Prevalence and comorbidity of psychiatric symptomology in Pakistani female adolescents

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Abstract

Background: Previous researchers have demonstrated the co-existence of psychiatric conditions across clinical as well as non-clinical samples in diverse situations. The present study examined the prevalence and co-morbidity of various psychiatric symptoms (e.g. learning disabilities, depression and anxiety) in school-age female adolescents. **Methods:** In a cross-sectional random sampling method, 252 girls from two government schools in Lahore were assessed by Learning Disabilities Checklist, Children Depression Inventory and the Spence Anxiety Scale. **Results:** The results demonstrate significant prevalence and co-morbidity of psychiatric symptoms. Of the 252 participants, 34%, 21% and 68% had significant learning disabilities, depression and anxiety symptoms respectively. In addition, 27% of them presented symptoms of three studied psychiatric conditions. A highly significant positive correlation was found between learning disabilities, depression and anxiety symptoms. **Methods:** There is a dire need for preventative intervention programs to promote mental health at school level. Further, assessment plans for the screening of psychiatric symptoms in normative samples also need to be put in place.

Introduction

Some psychiatric manifestation such as learning disabilities (LD), depressive and anxiety symptoms have emerged as commonly prevalent illness across the globe[1]. Estimations of World Health Organization in 2017 claim that approximately 300 million people are living with depressive symptoms and 260 million people are suffering from anxiety symptoms globally[2]. Though, level of severity of these symptoms varies, yet large figures directs toward the sensitivity of psychiatric symptomology in general population. Earlier, when examining disability adjusted life years (DALYs) for a larger sample ranging from adolescents to middle aged females, psychiatric symptomology (anxiety and depressive symptoms) collectively accounted for 7% of the DALYs[3]. Particularly for adolescent girls ages between 15 to 19 years, these symptoms were seen as in the top five reasons od DALYs across the globe[4].

Comorbidity of anxiety and depressive symptoms have been seen in link with several other psychiatric manifestation across diverse age groups. As adolescence is period of stressful transition majority characterized by academic difficulties as well, LD are seen dominantly linked with depressive and anxiety symptoms[5]. Depressive and anxiety symptoms are most commonly co-occurring psychiatric symptoms and several factors are contributing to this in their own capacity[6]. Psychiatric disorders, particularly in young girls are generally under researched in developing countries such as Pakistan. A plethora of research has illustrated interesting fact about gender differences in variations in prevalence of psychiatric symptomology[7-10]. Psychiatric symptoms and comorbidities are more than twice as prevalent in young (ages between 14 to 25 years) girls than boys but the ratio decreases and almost equalizes with age[6-8]. Furthermore, starting from puberty, young girls are more at greater risk of developing mood symptoms and other mental health issues globally[6]. Interestingly, before puberty, similar ratio of several

psychiatric symptoms is observed for both genders, though slightly high rates in boys in some findings[7]. As both grew older (above 65 years), a decline in prevalence of depressive symptoms is seen and differences also minimize[8,9]. An increase in prescriptions of anti-depressant medication is also an indicator of dominant prevalence of psychiatric symptoms in females. A Canadian study revealed prescription ratio of antidepressants twice for young females than males[10]. Particularly, being part of collectivist culture, these facilities predominantly lacks for females. In addition, psychiatric problems remain under estimated, unidentified and undiagnosed due to insufficient mental health facilities in developing countries such as Pakistan. This context also justifies the reason to estimate prevalence of psychiatric symptomology only in young females.

