DEVELOPMENT AND STANDARDIZATION OF AN ASSESSMENT INSTRUMENT FOR ADJUSTMENT DISORDERS- THE ADJUSTMENT DISORDERS SCALE (ADS)

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ABSTRACT
Assessing adjustment disorders has been of utmost concern to researchers and clinicians in different climes. The aim of this study was to develop and standardise an instrument that measures adjustment disorders among adolescents within the Nigerian population. By means of a cross-sectional survey, a total of 409 adolescents in secondary schools aged between 11 and 17 years with a mean age of 14.16 (SD=1.78) were sampled for the study. The initial version of the Adjustment Disorders Scale (ADS) was made up of eighty items extracted from theories and literature on various aspects of adjustment and general psychopathology. These items were first subjected to a pilot study during which ambiguous words and phrases were refined or deleted reducing the items to sixty. The remaining items were then arranged in a likert-scale format and administered to the validation sample alongside the Awaritefe Psychological Index (API) for purposes of comparison. By means of a correlational and factorial design the data was analysed. Results showed that ADS has the following reliability coefficients: a Cronbach Alpha of 0.97 and a Split-half of 0.82 and a positive and significant concurrent validity with API of 0.19. Furthermore, a principal component analysis of the ADS produced four independent component factors that make up the subscales, with 48 items in the final version. The results were discussed within the context of existing theories about adjustment disorders in adolescents. Recommendations and suggestions were made for future studies.

***Keywords**: adjustment disorders, validity, reliability, psychopathology.*

INTRODUCTION
Adjustment is the relationship which is established between the individual and the environment or the extent to which an individual's personality functions effectively in the world of people. It is the extent to which an individual achieves satisfaction by making minor changes in reaction to novelties in interaction with the environment (Lazarus 1976). The process of adjustment starts from birth and continues throughout life since a person as well as his needs are constantly changing in accordance with the demands of the changing environment. Thus adjustment is a two way process that involves not only the fitting of oneself into available circumstances but also the process of changing the circumstances to fit ones needs. According to White (1956), sources of personal adjustments vary as no two situations are the same such that adjustment is achieved as a compromise between the two extremes while maladjustment is a failure to achieve a satisfactory compromise. Consequently, there are individual differences occasioned by dissimilar competencies which can create the problems of adjustment due to differences in the circumstance and in persons (individual differences). These problems of adjustment or maladjustment in behaviour, then manifest as adjustment disorders

Adjustment disorder occurs when there is a failure in the process of modifying ones behaviour in changed circumstances or an altered environment in order to fulfil various physiological, psychological and social needs. In other words, adjustment disorder occurs when an individual is unable to adjust to or cope with a particular stressor, like a major life event which is also a diagnostic category. According to the DSM-V (APA, 2013), the development of the emotional or behavioural symptoms of this diagnosis has to occur within three months of the onset of the identifiable stressor and modern living is fraught with many stressors. Almost any kind of stressor can trigger an adjustment disorder but AD is differs from other diagnoses in which life events are a common factor.

For example, for a diagnosis of a depressive episode,there need not be a stressor whereas it is a prerequisite for a diagnosis of adjustment disorder. It is similar to Post-Traumatic Stress Disorder (PTSD) because their diagnoses are based on aetiology but the major difference is the non-life-threatening nature of stressors for AD in contrast to the traumatic or life threatening nature of the stressors for PTSD (Maercker, Einsle & Kollner, 2007). The condition is different from anxiety disorder, which lacks the presence of a stressor even though anxiety symptoms may occur in adjustment disorders. The several criteria for the diagnosis of adjustment disorders include the following:

(i) Having emotional or behavioural symptoms within three months of a specific stressor occurring in one's life.

