Development of Emotional and Behavioral Problems Scale for Adolescents

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The major objective of this study was to develop an indigenous tool to assess emotional and behavioral problems for adolescents in Pakistan. The study consisted on two phases where in the Phase I, an indigenous scale was developed by generating the item pool of 136 items on the basis of semi-structured interviews ($n = 28$) with adolescents following internalizing/ externalizing problems framework by Achenbach and Edelbrock (1991). The interviews were analyzed by using thematic analysis technique and consequently 136 items were formulated on the basis of extracted themes. The scale comprising 136 items was administered in try out study after the content validity estimated by the experts from relevant field. In phase 2 the scale was administered on the sample of 1120 adolescents from government and private educational institutes for the purpose of establishing the psychometric properties of the scale. Exploratory factor analysis ($n = 560$) was fixed at 8 factors structure including 54 items. Confirmatory factor analysis ($n = 560$) resulted in 8 confirmed factors consisting of 32 items. The Cronbach alpha of the scale was α (.92). It is concluded that the locally developed scale can be used to screen out the adolescents with emotional and behavioral problems so that they can refer to further assessment or counselling services.

Keywords. emotional problems, behavioral problems, internalizing problems, externalizing problems, exploratory factor analysis, confirmatory factor analysis

Adolescence is a significant and relatively troublesome phase of development, characterized by extreme emotional responses, increased risk-taking, and impulsive behaviors Rescorla et al., 2019; Steinberg, 2001), along with neurobiological circuits that play a role

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in emotional and behavioral regulation (Benner et al., 2022). Adolescents experience a variety of obstacles and challenges during this crucial transitional period from childhood to adulthood, particularly shifting physical growth, role identification, pressure to live up to family expectations, and becoming independent members of society (Benner et al., 2022). They may be more likely to experience emotional and behavioral problems because of intense challenging circumstances and constantly shifting social and emotional expectations (Cappa et al., 2012). The majority of these concerns frequently go away with time, but some could lead to real psychological, physical, social, cultural, or even intellectual problems if not managed appropriately (Clark & Watson, 2016). It is important to acknowledge these problems since they call for strong conflict resolution and preventative measures. If they are not addressed, they may develop into the primary cause of stress in later life for teenagers, their families, and those close to them (Grossman & Ehrenreich-May, 2020). Therefore, the current research was conducted with the objective of developing an instrument in Urdu language for measuring emotional and behavioral problems in adolescents between the age ranges of 11 and 19 years. Items were developed in Urdu language which make it easily comprehendible for majority of the adolescents.

Emotional and Behavioral Problems

Developmental psychology's primary focus continues to be on emotional and behavioral problems that are related to a teen's developmental stage (Cappa et al., 2012). "Mental health difficulties with primary indicators involving inner emotions as opposed to outer conduct" is how emotional problems are described (Sondhi, 2007, p. 34). As opposed to inner feelings and emotions, the definition of behavioral difficulties is mental health problems with principal indicators involving outer behaviors (Schrauben & Dean, 2019). Emotional problems can be defined when as mental health issues with primary indications involving inner emotions as in opposition to the outward behavior (Thackery & Harris, 2003).

Numerous researches have shown that adolescents' emotional health and social competencies have a key role in influencing their adaptive behaviors, social interactions, academic performance, and their future life in general (Ward et al., 2019). More specifically, emotional and social ability deficiencies impede learning opportunities and sound companionship with or without handicaps; frequently, these deficiencies have a negative impact on their mental health as adults (Davidson et al., 2015; Farina & Belacchi, 2022). Likewise, the academic presentation is poor and the scholastic

accomplishment of adolescents with emotional difficulties and behavioral unsettling is altogether lower than the normal age (Cappa et al., 2012; Fox et al., 2008; Rafiq et al., 2022). Adolescents' emotional and challenging behaviors influence their families and society (Furr, 2020). Empirical evidence suggests that a significant number of adolescents experience emotional issues and behavioral difficulties (Shahrivar et al., 2008).