Many psychiatric symptoms develop during adolescence and are left unattended, therefore often remain undiagnosed and untreated even in later life[11]. The onset of many psychiatric disorders such LD, depression and anxiety peaks in adolescence and the early years of adulthood; female adolescents are more prone to these conditions than male adolescents[2,3]. In most cases, female have twice the rates of anxiety, depression and LD[12,13]. In cases of misdiagnosis or improper screening, the psychiatric symptomology not only affects adolescents' present state of mind but hinders their overall development later in life, in particular, poor school results, violent and aggressive behavior, poor parent-child relationships and drug abuse, in many cases[14]. While addressing psychiatric prevalence, depression is generally described as a group of affect associated symptoms with 7.4% of adolescent sufferers worldwide[15]. Anxiety is a more generalized condition, therefore a more common mental disorder, which if left undiagnosed and untreated, may lead to higher risk of poor school performance, social deficits and substance abuse[16,17]. LD are a rapidly rising issue in growing adolescents and manifested through poor functioning of the psychological processes involved in the ability to read, write, think, listen and make mathematical calculations[18].

According to the latest available empirical evidence, an estimate of 3.9% of the population in the South East Asia regions suffer from depressive disorders[19], 8% have generalized anxiety disorders (GAD)[20] and 19% have LD[21], with significantly more female sufferers than male. In the context of female adolescents in Pakistan, 11.06% were found to have depressive disorders[19], 9% GAD[20] and 16% had LD[22], and these levels either higher or similar to global estimates. Rapidly changing lifestyles across the globe, especially in developing countries, such as Pakistan has a clear influence on the mental health of individuals in terms of their exhibiting psychiatric symptoms which suggests the likely co-existence of symptoms. A study of Pakistani female adolescents' found 3% coexistence of a severe level of anxiety and depressive symptoms[23] whereas cases of LD with depression were observed to be 15%[22]. However, the possible co-existence of anxiety with LD remains unknown for the adolescent female population in Pakistan. These studies suggest that adolescents diagnosed with one psychiatric disorder are likely to suffer from other psychiatric symptoms as well. In addition, due to certain, psychological and socio-economic factors, psychiatric symptoms are likely to be more prevalent in south Asian region, therefore their detection and treatment needs to be considered carefully. The research reported here was designed to estimate the prevalence and comorbidity of psychiatric symptoms (in this case, LD, depression and anxiety) in female adolescents enrolled in secondary schools in Lahore, Pakistan.

Materials and methods

Research design

A cross-sectional study was carried out on a sample of Pakistani female adolescents. These participants were recruited from two government schools in Lahore city, from January 2019 to May 2019.

Participants

The study participants are 252 girls aged between 12 to 18 years (*M = 14.83, ± 1.20*) enrolled in secondary schools

Sampling technique

The sample was recruited using random sampling from two schools in Lahore. Random sampling is most appropriate sample selection technique when the purpose is to select a homogenous sample from larger normative population. Further, it also allows to control selection bias and judgment error. Furthermore, the selected two schools are with highest number of students in the city and represent every sections of population within the city which makes current study representative of all section of region. After excluding any unsuitable respondents due to physical disabilities, intellectual difficulties, visual or hearing impairments, which would have coloured their responses, a sample of 252 girls remained with a response rate of 94% well balanced across 3 grade levels, that is., 6th (31%), 7th (33%), and 8th (49%).

Instruments

To assess the study variables, the standardized paper-pencil measures of the Learning Disabilities Checklist (LDC)[24], Children Depression Inventory (CDI)[25] and Spence Children Anxiety Scale (SCAS)[26] were administered. All three measures have been developed as diagnostic guidelines of DSM-IV[TR] and are widely used in clinical as well as sub-clinical and normative populations. LDC is a 35 item teacher report screening measure (e.g., item 1; *confuses similar looking letters and numbers*) used to assess three forms of LD; reading (n = 15), writing (n = 10) and mathematics (n = 10) in school going adolescents between 11 to 18 years old. LDC categorizes at/below 25% scores as mild (*without LD*) and at/above 75% as severe (*with*