(ii) Experiencing more stress than what would normally be expected in response to the stressor or having stress that causes significant problems in relationships, at work or at school

(iii) An improvement of symptoms within six months of the stressful event coming to an end

(iv) The symptoms not being part of normal grieving for the death of a loved one

RATIONALE FOR THE STUDY

Adjustment disorders are common, yet under-researched mental disorders (Casey & Bailey, 2011). Earlier versions of the DSM listed nine different subtypes of adjustment disorders but in DSM-IV-TR (APA 2000), adjustment disorder was reduced to six types, classified by their clinical features, which make up the predominant symptoms. The DSM-V (APA, 2013) has retained this category without any changes. In clinical terms, there are two major components: the internalizing or emotional (e.g. sadness, nervousness, anxiety, worry, desperation) and externalizing or behavioural (e.g. fighting, reckless driving, running away from home, physical and verbal aggression or vandalizing property, stealing) components. These difficulties arise because as new methods of solving problems are developed, they bring their own challenges or create fresh problems that must be tackled by individuals. The influence of globalisation and attendant clash of cultures, have added to the anxiety, frustrations, and conflicts that occur in our society giving rise to increase in adjustment disorders. It is important to note that while adjustment disorders are triggered by external stressors, the symptoms are more the result of the person's interpretation and adaptation to the stressful event or circumstances. Thus beliefs, fears, perceptions and expectations majorly influence the development of an adjustment disorder. According to the Phenomenological theory of personality, the specific ways each person perceives and interprets the world make up their personality and guide their behaviour. Phenomenological theories of personality in contrast to the psychoanalytic views of Freud, emphasize that each person actively constructs her or his own world. Thus the primary human motivation is the fact that people are inclined toward goodness, creativity, love and joy, with an innate drive toward growth that prompts them to fulfill their unique and natural potential (Pervin & John, 2001). People's view of reality is important in guiding their behaviour and is shaped by learned expectations which form personal constructs that are generalized ways of anticipating the world. The primary focus of the phenomenological theories is the individual's subjective experience of their world, in other words, their phenomenological experience or their self-concept, is seen as the core of individuals' personalities.

Occasionally, symptoms can be severe enough to make a person have thoughts of suicide or even attempt suicide. Bisson and Sakhuja (2006), have noted that suicidal behaviour is prominent among people with adjustment disorders of all ages, and up to one-fifth of adolescent suicide victims have an adjustment disorder. In another study, Bronish and Hecht (1989) found that 70% of a series of patients with adjustment disorders attempted suicide immediately before their index admission and they remitted

faster than a comparison group that suffered from major depression. Another study on a group of eighty-two patients with adjustment disorders, found that twenty-two of them (26.8%) were admitted due to suicide attempt (Bolu, Doruk, Ak, Özdemir, and Özgen, 2012). Adjustment disorders can have profound effects on people leading to other psychological and behavioural consequences and is known to be quite common among adolescents. The Nigerian society of today, is fraught with many adolescents who exhibit behaviours indicative of adjustment problems like substance abuse, conduct problems, as manifested in absenteeism; dropping out of school, delinquency, life of crime, rebellion to parents, running away from home and even the “area boy” menace could be one of the consequences. Although the DSM lists specific diagnostic criteria for adjustment disorders, Azocar and Greenwood (2007):, Pelkonen, Martttunen, Henriksson, and Lonnqvist (2005) and other researchers have pointed out the difficulty in using the DSM criteria to specifically differentiate AD from other disorders with similar symptoms.

In addition, Casey and Bailey (2011) have lamented that despite adjustment disorders being introduced into the psychiatric classification systems more than 30 years ago (although the concept was recognized for many years before that), no further diagnostic criteria are offered to assist the clinician. They opined that adjustment disorders are common conditions, especially in primary care and in consultation liaison psychiatry, where the prevalence ranges from 11% to 18% and from 10% to 35%, respectively. They further argued that the neglect is due to the failure of some of the common diagnostic tools to allow for the diagnosis of adjustment disorder. Examples of existing diagnostic instruments for psychopathology which do not incorporate adjustment disorder at all include the Clinical Interview Schedule (CIS) developed by Lewis, Pelosi & Araya (1992), and the Composite International Diagnostic Interview (CIDI) by Kessler & Ustun (2004). CIDI is a highly structured clinical interview instrument derived from the National Institute of Mental Health (NIMH) diagnostic interview schedule (DIS) and the present state examination (PSE). Empirical studies about the incidence of adjustment disorders for African populations are also lacking and recent large scale epidemiological studies have not included the category of adjustment disorders. An example is a community-based survey by Gureje, Lasebikan, Kola and Makanjuola (2006), on the prevalence, impact and antecedents of mental disorders known as "The Nigerian Survey of Mental Health and Well-Being (NSMHW)" in which no mention was made of adjustment disorders. In Kaduna, a study was carried out by Sheikh, Mohammed, Agunbiade, Ike, Ebiti and Adekeye (2014) to determine the prevalence of PTSD, factors associated with PTSD, types of psycho-trauma experienced by IDPs and their psychosocial adjustment. Their sample consisted of only those living within the camp aged ≥18 who have been displaced from their original communities as a result of the violent conflict following the April 2011 elections in Nigeria. One of the instruments of their study was CIDI. They found a high prevalence of 42% for PTSD when compared with findings from similar studies but there was no mention of adjustment disorders.

