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Shame and guilt in youth at ultra-high risk for psychosis

Hye Yoon Park [a,b], Eunchong Seo [a,b], Kyung Mee Park [b,c], Se Jun Koo [b,d], Eun Lee [a,b], Suk Kyoon An [a,b,d,*]

[a] Department of Psychiatry, Yonsei University College of Medicine, Severance Hospital, Seoul, Republic of Korea
[b] Section of Self, Affect and Neuroscience, Institute of Behavioral Science in Medicine, Yonsei University College of Medicine, Seoul, Republic of Korea
[c] Department of Hospital Medicine, Yongin Severance Hospital, Yonsei University College of Medicine, Yongin, Gyeonggi-do, Republic of Korea
[d] Graduate Program in Cognitive Science, Yonsei University, Seoul, Republic of Korea

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ABSTRACT

Objective: Feelings of shame and guilt have rarely been investigated in people at ultra-high risk (UHR) for psychosis. We aimed to outline differences in shame and guilt in relation to empathy and theory of mind (ToM) in young people, particularly those at UHR for psychosis.

Methods: First, 166 young healthy controls were assessed for their proneness to shame and guilt using the Test of Self-Conscious Affect, empathy and its four subdomains (perspective taking, fantasy, empathic concern, and personal distress) using the Interpersonal Reactivity Index (IRI), ToM using the ToM picture stories task, and neurocognitive performance using the Raven's Standard Progressive Matrices (SPM). Next, we evaluated shame and guilt in 24 UHR individuals comparing them to 24 age- and sex-matched healthy controls. Finally, we explored relationships for shame and guilt in relation to empathy and ToM in the UHR individuals.

Results: In the healthy youth, a regression analysis showed fantasy and personal distress in IRI to be significant determinants of shame, while perspective taking and empathic concern in IRI, ToM, and SPM were independent predictors of guilt. Meanwhile, compared to the healthy controls, individuals with UHR exhibited higher levels of shame, which was associated with increased personal distress.

Discussion: Our findings showed that four subdomains of empathy, ToM, and neurocognition were differentially associated with shame and guilt in healthy young people. Given the correlation between excessive feelings of shame and high levels of the personal distress dimension of empathy in UHR for psychosis, redressing the tendency to focus on self-oriented negative emotions upon witnessing distress of others could possibly reduce self-blame or self-stigma of help-seeking individuals.

1. Introduction

Shame and guilt are self-conscious emotions involved in self-awareness, self-reflection, and navigation of how others consider one's self [1]. While shame and guilt are similarly provoked by negative self-evaluation, they differ based on how one appraises errors or transgressions [2]. Negative appraisal to the global aspect of the self may trigger shame, whereas attribution to specific behaviors of the self may elicit guilt [3]. Feelings of shame and guilt help people determine their behavior in social situations; however, if not properly regulated, their adaptive functions can be lost, resulting in a variety of psychopathological symptoms [4]. In schizophrenia, intense feelings of shame and guilt are observed during the early period of illness and persist despite remission from symptoms [5]. An attempt to understand the impact of shame

on psychotic experiences indicated positive associations between them and greater shame in those with psychosis compared to controls (effect size; Cohen's $d = 0.76–1.16$) [6].

Research suggests that shame and guilt can be described in terms of cognitive operations that have evolved to help in the estimation of social value [3]. Empathy is one social cognitive domain related to shame and guilt [7]. Empathy indicates a sense of similarity between others' expressed feelings and the feelings one experiences [8]. The Interpersonal Reactivity Index (IRI), an influential measure by Davis [9], contains four dimensions of empathy: perspective taking (adopting others' psychological viewpoints), fantasy (imaginatively transposing oneself into the feelings of fictional characters), empathic concern (feelings of concern toward others), and personal distress (self-oriented feelings of negative emotions in uneasy situations faced by others). It has been suggested that these dimensions differ in relation with shame and guilt [7,10,11]. Shame appears to be linked to personal distress [7,11], whereas guilt is linked to perspective taking and empathic concern [7,10,11]. Research on the four dimensions of empathy in

* Corresponding author at.: Department of Psychiatry, Yonsei University College of Medicine, 50-1 Yonsei-ro, Seodaemun-gu, 03722 Seoul, South Korea.
E-mail address: ansk@yuhs.ac (S.K. An).

people with schizophrenia have reported abnormal empathic abilities, mostly lower scores for perspective taking and increased scores for personal distress [12–15]. However, there is limited evidence on whether impairment in empathy affects shame and guilt in people with schizophrenia.

