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Development, Validation And Reporting A New Measure: Impact Of Grief Scale (Igs) (Adolescent Version)

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ABSTRACT
Children and adolescents grieve as much as adults, and this study indicates that grief is real for children. Scale development is a rigorous, complex and standardised procedure involving layers of methodological, theoretical and statistical analysis to create a robust instrument that can be declared reliable and valid for public use. The need for more valid and reliable instruments to measure grief is crucial in an age that is rife with losses and death. Beyond COVID, diverse forms of loss are rampant, and children are frequently immersed in grief. The situation invites a thorough and standardised approach to scale development that provides reliable and valid instruments and is ethically replicable. This paper presents the process of development of an adolescent grief scale. The Impact of Grief Scale (IGS) (Adolescent version) is a 20-item inventory assessing feelings during grief. Psychometric analyses of data from adolescent samples confirmed that the IGS has high internal consistency and adequate validity. Criterion-referenced analyses established the link between grief scores and levels of aggressiveness. Overall, these results attest to the research utility of the IGS.
Keywords:*Grief, adolescent, loss, death, impact, cognitive, psychological, spiritual, physical.*

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I. Introduction

Grief is a natural, subjective mental state after a loss, and the process of grieving is complex and multifaceted and encompasses a range of feelings, thoughts, and behaviours affecting individuals of all ages. While it is commonly associated with adults, children also experience grief and loss in their lives. According to Harrison (2001), cited in Johnson et al. (2017), "by the time they graduate from high school, most adolescents (71%) have experienced a loss, reporting a median of 2 deaths". The death of a loved one, parents' divorce, or even the loss of a beloved pet can profoundly impact a child's emotional well-being, but 'peer and grandparent deaths are the losses most frequently reported by adolescents and early young adults" (Harrison, 2001) cited in (Johnson et al., 2017).

Understanding how children grieve and providing them with the necessary support is crucial for their healthy development and emotional resilience. By shedding light on this critical topic, the study hopes to equip parents, caregivers, and educators with a tool to gauge the impact of grief on an adolescent. Toliver (2013) found that "of high school students in Canada, 90% have experienced grief related to death, 40% have experienced the death of a friend, and 20% have witnessed death". Similarly, Alvis et al. (2023) noted that in the US, 6.6% of children will experience parental death, and 1.5% will experience a sibling death before age 18, while the Society for Paediatric Psychology (SPP, n.d.) reported that over 4.9 million youth are bereaved, and the number more than doubles by age 25, to 12.8 million.

West African countries of Mali, Liberia, and Nigeria, as well as from three southern and eastern African countries – Malawi, Rwanda and Uganda indicate that up to one in five mothers suffer the death of two children, and some have lost more than two children (Smith-Greenaway &Trinitapoli, 2020). Adolescents in these families grieve with their parents. These statistics make adolescent grief a topical issue.

Concept of grief

Grief is the response to loss, whether it is the death of a relative, friend or colleague or the loss of other significant things and situations in one's life. It is the way children or adults deal with the pain of loss. The Psychological Dictionary defines grief as a strong emotional response (anguish) that a person experiences after a significant loss, like the death of a beloved person (Sam, 2013). According to Zoler (2006), grief is the process of experiencing the psychological, behavioural, social, and physical reactions to loss. These definitions relate to the turmoil and the challenges associated with loss, indicating that grief is expected, although it is complex and is our human way of dealing with the impact of loss. Bonanno (2004) suggests that getting adolescents to talk about their feelings and how the loss impacts different aspects of their existence could become a guided

approach to grieving. Winegard et al. (2014) argue that grief is an indication of an individual's propensity to commitment in relationships, so for most adolescents, grief portends the loss of dependent relationships such as parents, friends, pets and familiar places such as schools and neighbourhoods when their parents relocate to new environments.

Manifestation of grief in adolescents

Grief can manifest differently in children compared to adults, as their understanding of death and their ability to express their emotions may be limited by their age and developmental stage. According to Johnsen &Tømmeraas (2022), the reactions of adolescents and young adults to their experience of losses can be intense and enduring. It is crucial to recognise that grief is a normal and healthy reaction to loss, and providing support and understanding to children during this time is crucial for their emotional well-being. Every child at some point in their lives has lost someone or something, and the impact might be devastating. The emotions associated with loss have power that demands attention.

The CRHCF documentary on helping children with grief observed that adults often overlook the impact of loss on children when a family member dies and may not offer the needed social support (Ringler& Hayden, 2000). In other words, as adults deal with their grief, they do not adequately attend to the children's emotional state. Children and young adults manifest their grief in different ways (Speaking Grief, 2021), and CRHCF noted the following as adolescent ways of expressing grief: participating in dangerous and high-risk behaviour, bursts of aggression, withdrawal from social groups, extreme depression and sudden difficulties at school. Grief may manifest as regret for something lost, remorse for something done, or sorrow for a mishap to oneself (Sam, 2013). Although most people may manifest their grief, as stated, some adolescents may not cry after a loss due to resilience (Bonanno, 2004; Konigsberg, 2011). With these emotions, it becomes imperative that adolescents experiencing grief need attention.