Another problem of assessment is that among the tools that incorporate adjustment disorder, the concordance between the clinical interview and diagnosis is very poor, with the diagnosis being made more commonly in clinical practice than the diagnostic tools allow for (Strain & Diefenbacher 2008). For instance, the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) by Wing, Babor & Brugha (1990) include adjustment disorder but it can only be diagnosed after the criteria for other disorders have been assessed and isolated. Fatiregun, Olagunju, Erinfolami, Fatiregun, Arogunmati, & Adeyemi (2016) investigated the prevalence of anxiety disorders with their determinants among 200 participants with histological diagnosis of breast cancer. Using a questionnaire designed to elicit sociodemographic and clinical

factors, and the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) to ascertain the presence of anxiety disorders. Anxiety disorder was observed in thirty-eight (19%) of the participants while there was no mention of adjustment disorders but was overlooked. Other instruments that incorporate a section for adjustment disorder include the Mini Neuropsychiatric Interview (M.I.N.I by Sheehan, Lecrubier & Sheehan, 1998) and Structured Clinical Interview for DSM-IV (SCID by First, Spitzer & Williams, 2011) all have instructions for interviewers to specify that the diagnosis cannot be made if the criteria for any other mental disorder are met. In addition, there are no specific questions to assist the interviewer, therefore one has to rely more on clinical judgment.

Thus despite the high prevalence of mental health problems, too many people go without treatment in part, because their disorders go undiagnosed due to unavailability of assessment tools or the inadequacy of existing screening tools even in primary care settings (Sartorius, Ustun, and Costa de Silva, 1993). This is why many researchers have lamented not only the paucity of research on AD, but also the lack of instruments to screen for AD and Casey and Bailey (2011), have concluded that this lack of assessment instruments for AD has made conclusive and evidence-based practices for screening, assessing, and treating AD to be largely unexplored. The lack or dearth of assessment instruments for adjustment disorders in general may be responsible for this negligence. Nigeria is no exception to this issue. Screening tools are defined as instruments that are designed to identify children and adolescents who are at-risk of having mental health problems or concerns and/or those who would benefit most from more in-depth assessment. On the other hand, assessment tools are instruments that provide a thorough assessment of mental health and/or social-emotional functioning. Specifically, there is no standardised adjustment disorders scale whose original normative population is a Nigerian sample. It then follows that development of an assessment instrument will fill these existing gaps and add to the body of knowledge in this area.

METHOD

Sample and sampling techniques and design

A total of 409 participants made up of male and female adolescents aged between 11 and 19 years with a mean age of 14.16 years took part in the study. The participants were attending secondary schools in Lagos metropolis and covering different ethnic groups and states in Nigeria. The study was carried out at two different locations in Lagos State. Specifically, the sample was drawn from the International school, University of Lagos and another Government school made up of male and female (senior and junior students); respectively all within the Lagos metropolis. These locations were chosen because of proximity, ease of access and the fact that different age categories of adolescents were readily available there. The cross-sectional survey was employed for the study using a combination of purposive and stratified random sampling techniques in selecting the participants.

