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Life stress and somatic symptoms among adolescents: gender as moderator

Tasnim Rehna,[1] Rubina Hanif,[2] Um e Laila,[3] Sana Zahra Ali[4]

Abstract

Objective: To study the impact of life stress on somatic symptoms of adolescents and to explore the moderating role of gender.

Methods: This cross-sectional study was conducted from September to December 2014 at secondary schools located in Islamabad, Pakistan. Data was collected by administering self-reported measures on a sample of adolescents including both males and females. SPSS 21 was used for data analysis.

Results: Of the 663 participants, 228(34.4%) were girls and 435(65.6%) were boys. The overall mean age was 15.27±1.20 years (range: 12-16 years). There was a significant positive correlation between the experience of life stress and somatic symptoms among adolescents ($p<0.01$). The prevalence of somatic symptoms was 431(65.10%) among the adolescents who experienced school-related stressors. Gender was a significant moderator and the interaction effect of gender and life stress was significant ($p<0.05$). Female adolescents had higher level of life stress and experienced more somatic symptoms compared to male adolescents ($p<0.05$).

Conclusion: Life stress was found to be an important indicator of somatic complaints in adolescents, with greater risk for girls as compared to boys.

Keywords: Life Stress, Somatic Symptoms, Adolescents, Gender. (JPMA 66: 1448; 2016)

Introduction

Adolescence, being a critical and transitional period,[1] is commemorated by multiple sources of life stress including school underperformance, flimsy peer relations, family conflicts and dysfunction, fiscal hardships, and authoritarian communal norms. Exposure to these stressors, if not handled rightly, can have a negative impact on adolescents' health and may jeopardise them for frequent physical and psychological symptoms.[2-4] In fact, frequent and repeated exposure to stress may lead to the manifestation of psychosomatic symptoms such as headache,[5,6] gastrointestinal complaints,[7,8] palpitation[9] and other bodily pains, particularly in children and adolescents.[10] These symptoms are seldom linked with organic disorders rather an expression of the incapability to discern and regulate one's own emotions.[11] However, these symptoms, at the same time, are crucial clinical warnings, which may sustain in adulthood, herald subsequent mental illness,[12] and result in blind consultation of health care services. Research has also shown a greater tendency of experiencing stress and subsequent somatic complaints for females as compared to males.[13,14]

The problem needs to be explored in Pakistan as the country has been riddled with multiple stressors, such as poor socio-economic conditions, maltreatment and ill facilities of health, for the last many years. This unfortunate and adverse scenario is imperilling its youth towards hazardous physical and mental health outcomes. The problem is, in fact, shrouded in the negligence and irresponsibility of the policy makers, healthcare institutions and researchers as the more sensitive is the subject the less research has been focused on it. The present study was planned to examine the impact of multiple life stressors on the somatic symptoms of adolescents. The study further tried to explore whether gender moderates the relation between life stress and somatic complaints of adolescents.

Subjects and Methods

This cross-sectional study was conducted at secondary schools located in Islamabad, Pakistan, from September to December 2014. Data was obtained from students belonging to 7th to 10th grades. Purposive convenient sampling was used to select adolescents who had experienced any life stressor during the preceding six months. Data was collected with the consent of the Directorate of Education, authorities concerned of the schools and the adolescents themselves. Other ethics were also ensured i.e. anonymity, the right of confidentiality and privacy. Stressful Life Events Scales (SLES) and School Children's Problems Scale (SCPS) were used to assess students' past experience and behaviour. Approximate time for the completion of questionnaires was about 30 minutes.

[1]Riphah International University, [2-4]Quaid-i-Azam University, Islamabad.
Correspondence: Rubina Hanif. Email: drrubinahanif@nip.edu.pk

SLES15 was used to assess the experiences of life stress of adolescents. SLES consists of 87 items with six categories, namely 'health-related events', 'school-related events', 'residence-related events', 'personal and social events', 'family- and friends-related events' and 'natural disasters'. SLES is a Likert-type rating scale on which subjects first have to indicate whether they have experienced the event or not and then to rate the level of stress associated with the event on a 4-point rating scale. SLES was found to be a valid (concurrent validity: r = 0.80) and reliable scale (α = 0.93).