LD), while scores between 26% to 74% are classified as moderate (*sub-clinical*). The responses were scored dichotomously (*yes = 1, no = 0*) and composite score ranged between 0 and 35. CDI is a 27 item self-reporting measure of the severity of depression within five areas e.g., negative self-esteem, feeling of ineffectiveness, interpersonal problems, and feeling of anhedonia. Each statement has a three points scale response (*0 to 2*) with category ranges 0 to 19 mild, 20 to 39 moderate and above 39, severe depression. SCAS has 45 items and is a self-reporting measure designed to assess the severity of anxiety in six domains (e.g., psychological separation, social phobia, obsessions & compulsions, panic agoraphobia, physical injury and generalized anxiety). The scores range from 0 to 144 and raw scores parallel to 60 T scores are regarded as severe/elevated, 40 to 50 as moderate and below 40 as mild levels of anxiety.

Ethical considerations

Ethical approval for the research was obtained from the Institutional Review Board and the consent of school authorities and the students' parents was also obtained. All the relevant authorities and participants were orally informed about the objectives of the study and were assured of the privacy of data and the confidentiality of the information provided. The respondents were assured they could choose to withdraw from the study at any point during the process.

Data analysis

The data was analyzed using descriptive statistics including the mean, standard deviation, frequencies, percentages and graphs as well as inferential statistics such as Pearson correlation analysis. A confidence interval of 95%, and a p value of <.05 are considered statistically significant.

Results

The present research was carried out with 252 young girls aged from 12 to 18 years old and enrolled in grades 6th, 7th and 8th. The findings from statistical analyses demonstrate that 34%, 21% and 68% of the study participants self-reported severe levels of LD, depression and anxiety respectively (Table 1). Collectively, 9%, 49% and 42% of girls' reported mild, moderate and severe psychiatric symptoms of LD, depression and anxiety. Table 2.1 illustrates the co-occurrence of LD, depression and anxiety symptoms; the association of LD with depression symptoms at a severe level was 10%, whereas in the case of anxiety symptoms, it was 28%. Depression with anxiety symptoms at a severe level was 20%. Table 2.2 indicates the co-occurrence of three psychiatric conditions mild, moderate and severe levels of depression and anxiety at mild, moderate and severe levels of LD. The results show that 27% of the study participants with a severe level of LD also reported symptoms of a severe level of depression and anxiety. Table 3 and Figure 1 show highly significant correlations of LD scores and its sub-domain, with symptoms of depression and anxiety and their sub-domains at a minimum p value of < 0.05.

Discussion

The current study examined the prevalence of psychiatric symptoms in a normative sample of female adolescents and found overall, higher levels of prevalence compared to those reported in other regional and international studies[19-213]. Though high rates of the co-occurrence of symptoms of the conditions investigated were not observed, yet these findings provide evidence that the experience and reporting of psychiatric symptoms across the regions have some common features and similarities with reports in other South Asian regions despite differences in cultural circumstances and demographic and socio-economic factors. One explanation of this co-occurrence in the present study could be the paper and pencil assessment of study constructs by the female adolescents may possibly facilitate

Table 1. Co-occurrence of learning disabilities, depression and anxiety symptoms (N = 252)

Variables	Learning disabilities	Depression	Anxiety	Average
	f (%)	f (%)	f (%)	(%)
Mild	40 (16%)	-	29 (12%)	9%
Moderate	125 (50%)	198 (79%)	50 (20%)	49%
Severe	87 (34%)	54 (21%)	173 (68%)	42%

Table 2.1. Cross Co-existence of learning disabilities, depression and anxiety (N = 252)

Variables		Depression			Anxiety		
		Mild	Moderate	Severe	Mild	Moderate	Severe
		f (%)	f (%)	f (%)	f (%)	f (%)	f (%)
LD	Mild	-	40 (15%)	-	9(4%)	16 (6%)	15 (6%)
	Moderate	-	96 (38%)	29 (12%)	12 (5%)	26 (10%)	87 (35%)
	Severe	-	62 (25%)	25 (10%)	8 (3%)	7 (3%)	72 (28%)
Anxiety	Mild	-	-	-			
	Moderate	29 (12%)	47 (19%)	122 (48%)			
	Severe	-	2 (1%)	52 (20%)			

Note: LD: learning disabilities.