At each location, stratified random sampling was used to select the participants from different classes to allow for students in different age categories (early and late adolescents) from junior and senior classes to participate. Purposive sampling method was used to select the classes that were sampled especially in cases where there were not many arms. The JS I and SS III students were deliberately excluded from the study for the reason that JS I students were a vulnerable group for adjustment disorders since they were still adapting to life in secondary school and the SS III students were taking their final exams and so were not available. If a class was too large, the students were

made to randomly given numbers after which only those with odd numbers were selected, while those with even numbers were left out. All the participants were normal and literate and had no signs of any cognitive or physical impairment.
All the participants were normal and literate and had no signs of any cognitive or physical impairment. The newly developed Adjustment Disorders Scale (ADS) which made up the initial version was administered along with an already existing psychological test (Awaritefe psychological Index) for purposes of establishing concurrent validity. The statistical analysis used were descriptive statistics, Pearson-product moment correlation, Cronbach Alpha internal consistency and Guttman Split-half reliability coefficients, factorization and the Principal component method with iteration and varimax rotation.
Instruments: This included three sections:

SECTION A: This was made up of an introduction to the research and its purpose; informed consent and bio data items. Also included were items designed to provide the socioeconomic information about participants such as area of residence (including type and size of house) and parental income.
SECTION B: Adjustment Disorders Scale (ADS – initial version): This is the instrument being developed for the study. It was made up of 60 items covering four areas of adjustment disorders as categorized by DSM-V (APA, 2013) namely: depression, disturbance of conduct, substance and alcohol abuse, and anxiety. The items were arranged on a 4-point Likert format ranging from 1 (Never True), 2 (Rarely True), 3 (Sometimes True) to 4 (Always true) and all items are scored directly. This response format is generally accepted for instruments designed for measuring attitudes, feelings and beliefs (Gable and Wolf, 1993).
SECTION C: Awaritefe Psychological Index (API-Form X). This was developed by Awaritefe an adjunct to the original test (API:Form A) which had been in use since 1982 in order to capture new symptoms of psychopathology and improve on the clinical usefulness of the API. This current version was validated by Akinnawo and Ofowve (2012). It is a measure of general psychopathology whose items were generated from an analysis of the constellation of symptoms of psychopathology from a clinical population. API Form-X comprises 76 items, divided into 7 subsections, measuring sleep disorders, intellect, Heat sensations, Mood, Head region, Alimentary tract and General Somatic/Anxiety. It has 2 lie scales with 3 categories of responses and scoring – Yes (2), ? (1) and No (0). The summation of the scores on all the subsections represents the level of general psychopathology. In terms of psychometric properties, the API form X is significantly correlated with the General Health Questionnaire (GHQ-12) and has a Guttman split half reliability coefficient of .6256 and a coefficient Alpha of .6852 (Appendix III).

Procedure:
The development of the Adjustment Disorder Scale (ADS) started with item selection by reviewing theories and literature on aspects of adjustment, its development and general psychopathology. Although stress is ubiquitous, a person learns to deal with it over time but when coping mechanisms fail to ameliorate stress effectively, an adjustment disorder is precipitated. There is no way to predict which group of people affected by the same stress are likely to develop adjustment disorders thereby adopting the phenomenological theory. It might depend on ones social skills before the stressful event, and how one has learned to deal with stress in the past because the way and manner in which stress affects adjustment varies widely. Stressful events may include the loss of a job, the end of a romantic relationship, a life transition such as career change or retirement; a serious

accident or sickness, relocating to a new area or caring for a child with mental retardation. Gottfredson & Hirschi (1990) in their theory of social control insist that those who are especially sensitive to immediate pleasure are more likely to engage in crime than others as a response to adjustment failure, despite its apparent long-term negative consequences. The Modified Social Stress Model (MSSM) by Rhodes and Jason (1988) is an approach to better understand vulnerability to risky behaviour by looking at risk factors that can increase and protective factors that can decrease vulnerability. Each component in the model can have positive and negative aspects that function as risk or protective factors towards the development of adjustment disorders.

