

Positive Symptoms and Perceived Parental Acceptance-Rejection in Childhood: The Moderating Roles of Socioeconomic Status and Gender



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SUMMARY

Objective: The current study aimed to investigate the moderating roles of socioeconomic status (SES) and gender in the relationship between the positive symptoms of patients with schizophrenia and their recollections of parental acceptance-rejection in childhood.

Method: This study included 53 outpatients (20 females and 33 males) who were diagnosed with schizophrenia at the Ankara University and Ege University Faculty of Medicine Department of Psychiatry. Of the participants, 22.6% were from low SES families, 55.7% were from middle SES families, and 22.6% were from high SES families. The relationship between the participants' positive symptoms and recollections of parental acceptance-rejection in childhood were assessed by the Scale for the Assessment of Positive Symptoms and the Adult Parental Acceptance-Rejection Questionnaire/Control.

Results: Compared to schizophrenia patients from middle and high SES families, those from low SES families perceived their mothers and fathers as more cold, neglectful, rejecting, and less controlling in their childhood. Among the parental acceptance-rejection subscales, only maternal indifference/neglect was related to the participants' positive symptoms. A three-way interaction (moderated moderation) analysis indicated that SES significantly moderated the effect of perceived maternal neglect on positive symptoms for female, but not male, patients with schizophrenia.

Conclusion: The severity of positive symptoms of female patients with schizophrenia, especially those from low and middle SES families, may be reduced by examining recollections of maternal neglect in childhood and, if necessary, applying trauma or attachment-focused interventions.

Keywords: schizophrenia, parental behaviour, sex, socioeconomic status

INTRODUCTION

There has been a dramatic increase in the number of studies investigating the relationship between childhood maltreatment and the occurrence and course of schizophrenia. These studies have shown that adolescents and adults who had negative experiences with their parents during childhood have a risk of developing psychosis in the range of 2.78 to 11.50 (Gibson et al. 2016). Remarkably, it was found that when childhood maltreatment was completely removed from the population, but all other risk factors were kept constant,

the number of patients with psychosis could be reduced by 33% (Varese et al. 2012). Thus, childhood maltreatment has emerged as one of the most important triggers of genetic and bioenvironmental predispositions of schizophrenia, which is currently accepted as a neurodevelopmental disorder (Brown 2011, Read et al. 2001).

The most common types of childhood maltreatment reported by patients with schizophrenia include neglect and physical, sexual, and emotional abuse (Dvir et al. 2013, Şahin et al. 2013, Vallejos et al. 2016). Several studies have consistently shown that childhood sexual abuse is especially associated

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with auditory hallucinations (Bentall et al. 2012, Shevlin et al. 2014). Similarly, childhood maltreatment has been reported to be more strongly correlated with the positive symptoms than with the negative symptoms of schizophrenia (Longden et al. 2016, Seidenfaden et al. 2017). In addition, there are gender differences in the relationship between childhood maltreatment and positive symptoms; females who reported more negative experiences with their parents in childhood tended to have higher positive symptoms than males (Garcia et al. 2016, Gibson et al. 2014).

In addition to childhood abuse and neglect, a parenting style described as affectionless control has also drawn attention in studies examining the recollections of schizophrenics regarding their relationships with their parents. Affectionless control refers to a parenting style characterized by low levels of warmth and care, but high levels of overprotection and control. Affectionless control is associated with many other psychiatric disorders, it is not recognized as a schizophrenia-specific parental style. However, paranoid thoughts (Carvalho et al. 2016) and thoughts of persecution (Ashcroft et al. 2012) in patients are often predicted by higher levels of perceived parental rejection, criticism, and hostility in childhood.