SCPS[16] is a 44-item, 4-point rating scale ranging from 0 (not at all) to 3 (extremely common). SCPS assesses six domains of problem behaviours namely anxiousness, academic problems, aggression, social withdrawal, feeling of rejection and somatic complaints. In the present study the subscale of somatic complaints was used to assess the somatic symptoms of adolescents; the scale comprises of four items. SCPS is a reliable (test-retest reliability = 0.92; α = 0.92) and a valid scale (concurrent validity: r = 0.76) with acceptable psychometric properties.[16] A linear regression analysis was also computed to examine the predictive effect of life stressors on somatic symptoms, and the moderating impact of gender. SPSS 21 was used for data analysis.

Results

Of the 663 participants, 228(34.4%) were girls and 435(65.6%) were boys. The overall mean age was 15.27±1.20 years (range: 12-16 years). Besides, 445(67%) participants lived in a joint family. Both the scales, i.e. SLES and SCPS, had good alpha reliabilities with a normally distributed data as the values of skewness and kurtosis

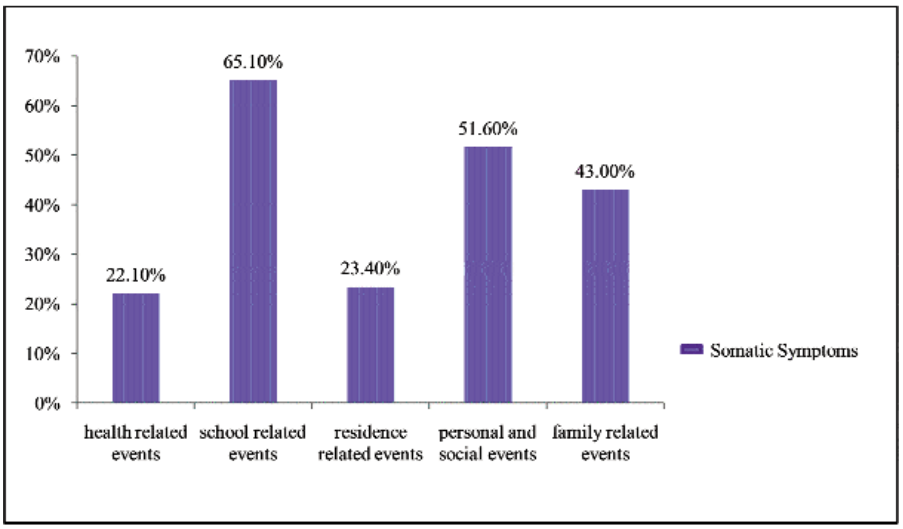

Figure-1: Somatic symptoms.

Table-1: Correlations, alpha coefficients, and descriptive statistics of the study variables (N=663).

Variables	1	2	A	M(SD)	Skewness	Kurtosis
1.Life Stressors	-	0.30**	0.93	104.39(43.35)	0.36	-0.62
2. Somatic Symptoms		-	0.83	7.75(3.51)	0.50	-0.98

SD: Standard Deviation.

Table-2: Moderating effect of Gender on Life Stress and Somatic Symptoms of Adolescents (N = 663).

					Somatic Symptoms	
Variable		B	SE B	t	P	95%CI
Constant		7.84	0.11	65.54	0.000	[7.60, 8.07]
Life Stress		0.02	0.003	6.59	0.000	[0.01, .02]
Gender		3.18	0.27	11.82	0.000	[2.66, 3.71]
Life Stress × Gender		-0.03	0.007	-4.71	0.000	[-0.04, -.02]
R2	0.28					
?R2	0.29					
F	102.12				0.000	

CI: Confidence interval.
SE: Standard of error.