Identification of people with emotional and behavioral issues is widely stressed by health organizations, academic experts, and researchers (Repetti et al., 2002).Valid and trustworthy tools and processes are necessary for the identification and diagnosis of young people with mild or severe emotional and behavioral disorders (Hu et al., 2012). These tools and approaches must be effective and practical in terms of acquiring information that can aid in making decisions regarding the emotional and behavioral states of young people (Clark & Watson, 2016; Grossman & Ehrenreich-May, 2020). The necessary instruments must have acceptable levels of validity and reliability and be able to be controlled, scored, and understood by researchers and practitioners. Additionally, as the environment has an impact on the identification, diagnosis, and interpretation of emotional and behavioral difficulties, the useful tools must be consistent with the social and cultural context of the people (Saleem & Mehmood, 2011).

Internalizing and Externalizing Problems Framework

The internalizing and externalizing difficulties are a well-established split of problematic behaviors in the field of child psychology and psychiatry (Achenbach & Edelbrock, 1991). The internalizing and externalizing difficulties framework is a dimensional classification system that was first conceptually generated, who has enjoyed a fruitful legacy for a significant stretch of time in the fields of adolescent psychology and psychiatry (Achenbach et al., 2001). As characterized by (Achenbach et al., 2001), internalizing indications allude to issues including psychosomatic complaints, social withdrawal, anxiety, and depression, while externalizing manifestations engage in aggressive and delinquent practices (Achenbach & Ruffle, 2000).

Given that it directs researchers working on the description, classification, etiologies, hidden character traits, and therapy of adolescence and juvenile psychological maladjustments, this paradigm is quite valuable (Hofmann & Hinton, 2014; Shahrivar et al., 2008). The most regarded systems may be those that are well examined in the study of problematic behaviors and disorders in teenagers. Problematic behaviors that are internalized include social inhibition,

shyness, depression, anxiety, and other similar traits. These problems are more subtle and, hence, more challenging to identify and assess than externalizing concerns, which are readily apparent and more overt in nature (Williams et al., 2009).

Need of Emotional and Behavioral Problems Scale (EBPS)

Several valid and reliable assessment tools of emotional and behavioral problems among adolescents have already been developed in Western culture. The Strength and Difficulty Questionnaire (SDQ; Goodman, 1997) is one of the concise questionnaire comprising of 25 items gathered into 5 sub-scales featuring hyperactivity, conduct issues, peer and emotional issues, and lack of pro-social behaviors (Ngo et al., 2020). There are various versions of it for guardians and instructors covering an age range of 4–16 years. Youth Self-report (YSR) is another widely used assessment instrument for problem behaviors (Achenbach et al., 2001). It is utilized in much of the research conducted in various developed and developing nations to measure the emotional and behavioral difficulties of adolescents (Shaikh & Shinde, 2018; Steinberg, 2001). This valid and reliable assessment tool involves 112 items evaluating two broad categories called internalizing and externalizing issues.

Despite the fact that it can be accepted that some pathological practices (for example, psychoses & the rest of the organic disorders) might be introduced in an almost universal way among distinctive cultures and are basically labeled as abnormal by everyone, behavioral practices (e.g., neurotic issues, emotional & behavioral issues) are bound to be the consequence of humans' own encounters, familial environment, and social and cultural frameworks (Cohen et al., 2010) (Saleem & Mehmood, 2011). Besides, whether such practices are considered normal or abnormal depends on social and cultural judgments in which they occur and are noticed, instead of the target behaviors themselves (Grossman & Ehrenreich-May, 2020). Concerns about the use of screening and evaluation tools created in incompatible cultures with different languages and phenomenological encounters arise from such stark disparities in cultural experiences, psychological manifestations, and psychological experiences (Karamat et al., 2022). These evaluation methods and techniques could produce unreliable results, which would call into doubt the reliability of the study (Kelley-Quon et al., 2019).

Other points derived from empirical research that doubt these instruments include diverse meaning and relevancy of same construct in different cultures. Many psychological constructs are exceptionally relevant to one culture however not in any manner in other culture. If

researchers use the tools and instruments developed solely in Western culture, they may not have some vital data compatible with non-Western societies. The utilization of non-native instruments in Pakistan may lead towards misinterpretation of the issues and construct under investigation and may likewise misguide the professionals and practitioners to draw preventive and treatment plans. Along these lines, a great deal of literature is currently emphasizing the significance of cultural interpretation, meaning, and explanation of mental constructs (Bhasin & Vamsikrishna, 2022; Spruit et al., 2020).