The socioeconomic level of the family (SES) is one of the most important factors influencing parent attitudes towards their children; this also affects the occurrence and course of schizophrenia. Studies have shown that stress due to economic problems causes parents from low SES backgrounds to be more likely to display more harsh, inconsistent, neglectful, and abusive styles than parents from middle and high SES backgrounds; these negative parenting styles have negative effects on children's mental health (Conger et al. 2010, Hoff et al. 2002). It is important to note that the idea that SES plays a role in the development of schizophrenia has been accepted since the 1950s (Brown 2011). More recent studies have shown that compared to patients from middle and high SES backgrounds, patients from low SES backgrounds tend to be hospitalized more frequently (Goldberg et al. 2011), enter remission about a year later (Hur et al. 2015), and experience more notable increases in their positive symptoms immediately after a stressful life event (Gallagher et al. 2013).

Based on previous findings, this study focused on examining the relationships between perceptions of parental styles in childhood and the positive symptoms of schizophrenia with an emphasis on the moderating roles of SES and gender. We evaluated the study participants' perceptions of parental styles in terms of perceived parental acceptance-rejection in childhood. Perceived parental acceptance-rejection is a part of the Interpersonal Acceptance-Rejection Theory (formerly known as Parental Acceptance-Rejection Theory) proposed by Rohner (1986, 2004); it indicates the quality of the emotional bond between parent and child, and examines the physical and verbal behaviors used by parents to express their feelings. According to this theory, parental behaviors are assessed in terms of warmth/affection, hostility/aggression, indifference/neglect, undifferentiated rejection, and control. Several studies have shown that recollections of parental

acceptance-rejection are associated with many mental disorders in adulthood, especially depression and substance abuse (for a detailed discussion, see Rohner and Britner 2002).

In this context, the current study has two main aims as follows: (1) to determine the relationships between positive symptoms of schizophrenia and recollections of parental acceptance-rejection; and (2) to explore the moderating roles of SES and gender in the relationship between these aforementioned relationships.

METHOD

Participants

This study included 53 outpatients (20 females (37.7%) and 33 males (62.3%)) who were recruited from the Medical Faculty Psychiatric Departments at Ankara University and at Ege University in Turkey. The mean age of the female participants was 39.90 years ($S = 9.45$), 37.33 years ($S = 11.19$) for males, and 38.19 years ($S = 10.55$, range = 19-61) for the whole sample. Of the participants, 71.7% had an education level of high school or below and 6 patients (11.5%) had stopped their education due to psychological distress. Of the participants, 62.3% were single and 52.6% were unemployed.

The inclusion criteria were as follows: (1) the patient must have at least a 1-year history of schizophrenia according to ICD-10; (2) the patient must be considered stable by his/her treating psychiatrists (absence of acute psychotic symptoms); and (3) the patient must have schizophrenia as the primary diagnosis (in cases with comorbidities). Participants were excluded from the study if they had an organic brain disorder, serious physical disease, or a history of substance/alcohol abuse. In addition to schizophrenia, 10 patients had major depressive disorder, 4 had generalized anxiety disorder, and 2 had obsessive-compulsive disorder. The mean age of onset of schizophrenia was 24.50 years ($S = 8.48$, range = 14-53) and the mean duration was 13.78 years ($S = 8.25$, range = 1-33). The mean hospitalization frequency was 1.82 ($SD = 1.57$, range = 0-6). Of the participants, 33.6% were using clozapine, 24% were using risperidone, and 41.6% were using other antipsychotics.

Of the participants, 67.9% were living with their parents. The SES of each family was determined based on their monthly income level, and they were separated into three groups as high, middle, and low SES. Of the participants, 12 were included in low SES ($M = 946.36$, $S = 353.90$), 29 were in middle SES ($M = 1349.81$, $S = 680.67$), and 12 were in high SES ($M = 2018.18$, $S = 418.83$) families ($F(2,50) = 4.61$, $p = .01$).

Instruments

Demographic Information Form: This form was developed by the authors of the current study to collect information about the disorder (schizophrenia) and the participants' sociodemographic features.

