



Assessing Adolescent Adaptability: Development of a New Psychological Adjustment Scale

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ABSTRACT

The psychological problems are problematic in every society. To address the psychological problems and for their determination the assessment tools are required. The present study assesses adolescent adaptability by developing a new psychological adjustment scale. At first, a pool of 168 items was originated through interview and searching literature. The pilot study was initially done with 162 items and after pilot study 75 items were retained that includes the dimensions of depression, anxiety and disturbance of conduct according to DSM criteria of adjustment disorders. Further, field administration of these items was done on 400 adolescents by using self-administered questionnaire. The data was examined by using exploratory and confirmatory factor analysis and reliability test. Among 75 items 20 items were found reliable at the end of analysis. The reliability of the sub-scales was between ranges of .688 to .800. Psychometric properties of psychological adjustment scale were confirmed above 100 participants. Convergent validity was determined with suicide scale for adolescents. The convergent validity showed significant correlation value of .345 establishing validity. The divergent validity showed no relationship between moral disengagement and social anxiety with psychological adjustment problems. Psychological adjustment scale for adolescents was a reliable and valid instrument for assessing psychological adjustment problems of adolescents.



Introduction

Adolescence is recognized universally as an important time of development and substantial changes across a number of areas (Eccles & Wigfield, 2002; Steinberg, 2005). Although there is no precise definition for adolescence, this time in development refers to a stage between the onset of puberty and when adult roles are taken on. Adolescence is a period of significant changes across all areas of biological, cognitive, emotional, and social development (Steinberg, 2005). These changes include physical growth, the capacity to think abstractly, emotionally intense experiences, and an increasing influence of peers. Taken together, these changes create the context for the primary developmental task of establishing identity and gaining independence (Erikson, 1968; Steinberg, 2005). Adolescence is characterized by fast and profound change in the biological, cognitive, emotional, and social domains. It contains a shift from dependence on caregivers to independence and autonomy, the emergence of identity, and the preparation for adult roles and responsibilities (Steinberg, 2014).

Characteristics of Adolescence

1. **Transitional Phase:** A developmental transition between the relative immaturity and dependency of childhood and the maturity and independence of adulthood (Steinberg, 2014)
2. **Age Range:** Usually commences around age 10, following the onset of puberty, and spans to age 19, though definitions differ (ex. some refer to adolescence as extending to roughly age 24) (Sawyer et al., 2018).
3. **Developmental Tasks:** Accomplishing greater independence and autonomy; establishing a coherent personal identity; developing intimate relationships with people outside the family; and preparing for an occupational future are the key developmental tasks for adolescents (Curtis, 2015).
4. **Multisystem Change:** Involves simultaneous and interrelated changes across biological, neurological, psychological and social systems (Curtis, 2015).

Transitional Character: Biological, Cognitive, Emotional, and Social Change

Adolescence is a period of dynamic transformation driven by interactions between fundamental biological change and the young person's own unique environmental and social context (Erikson, 1968).

Biological Changes

Perhaps the most evident biological change is puberty, which is driven by increases in adrenal and gonadal hormones (Curtis, 2015). The process of puberty initiates physical changes in moving from child to reproductive adult, including:

1. **Somatic Change:** Rapid physical growth or the adolescent growth spurt which involves significant changes in height and weight (Sawyer et al., 2018; Erikson, 1968).
2. **Sexual Maturation:** Development of primary sexual characteristics (i.e. reproductive organs) and secondary sexual characteristics (e.g. breasts, pubic hair, voice change) (Sawyer et al., 2018).

3. Brain Development: The brain is still undergoing major structural maturation. For example, the brain's dopaminergic system has been shown to change early in adolescence, leading to increased temptation to seek out sensations and motivation for reward and gratification, often before the development of higher cognitive control function in the prefrontal cortex (Steinberg, 2014).

Cognitive Changes

Adolescents go through rapid cognitive maturation as they transition from concrete thinking toward more abstract and more sophisticated thinking. Important aspects of cognitive change include:

- 1) Formal Operational Thought:** The capacity to reason logically about abstract concepts, think hypothetically, and appreciate multiple perspectives (Curtis, 2015).
- 2) Executive Functions:** Improvements in cognitive skills that modulate and coordinate thoughts and behaviour such as improved reasoning, problem solving, impulse control, and decision-making skills (Curtis, 2015).
- 3) Metacognition:** The ability to think about one's own thinking and engage in self-reflection, and self-consciousness (Steinberg, 2014).

Social Changes

The social realm expands and shifts significance, as peer relationships become the primary focus of development (Clark et al., 2023).

