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Childhood trauma: a risk for major depression in patients with psoriasis

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ABSTRACT

INTRODUCTION: A history of childhood trauma is an important determinant for understanding the development of psychiatric and physical disorders. The chronic inflammatory disease, psoriasis, has been reported to be affected by childhood psychological stressors. Early life stress is also a well-known contributor to major depression. The current study aims to clarify a possible association between levels and types of childhood trauma with psoriasis severity and major depression.

METHOD: Sixty-four patients diagnosed with mild-to-severe psoriasis (male = 27, mean age = 52.51 ± 14.72 years and female = 37, mean age = 42.76 ± 14.45 years, age range = 21–77) were admitted to our study between April 2014 and September 2014. For the diagnosis of psoriasis, the single most recently developed lesion was examined dermoscopically and histopathologically. We evaluated the history of childhood trauma with the Childhood Trauma Questionnaire and diagnosis of major depression with the Mini International Neuropsychiatric Interview (MINI 5.0.0 current). The participants were scanned for their severity of psoriasis with Psoriasis Area and Severity Index 75 (PASI 75). Initially, the data were checked for normality using Kolmogorov–Smirnov/Shapiro–Wilk's tests, histograms, and probability plots. Because normality of the data could not be assumed, we evaluated childhood trauma subscales and psoriasis by running Kendall's tau-b correlation coefficients for bivariate comparisons. Mann–Whitney *U* test was conducted to assess the differences in childhood trauma severity of each subscale between two groups of depressed and non-depressed patients with psoriasis. Ultimately, we ran chi-square analysis to evaluate the association between gender and depression.

RESULTS: Emotional (0.325), physical (0.614), sexual (0.963) abuse, and emotional (0.331) neglect were positively correlated with higher severity of psoriasis ($p < .01$). Subsequently, emotional ($U = 372$, $p = .43$), physical ($U = 387$, $p = .049$), sexual ($U = 297$, $p = .0005$) abuse, emotional ($U = 299.5$, $p = .001$), and physical $U = 372$, $p = .031$) neglect were significantly higher in psoriasis patients with depression compared to non-depressed ($p < .05$).

CONCLUSION: The findings of the current study underline the relationship between childhood trauma and major depression, as well as childhood trauma and psoriasis. The increased level of emotional, physical, sexual abuse, and emotional neglect was linked to elevated severity of psoriasis. Likewise, all childhood trauma subtypes appeared to be more severe in the group of psoriasis patients with major depression. Investigation of childhood traumatic experiences, and major depression in individuals with psoriasis, the screening of depressed patients for psoriasis, and the cross-referencing of the outcome can be expected to provide remarkable findings, new approaches for diagnosis and treatment, as well as implications for promulgating new legislation.

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Introduction

Childhood trauma is an important and underrated psychosocial problem. It occurs at alarmingly high rates worldwide and is a crucial, yet quasi-dormant determinant, contributing to later development of mental and physical health morbidities for its paediatric victims.

The Adverse Childhood Experiences Study defines childhood maltreatment as emotional abuse, physical abuse, sexual abuse, physical neglect, and emotional neglect [1]. In the extensive body of literature, child physical abuse is defined as physical punishment, painful, and inimical behaviour caused by the parent(s) or caregiver(s). Child emotional abuse is an attempt to

do verbal threats, mocking, destructive, and insulting criticism as well as disturbing comments done by parent(s) or caregiver(s). Child sexual abuse or child molestation is a type of child abuse in which an adult (at least 5 years older) uses a child for sexual gratification or sexual stimulation. Sexual abuse engages a child in sexual activities and salacious exposure of the genitals and nipples or using a child for the purpose of pornography. Child emotional neglect involves the insufficient/poor satisfaction of child's emotional needs such as love, support, interests, attachment, and care. Child physical neglect is the insufficient/poor satisfaction of child's physical and intellectual

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needs such as nutrition, education, and medical care [1]. According to Cooper and colleagues [2], childhood trauma is an emotionally painful or distressful event, endangering the psychic capacity that “provides a minimal sense of safety and integrative intactness. It results in overwhelming anxiety or helplessness, and produces an enduring change in the psychic organization.” The long-term psychological and somatic consequences of childhood trauma have been well validated in an extensive body of research [3–9]. Central Nervous system (CNS) sensitization is an utmost probable contributor leading to these late consequences [10]. However, its mechanisms are not yet fully understood. Carr et al. address the importance of Early Life Stress as a predictor of psychopathology in adulthood. Physical and sexual abuse, as well as unspecified neglect, shows a strong association with affective disorders. Emotional abuse is associated with personality disorders and schizophrenia. In addition, physical neglect appeared to be linked to personality disorders [11]. According to Lanius and Vermetten, liver disease, Chronic Obstructive Pulmonary Disease, Coronary Artery Disease, and autoimmune disease show the strongest association with adverse childhood experiences [9].