Scale for the Assessment of Positive Symptoms (SAPS): This scale aims to measure positive symptoms such as hallucinations,

delusions, bizarre thoughts, and formal thought disorder. This scale is completed by the interviewer based on observation and by information provided by the patient and his/her relatives during the interview. This scale consists of 34 items in a 6-point Likert-type scale. Higher scores indicate a greater severity of positive symptoms. The Turkish adaptation of this scale was performed by Erkoç et al. (1991), and the internal consistency coefficient ranges from .61 to .78 for subscales and is .84 for the whole scale. In the current study, since positive symptoms were the dependent variables, only the total score was used, and the internal consistency coefficient was .91.

Adult Parental Acceptance-Rejection Questionnaire / Control (Adult PARQ/C): This scale was developed by Rohner (2005) to measure the respondents' recollections of maternal and paternal acceptance-rejection in childhood. The scale consists of 73 items with five subscales, including warmth/affection, hostility/aggression, indifference/neglect, undifferentiated rejection, and control; these subscales are scored on a 4-point Likert-type scale. The total score is calculated from the sum of the four subscales (except for control), and higher scores indicate higher levels of perceived rejection. The Turkish adaptation of the scale was performed by Varan (2003), and the internal consistency coefficient for both the father and mother forms ranged from .86 to .96. In the current study, the internal consistency coefficient was .87 for the mother form and .88 for the father form.

Procedure

This study was approved by the ethical committee of Ankara University and the Medical Faculty Psychiatric Departments at Ankara University and Ege University in Turkey. Participants were determined based on inclusion/exclusion criteria and information in their files (in cooperation with the

patient's psychiatrist). All of the participants were receiving regular antipsychotic medication and approximately half of them were also attending group therapy. All participants were instructed that the provided information would remain confidential and used purely for scientific purposes. In addition, all participants provided written informed consent. While the participants filled out the Demographic Information Form and Adult PARQ, the SAPS was completed by the researchers based on semi-structural interviews and patient files.

RESULTS

Descriptive Statistics and Intercorrelations Among Variables

The Independent Samples t-test was used to evaluate gender differences in onset age, duration of schizophrenia, positive symptoms, and recollections of parental acceptance-rejection. There were no significant differences between females and males in terms of duration of the disorder, SAPS score, and Mother-Father PARQ scores. However, the disorder tended to begin at an older age in females ($M = 27.18, S = 10.83$) than in males ($M = 22.88, S = 5.77$), $t(51) = 1.89, p = .065$. A similar tendency was found when evaluating the Adult PARQ control subscales. Female patients tended to perceive more control from their mothers ($M = 35.25, S = 8.16$) and fathers ($M = 30.89, S = 9.28$) than did males (respectively, $M = 33.75, S = 7.68$ and $M = 29.52, S = 7.90$), respectively, $t(51) = 1.73, p = .089$ and $t(51) = 1.91, p = .062$.

A One-way Analysis of Variance (ANOVA) was used to determine the effects of SES on age of onset, SAPS score, and Mother-Father PARQ total scores. As shown in Table 1, the three SES groups significantly differed from each other in

Table 1. Means and Standard Deviations of Study Variables by SES

	Low SES (n = 12)		Middle SES (n = 29)		High SES (n = 12)		F	η^2
	M	SD	M	SD	M	SD		
Onset age*	25.13a	7.07	24.28a	8.82	24.42a	8.48	.04	0.02
SAPS*	24.75a	21.11	23.14a	16.82	31.08a	14.63	.89	0.02
Mother PARQ*	128.25a	22.26	100.20b	30.41	106.79ab	33.48	3.84*	0.13
Father PARQ*	142.58a	29.02	105.53b	36.82	105.88b	30.88	5.49**	0.18
Mother PARQ								
Warmth/Affection	51.83a	13.84	65.47b	12.44	66.42 b	12.46	5.54**	0.18
Hostility/Aggression	26.94a	9.80	24.83a	8.31	28.33a	11.31	.82	0.03
Indifference/Neglect	32.98a	8.18	23.91b	7.94	24.46b	6.72	6.18**	0.20
Undifferentiated Rejection	20.17a	8.82	16.93a	5.59	19.92a	7.31	1.37	0.05
Control	26.17a	10.40	34.02 b	8.33	35.33b	6.61	4.46*	0.15
Father PARQ								
Warmth/Affection	43.75a	16.71	61.85b	15.75	66.42b	9.58	8.35***	0.25
Hostility/Aggression	29.27a	9.69	24.28a	8.95	27.42a	10.53	1.33	0.05
Indifference/Neglect	37.81a	9.02	26.17b	9.38	25.96b	7.86	7.87***	0.24
Undifferentiated Rejection	19.25a	6.90	16.94a	6.37	18.92a	7.75	.66	0.03
Control	27.25a	8.99	32.08a	7.77	32.67a	6.93	1.89	0.07