At first, a pool of 80 items was compiled and assessed for face and content validity in consultation with senior Psychologists and experts from different fields of psychology such as Clinical, developmental and organizational Psychology within the department of Psychology, University of Lagos. On the basis of their input, a pilot study was carried out using 70 adolescents to test their familiarity and understanding of the wordings and description of behaviours. By means of classical content analysis technique for qualitative data, items were scanned and those that raised the most issues were deleted or modified to ensure clarity. This procedure reduced the items to 60 which were then put together for the actual standardisation process by means of psychometric analysis. Research assistants were recruited to assist with administration of instruments after the purpose of the research had been explained to them. The instructions on how to fill the instruments were thoroughly explained to the participants and they were encouraged to ask questions in case they encountered any ambiguous statements or expressions they did not understand. The instruments were group administered. On the average, it took about 40 altogether minutes for each participant to complete the instruments including the time spent in making introductions, obtaining informed consent and building rapport. Effort was made to ensure that there were equal numbers of the participants in terms of gender and age. Direct scoring method was used, for all items and the participant's score for each subscale was obtained by adding all the marked numbers in each subscale. For example, if a respondent marked 4 (strongly agree) that gave a score of 4, it would be added to the next score until all the items under a subscale were added together, giving the score for that subscale. Afterwards, all scores for the subscales were then summed up, to obtain a total ADS score. Thus, a participant's total score is the sum of the scores of all the subscales of the ADS. The higher an individual's score, the higher the manifestation of adjustment disorders by the participant. For the API, the score is 2 for "YES", 1 for "?" and "0" for "NO" and all items were directly scored. The participant's score for each item was added up to get a total score which indicates an individual's level of psychopathology; the higher the score, the higher the level of psychopathology.

RESULTS:

The following psychometric properties were obtained for ADS from the descriptive statistics

i. **Norms**: To establish the norms for the various measures, means and standard deviations were computed for the participants across gender on Adjustment Disorders Scale (ADS), Awaritefe Psychological Index (API). The result is presented in Table 1.

Table 1: Means and Standard deviations of ADS, its subscales, and API across gender

Variable	Male(n=203)		Female(n=206)		Total(n=409)	
	Mean	SD	Mean	SD	Mean	SD
A Depression	19.99	7.5	19.16	7.28	19.57	7.39
B Conduct Disorder	28.40	11.28	27.24	11.39	27.81	11.34
C Substance Abuse	25.34	14.89	22.03	14.24	23.67	14.64
D Anxiety	25.39	10.64	24.78	10.29	25.08	10.45
ADS TOTAL	99.13	37.68	93.14	35.66	96.12	36.75
API	36.25	24.70	36.99	23.97	36.62	24.31

The result presented in Table 1 above, shows the means and standard deviation scores of the participants. It also shows that males have higher mean scores than females in all the scales except for the API. The norms reported here for the ADS are: 99.13 (male) and 93.14 (female) and the composite score is 96.12 and form the basis for interpreting the scores of the participants. Scores higher than the norms are indicative of high levels of the adjustment disorders.

ii. Measurement of Appropriateness of Factor Analysis

In order to determine the construct validity for the Adjustment Disorders Scale (ADS), the factorial structure was computed by means of KMO statistic. The Kaiser-Meyer-Olkin (KMO) statistic is a summary of how small the partial correlations are, relative to the original (zero-order) correlations. The partial correlation for each pair of variables in the factor analysis is comprised of the correlation between those variables after partialling out the influence of all of the other variables in the factor analysis and yielded 0.96 measure of sampling adequacy. Bartlett's tests of sphericity yielded approximate Chi square of 15630.55 (df = 1128) at P< .01. As a measure of factorability, KMO values of 0.60 and above are acceptable (Brace, Kemp & Snelgar, 2006), and the Bartlett's Chi square value is significant making the data factorable. The significance of this value for this analysis leads us to conclude that there are correlations in the data set that are appropriate for factor analysis.

iii. Furthermore, a Principal Component Analysis was computed to identify the principal factors in the Adjustment Disorder Scale and five factors emerged. The result is presented in Table 2.