- 1. New Relationships:** Adolescents' emergence of romantic and sexual interest and relationships is a significant social change (Furman & Shaffer, 2003).
- 2. Family Relationships:** Relationships with parents shift as adolescents seek independent action. Parenting styles often change from direct management of adolescents, to providing guidance and support (Steinberg, 2014).
- 3. Social Identity:** Adolescents become intensely preoccupied with others' opinions and the social self, entering a phase where they are methodically developing an understanding of their role in the social world (Steinberg, 2014).
- 4. Peer Influence:** Friends begin to replace the immediate family as the emotional center of life. Peer relationships are foundational to identity development and exploration of new experiences (Furman & Shaffer, 2003).

Changes in Emotion

The interplay of shifts in hormone levels and developing cognitive architectures has a bearing on emotional life, often producing increased emotional reactivity and sensitivity (Steinberg, 2005).

- 1. Emotional Reactivity:** Variations in neurotransmitters (e.g., dopamine and serotonin) shape emotional experiences and often make adolescents somewhat more volatile and sensitive to stress (Erikson, 1968).
- 2. Self-Identity:** A central task is working through the conflict of identity versus role confusion as it relates to exploration, testing boundaries, and eventually making a commitment to oneself (Erikson, 1968). This means developing a sense of personal morals, values, and opinions.

3. Autonomy: There is an increased assertion of autonomy and an interest in withdrawing from excessive parental authority controlling decisions and actions (Steinberg, 2014).

Now, it is very important to measure different psychological problems encountered by adolescents to work efficiently. Further, there should be appropriate tools to check the issues. The current study focus on the psychological adjustment of adolescents.

Conceptualization and Importance of Psychological Adjustment

Psychological adjustment is defined as how well a person is able to adapt to the combined demands of the environment and internal state grounded in theoretical perspectives. Perspectives from development profile a successful progression through life-stage expectations (Erikson, 1968), while cognitive-behavioral perspectives center on the role of thoughts, feelings, and behaviors in coping (Beck, 1976). Ecological perspectives further stress the role of an individual's interaction with systems surrounding them (e.g., their family, school, and community) (Bronfenbrenner, 1979). Adjustment is considered to be a multidimensional construct captured typically by assessing multiple domains of adjustment across factors of emotional well-being (e.g., regulating feelings and low distress), positive social competence (e.g., peer relationships, social skills), academic achievement, and behavioral conduct (e.g., absence of externalizing problems) (Compas et al., 2001). Successfully adjusting psychologically during this time is critical because adjustment directly affects short- and long-term academic success, mental health and social functioning (Mash & Barkley, 2007). Typically, adolescents encounter significant challenges such as peer influence, figuring out their identity (identity formation) and developing independence from their parents (i.e., autonomy) that accompany developmental stressors (Steinberg, 2005).

For measure psychological adjustment let's look at already developed scales.

Need for Scale Development and Gaps in the Literature

Because of the unordinary and complicated nature of this developing period, specifically as regards assessing adolescent adaptability as central focus of overall psychological adjustment is crucial (Lazarus & Folkman, 1984). Adaptability refers to the ability to cope with stressful encounters and significant life transitions, which makes it a particularly salient indicator of healthy development and resilience (Compas et al., 2001). While numerous existing assessment scales of psychological adjustment are well-known (i.e. Strengths and Difficulties Questionnaire (SDQ) Goodman, 1997; World Health Organization- Quality of Life-BREF (WHOQOL-BREF) WHOQOL Group, 1998), they are prologue in rigor or assessment of the complexity of adolescent adaptability, as these instruments often focus on mental health or general quality of life more than adaptability specifically as a model of adjustment. Another limitation that is evident in the literature is the lack of instruments that have been culturally validated specifically for adolescents in non-Western or unique cultural contexts (Chen et al., 1998). Adaptability in particular can vary cross-culturally so measurement approaches are warranted (Triandis, 1995).

Rationale and Research Objective

Thus, the purpose of this study is to resolve these limitations by creating a new, all-encompassing scale. This study is warranted by the need for a measure that both describes and measures adaptability as a multidimensional construct of psychological adjustment that is culturally sensitive and contextually relevant for use with adolescents. Contributions likely to emerge from this study process include a new, rigorously developed and reliable and valid measure for researchers and practitioners alike that will help researchers and practitioners better identify adolescents at risk,

assess intervention effectiveness, and promote deeper understandings of healthy adolescent development.

The Research Objective of this study is:

To the development of a Psychological Adjustment Scales for Adolescents.