The group differences in the variables marked with asterisks (*) were compared by One-way ANOVA. The group differences in the Mother and Father PARQ subscales were assessed by One-way Multiple Analyses of Variance (MANOVAs). One-way F values are presented in the table.

*p < .05. **p < .01. ***p < .001.

terms of Mother PARQ ($F(2, 50) = 3.84, p = .028, \eta^2 = .13$) and Father PARQ ($F(2, 50) = 5.49, p = .007, \eta^2 = .18$) total scores. One-way Multiple Analyses of Variance (MANOVAs) were used to compare the scores of the Mother and Father PARQ subscales in terms of the three SES groups. The main group effect tended to be significant on Mother PARQ subscores ($F(10, 92) = 1.78, p = .076$; Wilk's lambda = .70; $\eta^2 = .16$). The findings of one-way analyses revealed that the SES groups were significantly different from each other with regards to the maternal warmth ($F(2, 50) = 5.54, p = .007, \eta^2 = .18$), neglect ($F(2, 50) = 6.18, p = .004, \eta^2 = .20$), and control ($F(2, 50) = 4.46, p = .017, \eta^2 = .15$) subscales (see Table 1). The main group effect on the Father PARQ subscales was significant ($F(10, 92) = 2.48, p = .011$; Wilk's lambda = .62; $\eta^2 = .21$). ANOVA results revealed that there were significant differences among the three groups with regards to the paternal warmth ($F(2, 50) = 8.35, p = .001, \eta^2 = .25$) and neglect ($F(2, 50) = 7.87, p = .001, \eta^2 = .24$) subscales (see Table 1). A follow-up Tukey post hoc test using the Bonferroni correction ($.05/3 = .02$) revealed that patients with schizophrenia from low SES families reported more cold, unaffectionate, neglectful, and rejecting behaviors from their mothers and fathers during their childhood compared to middle and high SES families. However, participants from low SES families remembered their mothers as less controlling than those from middle and high SES families.

Pearson correlation analyses were used to determine correlations among positive symptoms, Mother PARQ, and Father PARQ total and subscale scores. As shown in Table 2, positive symptoms were only significantly correlated with remembrances of maternal neglect ($r = .28, p < .041$). No significant correlations were found between positive symptoms and Father PARQ subscales scores.

Three-way Interaction

The proposed model regarding the moderating roles of gender and SES on the relationship between positive symptoms and parental acceptance-rejection (see Figure 1) was examined only for maternal neglect, considering that only this result were significant via correlation analysis. Since the SAPS scores were not significantly related to the other Mother PARQ and Father PARQ subscales, they were not included in the analyses.

According to the model, the moderating effect of SES on the relationship between perceived maternal neglect and positive symptoms depends on the moderating role of gender on SES. This three-way interaction model was termed the 'moderated moderation' model by Hayes (2013), and was examined via multiple regression analyses. These regressions were carried