The interpersonal nature of self-conscious emotions [3] also raises the question of the contribution of the theory of mind (ToM) to shame and guilt. ToM reflects an individual's capacity to understand another's mental state and ranges from a simple understanding to theorization of another's intentions [16]. Relationships between ToM ability and self-conscious emotions demonstrated in the mediation analysis showed shame and guilt as mediators of the relationship between empathy and depressive symptoms in adolescents [17]. Children with autism showed ToM deficiency which was correlated with poor recognition of self-conscious emotions [18], and adults with autism who showed greater inclination to shame demonstrated associations of shame and guilt with ToM [19]. However, there is limited evidence on the link between ToM and feelings of shame and guilt in people with schizophrenia with well-established deficits in ToM [20].

Individuals at high risk of developing psychosis have received attention in schizophrenia research because they share features of schizophrenia, such as subthreshold forms of psychotic symptoms [21], neurocognitive impairments [22], or self-disturbance [23], without the influence of chronic illness and long-term use of antipsychotics. Moreover, the social cognitive domains were disrupted, including reduced empathy [24] and impaired ToM [25], in putative prodromal phase individuals identified as being at "ultra-high risk" (UHR) for psychosis. UHR individuals are help-seeking young individuals who meet one or more of the following three groups and experience deterioration in functioning: the attenuated psychotic symptoms (APS) group, the brief limited intermittent psychotic symptoms (BIPS) group, and the group with genetic vulnerability (GRDS) [26]. UHR criteria focus on adolescents and young adults since this age range shows the highest incidence of psychosis [27]. Since self-conscious emotions emerge at a later course of development than basic emotions [28] and show further refinement during adolescence [29], further studies of shame and guilt are required in UHR individuals with careful age-matching.

To date, distinctions between shame and guilt regarding relationships with empathy and ToM ability have not been investigated in the general population; specifically, in late adolescence and young adulthood. Moreover, it is unclear whether shame or guilt are aberrant in UHR individuals. Even less is known about factors associated with shame and guilt in relation to social cognitive abilities in UHR individuals. Accordingly, we aimed to compare associations of shame and guilt with the four dimensions of empathy and ToM ability in healthy youth. Additionally, our study aimed to outline shame and guilt according to multiple domains of social cognitive ability in UHR individuals. The Test of Self-Conscious Affect (TOSCA) [30], IRI [9], and the ToM picture stories task [31] were utilized to assess self-conscious emotions including shame and guilt, four subdomains (perspective taking, fantasy, empathic concern, and personal distress) of empathy, and ToM ability, respectively. In light of findings in the general population which showed correlations between shame and personal distress (Spearman's ρ: 0.38 to 0.41) [7], guilt and perspective taking (Spearman's ρ: 0.28 to 0.37) [7,10], and guilt and empathic concern (Spearman's ρ: 0.47) [10], we first hypothesized that shame and guilt would exhibit different relationships with the four dimensions of empathy and ToM in a young population: (1) shame would be associated with personal distress dimensions of empathy, which are related to one's own negative affective states, despite being in social contexts; and (2) guilt, in contrast to shame, would be associated with perspective taking and empathic concern dimensions of empathy and ToM, which are related to considering the perspectives of others. Second, we hypothesized that UHR individuals would exhibit aberrant levels of self-conscious emotions, especially shame, with a medium effect size based on the most recent review [6], which is related to empathy and ToM ability.

2. Methods

2.1. Participants

Healthy young people aged 15–35 years were enrolled via a post on a job vacancy website and UHR individuals were recruited from the clinic of the Green Program for Recognition and Prevention of Early Psychosis (GRAPE) project at Severance hospital in Seoul, South Korea. Further details on the GRAPE project including the inclusion and exclusion criteria have been reported elsewhere [32,33]. To examine distinctions between shame and guilt among young people, 166 healthy youth were recruited. Next, to explore differences in shame and guilt in UHR individuals, 24 UHR individuals and additionally recruited 24 age- and sex-matched healthy participants were compared. All the included participants were assessed for psychiatric disorders using the Structured Clinical Interview from Diagnostic and Statistical Manual of Mental Disorders, fourth edition. Therefore, we excluded those with any major psychiatric illnesses in healthy control samples, and we evaluated comorbid diagnoses in UHR participants. All UHR individuals fulfilled the criteria for prodromal syndromes according to the Structured Interview for Prodromal Syndromes (SIPS). Information regarding highest grade or level of educational achievement for calculating years of education (e.g. middle school graduation, high school graduation, or attended college for two years was calculated to 9, 12, or 14, respectively) was obtained from the participants. This study was carried out in accordance with the Declaration of Helsinki, and an ethical review of the protocol was performed by the institutional review board at Severance Hospital. All of the participants and the parents of the participants who were under 18 years of age provided written informed consent.