Table 2: List of the Extracted Factors and their initial Eigenvalues

	Eigen values			Rotation sums of squared loadings		
Components	Total	% of variance	Cum. variance	Total	% of Variance	Cum. %
A Depression	20.37	42.43	42.43	11.07	22.4	23.07
B Conduct disorders	3.81	7.93	50.36	6.27	13.06	36.13
C Substance abuse	3.23	6.7	57.08	6.09	12.69	48.8
D Anxiety	2.12	4.43	61.5	6.04	12.6	61.7
Other	1.08	2.24	63.76	1.13	2.35	63.76

Table 2 above shows that 5 factors with eigenvalues greater than 1 were extracted. The first factor (A) has an eigenvalue of 20.37 and a variance of 42.43. The second factor (B) has an eigenvalue of 3.81 and a variance of 7.93, third factor (C) an eigenvalue of 3.23 and a variance of 6.7. The fourth (D) and fifth factors (E) have 2.12 with variance 4.43 and 1.08 and a variance of 2.24 respectively. Altogether the 5 factors accounted for a total of 63.76% of the cumulative variance. It then means that the number of un-rotated items with insignificant loadings is responsible for 36.24% of the unexplained variance in adjustment disorders. The items in this category whose correlation (or communality) values fell below 0.4 were marked for deletion while those above were retained.

iv. In order to determine the independence of the factor loading of the 48 items, of ADS, Varimax rotation was computed which produced 5 component factors that conformed to Kaiser's criterion. The items that loaded significantly in each of the five factors and their communalities are presented in Table 3.

Table 3: Items, communalities and their Factor loadings

Item No	Communalities	Factors				
		1	2	3	4	5
1	.58				.69	
2	.53				.68	
3	.62				.75	
4	.56				.70	
5	.45				.66	
6	.42				.59	
7	.42				.53	
8	.47				.59	
9	.47				.65	
10	.75					.83
11	.51				.65	
12	.57				.67	
13	.58		.69			
14	.59		.72			
15	.69		.76			
16	.76		.79			
17	.72		.79			
18	.66		.72			
19	.76		.80			
20	.66		.78			
21	.50		.66			
22	.54	.46				
23	.64	.68				
24	.74	.77				
25	.69	.79				
26	.87	.83				
27	.89	.82				
28	.89	.83				
29	.89	.84				
30	.70	.72				
31	.77	.77				
32	.84	.79				
33	.63	.71				
34	.84	.80				
35	.87	.80				
36	.83	.78				
37	.49			.54		
38	.52			.50		
39	.53			.58		
40	.55			.68		
41	.59			.59		
42	.58			.60		
43	.54			.67		
44	.56			.64		

45	.65	.75
46	.61	.60
47	.54	.66
48	.58	.49

The result in Table 3 shows the items with factor loadings higher than 0.3 on the five components as follows: 11 items loaded significantly in Factor A; 9 items in Factor B: 15 items in Factor C and 12 items in Factor D. There was a fifth factor (other) which emerged from the analysis but having only one item and being a bipolar item, was included under depression (Factor A) thereby increasing factor A to 12 items.

v. In order to name the extracted component factors appropriately, the items were arranged in order according to their factor loadings. Table 4 shows the list of items, their loading values and the names of the factors.