The above given discussion provides a solid rationale for the development of an instrument that can measure the emotional and behavioral difficulties in Pakistani teenagers. As familial, social and cultural norms and values exceptionally impact the development and reforming behaviors of the individuals that are consistent with the familial values, obedience standards and blind conformity to authority figures. However, some systematic endeavors have been made to assess the psychological issues of school and college going teenagers in the cultural setting of Pakistan. Thus, the intentions of this study are to recognize the experiences, expressions and demonstration of emotional and behavioral issues of adolescents inside Pakistani cultural setting by developing a reliable, valid and promising scale for this reason.

Objectives

Objectives of the study are to:

1. Develop an indigenous assessment tool for measuring emotional and behavioral problems of adolescents (11-19 years).
2. Establish psychometric properties of the newly developed scale for measuring emotional and behavioral problems of adolescents.

Method

The current study comprised of two phases. In Phase I, Emotional and Behavior Problem Scale was developed. In Phase II, psychometric properties of the newly developed scale were established.

Phase I

Development of Emotional and Behavioral Problems Scale (EBPS)

Phase I consisted of four steps. In the first step, items were generated on the basis of field interview and literature review. Expert

evaluation of items was done at the second step of Phase I. At the third step, a tryout study was conducted.

Step 1: Generation of Item Pool

Item pool was generated using mixed method approach including literature review and thematic analysis of semi-structured interview conducted with adolescents. The interviews were conducted with 28 adolescents (14 boys & 14 girls) from 4 schools through convenience sampling technique. The participants' age ranged between 11 to 19 years ($M = 15.6$ years of boys; $M = 14.9$ years of girls). These participants were selected based on the teachers' observations who reported these adolescents being in jeopardy for emotional and behavioral issues. An interview protocol was prepared by reviewing the literature and studying emotional and behavioral problems in detail and prepared open-ended questions. Some of the sample questions were: Explain your ability to pay attention; how do you express your aggression; comment on your pain sensitivity; and how will you describe your social relations.

The interview was conducted individually after written institutional approval and verbal consent of the participants. On average, it took 30 minutes for each interview. Further, the interview was conducted in Urdu Language by following Achenbach and Edelbrock, (1991) internalizing/externalizing problems framework and responses were documented or recorded depending upon the informants' preference. By following the literature on emotional and behavioral problems among adolescents some themes are highlighted such as anxiety, interpersonal relationship issues, feeling of loneliness etc. Later, this data were analyzed by using the thematic analysis following six steps proposed by Braun and Clark (as cited in Clark & Watson, 2016). Consequently, emerged themes were named as anxiousness, depressive symptoms, interpersonal problems, defiance and delinquency, psychosomatic complainants, poor self-image, aggression, loneliness, rejection feeling, hyperactivity, and psychomotor retardation.

In short 136 items were generated on the basis of above-mentioned themes for assessment of the emotional and behavioral problems of adolescents.

Step 2: Content Validity through Experts' Evaluation

A list of 136 items was generated as an initial form of EBPS and was presented to a panel of 5 experts (3 PhD & 2 MPhil in Psychology). The purpose of content validity was to obtain experts' view about each generated item in term of measuring the emotional

and behavioral issues of adolescents. Experts rated the relevance of each item by describing it on a four-point Likert-type scale based on the suitability of every item with reference to the theme, clarity of wording and selection of words ranging from 1 (*not relevant*) to 4 (*entirely relevant*). Content Validity Ratio (CVR) was calculated manually by utilizing following formula of Cohen et al. (2010):

$$CVR: n_e - (N/2)/ N/2$$

Where, n_e = total number of experts divided by the number of experts saying item essential; N= total numbers of experts on the penal and the numeric value of content validity ratio is determined by Lawshe table.