Table 2.2. Co-existence of learning disabilities, depression and anxiety (N = 252)

Variables		N	Anxiety		Depression	
				Mild	Moderate	Severe
				f (%)	f (%)	f (%)
LD	Mild	40	Mild	-	9 (23%)	-
			Moderate	-	16 (40%)	-
			Sever	-	15 (37%)	-
	Moderate	125	Mild	-	12 (10%)	-
			Moderate	-	26 (21%)	-
			Sever	-	58 (46%)	29 (23%)
	Severe	87	Mild	-	8 (9%)	-
			Moderate	-	5 (7%)	2 (1%)
			Sever	-	49 (56%)	23 (27%)

Note: LD: learning disabilities.

Table 3. Correlations between dimensions of learning disabilities, depression and anxiety

Variables	Learning Disabilities			Depression				
	Reading Disability	Writing Disability	Mathematical Disability	Negative Mood	Negative Self-esteem	Ineffectiveness	Interpersonal Communication	Anhedonia
Anxiety								
Separation Anxiety	.279***	.212***	.200**	.258***	.290***	.256***	.296***	.398***
Social Phobia	.119	.163**	.165**	.337***	.149*	.141*	.309***	.348***
Obsessive Compulsive	.187**	.187**	.325***	.254***	.206**	.351***	.242***	.311***
Panic/Agoraphobia	.480**	.413**	.454***	.626***	.504***	.735***	.708***	.697***
Physical Injury	.259***	.193**	.302**	.240**	.256**	.229**	.179**	.328**
Generalized Anxiety	.168**	.053	.184**	.243***	.382***	.313***	.261***	.433***
Depression								
Negative Mood	.219**	.232***	.354***					
Negative Self Esteem	.109	.103	.244**					
Ineffectiveness	.243***	.334***	.431***					
Interpersonal Communication	.428***	.436***	.357***					
Anhedonia	.229***	.156*	.319***					

*p<.05, **p<.001, ***p<.0001.
r= + 0.36, p<.001.
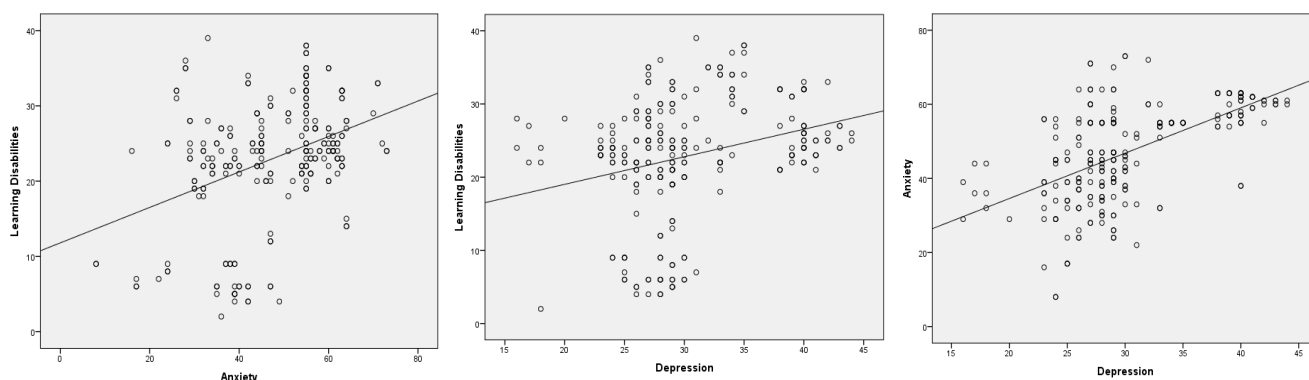r=+ 0.28, p<.001.
r= = +. 0.58, p<.0001.