2.2. Measures

2.2.1. Self-conscious affects

As a measure of proneness to shame and guilt, the scenario-based self-reported Test of Self-Conscious Affect (TOSCA) [30] was used. TOSCA consists of 16 scenarios describing interpersonal situations, such as unintentionally harming a friend or achievement failure in school or work. Each scenario is followed by four or five responses that represent shame, guilt, externalization, detachment, and pride. In our study, only response items reflective of shame and guilt were used. The shame items referred to negative self-evaluations and motivation for avoidance, while the guilt items included feeling bad about one's behavior and willingness to repair damage caused by this behavior. Respondents rated the likelihood of them responding in a particular manner on a 5-point scale ranging from 1 (*not likely*) to 5 (*very likely*). The internal consistency (Cronbach's alpha) values in our study were 0.86 for shame items and 0.81 for guilt items.

2.2.2. Empathy

The 28-item, multidimensional, self-reported IRI [9] was utilized to assess empathy. The index consists of four seven-item subscales: perspective taking, fantasy, empathic concern, and personal distress. The perspective taking subscale corresponds to the likelihood of adopting others' viewpoints; the fantasy subscale measures one's tendency of identifying with fictional characters; the empathic concern subscale represents warmth or concern toward others; and the personal distress subscale assesses a tendency to experience negative emotions upon witnessing the unpleasant situations of others. Responders rated each item from 0 (*does not describe me well*) to 4 (*describes me very well*). In our study, the internal consistency values (Cronbach's alpha) for this assessment were 0.78 for perspective taking, 0.79 for fantasy, 0.75 for empathic concern, and 0.76 for personal distress.

2.2.3. Theory of mind

The ability of the participants to infer the mental states of others was assessed using a ToM picture stories task (ToM task) [31] consisting of

six cartoon stories. Two stories depicted the cooperation between two characters; two cartoon sequences portrayed the deception of one character by another; and two scenarios dealt with two characters cooperating together to deceive a third one. Each story consisted of four picture cards which were faced down in the identical order (4–1–2-3), and participants were asked to reorganize these cards in a logical order of events. For measurement, two points were given when the first and the last cards were correctly sequenced, and one point was added when the second card and the third card were in the right sequence, with total sequencing scores ranging from 0 to 36 points. A questionnaire score (0–23 points) was obtained from the questions, which pertained to the mental states of the given characters.

2.2.4. Analogical reasoning task

Because neurocognitive function involves self-conscious emotions [34], we considered neurocognitive function as an independent variable in regression analyses and a covariate in correlation analyses. The Raven's Standard Progressive Matrices (SPM) test [35] was used to evaluate abstract reasoning by analogy and intelligence. Sixty noncolored diagrammatic puzzles, each with a missing part, were presented to the participants for identifying from several options (0–60 points).

2.3. Procedures

All participants were given a packet containing the self-reported questionnaires, including TOSCA and IRI, and underwent evaluation using the ToM task and SPM by psychologists.

2.4. Statistical analysis

A multiple linear regression analysis was conducted with the healthy young participants to evaluate the independent contributions of empathy, ToM, and reasoning by analogy to guilt and shame. The regression model was based on the enter method. Independent t-tests were utilized to compare the healthy control and UHR groups according to demographic and clinical characteristics. Pearson's partial correlations with adjustment for reasoning by analogy were conducted to examine relationships for shame and guilt with empathy and ToM in UHR individuals. The threshold of significance was set at $p < 0.05$. The p-values were adjusted using Bonferroni correction for multiple comparisons.

3. Results

3.1. Clinical and demographic characteristics

The characteristics of the participants are described in Table 1. Sex, age, and educational level were similar between the age- and sex-matched healthy control and UHR groups. SIPS diagnoses of UHR individuals were as follow: only APS ($n = 17$), only BIPS ($n = 1$), APS + BIPS ($n = 1$), APS + GRDS ($n = 4$), and APS + BIPS + GRDS ($n = 1$). The means and standard deviations (SD) of each SIPS domain score were 10.9 (4.1), 13.1 (4.6), 3.5 (2.5), and 8.1 (3.7) for positive, negative, disorganized, and general domains, respectively. Comorbid psychiatric disorders in UHR individuals were depressive disorder ($n = 10$), depressive disorder + social phobia ($n = 2$), depressive disorder + obsessive-compulsive disorder ($n = 1$), social phobia ($n = 1$), panic disorder ($n = 1$), somatoform disorder ($n = 1$), and depersonalization/derealization disorder ($n = 1$). Five UHR individuals were taking antipsychotic medications (mean [SD] of chlorpromazine equivalent dose [36]: 132.4 [93.7]).