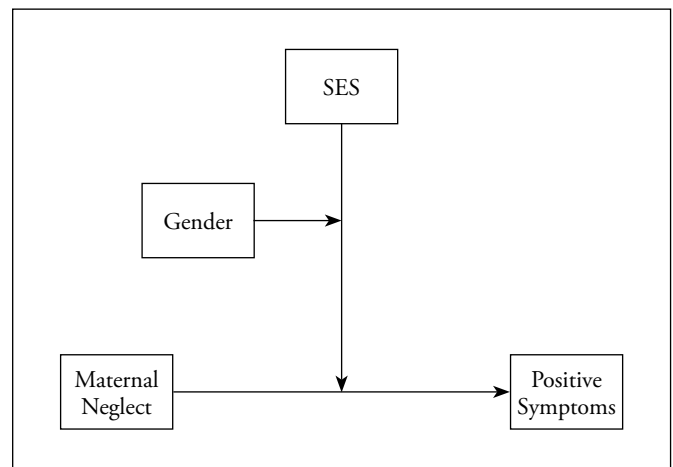


Figure 1. The proposed model for the moderating roles of gender and SES on the relationship between positive symptoms and maternal neglect

Table 2. The Intercorrelations Among Positive Symptoms, Mother PARQ, and Father PARQ scores

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.SAPS	-												
2.M.W/A.	-.16	-											
3.M.H/A.	.15	-.29*	-										
4.M.I/N.	.28*	-.76***	.43***	-									
5.M.UR.	.16	-.39**	.86***	.56***	-								
6.M.CL.	.01	.42**	.28*	-.36**	.12	-							
7.M.TS.	.23†	-.83***	.74***	.86***	.81***	-.18	-						
8.F.W/A.	-.01	.61***	.08	-.51***	-.05	.45***	-.40**	-					
9.F.H/A.	.02	-.14	.42**	.34*	.46***	.08	.38**	-.41**	-				
10.FI/N.	.03	-.57***	.14	.60***	.32*	-.36**	.53***	-.89***	.55***	-			
11.F.UR.	.01	-.18	.45***	.36**	.56***	.05	.43***	-.41**	.90***	.60***	-		
12.F.CL.	-.12	.41**	.20	-.31*	-.02	.66***	-.21	.38**	.20	-.30*	.13	-	
13.F.TS.	.01	-.50***	.19	.55***	.34*	-.27*	.51***	-.88***	.76***	.93***	.77***	-.18	-
M	25.30	62.60	26.21	26.09	18.34	32.54	108.04	58.79	26.12	28.76	17.91	31.12	114.00
SD	17.39	13.83	9.34	8.48	6.86	9.05	31.13	16.82	9.54	10.10	6.77	8.02	36.79

SAPS = Positive Symptoms; M.W/A. = Mother Warmth/Affection; M.H/A. = Mother Hostility/Aggression; M.I/N. = Mother Indifference/Neglect; M.UR. = Mother Undifferentiated Rejection; M.CL. = Mother Control; M.TS. = Mother PARQ Total Score; F.W/A. = Father Warmth/Affection; F.H/A. = Father Hostility/Aggression; FI/N. = Father Indifference/Neglect; F.UR. = Father Undifferentiated Rejection; F.CL. = Father Control; F.TS. = Father PARQ Total Score; † $p < .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Table 3. Three-Way Interaction Model Predicting Positive Symptoms

	β	SE	t	95%CI
(Constant)	23.31	2.26	10.31**	18.76 – 27.87
SES	5.87	3.40	1.73†	-.97 – 12.71
Maternal Neglect	.79	.27	2.88*	23.86 – 1.34
Gender	-6.63	4.73	-1.40	-16.16 – 2.89
Maternal Neglect × SES	-.63	.44	-1.46	-1.51 – 24.30
Maternal Neglect × Gender	.91	.56	1.64	-.21 – 2.03
SES × Gender	-7.73	6.94	-1.07	-21.41 – 6.55
Maternal Neglect × SES × Gender	-2.57	.95	-2.72*	-4.48 – -.66

†p < .10. *p ≤ .01. **p ≤ .001.

out via the PROCESS macro Model 3 for SPSS (Hayes 2013). Remembrances of maternal neglect was the independent variable (X), positive symptoms was the dependent variable (Y), SES was the primary moderator (M), and gender (W) was the secondary moderator. The means of all variables were centered and gender was coded as either 0 (female) or 1 (male).