Table1

Content Validity Ratio of Items Following the Stance by Cohen et al. (2010; *N*=5)

No. of Items	Items (1-4)	Range
113	1,3,4,9,10,13,15,16,19,25,27,30,32,35,36,37,38,39,40,41, 43,45,46,47,48, 50,51,52,53,54,55,60,63,65,67,68,82,83, 84,85, 86, 87,88,89,90,93,94,97,105,108,109,110,111, 112,113,114,134,135,136,117,118, 119,120,3,121,122, 123,124,125,126,127,128,129,5,6,20,21,22,23,24,29, 31,33,42,44,57,58,59, 63,69,71,72,73,74,76,77,78,79,80, 81,91,95,96,99,100,101,102,103,105,115,116,133,66.	3.8-4
17	2,8,14,17,26,49,56,70,92,98,104,107,7,18,34,131,132	3.5-3.79
06	11,130,12,64,61,62	2.83-3.49

Table 1 indicates the CVR of 136 items. The CVR indicated the *entirely relevant, moderately relevant, relatively relevant and not relevant* value of items identified by the 5 experts. The e*ntirely relevant* CVR ranges as 113 items with the range (3.8-4); 17 items ranged in 3.5-3.79 as *moderately relevant* and 6 items with range 2.83-3.49 as *relatively relevant* items. Experts retained 136 items in the initial form of EBPS which was used at tryout step.

Step 3: Tryout

The tryout of initial form comprised of 136 items was administered on 28 adolescents (4 from each grade & 14 each of both genders) from schools and colleges of Gujrat to evaluate the item comprehension and words suitability for general understanding of adolescents. The participants aged between 11-19 years were

approached at school and college after taking their consent. They were selected for tryout step based on their teachers' reporting about some symptoms of emotional and behavioral patterns. They were informed about the purpose of tryout and were instructed in Urdu language. The participants were requested to complete the form in accordance to the emotional and behavioral problems they were experiencing from past 6 months. The identity of participants was kept confidential. Keeping in view the queries, it was decided to explain the queries with same words in the field administration e.g., nausea to be explained as state of discomfort in stomach and sensations of wanting to throw up. Similarly, examples of social events such as birthday parties, wedding event or school functions etc. would be described. There were some frequently asked questions e.g., meaning of *nausea* and examples of *social events*. Every query was responded with the same meaning of words. At tryout step, the Cronbach' Alpha reliability was α=.94 indicating an excellent internal consistency (Draguns & Tanaka-Matsumi, 2003). In results, no item was excluded in tryout phase.

Phase II

The initial form of EBPS comprised of 136 items was administered on 1120 participants to establish the psychometric properties of EBPS. Exploratory factor analysis and confirmatory factor analysis were carried out on two independent data sets of 560 participants in each. Before conducting EFA, item total correlation of each item was calculated. Items with correlation .3 and below were deleted on the basis of the criteria provided by Loiacono et al. (2002). Therefore remaining 59 items with the item total correlation .4 and above were finalized for EFA.

Exploratory Factor Analysis (EFA)

EFA was performed to explore the basic structure of EBPS.

Sample

By using multi-staged stratified sampling technique, 560 participants, age ranging from 11 to 19 years (280 boys & 280 girls) enrolled from grade 6th to 12th were selected from government and private schools and colleges of Gujrat. At stage 1, target population of adolescents was divided into two strata of school and college adolescents. At stage 2, the schools and colleges were divided in further sub-strata of government and private institutions. At stage 3, the schools and colleges were further divided into grade levels from

6th to 12th. At last stage, the grades were further divided into two strata of boys and girls.

The participants having any kind of physical disability or psychological illness were excluded from the study.

Table 2

Frequencies and Percentages of Demographic Variables of Participants for EFA (N = 560)

Variables	f	%
Institution Type		
Government	280	50.0
Private	280	50.0
Gender		
Boys	280	50.0
Girls	280	50.0
Family System		
Nuclear	399	71.3
Joint	16	28.8
Grade		
6th	80	14.3
7th	80	14.3
8th	80	14.3
9th	80	14.3
10th	80	14.3
11th	80	14.3
12th	80	14.3

Table 2 indicates that participants gender, institution type and grades categories show an equal presentation in the sample. However, more participants belong to the nuclear family system.

Instruments

In field administration, the demographic form and initial form of EBPS were used.

Demographic Form. The demographic form comprised of the demographic variables of institution type, gender, residential area, family system, age, grade, birth-order, father's qualification, mother's qualification and monthly family income.