The UHR group had significantly lower SPM scores than the healthy control group. Regarding subscales of IRI, UHR individuals showed significantly lower scores in perspective taking, higher scores in fantasy, and higher scores in personal distress than HC participants. Questionnaire scores of the ToM task were significantly lower in the UHR group compared to the HC group. Since impaired neurocognitive function, empathy, and ToM ability in the UHR individuals confirm the findings in previous literature [22,25,37] and are not a matter of concern in the present study, we did not discuss the details further.

3.2. Associations of shame and guilt with empathy, ToM, and reasoning by analogy in healthy youth

The results of a multiple linear regression analysis to predict shame and guilt from social cognitive variables are shown in Table 2. Overall full regression models were significant for shame and guilt. Regression analysis with shame as the dependent variable indicated fantasy and personal distress in IRI to be significant determinants thereof. The regression model for guilt showed the following variables to be independent predictors thereof: perspective taking and empathic concern in IRI, ToM task questionnaire score, and reasoning by analogy.

Table 1
Demographic and clinical characteristics of the study groups.

Variable	Healthy youth (N = 166)	Healthy controls (N = 24)	UHR (N = 24)	p-value[d]
Sex, male/female, No.	80/86	16/8	16/8	1.000
Age, mean (SD), y	23.1 (2.6)	21.8 (3.3)	21.9 (3.8)	0.968
Educational level, mean (SD), y	14.4 (1.4)	13.3 (1.2)	13.1 (2.2)	0.682
TOSCA, mean (SD)				
Shame	41.0 (10.4)	38.8 (7.9)	47.2 (15.2)	0.021
Guilt	61.3 (8.0)	62.5 (8.1)	58.8 (11.1)	0.157
Empathy,[a] mean (SD)				
Perspective taking of IRI	18.0 (4.4)	17.7 (4.7)	13.0 (2.9)	<0.001
Fantasy of IRI	16.3 (4.9)	15.3 (4.3)	18.5 (5.2)	0.028
Empathic concern of IRI	16.4 (4.5)	15.8 (5.4)	14.7 (4.0)	0.454
Personal distress of IRI	13.9 (4.5)	13.1 (3.7)	17.3 (4.5)	0.001
ToM,[b] mean (SD)				
Sequencing score of ToM task	34.0 (3.0)	34.1 (3.0)	34.0 (3.8)	0.930
Questionnaire score of ToM task	22.0 (1.2)	22.6 (0.9)	20.0 (2.7)	<0.001
Reasoning by analogy,[c] mean (SD)				
SPM	52.4 (5.2)	54.0 (3.5)	49.3 (8.7)	0.034

Abbreviations: IRI, Interpersonal Reactivity Index; SD, standard deviation; ToM: Theory of mind picture stories; TOSCA, Test of Self-Conscious Affect; SPM, Raven's Standard Progressive Matrices; UHR, ultra-high risk for psychosis.
[a] IRI data available for 21 UHR participants.
[b] ToM task data available for 22 UHR participants.
[c] SPM data were available for 19 UHR participants.
[d] Independent t-tests were used to compare the healthy control and UHR groups.

Table 2
Multiple regression analysis of shame and guilt in relation to empathy, ToM, and reasoning by analogy in healthy youth.