Clinical and survey studies show that traumatic childhood experiences negatively affect not only the mental health of the victims but also subsequent physical health or non-CNS illnesses [12–14]. Previous studies on psychophysiology and aetiopathogenesis defined the importance of environmental stressors, in particular when experienced during early childhood, on skin. Psoriasis, a chronic inflammatory disease with genetic factors, appears to be triggered and exacerbated by early life traumatic and psychological stressors [15–19]. The emerging body of evidence reveals that childhood traumatic experiences and its mechanism may make the victims more vulnerable to development of depression [20]. This underlying mechanism may also explain the higher susceptibility of individuals with childhood trauma to developing psoriasis later in life [20]. Although the research on the impact of childhood trauma on psoriasis is still in its infancy, Simonić et al. acknowledge psoriasis as a bodily manifestation of childhood traumatic experiences with the presence of genetic predisposition [21].

Depression is the leading cause of disability, measured by Year Lives with Disability which is defined as a measurement of the burden of the disease in course of a time and the 4th leading contributor to the global burden of the disease [22]. By 2020, depression is predicted to become the second global cause of disability [23]. The variable symptoms of depression show that it is a heterogeneous disorder [24], which is caused by a variety of risk factors. The extensive epigenetic research repeatedly demonstrates the far-reaching effects of early life trauma linked to depression in adulthood with presence of genetic vulnerability [25–27].

Referring to Negele [28], the heterogeneous group of depressed patients signifies the different pathogeneses and childhood traumatic experiences are the most multifactorial models of psychosocial aspect on the aetiopathogenesis of depression. Depression per se can manifest in association with several physical diagnoses. Medical diseases may be components of the complex pathway that determine the emergence of depression [29]. Depression may merge with expression of dermatological disorders, as some severe skin diseases have an enormous impact on the quality of sufferers' lives [30, 31]. Various studies suggested that depression is significantly more prevalent among patients with skin disorders [32].

Thus, in this study, we investigated the association between the degree of childhood trauma and the severity of psoriasis, and the differences in severity of retrospectively reported negative childhood experiences between depressed and non-depressed patients with psoriasis.

Methods

Participants

Sixty-four psoriasis patients, consisting of 37 females (57.8%, mean age = 42.76 ± 14.45 years) and 27 males (42.2%, mean age = 52.51 ± 14.72 years) who were presently followed up with a diagnosis of psoriasis in our dermatology outpatient clinic in Mashhad/Iran, agreed to contribute in the study, so they were consecutively enrolled. The ascertainment of psoriasis was done by examining dermoscopically and histopathologically the single most recently developed lesion.

The study was approved by the ethical committee of the Azad University of Mashhad/Iran under the number of (IRB 498-2014). The entire participants' enrolment was done with adherence to World Medical Association ethical principles set of Declaration of Helsinki and Iranian human research ethical laws and regulations. The process of collecting data took place in course of 5 months from April 12 2014 to September 30 2014.

The current study was a single-blinded trial in which participants received Childhood Trauma Questionnaire (CTQ), a self-administered questionnaire, and subsequently were interviewed through Mini International Neuropsychiatric Interview (M.I.N.I. 5.0.0) by a junior resident psychiatrist. Prior to the interview, the interviewer was briefly trained on how to run the MINI. The severity of psoriasis was estimated by a resident dermatologist, according to the Psoriasis Area and Severity Index 75 (PASI).

Inclusion criteria

In this study, we included patients with at least one of the five types of psoriasis such as plaque, guttate,

inverse, erythrodermic, and pustular. These five subtypes are known to only have dermatological manifestations. The patients had to be above 18 years old to be included in the study.

Exclusion criteria

Exclusion criteria comprised patients with psoriasis arthritis whose body joints were also affected. We excluded the patients with a history of any psychiatric disorders, use of active substance use within past six months, and any hormonal or psychotropic medications.

