98	0.56	0.5
	Patient's rating of own functionality (over 100%)	65.1 (20.1)	62.3 (25.7)	98	0.56	0.5

* The differences for those scores were statistically significant at $p < 0.05$ level.

Table 5
Variables related to anticipated discrimination score of DISC in linear regression analysis.

Variables	B	Std. error	Beta	B	Sig.
CDSS total score	0.144	0.046	0.343	3.140	0.002
Education (yr)	0.117	0.070	0.170	1.679	0.09
QLS total score	−0.031	0.019	−0.308	−1.640	0.1
PANSS positive subscale	−0.050	0.036	−0.149	−1.362	0.1
PANSS negative subscale	−0.053	0.042	−0.153	−1.281	0.2
FROGS total score	0.014	0.033	0.079	0.430	0.6

mediator role and contribute to anticipated discrimination by affecting quality of life and functionality negatively. This finding is in line with the study of Ertugrul and Ulug (2004) who report a positive relationship between disability and severity of depression and the level of anticipated discrimination. While the findings of Ertugrul and Ulug (2004) rely on the answers given to the two questions that are part of the World Health Organization-Disability Assessment Schedule-II (WHODAS-II), which questions the experience of stigma indirectly, we would like to emphasize that the scale we used questions the experiences of patients with schizophrenia disorder more directly and in a more comprehensive manner.

We have found that patients who report that they avoid establishing close relationships "a lot" have received lower scores on both the interpersonal relationship sub-scale and total score of QLS. Furthermore, it was found that these patients also have higher scores on CDSS, which evaluates severity of depression. However, it is hard to forecast the direction of causality for this relationship. The question that remains is if these people stop themselves from having close relationships because they feel depressed and worthless, which in turn decreases their quality of life or because these people stop themselves from pursuing close relationships, they end up feeling depressed and worthless as a result.

The ratio of patients who feel the need to conceal their diagnosis (72%) is the same as the results in a multi-center international study (Thornicroft et al., 2009). It appears that the need to conceal the diagnosis is a widespread problem in patients with schizophrenia who live in different countries. However, different from the above findings, we have also observed that people who feel more of a need to conceal their psychiatric diagnosis are the ones who are mostly employed, have better functionality, lower level of symptom severity with a higher quality of life with respect to their professional field. Our findings are in line with the results of international studies which indicate that younger employed patients have a higher tendency to conceal their diagnosis (Ucok et al., 2012). Those findings imply that the ones who have "more to lose" compared to others feel the need to conceal their diagnosis. The need to conceal the diagnosis draws attention as the only subject, which experiences of discrimination in the past have a significant contribution to. Despite the fact that it sounds plausible that anticipated discrimination is related to experienced discrimination, in a recent international study, anticipated discrimination in finding/keeping work and intimate relationships was reported to be more common in the absence than in the presence of experienced discrimination (Ucok et al., 2012). We have seen that patient's severity of symptoms, level of functionality and subjective evaluation of his/her own level of functionality have an effect on these subjects. Thus, those who are more severely ill do not need to think of the stigma attached to the illness due to not being able to assess their own impairment and its consequences. Those who are better off will be more sensitive to the opinions of others and what stigma might do to them once they enter into competition and therefore they will be more likely to be reluctant to disclose their diagnosis. Also, it can be argued that extrapyramidal symptoms in relation to the use of antipsychotics or sedation promote the stigmatization of individuals by enabling the person to be easily noticed by others and making it hard to conceal the diagnosis. Since we have not investigated the relationship between the level of side effects and the tendency to conceal the diagnosis, we would only like to remind the reader of this possibility. Individuals try to reduce the risk of losing their jobs or friends and perhaps succeed at doing this to a certain level. However, it can be thought that this constant effort can cause an additional source of anxiety.

It is striking that levels of depressive symptoms are related to the tendency to stop oneself at the domains of work/school/training or close relationships and it is also the only variable which seems to be related to the anticipated discrimination score in the linear regression analysis. Again, here it is hard to figure out the direction of the causal relationship. However, it has been reported that in different groups like people with lung cancer or carriers of HIV virus, both self stigma and experienced stigma contribute to the frequency/risk of depression (Schomerus et al., 2011; Cataldo et al., 2012; Charles

et al., 2012). If the same condition is valid for our sample as well, it can be claimed that depressive symptoms emerge/increase in relation to the anticipated discrimination. Yet, on the other hand, it can be discussed whether participants with depressive symptoms interpret their past experiences more negatively and claim to have stopped themselves more than they actually did in reality. The fact that PANSS total score, functionality and quality of life scales, which have a significant relationship with anticipated discrimination items on the first step analysis, are not in a statistically significant level in the linear regression analysis might be possibly due to the significant correlation between all of these scores and the CDSS score.

The strengths of the study are a greater sample size in comparison to the other research projects investigating this subject, the fact that variables which can be related to anticipated discrimination (i.e. depressive symptoms, functionality) are investigated with not only one score or question, but with elaborate scales specifically targeting those issues. Also data collection was carried out with a face to face interview, which takes approximately two hours to complete and it was not based on methods such as telesurvey or questionnaires.

However, our study does have some limitations. Cross-sectional design can create bias with respect to recalling past experiences and evaluating their impact on the current behaviors. Also, again due to the cross-sectional design, it is hard to make inferences about the causality. The fact that the sample was not chosen from the population, but was composed of patients who continue their treatment at a university hospital clinic, can help explain why the level of education was high, but also limits the generalizability of the findings. Also using single item questions to measure a complex and multifactorial construct such as anticipated discrimination has some handicaps. Lastly, we would like to remind that even though we try to keep the number of variables at the minimum level, multiple evaluations can cause the Type 1 error.

As a result, while confirming that anticipated discrimination is common among schizophrenia patients, our findings have also shown that those experiences are related to the symptom severity, level of functionality and quality of life. Overall, attempts to treat schizophrenia symptoms in an effective way and to increase functionality will also help reduce anticipated discrimination. Besides, we believe that therapeutic approaches with an aim to increase self-esteem and empowerment will help patients diagnosed with schizophrenia disorder in coping with stigmatizing attitudes and significantly help reduce the level of anticipated discrimination.

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