TOSCA	Independent variable	B	SE	Beta	t	P	Model properties
Shame	(Constant)	8.94	15.79		0.57	0.572	$R^2 = 0.254$; adj $R^2 = 0.221$; F = 7.70 $P < 0.001$
	IRI						
	Perspective taking	−0.05	0.19	−0.02	−0.27	0.788	
	Fantasy	0.49	0.16	0.23	3.07	0.002	
	Empathic concern	−0.14	0.19	−0.06	−0.74	0.460	
	Personal distress	0.98	0.17	0.43	5.84	<0.001	
	ToM task						
	ToM sequencing	−0.17	0.25	−0.05	−0.67	0.508	
	ToM questionnaire	0.55	0.60	0.06	0.92	0.361	
	Reasoning by analogy	0.14	0.142	0.07	0.99	0.324	
Guilt	(Constant)	9.81	12.06		0.81	0.417	$R^2 = 0.248$; adj $R^2 = 0.214$; F = 7.44 $P < 0.001$
	IRI						
	Perspective taking	0.48	0.14	0.27	3.38	0.001	
	Fantasy	0.17	0.12	0.10	1.37	0.172	
	Empathic concern	0.34	0.15	0.20	2.32	0.022	
	Personal distress	0.18	0.13	0.10	1.37	0.172	
	ToM task						
	ToM sequencing	−0.07	0.19	−0.03	−0.35	0.727	
	ToM questionnaire	1.05	0.46	0.16	3.38	0.024	
	Reasoning by analogy	0.22	0.11	0.14	2.00	0.047	

Abbreviations: IRI, Interpersonal Reactivity Index; ToM, Theory of mind picture stories; SPM, standard progressive matrices; TOSCA, Test of Self-Conscious Affect.

3.3. Shame and guilt in UHR individuals

As shown in Table 1, the UHR group had significantly higher levels of shame than the healthy control group (Cohen's $d = 0.71$). Guilt in UHR individuals was not significantly different from the healthy controls.

3.4. Shame and guilt correlated with empathy and ToM in individuals at UHR for psychosis

Partial correlation analyses adjusted for reasoning by analogy were conducted to rule out the effects of neurocognitive deficits in the UHR group. As shown in Table 3, shame was positively correlated with personal distress in individuals at UHR for psychosis. No significant correlation was found for shame and ToM. There were no significant correlations for guilt with empathy or ToM in UHR individuals.

4. Discussion

In the present study, we evaluated, for the first time, differences between shame and guilt in relation to multiple domains of social cognitive ability in a healthy young population in comparison to those in UHR individuals. Among general young people, shame was associated with fantasy and personal distress dimensions of empathy, while guilt was associated with perspective taking and empathic concern of empathy, ToM, and neurocognition. Among individuals with UHR for psychosis, excessive feelings of shame were demonstrated and correlated with high levels of personal distress.

4.1. Distinction between shame and guilt regarding social cognitive abilities in healthy youth

In healthy young participants, shame was associated with fantasy and personal distress among four dimensions of empathy, whereas guilt was associated with perspective taking and empathic concern components of empathy, ToM ability, and reasoning by analogy. Shame is a painful experience that involves a preoccupation with the self [38]. In people with a high level of shame, initially noticing distressed others is lost as the focus moves toward the empathic affect to the self [39]. The association of shame with personal distress and fantasy dimensions of empathy in this study could be understood in relation to this self-focused nature of shame. The personal distress subscale of IRI captures one's own negative emotions connected with perceived crisis situations [9]. Therefore, the link between personal distress of IRI and shame of TOSCA, which is consistent with a previous study of college students ranging in age from 17 to 42 (correlation coefficients, 0.38 to 0.41) [7], could be understood by the effect of personal distress provoking a self-oriented manner. The fantasy subscale measures tendencies to imaginatively transpose oneself into fictitious situations and to provide emotional experiences in those situations by being oneself [9]. The attribution of fantasy to shame, thereby, may be explained by allowing oneself to locate markedly self-focused situations.

Table 3
Partial correlations of shame and guilt with empathy and ToM in UHR individuals.

	IRI				ToM task	
	Perspective taking	Fantasy	Empathic concern	Personal distress	ToM sequencing	ToM questionnaire
Shame	−0.31 (0.227)	0.47 (0.059)	−0.20 (0.448)	**0.72** **(0.001)**	0.22 (0.407)	0.42 (0.096)
Guilt	0.09 (0.721)	0.26 (0.313)	0.10 (0.693)	0.35 (0.164)	0.47 (0.058)	0.25 (0.335)

Abbreviations: IRI, interpersonal reactivity index; ToM: Theory of mind picture stories; TOSCA, Test of Self-Conscious Affect; UHR, ultra-high risk.
Notes: Data are expressed as correlation coefficients (p-value). Partial correlations were adjusted for reasoning by analogy. The uncorrected probability level was set at a p-value less than 0.004 (i.e., 0.05/12) which were calculated for multiple comparisons.