Initial Form of EBPS. Initial list of Emotional and Behavioral Problems Scale was used to assess emotional and behavioral problems in adolescents. It consisted of 59 items based on five-point Likert scale.

Procedure

After getting permission from school and college principals, initial form of EBPS was administered on adolescents. After a brief introduction about the objectives of the research, written consent was taken from adolescents. They were asked to give response to each stated item as per their perception, feelings, behaviors and cognitions which they were experiencing in the last 6 months. Administration was done in group of 8 to 10 adolescents. On average, the administration took 20-25 minutes to complete the final form of EBPS. The ethical principle of consent and confidentiality were maintained throughout the research by the researcher. Respondents were also informed about their right to withdraw from the research at any time. In order to maintain confidentiality, they were assigned ID numbers.

Results

Frequencies and percentages of different demographic variables were obtained. The factors of the newly developed scale were identified through exploratory factor analysis. Before Exploratory Factor Analysis, sampling adequacy test was also run. Kaiser-Meyer-Olkin (KMO) measure indicated sample adequacy for 59 items which were retained after deleting the items having correlation .3 and below. For EFA only those 59 items were retained which have total item correlation from .4 and above. The KMO value was .90 (Kaiser, 1970) revealed that value of KMO above .80 falls in the category of meritorious and has significant level of adequacy (Kaiser & Rice, 1974). Bartlett's test of sphericity indicated X^2 value of 20232.771 ($p < .001$) which indicates that the R-matrix factorability and EBPS data set is suitable for exploratory factor analysis.

Table 3

Factor Loading on Emotional and Behavioral Problem Scale Using Varimax Rotation (N = 560)

Items					Factors				
#	*Original #*	F1	F2	F3	F4	F5	F6	F7	F8
1.	2	.24	.29	.17	.23	.29	.36	.30	.30
2.	3	.25	.39	.29	.38	.30	.22	.63	.42
3.	5	.42	.25	.07	.31	.29	.36	.89	.26
4.	12	.14	.39	.23	.29	.22	.46	.73	.42
5.	18	.36	.21	.34	.27	.38	.31	.89	.56

6.	19	.42	.05	.52	.34	.43	.35	.32	.35
7.	21	.21	.41	.58	.33	.34	.38	.24	.26
8.	22	.11	.03	.60	.23	.25	.23	.29	.25
9.	23	.34	.29	.66	.20	.29	.36	.26	.36
10.	24	.40	.31	.56	.30	.28	.26	.35	.22
11.	25	.20	.13	.57	.33	.26	.43	.28	.43
12.	33	.50	.27	.52	.26	.04	.15	.11	.15
13.	34	.14	.32	.69	.41	.52	.38	.41	.36
14.	35	.28	.41	.78	.49	.46	.32	.24	31
15.	37	.59	.49	.45	.34	.23	.25	.18	.29
16.	40	.50	.42	.37	.20	.27	.27	.30	.21
17.	43	.64	.51	.12	.28	.19	.19	.18	.20
18.	44	.72	.19	.27	.23	.25	.20	.17	.18
19.	45	.68	.49	.48	.32	.47	.45	.52	.48
20.	46	.40	.26	.11	.16	.14	.29	.26	.33
21.	47	.42	.27	.18	.15	.23	.29	.24	.29
22.	48	.51	.33	.09	.22	.20	.26	.26	.28
23.	51	.47	.16	.4	.22	.2	.11	.28	.31
24.	52	.76	.14	.23	.14	.17	.32	.31	.30
25.	53	.56	.54	.18	.25	.20	.18	.32	.20
26.	69	.31	.43	.32	.33	.12	.40	.12	.21
27.	70	.42	.61	.41	.36	.22	.31	.32	.10
28.	72	.22	.54	.49	.20	.16	.44	.31	.24
29.	73	.71	.92	.54	.43	.23	.32	.30	.19
30.	74	.34	.61	.24	.53	.11	.07	.31	.23
31.	75	.27	.67	.15	.43	.21	.33	.07	.44
32.	76	.21	.65	.45	.28	.39	.12	.34	.11
33.	78	.34	.58	.17	.19	.28	.31	.22	.25
34.	79	.19	.62	.34	.40	.21	.24	.19	.18
35.	82	.43	.22	.07	.12	.31	.04	.65	.90
36.	86	.11	.33	.34	.22	.19	.35	.21	.48
37.	87	.24	.16	.27	.33	.17	.04	.32	.45
38.	90	.45	.11	.21	.09	.54	.34	.17	.26
39.	91	.31	.22	.18	.24	.57	.21	.26	.12
40.	92	.02	.13	.34	.25	.53	.31	.23	.06
41.	95	.28	.33	.31	.03	.87	.25	.60	.32