Measures

The Psoriasis Area and Severity Index 75 (PASI)

Psoriasis lesions were examined by a dermatologist in detail and Psoriasis Area and Severity Index 75 (PASI) was calculated in order to determine the severity of the disease which is evaluated based on the severity of lesions and the area affected. The PASI 75 total score ranges from 0 to 72 and higher scores indicate greater psoriasis severity [19]. The cut-off score is calculated based on the percentage of achieved score. PASI 75 represents the percentage of patients who achieved at least 75% or more reduction in their score from baseline. The severity of psoriasis diagnosis consists of 3 scales of “mild,” “moderate,” and “severe.” PASI 75 shows acceptable reliability for the assessment of psoriasis severity. According to Faria et al., PASI 75 demonstrates significant concordance after performing independent evaluations [33]. Regarding the validity of PASI 75, Puzenat et al. stated that PASI 75 meets the methodological validation criteria and it can be recommended for scientific evaluation of psoriasis severity [34].

Childhood trauma questionnaire [35]

Childhood trauma was examined using the Persian short version of the CTQ. CTQ is a self-administered questionnaire for screening retrospective childhood or adolescent abuse and neglect. It measures several dimensions of maltreatment experiences, including the severity, frequency, and duration, consisting of 28 items. The severity of each childhood trauma subscales includes “mild,” “moderate,” “severe,” and “extreme.” According to Bavalacqua et al. [36], the cut-off scores for each subscale were for sexual abuse ≥ 8 , physical abuse ≥ 8 , emotional abuse ≥ 10 , physical neglect ≥ 8 , and emotional neglect ≥ 15 . The internal consistency coefficient of the English version ranged from 0.84 to 0.89 for emotional abuse, 0.81 to 0.86 for physical abuse, 0.92 to 0.95 for sexual abuse, 0.85 to 0.91 for emotional neglect, and 0.61 to 0.78 for physical neglect [37]. Nakhaee and Garrusi [38] performed the Persian language validation and reliability studies for the test. The reliability was examined using Cronbach

coefficient alpha and corrected item-total correlation. The questionnaire exhibited acceptable convergent validity with the general health questionnaire. In summary, the Persian version of CTQ showed acceptable psychometric properties.

Mini international neuropsychiatric interview (M.I.N.I. 5.0.0)

Psychiatric evaluations consisted of the Persian version of Mini International Neuropsychiatric Interview (M.I.N.I. 5.0.0) for the diagnosis of depression [39]. M.I.N.I. 5.0.0 is a structured diagnostic interview to explore 17 main diagnoses-based Axis I of DSM-IV and ICD-10 criteria as well as the risk of suicide and antisocial personality disorder. Response options to items on the survey are structured in a binary format no = 0 or yes = 1. We applied MINI as psychiatric evaluation for the diagnosis of depression. The evaluation was compatible with the diagnostic criteria established by the Diagnostic and Statistical manual of Mental disorders (DSM-IV) and the International Classification of Disease (ICD-10). The M.I.N.I. 5.0.0 is designed for application in primary and psychiatric care, in both clinical practice and research. It is organized into independent sections as a means of optimizing the sensitivity of the diagnostic tool. The M.I.N.I. 5.0.0 has been proved to have satisfactory reliability [40, 41]. The M.I.N.I. 5.0.0 has psychometric properties similar to those of more complex standardized psychiatric interviews, such as the Composite International Diagnostic Interview and Structured Clinical Interview for DSM-III-R, Patient Version [42]. Khooshabi and Zomorodi translated Mini International Neuropsychiatric Inventory to the Persian language [43]. However, it has not been formally validated in the Persian language yet.

Statistical analysis

The data obtained were analysed using the SPSS ver. 23.0 program. Univariate descriptive statistics (response frequencies, means, and standard deviations) were calculated for each variable of interest. Prior to data analysis, the data were checked for normality using analytical (Kolmogorov–Smirnov/Shapiro–Wilk’s tests) and visual methods (histograms and probability plots). Because normality of the data could not be assumed, we ran chi-square analysis which was applied to evaluate the association between gender (dichotomous) and depression (dichotomous). Mann–Whitney *U* test was conducted to assess the differences in childhood trauma severity of each subscale (emotional, physical, sexual abuse, emotional, and physical neglect) (ordinal) between two groups of depressed and non-depressed (dichotomous) patients with psoriasis ($p < .05$). Ultimately, we evaluated childhood trauma subscales (ordinal) and psoriasis (ordinal) by running Kendell’s tau-b

Table 1. Demographic and clinical characteristics of the sample.