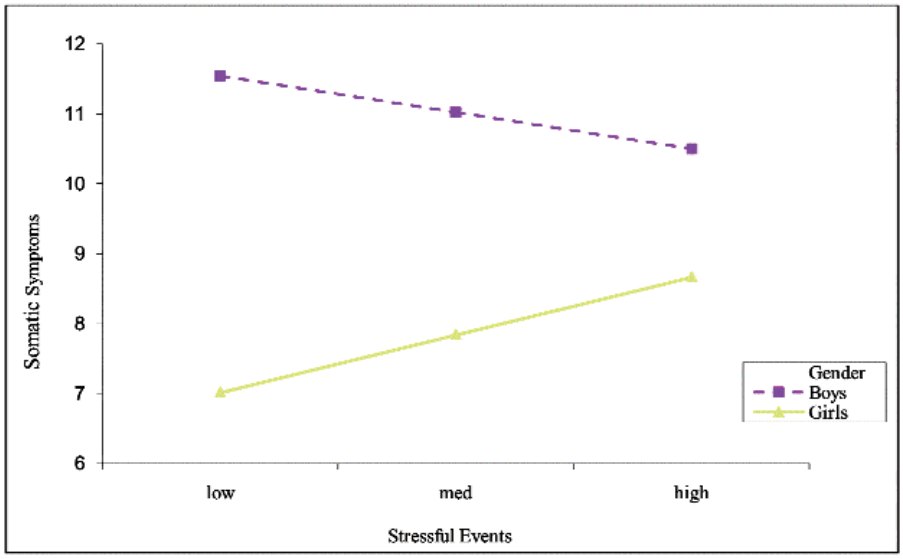

Figure-2: Moderating effect of gender.

were in acceptable range (± 2). There was a significant positive correlation between the experience of life stress and somatic symptoms among adolescents ($p<0.01$) (Table-1).

The prevalence of somatic symptoms was 431(65.10%) among the adolescents who experienced school-related stressors. The prevalence rate was 342(51.60%), 285(43%), 155(23.40%) and 146(22.10%) for personal and social stressors, family-related stressors, residence-related stressors and health-related stressors, respectively (Figure-1). Linear regression analysis revealed that life stress was a significant predictor of somatic symptoms ($\beta = 0.14$, standard of error (SE) of $B = 0.01$; $B = 0.71$; $p<0.001$) producing 50% of unique variance in somatic symptoms of adolescents.

Moreover, gender significantly moderated the relationship between life stress and somatic symptoms among adolescents (Figure-2). The interaction term of 'gender life stress' produced 29% of variance ($B = -0.03$, $R2 = 0.28$, $\Delta R2 = 0.29$, $p<0.01$) to explain adolescents' somatic symptoms (Table-2). Besides, girls exhibited higher number of somatic symptoms compared to boys after experiencing multiple stressors of life ($p<0.05$).

Discussion

Findings of the current study showed a significant positive association between life stress and somatic symptoms. These findings are in line with a previous research[17] showing a strong association between social, family and community-based stress and somatic symptoms of schoolchildren. These findings are also supported by another study[18] which demonstrates that cumulative life stress significantly predicts somatic symptoms among adolescents i.e. fatigue or weakness, lethargy, sleeping difficulties, headache, abdominal pain, and diarrhoea. The study further revealed gender as a significant moderator in the association between life stressors and adolescents' somatic symptoms. Data for the present study showed greater stress and more somatic symptoms for girls as compared to boys. Since girls have greater tendency to internalise stress, they are more prone to experience these changes and resultantly exhibit more somatic symptoms as compared to their counterparts. Similar findings have been reported by another study[19] which showed more pronounced headache and abdominal pain for females as compared to males.

However, the study also has some limitations that need to be addressed in prospective research. The study solely focused on the sample drawn from the general population, therefore its findings cannot be generalised. The clinical sample could better illustrate the problem or even taking a comparative sample could be more helpful to understand the experiences of life stress and subsequent somatic symptoms among adolescents. Thus, future studies should address these limitations by bringing other stress-related health outcomes into light as well. It is also recommended for future researchers to shed light on other risk factors of adolescents' somatic symptoms and highlight the role of protective factors, i.e. social support and resilience, to cope with stressors and resultant health difficulties.

Conclusion

The exposure to multifaceted life stress was a major factor of somatic complaints among adolescents. Adolescents with experience of school-related stress showed the highest ratio of bodily symptoms as compared to other categories of stress. Gender showed significant effect in the association of life stress and somatic symptoms explaining higher stress and more bodily symptoms in girls as compared to boys.

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