42.	96	.22	.17	.15	.26	.53	.23	.33	.21
43.	97	.46	.31	.09	.21	.65	.15	.22	.27
44.	104	.07	.23	.41	.32	.78	.39	.21	.11
45.	107	.22	.29	.33	.40	.30	.56	.26	.25
46.	109	.17	.32	.20	.31	.14	.62	.39	.12
47.	111	.21	.28	.27	.43	.31	.64	.21	.16
48.	112	.23	.34	.19	.17	.21	.62	.33	.12
49.	114	.19	.24	.34	.65	.28	.36	.35	.19
50.	116	.07	.29	.21	.66	.32	.27	.35	.13
51.	117	.13	.16	.35	.71	.29	.33	.40	.16
52.	119	.23	.08	.34	.76	.32	.20	.31	.24
53.	120	.42	.21	.25	.71	.22	.22	.31	.12
54.	121	.30	.22	.34	.66	.27	.14	.15	.27
Eigen Value		18.84	4.96	4.06	4.86	3.07	2.47	2.38	2.15
Variance Percentages		11.40	8.96	8.99	7.08	7.30	6.96	6.86	4.59

Exploratory Factor Analysis was used by Varimax rotations. The Table 3 also highlights factors loading greater than (.30) were comprised 8 factors. Table 3 clearly indicates that the majority of the items have high loading values ranged from .4 to .9 indicating that all factors have reasonable number of items. Percentages of variance also indicates the variances among all factors.

The scree plot illustrates factor solution after 10th component with a clear break. Considering the loading of factors and theoretical relevance, only 8 well-defined factors consisting of 54 items emerged. Factor loadings greater than .30 was set as a criterion for inclusion in each factor of the questionnaire. EFA is used to "reduce or make data more comprehensible and determine how many factors should be retained or rotated in an interpretable orientation" (Floyd & Widaman, 1995, p. 287). EFA was run with varimax rotation and discovered the factor structure in items using the Principle Component Analysis (PCA). Initial analysis resulting in Eigen value > 1.00 (the Kaiser-Guttman criterion) derived 10-factors solution representing 62.14 percent of the total variance. Keeping in view the high loading and theoretical relevance of items, the structure of the factors was defined. Factor 10 has only one item numbered 2 with the loading of 0.562, so, factor number 10 was deleted. Moreover, Factor 9 has 2 items numbered 35 and 95 with loading of 0.821 and 0.415 respectively. Item number 35 has high loading in factor 9 but it is theoretically relevant with factor 3, so it was placed in factor 3 and item number 95

has high loading in factor 5 with theoretical relevance so, it was placed in factor 5. Consequently, factor 9 was left with no item hence, it was deleted. On the basis of thematic understanding of the items loaded in each factor, researchers labelled the 8 factors as: Factor 1 was labeled as Depression Symptoms, comprised of item numbers 15, 16, 17, 18, 19, 20, 21, 2, 23, 24 and 25; Factor 2 was Defiance and Delinquency consisted of item numbers 26, 27, 28, 29, 30, 31, 32, 33 and 34; Factor 3, Anxiety Symptoms comprised of items numbers 6, 7, 8, 9, 10, 11, 12, 13 and 14; Factor 4 was Perceived Worthlessness, Rejection and Loneliness consisted of item numbers 49, 50, 51, 52, 53 and 54; Factor 5, Poor Self-image emerged with items numbers 38, 39, 40, 41, 42, 43 and 44; Factor 6 was Aggressive Behaviors and consisted of items numbers 1, 45, 46, 47 and 48; Factor 7 was Academic Difficulties and comprised of item numbers 2, 3, 4 and 5; whereas Factor 8, Psychosomatic Troubles consisted of item numbers 35, 36 and 37. Thus the only item left on factor 8 was 54.