Material and Methods

In this section the process of development and validation of psychological adjustment scale for adolescents from age (13-19) has been described.

This section was proposed for the following goals:

Steps 1: Generation of Item Pool

Procedure

Initially, the item pool was created using the DSM-5's Adjustment Disorder criteria, which included conduct disturbance, anxiety, and depression specifiers (American Psychiatric Association, 2013). In addition, accessible research and interviews regarding adolescents' psychological adjustment issues were used to generate the item pool. The three dimensions of adjustment disorder specifiers—depression, anxiety, and conduct—were used to construct the items. Every item was created in Urdu. Open-ended questions about psychological adjustment issues were asked in Urdu during an unstructured interview. Three M.Phil. and two PhD researchers in psychology or a related discipline were consulted before the interview questions were finalized. Following this, 168 items were verified to be the original item pool.

Expert's Evaluation of Items

Procedure

The next step after item generation was the systematic procedure of the content validation of items by experts. The generated items content was approved by the specialists who had expertise in scale development and concerned subject matter. Five experts were selected for evaluation. The experts had in detail knowledge about the topic and inclusive information about the questions in study. There were two PhD and three M Phil in Psychology and related fields experts. They were requested to assess items. The correctness of content and ambiguity of items were evaluated. On the bases of expert's evaluation the items were changed, added or removed. The panel of experts confirmed 162 items. Format of response was also confirmed as well. The format of the scale was finalized on multiple choices, The scale was based on 3 point Likert scale, ranging from 1 to 3, options for response also confirmed (1 = "never", 2 = "occasionally", 3 = "almost always"). After the experts evaluation 35 items were improved, 5 items were changed and 6 items were removed. The remaining 162 items were used in the pilot study.

Pilot Study

Sample

Further, the data was collected for pilot study from 100 adolescent's respondents (male and female) of ages between 13 to 19 years by using the convenient sampling technique, from different educational institutions of Gujrat.

Measure

The expert evaluated 162 items were used for data collection.

Procedure

The scale was administered in the test-retest format. The test retest was calculated using correlation. The duration of time gap between test-retest administrations was 15 days of same scale. The items that have 0.5 or above correlation were kept and the other were discarded. The significance of items was also checked. Permission was taken from authorities and guardians of children for data collection. Students were then approached in their schedule classes' .Brief introduction of the scale was also given before the administration and also briefed that their information will keep secret. To obtain information about participants a demographic form was used. Informed consent was obtained from the guardians of participants and afterward instructions, purpose, importance and significance of the research were also communicated. The instructions and response ranges were also cleared to them. The participants were asked to choose appropriate response according to their state of mind. At the end the participants were admired for their help and alliance in the research work.

Data Analysis

To confirm the test retest reliability of items, data was entered in Statistical Package for the Social Sciences version (SPSS-22) for computing correlation.

Step 4: Final Administration of Scale

Sample

A sample of 400 respondents, with ages between 13 to 19 years was taken from different educational institutions of Gujrat city, by using convenient sampling technique.

Measure

After pilot test the 75 items scale was used for final administration.

Procedure

Respondents were given the established 75-item scale for factor analysis along with written consent and instructions. To demonstrate the uniqueness of the research, the questionnaires were attached with permission from the university department. Adolescents between the ages of 13 and 19 were used for the scale. The questionnaires were to be filled out honestly by the participants. Participants received the necessary explanation if they did not understand the questionnaire. They were told that their privacy would not be compromised and that it was merely a component of psychological study.

Data Analysis

To identify the underlying components, exploratory factor analysis was employed. To determine the validity of the factors and the significance of the items in the scale, an exploratory factor analysis was performed on the data of 75 items. The results of exploratory factor analysis were sought to be confirmed using confirmatory factor analysis. The Statistical Package for the Social Sciences (SPSS-22) was utilized for exploratory factor analysis (EFA), and Analysis of a Moment Structures (AMOS) (version 21) was utilized for confirmatory factor analysis (CFA).

Results and Discussion

The statistical analysis employed in research provided the detailed description of the results. Statistical Package for the Social Sciences (SPSS, V 22) for Windows and Analysis of a Moment Structures (AMOS) (version 21) for Windows was used for statistical analysis of data.