Characteristics	No. of patients (<i>n</i> = 64)
<i>Gender</i>	
Male	27 (42.2%)
Female	37 (57.8%)
<i>Age</i>	
Mean (SD)	46.88 (15.46)
Range	21–77
<i>Diagnosis</i>	
Depression	24 (37.5%)
No depressed	40 (62.5%)

correlation coefficients for bivariate comparisons ($p < .01$). Kendall's tau-b determines bivariate associations between ordinal variables by converting values to ranks before calculating the correlation. All statistical levels of significance are two-tailed unless otherwise stated.

Results

Our participants consisted of male patients (mean age = 52.51 ± 14.72 years) and female patients (mean age = 42.76 ± 14.45 years) with psoriasis (age of onset = 24.23 ± 11.4). The age range of patients was between 21 and 77 years (Table 1).

As we can see in the table of frequency, the data show that physical abuse and neglect were more often present in male than in female (see Table 2). On the contrary, female patients with psoriasis reported higher number of emotional abuse and neglect as well as sexual abuse.

As we can see in Table 3, the high levels of emotional, physical, sexual abuse, and emotional neglect were positively associated with severity of psoriasis ($p < .01$). In other words, an increase in levels of emotional, physical, sexual abuse, and emotional neglect is linked to elevated severity of psoriasis. The highest correlations were found between levels of sexual abuse and severity of psoriasis ($0.963, p < .001$).

The data show that ($N = 24, 37.5\%$) psoriasis patients reported having major depression. As it is demonstrated in Table 4, psoriasis patients with major depression reported more childhood trauma experiences across all childhood trauma subtypes (emotional, physical, sexual abuse, emotional, physical neglect) than non-depressed (see Table 4). Furthermore, the outcome of Mann–Whitney U test indicates that all subtypes of childhood trauma in group of

Table 3. Frequency and percentage of psoriasis severity in each childhood trauma subscale and Kendall rank correlation coefficient.

CTQ	Psoriasis severity			τ_b
	Mild	Moderate	Severe	
Emotional abuse	2 (3.1%)	2 (3.1%)	2 (3.1%)	.325*
Physical abuse	4 (6.2%)	3 (4.7%)	1 (1.6%)	.614*
Sexual abuse	5 (7.8%)	3 (4.7%)	3 (4.7%)	.963*
Emotional neglect	2 (3.1%)	3 (4.7%)	1 (1.6%)	.331*
Physical neglect	2 (3.1%)	2 (3.1%)	–	.230

*Statistically significant. $p < .01$ (two-tailed).

patients with major depression had more extreme scores in severity, leading to clear differences compared to non-depressed patients with psoriasis ($p < .05$). Furthermore, the female patients with psoriasis reported a higher prevalence of depression than males. In other words, there was an indication of statistically significant association between gender ($M = 1.58, SD = .5$) and depression in patients with psoriasis $X^2(1) = 4.651, p = .031$ on chi-square test ($p < .05$).

Discussion

Childhood trauma is one of the well-established psychosocial elicitors for the development of psoriasis and major depression. This quantitative study was done first to examine the correlation between the levels of childhood trauma with psoriasis severity and second to compare the levels of childhood trauma in two groups of depressed and non-depressed patients with psoriasis. In this study, the findings indicated that the increase in emotional, physical, sexual abuse, and emotional neglect was linked to elevated severity of psoriasis. Moreover, the severity of all childhood trauma subtypes was more extreme in the group of psoriasis patients with major depression. A large body of literature has repeatedly confirmed the link between childhood trauma and major depression [44]. Likewise, the impact of recent stress on psoriasis is well known [45]. However, we found it essential to investigate the effect of childhood psychic trauma on later adulthood psoriasis. To the best of our knowledge, this has not been addressed. The study of covariation of major depression and psoriasis could throw a light on the relationship between childhood and adulthood physical and mental problems.

According to our data, the rate of emotional abuse reported by men and women is, respectively, 7.8%,

Table 2. Frequency, mean, and standard deviation of patients with psoriasis achieving cut-off scores in CTQ subscales ($N = 64$).

CTQ scales	<i>N</i>	Male	Women	Mean	<i>SD</i>
Total number ^a	33 (51.6%)	14 (21.87%)	19 (29.69%)	1.84	.963
Emotional abuse	15 (23.5%)	5 (7.8%)	10 (15.6%)	1.39	.748
Physical abuse	11 (17.2%)	8 (12.6%)	3 (4.8%)	1.44	.99
Sexual abuse	11 (17.2%)	3 (4.7%)	8 (12.5%)	1.19	.43
Emotional neglect	15 (23.5%)	3 (4.8%)	12 (18.8%)	1.45	.92
Physical neglect	11 (17.2%)	9 (14.06%)	2 (3.12%)	1.33	.84

^aAchieving cut-off score on at least one scale.