This model was significant and accounted for 36% of the variance ($F(4, 45) = 3.61, p = .004$). The interaction among gender, SES, and maternal neglect contributed to 11% of the explained variance ($F(7, 45) = 7.37, p = .009$). As seen in Table 3, remembrances of maternal neglect made independent contributions to the positive symptoms ($b = .79, t = 2.88, p = .006, 95\%CI [23.86 - 1.34]$). None of the dual interactions (i.e., maternal neglect × SES, maternal neglect × gender, SES × gender) was significant. However, the three-way interaction among maternal neglect × SES × gender was significant ($b = -2.57, t = -2.72, p = .009, 95\%CI [-4.48 - -0.66]$). According to this model, the interaction between remembrances of maternal neglect and SES was only significant for female patients with schizophrenia ($b = -2.23, t = -2.78, p = 0.008, 95\%CI$

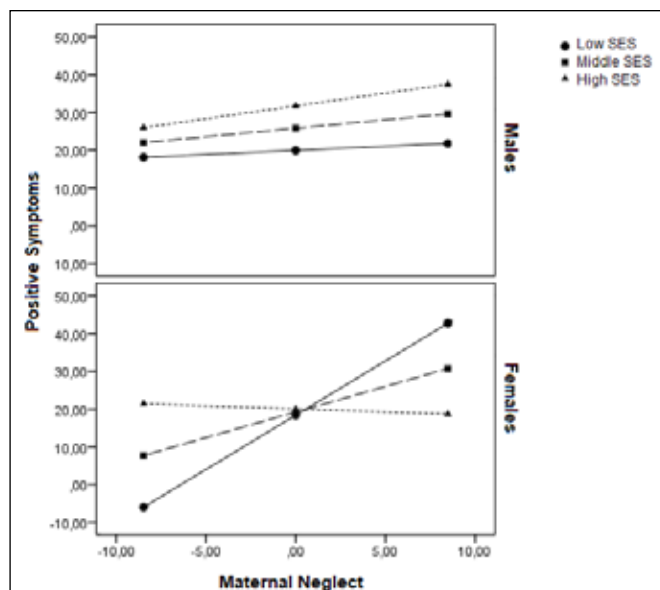


Figure 2. The moderating roles of gender and SES on the relationship between positive symptoms and maternal neglect

$[-3.85 - -.62]$); it was not significant for males ($b = .33, t = .67, p = .504, 95\%CI [-0.67 - 1.35]$).

As shown in Figure 2, the effect of remembrances of maternal neglect on the positive symptoms varied depending on the moderator effect of SES. In other words, the impact of remembrances of maternal neglect on current positive symptoms was stronger in female patients from low SES ($b = 2.87, t = 4.14, p \leq .001, 95\%CI [1.48 - 4.27]$) and middle SES ($b = 1.35, t = 3.20, p = .003, 95\%CI [-.50 - 2.21]$) families. This effect was not significant for female patients from high SES families ($b = -.17, t = -.24, p = .815, 95\%CI [-1.55 - 1.23]$).

DISCUSSION

In this study, we examined the relationship between the positive symptoms of patients with schizophrenia and perceived parental acceptance-rejection during their childhood within the context of the moderating roles of SES and gender. Results of this study revealed that patients with schizophrenia from low SES families perceived both their mothers and fathers as more cold, neglectful, and rejecting, but less controlling during their childhood compared to those from middle and high SES. Among the parental acceptance-rejection subscales, only maternal neglect was correlated with positive symptoms. A three-way interaction analysis (moderated moderation) indicated that the relationship between perceived maternal neglect in childhood and positive symptoms was stronger for female schizophrenia patients from low and middle SES families.

Participants' mean scores of parental acceptance-rejection revealed that patients with schizophrenia from middle and high SES families did not mention experiencing severe rejection in their relationships with their parents. However, participants from low SES families reported lower perceived maternal and paternal warmth, and more perceived maternal and paternal neglect during their childhood than did those from middle and high SES families. This finding is consistent with the view that the effect of SES on the child is associated with the influence of SES on the parents (Bradley and Corwyn 2002, Erkan and Toran 2010). The current study, in parallel with previous studies, revealed that parents from low SES families are likely to be more rejecting, and neglectful, and less warm and supportive towards their children.