Components of the impact of grief on adolescents

According to the Society of Paediatric Psychology (SPP, n.d.), grief represents the emotional, cognitive, behavioural, physical, and spiritual reactions that a child or adolescent experiences following a loss. The new measure of grief identified four components of the impact of grief on adolescents.

Physical components

Grief is a complex and multifaceted experience that can have both physical and spiritual impacts on adolescents. Ongoing developmental processes influence grief reactions in youth and manifest differently depending on the child's age and developmental stage (Alvis et al., 2023). Their study noted that grief-related processes unfold within youths' caregiving context, as children and adolescents rely heavily on the adults in their environment to navigate and cope with the death of a loved one (Alvis et al., 2023). There seems to be an association between bereavement in childhood and physical health problems later in life (SPP, n.d.). In addition, Johnson et al. (2017), Kaplow (n.d.) and Johnsen &Tømmeraas (2022) noted the different physical and somatic symptoms of grief in adolescents, which include headache, stomach pains, digestive issues, changes in sleep patterns, migraines, back pain, exhaustion, fatigue, weight issues, tension and rashes.

Spiritual components

According to Alvis et al. (2023), religious and spiritual coping is evident in certain cultures, which may shape how children are socialised to grieve and understand death. In most African populations, grief impacts religious practices; either the individual becomes more spiritual, or the individual turns back on everything spiritual after a crucial loss. Some research found that bereaved individuals may experience spiritual distress, including questioning their faith and feeling angry with God (Johnson et al., 2017; Alvis et al., 2023).

Psychological components

Johnson et al. (2017) identified psychological signs of grief among adolescents. According to their study, adolescents reported feelings of shock, depression, loneliness, or anger; difficulty sleeping; feelings of emptiness, disbelief, hopelessness, or vulnerability; fear of intimacy; and sometimes guilt. Similarly, other studies have indicated that the psychological impacts of grief on adolescents can include feelings of sadness, guilt, anger, and anxiety (SPP, (n.d.); Johnsen &Tømmeraas, (2022). Adolescents may also experience appetite fluctuations, sleep pattern changes, and depression or post-traumatic stress disorder (PTSD) (Johnsen &Tømmeraas, 2022). Although grief is not limited to the loss of people, grief that follows the loss of a loved one may be compounded by feelings of guilt and confusion, especially if the relationship is complex for the individual (Psychology Today, n.d.).

Cognitive components

The impacts of grief on cognition among adolescents can include difficulty concentrating, forgetfulness, altered perception and confusion and in some cases, adolescents may experience "grief brain" or "grief fog," which can make it challenging to think clearly and remember things (Jensen, n.d.). Similarly, Shulman (2021) suggested that the brain is rewired by loss and trauma. According to her report, grief and loss affect the brain and body, causing changes in memory, behaviour, sleep, and body function. It also affects the immune system and the heart, leading to cognitive effects like brain fog. Shulman notes that persistent grief can disrupt the diverse cognitive domains of memory, decision-making, visuospatial function, attention, word fluency, and how fast an individual can process information.

Theory

Most studies in grief use the Multidimensional grief theory and relational developmental systems metatheory in addition to the DSM V. Multidimensional grief theory proposes that childhood grief reactions can be characterised by three broad dimensions: Separation Distress, Existential/Identity Distress, and Circumstance-Related Distress (Alvis et al., 2022). The new measure impinges on these dimensions in articulating the impact of grief on adolescents within the population under study.

Objective of the study

The study examines the impact of grief among adolescents of school age. The objective is to develop and report a reliable and valid instrument for measuring grief in Nigeria and related cultures.

Rationale for the study

Available measures of adolescent grief were primarily developed for Western society and most of the research on constructing these scales is Anglo-Saxon and, therefore, proposes scales in English (Gronier, 2022). In addition, Alvis et al. (2023) noted that "many studies of childhood grief suffer from several methodological limitations, including the use of adult grief measures that lack developmentally appropriate language for children". Despite the varied scales on grief, no available and validated scales exist in the African population. There is a need for a scale that measures grief among adolescents in Africa and related contexts. According to Groner (2022), this poses a challenge when non-English speaking countries must use these scales for their studies, which requires them to be translated into a target language.

Location of study

The study is located in the South-South of Nigeria. Participants are students of secondary schools in four states of the region: Imo, Edo, Rivers, and Delta. The people live by vibrant traditions, customs and trado-spiritual beliefs and landscapes. They have a strong sense of community and place great importance on extended family ties. The dead are accorded the highest dignity through extensive funeral rites. These funeral rites may enable healing from the impact of grief. Often, children and adolescents are excluded from these rites.