Table-1: Correlation of Test and Retest Administration (N=100)

Serial No	Item No	r	Serial No	Item No	r
1	1	.810**	39	85	.512**
2	2	.557**	40	86	.534**
3	3	.714**	41	88	.757**
4	4	.857**	42	89	.755**
5	5	.784**	43	90	.788**
6	6	.667**	44	91	.670**
7	7	.733**	45	92	.749**
8	8	.683**	46	93	.752**
9	10	.595**	47	95	.751**
10	11	.774**	48	96	.559**
11	12	.605**	49	97	.645**
12	13	.577**	50	98	.626**
13	14	.676**	51	99	.563**
14	16	.681**	52	100	.590**
15	17	.560**	53	101	.524**
16	20	.605**	54	102	.515**
17	22	.644**	55	103	.610**
18	24	.516**	56	104	.546**
19	28	.530**	57	108	.565**
20	30	.858**	58	109	.660**
21	31	.795**	59	111	.638**
22	32	.812**	60	116	.562**
23	33	.750**	61	119	.797**
24	37	.658**	62	120	.605**
25	40	.583**	63	121	.673**
26	41	.691**	64	124	.509**
27	42	.786**	65	136	.548**
28	56	.680**	66	148	.564**
29	58	.809**	67	149	.568**
30	60	.806**	68	151	.607**
31	61	.587**	69	153	.667**
32	62	.733**	70	155	.658**
33	63	.535**	71	156	.568**

34	65	.664**	72	157	.631**
35	66	.670**	73	158	.603**
36	74	.546**	74	161	.577**
37	77	.547**	75	162	.777**
38	83	.567**			

The results of the table indicate that there was significant correlation among test-retest administration. Items having correlation below 0.5 was excluded and thus, 75 items were retained. The items have a correlation in range of 0.509 to 0.858.

Table-2: Measuring Sample Adequacy

KMO		Bartlett's Test of Sphericity		
		Chi Square	df	Sig.
Psychological Adjustment Scale	.865	10666.038	2775	.000

The table's KMO value of .865, which gauges the sample adequacy of 75 items, indicates that the sample was sufficient for factor analysis. At $p < .001$, Bartlett's test was likewise very significant. The table's result indicates a high level of sample adequacy.

Table-3: Factor loading of Psychological Adjustment Scale for Adolescence (N=400)

Serial No	Item No.	Anxiety	Conduct	Depression
1	1	.508		
2	2	.496		
3	3	.479		
4	20	.450		
5	21	.443		
6	24	.404		
7	26	.453		
8	33	.440		
9	36	.490		
10	41	.502		
11	42	.467		
12	55	.461		
13	56	.444		
14	57	.471		
15	58	.497		
16	59	.461		
17	60		.447	
18	61		.457	
19	65		.435	
20	66		.401	
21	67		.620	
22	68		.624	
23	69		.657	
24	70		.647	

25	71		.683	
26	72		.711	
27	73		.623	
28	74		.624	
29	75		.462	
30	7			.578
31	8			.593
32	9			.546
33	10			.424
34	13			.401
35	17			.511
36	22			.459
37	23			.415
38	50			.545
39	51			.592
40	62			.461
41	64			.475

The table displays the three-factor rotation of the factor structure from exploratory factor analysis (EFA). Three EFA factors were fixed. 4 is the suppression's absolute value. The range of factor loading values was 0.401 to 0.711. Twelve items were put in factor 3, which was designated as depression; thirteen items were loaded in factor 2, which was designated as conduct; and sixteen items were loaded in factor 1, which was designated as anxiety. Out of 75 objects, 41 were kept in EFA.

Table-4: Model Fit Summary (N=400)

p-Value	CMIN/DF	GFI	CFI	RMSEA	PGFI
.000	2.049	.916	.905	.051	.737

The Confirmatory factor analysis was done to confirm the results of EFA. 21 problematic items were deleted and hence the model fit attained with the CFI of .905 that was in the accepted limit. The model fit other indices shows CMIN/DF (2.049), GFI (.916), RMSEA (.051) and PGFI (.737) the significant of the scale.

Table-5: Cronbach Alpha of Psychological Adjustment Scale for Adolescents (N=400)

Subscale	Total Items	Cronbach Alpha r
Depression	06	.688
Anxiety	07	.758
Conduct	07	.800

Note: ** $P < .01$

The table shows the subscale Cronbach alpha reliability of Psychological Adjustment Scale for Adolescents, it demonstrate good reliability values. The full scale Cronbach alpha reliability was .852.