Table 4: Names of Extracted factors and items that load on them

Item No	S/N	Item Name	Factor loading	Name of factor
2	**1**	**I feel very discouraged about the future**	**.53**	
3	**2**	**I feel I have failed more than the average person**	**.54**	**DEPRESSION**
4	**3**	**I feel I am very bad or worthless**	**.78**	
5	**4**	**I feel I deserve to be punished**	**.64**	
6	**5**	**I am disappointed in myself**	**.49**	
8	**6**	**I cry all the time and can't stop**	**.42**	
9	**7**	**I get annoyed or irritated very easily now than before**	**.45**	
10	**8**	**I am not so sure of myself and my decisions**	**.41**	
12	**9**	**I don't sleep well anymore**	**.47**	
13	**10**	**One minute I am on top of the world and the next I am down under**	**.49**	
15	**11**	**I feel very restless and can't stay in one place**	**.55**	**CONDUCT**
16	**12**	**I often destroy my own or other peoples properties**	**.58**	**DISORDER**
20	**13**	**I find it very difficult to control my anger**	**.82**	
21	**14**	**I can always leave home on my own with or without permission**	**.91**	
22	**15**	**I find it difficult to learn**	**.54**	
23	**16**	**I have often been absent from school for trivial reasons**	**.98**	
24	**17**	**I have stolen things on many occasions**	**.57**	
26	**18**	**My peers seem to look down on me**	**.55**	
27	**19**	**I often stay out at night despite parental prohibitions**	**.56**	
28	**20**	**If I'm angry enough, I may mess up someone's work**	**.62**	
29	**21**	**I let my anger show when I do not get what I want**	**.72**	
31	**22**	**I may resort to violence to protect my rights if I feel the situation warrants it**	**.96**	
32	**23**	**I have threatened some with a weapon (gun, knife, stick) before**	**.74**	
33	**24**	**My friends or family tell me I drink too much**	**.78**	
34	**25**	**My drinking causes problems with my school work**	**.86**	**SUBSTANCE**
35	**26**	**When I go drinking I get into fights**	**.56**	**ABUSE**
36	**27**	**I get mean and angry when I drink or use drugs**	**.72**	
37	**28**	**My personal life gets very troublesome when I drink**	**.85**	
38	**29**	**I use drugs or alcohol several times a week**	**.96**	
39	**30**	**I can stop using drugs when I want to**	**.83**	
40	**31**	**I feel guilty about my use of drugs or alcohol**	**.91**	
41	**32**	**My friends think I have a drug/ alcohol problem**	**.79**	
42	**33**	**I do drugs when things are not going well for me**	**.65**	
43	**34**	**I drink alcohol to the point of being intoxicated**	**.56**	

44	**35**	**I feel I use drugs/ alcohol too much**	**.92**	
45	**36**	**I need to use drugs/alcohol more and more to get the same effect**	**.85**	
46	**37**	**I have had periods I worried so much I could not sleep**	**.73**	**ANXIETY**
49	**38**	**I am troubled by attacks of nausea and stomach upset**	**.72**	
50	**39**	**I feel tired and unable to cope most of the time**	**.62**	
51	**40**	**I find silly and unreasonable thoughts playing in my mind.**	**.73**	
52	**41**	**I feel my heart beats faster than usual**	**.93**	
53	**42**	**I constantly have very severe headaches**	**.55**	
54	**43**	**It makes me so nervous to have to wait for things**	**.73**	
55	**44**	**I shrink from facing a crisis or difficulty**	**.87**	
56	**45**	**I often feel afraid I am going to be embarrassed**	**.66**	
57	**46**	**I find it very difficult to relax**	**.53**	
59	**47**	**I get anxiety about something /someone almost all the time**	**.54**	
60	**48**	**My sleep is disturbed and not restful**	**.79**	

Table 4 shows the final 48 items that makes up the final version of ADS. The original 80 items were reduced to sixty after the pilot study, which was subjected to psychometric analysis. From the psychometric analysis, the items whose correlation (or communality) values fell below 0.4 were marked for deletion while those above were retained from the results of the varimax rotation.

Thus, the following 12 items from the initial version of 60 items were deleted, (1, 7, 11, 14, 17, 18, 19, 25, 30, 47, 48, 58) leaving only 48 items in the final version. Therefore, only 48 items were included in the final instrument and those items whose categories were unclear with relatively low factor loadings were deleted.

vi. Determination of reliability for Adjustment Disorder Scale

In order to establish reliability of Adjustment Disorder Scale (ADS), Cronbach Alpha internal consistency and Guttman Split-half reliability coefficients were computed. The result is presented in Table 5.

Table 5: Reliability coefficients of ADS and its subscales

Measures	Cronbach alpha (N=409)	Split-half (N=409)	No. of Items
A. Depression	0.86*	0.79*	10
B. Conduct Disorders	0.92*	0.91*	13
C. Substance Abuse	0.96*	0.94*	13
D. Anxiety	0.92*	0.90*	12
ADS TOTAL	0.97*	0.82*	48

The result in Table 5 above shows that the ADS and its components have a good internal consistency of 0.97 and Split half reliability coefficients of 0.82.

vii. Determination of concurrent validity for ADS

In order to determine validity of the newly developed ADS, Pearson Product Moment Correlation was used to inter-correlate the scores of the participants in ADS (subscales and total score) and API. Although the API does not have a subscale for adjustment disorders as discussed earlier, but is a measure of general psychopathology which in a way is related to adjustment disorders. The results are presented in Table 6.