In contrast, feelings of guilt focus on a specific harmful behavior, especially regarding its impact on others, rather than on the self [40]. Consistent with previous studies, in a sample of individuals aged 17 to 42 years (correlation coefficients between guilt of TOSCA and perspective taking of IRI, 0.28 to 0.37) [7] and in a sample of individuals 13 to 16 years (correlation coefficients between guilt of TOSCA and perspective taking and empathic concern of IRI, 0.47 and 0.30) [10], our study demonstrated that guilt is influenced by perspective taking and empathic concern dimensions of empathy, which are required to form empathic connections with others. Additionally, the involvement of cognitive abilities for guilt to accurately recognize and discriminate another person's experience [40] was corroborated in this study by showing its correlation with ToM ability and reasoning by analogy.

4.2. Shame and guilt in UHR individuals

Similar to previous studies on schizophrenia, our study showed that UHR individuals have higher levels of shame than healthy controls with a medium effect size (Cohen's $d = 0.71$). While the current research on shame in UHR cohorts is extremely limited, the scores of shame in UHR individuals (mean [SD], 47.2 [15.2]) were similar to a previous study conducted on relatives of people with schizophrenia (mean [SD], 46.3 [11.9]) [41] although direct comparison was not possible. Accordingly, our findings highlight the presence of emotion processing deficits in UHR individuals and may indicate the disturbance of self-conscious emotions prior to the onset of psychosis. Recent research using brain imaging techniques have yielded several brain regions related to feelings of shame. By using functional magnetic resonance imaging, self-conscious emotions including shame, guilt, and pride activated medial prefrontal cortex and posterior cingulate regions [42] and imagination of shame specifically activated the middle frontal gyrus [43]. Given aberrant activation of cortical midline structures in UHR individuals during self-referential tasks [44], abnormal levels of shame in UHR individuals may reflect their threats to the self and disruption of neural substrates underpinning of self-awareness. It may be beneficial to adapt cognitive behavioral therapies to address beliefs and feelings of shame. In addition, since shame is also an important emotion in relation to stigma stress and reduced well-being in persons at risk of psychosis [45], community interventions targeting marginalization in society may impact shame [6]. Nonsignificant correlations of guilt with subscales of empathy in UHR participants would reflect disrupted relationships between guilt and empathy due to already impaired empathy [24] in UHR individuals, but fewer UHR participants (n = 24) than healthy youths (n = 166) might yield false negative findings.

Emotional changes have been suggested as a precursor to the occurrence of psychotic symptoms and a perpetuator for sustained difficulties [46]. Among these, shame intertwined with intense self-blame causes individuals to feel inferior [5,47] and turn tightly inwards, withdrawing within themselves [40]. Based on our findings that personal distress of empathy is linked to high levels of shame in UHR individuals, those in the prodrome to psychosis may avoid interpersonal settings due to self-oriented unease and anxious feelings that related to excessive feelings of shame. Persistent feelings of shame also inhibits psychotherapeutic relationships [48]; therefore, clinicians need to handle these excessive feelings in help-seeking UHR individuals besides preventing transition to psychosis. The present findings suggest potential interventions to reduce shame in help-seeking UHR individuals, which not only include implementing shame reduction interventions, such as acceptance and commitment therapy [49] and mindfulness-based cognitive therapy [50,51], but also redressing the social cognitive tendency to experience self-oriented distress upon witnessing the unpleasant situations of others. For example, improving the ability to interact effectively with others by regulating and tolerating negative emotions, similar to skills training in dialectical behavior therapy [52], could be effective in reducing feelings of shame.

4.3. Limitations

Some limitations should be considered in our study. The cross-sectional design of the present study limited our understanding of any causal relationships, such as the interplay between self-conscious emotions and social cognitive abilities in developmental processes or the link between emotional disturbance and the onset of psychosis. A small sample size of UHR individuals may preclude finding other correlations among self-conscious emotions, empathy, and ToM ability. Additionally, medicated UHR individuals may have confounded the results. However, the effects of antipsychotic medications would unlikely change the main findings in our study, because identical results were obtained with correlation analysis repeated in unmedicated UHR individuals.

4.4. Conclusion

In the present study, we found that four subdomains of empathy, ToM ability, and neurocognition differentially associated with shame and guilt in late adolescence and young adulthood. Furthermore, the personal distress dimension of empathy appeared to be associated with a higher level of shame in UHR individuals. Future longitudinal follow-up research is required to investigate the underlying mechanisms of emotional disturbance in reference to shame which would shed light on a valuable approach for UHR individuals to modify their maladaptive coping behaviors, including social withdrawal.

Role of the funding source

Declaration of Competing Interest

None.

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