Discussion

The statistical analysis conducted on the development and validation of the Psychological Adjustment Scale for Adolescents (PASA) demonstrates strong psychometric properties indicative of a valid and reliable three-factor structure. The analysis of the data, utilizing the Statistical Package for the Social Sciences (SPSS, V. 22) and Analysis of a Moment Structures (AMOS, V. 21), supports the retention of the scale and the scale's subscales, Depression, Anxiety, and Conduct. The first analyses focused on the temporal stability of the scale's items, as reported in Table 1. For N=100, the bivariate correlation of the scores for the first (Test) and second (Retest) administrations of the 103 items was calculated (Bagaiini et al., 2025). For all items, the correlation coefficients (r) fall between .509 and .858, with all reported values statistically significant at $p < .01$. The positive, strong correlations for reported items indicate that the scale is measuring the same construct over time. Further, a threshold of $r < .50$ across items determined which items to retain for the next stage of the analysis and produced 75 items retaining item scores correlating lower than the cut-score (Akoglu, 2018). This step ensured that only items with acceptable temporal stability, a component of reliability (Cronbach, 1951), progressed to the next stages of validation. The strong degree of the reported correlation provides evidence of good overall test-retest reliability for the item (Cohen, 1988). To discover the basic factor structure of the 75 retained items, an Exploratory Factor Analysis (EFA), was run using a larger sample of 400 total respondents. Prior to the EFA, measures of sample adequacy were reported (see Table 2). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .865. The Bartlett's Test of Sphericity was also significant ($df = 2775, p = .000$) (Yadav et al., 2024). A KMO value of greater than .80 is considered "meritorious", and indicates that sample data used are very appropriate for use in a factor analysis, meaning the inter-correlations between items were very sufficient for meaningful factor extraction (Kaiser, 1974). The significant Bartlett's test provided further evidence that the correlation matrix was not an identity matrix, and that the EFA could continue. The EFA was run and the Varimax rotation was used to yield a simple structure to aid in interpretation of factor structure, which revealed the three-factor solution (see Table 3). By fixing the number of factors to 3, suppressing loadings lower than .40, EFA yielded three unique factor structures for 41 total items (Tavakol & Wetzel, 2020). Factor 1 (Anxiety) with 16 loaded items and loadings ranging from .404 to .508, Factor 2 (Conduct) with 13 loaded items and loadings ranging from .401 to .624, and, Factor 3 (Depression) with 12 loaded items and loadings ranging from .401 to .711. The unique loadings indicate that psychological adjustment in adolescence can be conceptualized as a three-factor construct that includes Anxiety, Conduct problems, and Depression (Achenbach, 1991). The factor loadings (always above .32 which is an acceptable standard for psychological constructs; (Tabachnick & Fidell, 2013) demonstrate a clear, adequate, and strong association of the retained items to their associated latent constructs. The total number of excluded items ($n=34$) indicates that considered items exhibited insufficient factor complexity or did not load adequately onto the previously established factor. Then the Confirmatory Factor Analysis (CFA) was used to formally assess the model fit of the three-factor model extracted from the EFA (Table 4) (Lee et al., 2021). Following the exclusion of the 21 problematic items, the final CFA suggested a good model fit with several established model fit indices. Previous indices (e.g., GFI, TLI, CFI, RMSEA) corroborate these strong findings and provide sufficient evidence of the construct validity of the 24-item PASA (6 Depression, 7 Anxiety, 7 Conduct). Along with the EFA, the CFA further verified that the theoretical structure (three-factor model) adequately fits the data's relationship to the observed variables (Byrne, 2010). The factor structure has been retained, representing internalizing (Anxiety and Depression) and externalizing (Conduct) dimensions of adolescent psychopathology, within established conceptual frameworks (Achenbach, 1991). The overall reliability of the full scale (.852) indicates excellent internal consistency across the scale as

a whole (Tavakol & Dennick, 2011). The sub-scale reliabilities were acceptable (.688) to good (.758) and very good (.800). The Depression subscale reliability is slightly below the .70 level convention; however, it is commonly accepted for measures with a small number of items (Hair et al., 2010) and with the overall scale reliability so robust, this is less of a concern. Overall, these values provide evidence for the internal consistency of the PASA and support its use to reliably assess adolescent psychological adjustment in relation to the dimensions specified.

Conclusion

A reliable measure on psychological adjustment problems has been developed. Psychological adjustment is the behavioral process of balancing needs and problems of environment for human and animals. Moreover, psychological adjustment is affected by personality attributes, managing strategies and available social support. In addition to this, adolescence adjustment problems are related to emotional and behavioral problems. Adolescence is an important phase in the life of individuals for psychological, biological, social and intellectual changes. The present study provides insight about the various problems faced by adolescents. This scale will be helpful to explore psychological adjustment problems in adolescents.

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