The response format of EBPS was a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). High scores indicate high level of emotional and behavioral problems and vice versa.

Confirmatory Factor Analysis

After EFA 8 factors were maintained with 54 items and then CFA was conducted on separate set of data from 560 participants using the 54 items for model measurement, factor structure and dimensionality determination of the Emotional and Behavioral Problems Scale using Analysis of a Moment Structures (AMOS version 21).

Sample

For CFA, a sample of 560 participants (280 boys & 280 girls) falling in age range of 11 to 19 years enrolled in grade 6th to 12th were recruited from various government and private schools and colleges of Gujrat, Pakistan. The inclusion and exclusion criteria were the same as in EFA.

Table 5 indicates that gender, educational institutions, and grade-wise, the sample have equal presentation. The majority of the participants belong to urban area as compared to rural area; similarly, majority of the adolescents were living in nuclear family system.

Table 5

Frequencies and Percentages of Demographic Variables of Participants for CFA (N = 560)

Demographics	Variables	*f*	%
Institution Type			
	Government	280	50
	Private	280	50
Gender			
	Male	280	50
	Female	280	50
Grade			
	6th	80	13.4
	7th	80	13.4
	8th	80	13.4
	9th	80	13.4
	10th	80	13.4
	11th	80	13.4
	12th	80	13.4
Residential Area			
	Urban	408	72.9
	Rural	152	27.1
Family System			
	Nuclear	407	72.7
	Joint	153	27.3

Same instruments, procedure and ethical procedures were used in data collection of CFA as followed for data used for EFA.

Results

Table 6

Model Fit Summary of Confirmatory Factor Analysis (N=560)

Indexes	Chi-square	*Df*	CFI	RMSEA	GFI
Model-1	2257	25.447	.620	.320	.50
Model-2	821.939	298	.912	.065	.90

Table 6 shows that the first model's structure did not indicate a satisfactory fit to the data (chi-square = 2257, *df* = 25.447, CFI = 0.620, RMSEA = 0.320 & GFI =0.50), as the value of CFI was outside the permissible limit of 0.90. Indexes for detecting changes were applied to the model so that the covariance and regression weights

may be reevaluated. Due to their potentially problematic nature in the model, items with high regression weights were removed. In order to get a well-fitting model, we drew covariances. These 32 items were used in another round of CFA testing to evaluate the model. With (chi-square = 821.939, df = 298, CFI = 0.912, RMSEA = 0.065, and GFI = 0.900), the model suggested a strong model fit. Finally, a 32-item model verified 8 factors.

In Table 6, we see the results of running two models to verify the predicted model's underlying structure. The results also showed that model 2 provides a value of 0.912, which is acceptable and demonstrates strong model fit when compared to model 1.

Table 7

Inter-Scale Correlations for EBPS

Factors	1	2	3	4	5	6	7	8	9
1 DS	-	.31**	.64**	.35**	.47**	.30**	.32**	.30**	.82**
2 DD		-	.20**	.26**	.51**	.22**	.11**	.22**	.54**
3 AS			-	.31**	.43**	.41**	.37**	.41**	.77**
4 PWRL				-	.43**	.28**	.24**	.28**	.59**
5 PSI					-	.35**	.28**	.35**	.76**
6 AB						-	.32**	.31**	.53**
7 AD							-	.32**	.50**
8 PT								-	.53**
9 EPBS									-
10 *M*	17	7.42	17.85	7.5	10.79	5.23	5.39	5.23	77.84
11 *SD*	5.9	3.28	5.47	3.47	4.25	2.11	2.41	2.11	20.17
12 *α*	.94	.86	.91	.91	.94	.82	.88	.83	.92

Note. DS = Depressive Symptoms; DD = Defiance and Delinquency; AS = Anxiety Symptoms; PWRL = Perceived Worthlessness, Rejection, and Loneliness; PSI = Poor Self-Image; AB = Aggressive Behaviour; AD = Academic Difficulties; PT = Psychosomatic Troubles; EPBS = Emotional and Behavioural Problems Scale.
** $p < .01$.