Table 4. Frequency and percentage of patients with psoriasis with and without major depression and Mann–Whitney *U* analysis.

	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect
Major depression	9 (14.1%)	7 (10.9%)	10 (15.6%)	11 (17.3%)	7 (10.9%)
Non-depressed	6 (9.4%)	4 (6.3%)	1 (1.6%)	4 (6.3%)	4 (6.3%)
Mann–Whitney <i>U</i>	372	387	297	299.5	378
<i>p</i>	.043*	.049*	.000*	.001*	.031*

*Statistically significant. $p < .05$.

15.6% and 23.5% in total. Scher [46] suggested that women were nearly two times more likely to report emotional abuse than men. In a review by Mohammadi [47], the prevalence of childhood emotional abuse ranged from 17.9% to 91.1% in different cities of Iran. The author noted that cultural differences in different parts of Iran may have an impact on the attitude towards child emotional abuse, and the various tools used for measuring emotional abuse may affect the results (e.g. semi-structured interview, self-administered questionnaire).

Physical abuse occurs more commonly in men than in women with psoriasis. An epidemiologic study by Affifi found the higher rates of physical abuse among their male participants [48]. The results of this study showed a prevalence of 17.2% physical child abuse in patients with psoriasis. Mohammadi et al. [47] reported the prevalence of physical abuse between 9.7% and 67.5% in different cities of Iran. Although our results are consistent with Mohammadi's meta-analysis study outcome, they are slightly lower than the prevalence of physical abuse in Western countries [47]. The difference in physical abuse prevalence between Iran and other countries can be due to cultural differences [47]. The cultural differences have an impact on the attitude towards physical child abuse and the answers of the respondents.

Subsequently, the prevalence of sexual abuse as reported by patients with psoriasis is more frequent in female patients than in males. Lampe's review on childhood trauma suggested that women suffered more frequently from sexual abuse than men [49]. Scher [46] showed that women were nearly four times more likely to report sexual abuse. Although reporting childhood sexual abuse is a critical issue and the available data are just the tip of the iceberg, the magnitude of childhood sexual trauma is lower than that observed in the present study. The cultural difference and values should also be taken into account.

Physical neglect was reported to be higher in male patients with psoriasis. On the contrary, emotional neglect appeared to be more common in female patients with psoriasis. The results of a Danish study showed that men reported higher physical neglect than women [50], while a new study by Zlotnick [51] reported higher emotional neglect in women than in men. The rate of physical and emotional neglect in the current study was higher than that in the previous studies on childhood neglect. We would like to

highlight the existence of a moderating factor, psoriasis. As Simonić et al. [21] confirmed, the higher frequency of childhood abuse and neglect in patients with psoriasis may explain why our patients reported higher childhood physical and emotional neglect in comparison with prior studies in healthy controls.

In our study, we concluded that elevated physical, emotional, sexual abuse, and emotional neglect levels are correlated with a more severe psoriasis condition. Psoriasis is a common psychocutaneous disease, which can be considered as a psychosomatic form of stress-related disorders. A germane review of literature from 1951 to 2004 indicates that stressors predate and precede the onset and exacerbation of psoriasis. For 44% of their patients, the initial flare of psoriasis, as well as recurrent flares, was preceded by chronic stress [52]. However, Simonić and colleagues' results reported that childhood negative experiences "appeared to more frequent in patients with psoriasis during all developmental periods" [21], and they found no correlation between the severity of psoriasis and traumatic experiences. The difference between our outcome and the previous study may imply the existence of depression as a mediating factor that is influenced by childhood trauma experiences. Several leading studies have recently appeared, indicating the relationship between depression and psoriasis. Koo and colleagues [53] discuss that the elevated levels of proinflammatory cytokines may be involved in the link between these two diseases. A preclinical study shows that depression and psoriasis appear to have inflammatory overlap. IL-17A resealed during psoriasis may be responsible for the symptoms associated with depression [54].

Overall, the frequency of all childhood trauma subtypes appeared to be higher in psoriasis patients with major depression. As previously stated, the link between childhood trauma and major depression has been long-established. However, there is only a small finding in literature on this link in psychosomatic patients.