The mean scores of the three SES groups for both maternal and paternal control revealed that all of the participants perceived moderate control by their parents during childhood. However, participants from low SES families remembered their mothers as less controlling than those from middle and high SES families. This result is not consistent with published literature showing that patients with schizophrenia tend to perceive their parents as controlling/overprotective. This unexpected finding may have two explanations. First, the PARQ control subscale does not assess overprotection. Second, correlation analyses indicated that when perceived maternal control increases, perceived maternal warmth increases, while perceived maternal neglect decreases. Therefore, recollections

of lower levels of maternal controlling behaviors may be related to perceived maternal neglect or indifference.

According to the correlation analyses, the only significant relationship was observed between the positive symptoms and remembrances of maternal neglect. This finding is consistent with other studies also showing that positive symptoms are associated with the behaviors of mothers rather than fathers (Catalan et al., 2017, Mulligan and Lavender, 2010). However, there have not been consistent findings in studies investigating the relationship between perceived parental neglect in childhood and specific symptoms of psychotic disorders. While some studies have shown that remembrances of neglect are related to increases in paranoid thoughts (Wickham and Bentall 2016) or positive symptoms (Ira et al., 2014) in psychotic individuals, others have shown that perceived neglect is related to both positive and negative symptoms (Evans et al., 2015). The present study supports the findings that emotional neglect is associated with positive symptoms.

There are many opinions in the literature regarding the effective mechanisms of adverse experiences with parents in childhood as they relate to psychosis in adulthood. One of these views is that an individual develops negative schemas about him/herself and others based on his/her relationships with their parents, and these schemes lead to an increase in positive symptoms of individuals with psychosis vulnerability (Appiah-Kusi et al., 2017, Bortolon et al., 2013). Another view concerns the effects of negative experiences on brain development. Severe, unpredictable, and persistent stressors lead to hyperactivation of the HPA axis, which begins sensitization in neurobiological processes and causes some neuro-anatomical and biochemical changes in the brain (Barker et al., 2015, Read et al. 2001).

The most remarkable finding of the current study was that perceived maternal neglect had a stronger effect on the positive symptoms of female schizophrenia patients from low and middle SES families, compared to females from high SES families and males regardless of SES. Although there was no significant difference between females and males in terms of perceived maternal neglect and SES, remembrances of maternal neglect had a greater effect on the positive symptoms of females from low and middle SES families. This result is consistent with the literature indicating that the relationship between adverse childhood experiences and psychotic symptoms is more significant for females than for males. Both animal and human studies have revealed that females are more susceptible to stress and trauma than males, as they react to stressful situations with more physiological and neurochemical stress responses (DeSantis et al., 2011, Goel et al., 2014). The current study highlighted that female schizophrenia patients from low and middle SES families tended to be more negatively affected by perceived maternal neglect in their childhood than those from high SES families.

The current study has some limitations. First, this study included a relatively small number of participants. In addition,

the participants consisted of stable schizophrenia patients who continued to receive regular antipsychotic treatment and often participated in group therapy. Therefore, the sample may not be sufficiently representative. Next, in the present study, SES was defined only by the monthly income level of the family. In further studies, more comprehensive assessments should be made by taking into consideration other aspects of SES, such as the education level of the mother or the number of individuals living in the same household who are sharing monthly income. In addition, the cross-sectional, correlational, and retrospective nature of this study makes it difficult to establish a causal relationship between psychopathology and parental behaviors.

Despite these limitations, this study reveals specific evidence of the association between perceived maternal neglect in childhood and the positive symptoms of schizophrenia patients. Examining recollections of maternal neglect in childhood, and, if necessary, applying trauma or attachment-focused interventions may play a role in reducing the severity of positive symptoms of female patients with schizophrenia, especially those from low and middle SES families.

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