Table 6: Correlations Matrix for ADS and API.

Measures		A	B	C	D	ADS	API
A.	Depression	1					
B.	Conduct Disorder	.56**	1				
C.	Substance Abuse	.51**	.72**	1			
D.	Anxiety	.53**	.66**	.75**	1		
ADS TOTAL		.50**	.84**	.88**	.88**	1	
API		.34**	.58**	.21**	.20**	.19**	1

Table 6 shows that ADS and its subscales have positive and significant concurrent validity with API (ADS TOTAL = 0.19; A Depression =.34; B Conduct disorders = .58; C Substance abuse = .21; & D Anxiety = .20) at P<0.01; df =407.

DISCUSSION

The Adjustment Disorder Scale (ADS) was developed through generation and selection of items which reflected the different symptoms or components of feelings and behavioural responses experienced by people who are disposed to adjustment disorders. These symptoms may also develop when the person is responding to a particular event or situation such as a loss, problems with parents or close relationships, an unwanted move, a disappointment, or a failure. After administering the instruments to the standardization sample comprising 409 (203 male, 206 female) adolescents with an age range of 11 to 19. The norms obtained for the ADS were 99.13 (for males) and 93.14 (for females) and a composite mean of 96.12. Norms were also obtained for each of the four subscales of the ADS.

Construct validity for the ADS was established by subjecting it to factor analysis. Four factors were extracted with eigenvalues of above 1.0 which together counted for 63.76% of the total variance. This implies that the factors are independent of one another and invariant. In other words, the extracted factors can be thought of as representing different symptoms that constitute adjustment disorders, and were named based on the way the items cluster. The four factors which constitute the subscales of the ADS are depression, conduct disorders, substance abuse and anxiety. It must be noted here that the initial extraction threw up a fifth factor which had only one item, but being a bipolar symptom, was subsumed under depression. The implication of these results is that the ADS has good psychometric properties and is a sound measure of adjustment disorders. The results of the Principal Component Analysis of the ADS using varimax rotation shows that the 48 items have communalities ranging from .42 to .89 and factor loadings from .41 to .98.

The reliability coefficients (Guttman Split-half and Cronbach Alpha) obtained for the ADS ranged from (0.79 to 0.94 and from 0.86 to 0.97) respectively which were positive and significant. These results are in line with Aiken (2003) who opined that acceptable reliability coefficient of any scale must be greater than or equal to 0.70. The concurrent validity coefficient of the ADS and its four subscales was established based on significant and positive correlation with the API. According to Brace, Kemp & Snelgar (2006) an acceptable significant concurrent validity indicates that although two scales are measuring similar conditions, they are not replicas of each other. Although the concurrent validity score between the ADS and API was significant, a low score of 0.19

may attributable to the fact that the areas of emphasis for both scales are different despite their being measures of psychopathology. The API on its own contains items which were generated from an analysis of symptoms from a local clinical population who were mainly psychiatric patients; they can be seen as extreme and sometimes psychotic symptoms. Adjustment disorder on the other hand occurs when there is a failure in the process of modifying ones behaviour in changed circumstances or an altered environment in order to fulfil various physiological, psychological and social needs. In other words, adjustment disorder occurs when an individual is unable to adjust to or cope with a particular stressor, like a major life event and so the symptoms are milder in comparison.

Furthermore, psychologists, psychiatrists and other professionals now have an instrument to enable them to make better diagnosis and focus their treatment efforts more appropriately. This is in agreement with Ode (2004) who asserts that objective behavioural assessment is the first step in behaviour modification. The instrument is also an answer to the yearnings of some adjustment researchers like Casey and Bailey (2011) who have lamented that adjustment disorders have been previously misdiagnosed or even overlooked because of the dearth of assessment instruments.

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