Our data indicated that depression occurred with a higher severity of childhood emotional abuse in patients with psoriasis. A systematic review and meta-analysis study by Norman and colleagues [55] addressed the significant association between emotional childhood trauma and depression. Other studies also show the greater impact of emotional child abuse on developing major depression in

adulthood than other types of childhood maltreatment [56]. Higher childhood physical abuse scores also were reported in patients with psoriasis subsequently diagnosed with major depression. In other words, individuals with more severe childhood physical abuse experience were at higher risk of developing major depression than individuals with absence of physical abuse. The findings suggest that physical child abuse is the strongest environmental factor that was strongly linked to major clinical major depression in adulthood in different ethnics [51]. The outcome also indicated that the severity of sexual abuse was higher in depressed patients with psoriasis. A meta-analysis of 12 studies by Infurna [57] indicated the link between more severe sexual abuse and depression. Lindert [58] reported greater sexual abuse in patients with depression. Likewise, higher severity of emotional neglect in patients with psoriasis was associated with depression. Powers and colleagues' [59] study among 378 men and women demonstrates that long-term impact of childhood emotional neglect proved more predictive of adult depression than childhood sexual or physical abuse. The study by Norman et al. [55] referred to childhood emotional neglect as an important contributor to the onset of depression in adult life of the victims. Eventually, the results showed that physical neglect was more severe in depressed group than in non-depressed group. Kounou et al. [60] study results showed that childhood physical neglect of higher severity was associated with an increased risk of lifetime major depression. Moore and the colleagues [61] examined four types of child maltreatment and found a strong association between vulnerability to developing depressive symptoms and physical neglect among their patients.

It was intriguing to reach similar results with studies conducted in other populations which suggest that childhood abuse and neglect are an important psychosocial aetiopathogenesis contributor in developing major depression in patients living with psoriasis.

Conclusion

Paediatric traumatic negative experiences may surface as latent long-term stress and individual malfunction that can adversely affect the physical and psychological well-being deviating within normal limits from populations not exposed to childhood maltreatment. Investigation of such traumatic experiences, major depression in individuals with psoriasis, and the screening of depressed patients for psychocutaneous disease such as psoriasis, and the cross-referencing of the outcome of this investigation can be expected to provide remarkable findings, new approaches for diagnosis and treatment, as well as implications for promulgating new legislation.

Limitations

Our results should be considered in light of several limitations. First, the group-specific sample sizes were relatively small. This might have led to restricted power in statistical testing. Given the singularity of our study sample, the possibility to recruit additional participants is unlikely. Second, our sample is specific in terms of life histories or events' characteristics. Thus, the study might have limited generalizability to other populations and other subpopulations with histories of severe childhood trauma. However, long-lasting traumatic experiences during childhood are prevalent even in more common community samples. Additionally, there might have been selectivity bias among the former childhood victims who were willing to participate in a study asking about their traumatic experiences and the ones that were not. Similarly, trauma group studies have demonstrated that traumatized persons who have avoidance symptoms tend not to participate in such studies. Third, we cannot exclude the possibility that our data are affected by biases (such as distortions due to forgetting, nondisclosure, mood states, and reporting bias), given the fact that we relied on retrospective self-reports of childhood experiences. Previous evidence, however, has shown that the available standardized measurement instruments are sufficiently valid to warrant their use in retrospective recall studies. Fourth, what we encountered in the study related to the tools was that as Mini International Neuropsychiatric Interview only determines if someone has the clinical diagnosis of depression, it is not suitable for the assessment of depression severity. This issue has kept us from evaluating the severity of depression. Fifth, we did not evaluate the co-occurrence/coexistence of trauma subscales. The evaluation of coexistence of trauma subscale could give us better insights on the rate of overlapping in different trauma subscales, and explain better the association of trauma with two other variables. This shortcoming may distort our outcome to some extent. Sixth, another pitfall of the current study is that the Persian version of PASI and MINI has not formally been developed and their psychometric properties have not been confirmed. The seventh limitation is the subjective nature of data and the lack of a control group as well as the lack of triangulation of major depressive disorder construct. The final limitation is that we did not consider the effects of adulthood trauma and life stress that might have mediated the relationship between childhood trauma and depression and psoriasis. Affective disorders researchers need to continue conducting empirical research to ascertain all risk factors and intervening/aggravating liabilities in the incidence of depression before any clinical diagnosis. Taking into account all the aspects involved would help clinicians and researchers to better allocate the most sufficient and effective treatment.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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