Figure 1. Correlation matrix of learning disabilities, depression and anxiety in girls (N = 252).

subjectivity and the exaggeration of experiences of psychiatric symptoms[27,28]. Furthermore, LDC, CDI, and SASC measures are standardized and used globally as well as in a local context, yet the cut off (for CDI and SASC) and the sensitivity and specificity (of all three measures) have not been tested locally so far.

The current study revealed interesting finding regarding the coexistence of LD and depression at 15%, which is higher than previous reports of 10%, which could be due to the dichotomous classification of LD (with and without) and the homogeneity large sample sizes in previous reporting[22]. By contrast, the coexistence of anxiety and symptoms of depression in the present study of 28%, is also higher than previous reports of 3%[13]. The higher prevalence of anxiety in females could be attributed to the way girls tend to be brought up in Pakistan. These include submitting to authority, a high sense of conformity and communal values, which may inculcate in them anxiety, restlessness, helplessness, a tendency to underestimate their capabilities, and their resulting dependency on others[29]. The unique finding in the current research was the incidence of severe levels of LD, along with depression and anxiety symptoms at 27%. Though this is alarming, particularly with respect to the assessment and management of psychiatric issues at school level, there are several possible reasons. Along with social and cultural factors, other factors could be personal and subjective, including academic stressors, feelings of personal inadequacy, financial dependency, and perceptions of inability to cope with life circumstances etc.[30,31]. The relationship between LD, depression and anxiety symptoms revealed is in line with previous findings[12,17,20,23].

Though examining clinical tendencies in a normative sample is a strength of this study, the variations between past findings and the current study results could be due to differences in study methodologies, assessment tools, cut off points, determined specificity and the sensitivity of the measuring tools, academic stressors, exam pressures, disparities in exposures to life stressors in the present and past, stressful surroundings and gender discrimination[32].

Limitations

The present research was conducted with some limitations. For example, self-reporting and teachers' report measures were used rather than formal psychiatric examination and assessment for an objective identification and diagnosis of psychiatric symptoms. In addition, a longitudinal study could be used in future research to obtain more controlled and refined findings – for instance, whether the reported symptoms appeared to affect exam performance adversely when compared to the expected performance from class work.

Implications

The findings from current study suggest some workable and interesting implications in clinical as well as educational field concerning cautionary and preventive measures as well as management interventions. Initially, preventive programs aimed to identify LD, depressive and anxiety symptoms at an early level (pre-adolescence) may be implemented. The early identification may facilitate to detect increased levels of psychiatric comorbidities in high risk children. Such programs may result in significant positive outcomes reducing psychiatric symptomology in adolescents and consequently preventing mental health issues and personality malfunctioning later in adulthood. Early assessment at school level is most suitable in order to provide preventive measures to large number of students before psychiatric symptoms demonstrate in full scale psychiatric disorders.

In addition, along with preventive strategies and identifying the sub-threshold levels of psychiatric symptoms, reinforcing the protective factors against the risk factors may also fruitful. The protective strategies may include effective role of parent, teachers and peers which could be more beneficial in reducing manifestation of psychiatric symptoms. Nevertheless, such programs also seem to be more economically effective as they minimize cost of structured clinical interventions. In the larger context, given the comorbidity of psychiatric symptomology specially LD, it might be worth looking further into the planning multifaceted intervention programs addressing both screening as well as diagnostic level of psychiatric symptomologies. Particularly, such programs not only improve problem solving skills and coping strategies in students but also minimize the risk of psychiatric comorbidities by backing the adaptive management of tough and stressful situations. In addition, domain specific management strategies such as extra sessions to improve students reading, writing and mathematical disabilities alone are not enough to overcome psychiatric manifestations. An integrated program comprising self-regulated learning strategies and skill based strategies to improve students' perception about their abilities at school, should provide more efficient and effective support by focusing simultaneously on academic, emotional, behavioral and cognitive aspects[33].

Conflict of interest

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