Table 7 indicates correlation, mean, standard deviation and Cronbach alphas of 8 factors. There exists statistically significant positive correlation between all factors and the total Emotional and Behavioral Problems Scale. Value of correlation ranged from .20 to .82 with *p*-value < .01.

Discussion

The current study carried out to address a need for the local instrument to assess the emotional and behavioral problems of the 11 to 19 years old adolescents. The primary purpose of this research was to create a culturally relevant version of the Emotional and Behavioral Problems Scale which may screen out the adolescents for further clinical assessment and diagnosis procedure. In order to attain the objectives of the study first of all 136 items were generated by adopting multiple methods such as reviewing the relevant literature, conducting thematic analysis (Clarke & Watson, 2016) and consulting the experts of relevant field. The extracted themes from thematic analysis as well as the results of CVR supported our selected model (Achenbach & Edelbrock, 1991) which established the relevancy of items with the behavioral and emotional problems.

In the second phase of the research, the psychometric properties of EBPS were established. Results indicated that EBPS has reached up to an acceptable level of internal consistency and content validity. Further the statistically significant positive correlation among all factors of Emotional and Behavioral Problems Scale showed the scale is uni-dimensional yet indicated the orthogonal factors of EBPS (Nunnally, 1978). In other words 8 factors established in the result of EFA, are consistent with the internalizing and externalizing difficulties paradigm supporting theoretical underpinnings of this study (Achenbach & Rescorla, 2001). However, the additional emerged factors of the local scale named as academic difficulties, feelings of worthlessness, rejection and loneliness, and a poor sense of self present culturally relevant issues. These four elements of EBPS are unique to the theoretical model (Achenbach & Edelbrock, 1991) comprised of psychosomatic complaints, social withdrawal, anxiety, depression, and aggression and delinquent behavior. The possible explanation of this result may be the different socialization practices prevailing in Pakistani society as compared to western culture. The both vital systems (family and schools) of socialization are different from the western societies. Adolescents in Pakistan's education system face significant pressure to succeed. Therefore, it is possible that adolescent's emotional and behavioral issues are exacerbated by the stress they experience at homes and in school or university (Achenbach & Ruffle, 2000).

In Pakistani culture where not only close knitted family (parents and siblings) but the members of the extended family also play a detrimental role in the development of children. Further the children

remain dependent on their family in terms of financial and emotional needs for a longer period of time (Batool & Gillani, 2008). In contrast the individualistic culture of the west nurtures the independency and confidence in children and adolescents. Pakistani adolescents are heavily influenced by their parents, instructors, and siblings (Steinberg, 2005). Harmony within the family, conformity to authority figures, and obedience to parents and instructors are all encouraged (Cauce et al., 2002). The emotional and behavioral patterns may have their roots in culture so the significance and utility of the locally developed scale (EBPS) is evident.

The locally developed tool named as Emotional and Behavioral Problem Scale has an acceptable theoretical relevancy (Achenbach & Edelbrock, 1991) and statistical validity. Moreover, it has also shown the reasonable level of internal consistency therefore it can be used for screening and referral purposes of the adolescents with emotional and behavioral difficulties in Pakistan.

Implications

Present study is intended to develop an instrument which can be used to assess the emotional and behavioral problems among adolescents. Newly developed scale can be used as a screening tool for identifying the adolescents with internalizing and externalizing difficulties. Thus, the further assessment plan and psychotherapeutic services may be planned for the identified adolescents. As the result this assessment tool will play an important role to implement intervention services for those adolescents who are suffering from emotional and behavioral problems that can improve their functioning and quality of life.

Limitations of the study

Limitation of the present study is the time constrain due to which data were collected only from single city of Pakistan that reduces the cultural diversity. Besides that, future studies are needed to be conducted to establish the reliability and validity of the local scale including the clinical settings.

Conclusion

It is concluded that there was an intense need of an indigenous Emotional and Behavioral Problems Scale for Pakistani adolescents. Current study provides a reliable and valid instrument of measuring

emotional and behavioral troubles in adolescents. The local scale can be used in educational and therapeutic settings to identify the adolescents with emotional and behavioral problems. Thus, the identified adolescents may be referred for further psychological assessment procedure and ultimately, they will be provided the relevant counseling services in order to address the emotional and behavioral difficulties

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