This exclusion may translate into children and adolescents not having the opportunity to grieve appropriately like adults when faced with loss and death. The probability of mental health issues due to unprocessed grief might be prevalent. Therefore, there is a need to develop an instrument that could attempt to measure grief in this socio-cultural mix effectively.

Method for the study

This work is based on the scale development recommendations of Lamm et al. (2020) and Kalkbrenner (2021) on scale development.

II. Literature review

The study reviewed about 20 journal articles on grief, grieving among children and adolescents and the impact of grief on adolescents. There are measures for grief available in both adult and adolescent populations in America and Europe. However, the scales focus more on grief as a pathology. The scanty literature on adolescent grieving among the African population is indicative of the need for this and more studies in this area. The new scale focuses on grief as a normal response to loss, and this response might generate positive or negative traits for the individual. The initial items for the scale were generated from the conceptualisation of grief derived from the available literature.

Expert review of initial items

The literature review generated a deep understanding of the construct, which enabled the initial 30 items for the scale to be generated. The items were categorised into physical, spiritual, psychological and

cognitive components. The scale is named the Impact of Grief Scale (IGS) (Adolescent version). These initial items were forwarded to four professionals in psychology and Counselling to review the extent to which the items captured the construct under study. The experts also considered the cultural appropriateness of the IGS for the target population. They also evaluated whether certain items or concepts need modification or replacement to align with cultural norms, beliefs, and language.

At the same time, 28 students (boys) in a secondary school in Edo state were invited to discuss (in a focus group meeting) the initial items generated. Their discussion provided feedback on the appropriateness of the questions on the initial scale. The information received from the two groups – professionals and students - enabled a synthesis of the two documents to produce a new set of 27 items for the scale. The synthesis was done by a language professional from one of the Universities in Imo state.

Content validity:

This process involved translation from English to the local languages and back to English while maintaining conceptual equivalence. The synthesised items were sent to three independent language experts familiar with mental health terminology for translation from English into Igbo, Ijaw, and Urhobo. The translators described each item's intended meaning, explained the items' intent and conceptual basis in-depth, and spelled out synonyms for words and phrases in each item, as Boateng et al. (2020) recommended.

The translated documents were back-translated into English with another set of translators from the same language groups. At the same time, cognitive interviews with three students were conducted; one secondary school student from each language group was requested to respond to the questions by thinking aloud as they made their choice. This exercise was to assess their understanding of the expressions. The individual interviews on the forward translation were to enable a better understanding of how well the translated questionnaire was understood at the adolescent level; the result invited minor adaptations as participants found it challenging to respond to some of the questions due to the vocabulary used in some of the questions. Participants suggested more straightforward phrases and words to replace ambiguous ones.

The documents from these two exercises were synthesised into one document by two independent professionals in psychology. Then, another expert put the two documents together. All experts were university and College of Education lecturers selected from the different parts of the South-South of Nigeria.

Expert Review

At the end of the translation exercise, the expert panel convened again to compare this back-translation with the original version to ensure consistency and accuracy. They reviewed the documents and provided feedback on discrepancies or potential issues related to cultural relevance, language clarity, or comprehension. The panel compiled the items appropriate for the scale from the translations. This final document became the scale utilised for the pilot study.

Pilot Study

The next stage involved administering the developed instrument to a small sample of individuals from the target population. The aim is to collect feedback on item comprehension, relevance, and clarity through the questionnaire. The study utilised the subjects-to-variables ratio of approximately 20:1, as Kalkbrenner (2021) suggested, so there were 416 participants out of an infinite population. The sample was generated using Godden's (2004) formula:

$SS = [Z\ 2\ p\ (1 - p)]/\ C2$

Where,

SS = Sample size

Z = Given Z value

p = Percentage of population

C = Confidence level.

The confidence level is 99,

The confidence interval is 0.01,

The corresponding z value is 2.576

$SS = [(2.58)2\times\ 0.05\ \times\ (1-0.05)]\ /\ 0.012 = 316$

The pilot study was carried out across the four states using online platforms: google Forms and WhatsApp. The questionnaire was sent to parents' platforms of purposively selected schools in this region. Altogether, 416 students participated in the study. Their parents permitted those below the age of 16 to participate. The results were analysed using SPSS version 23 software to determine its psychometric properties.

Item Analysis and Psychometric Evaluation

When the data was received, the next step was to analyse the pilot test data to assess item performance, including response patterns, item difficulty, and discrimination indices, using the SPSS version 25 statistical package. The data analysis included tests on the difficulty level of scales, composite reliability, Cronbach's alpha and confirmatory factor analysis, as Boateng et al. (2020) recommended. These analyses helped identify any problematic items that may require modification or removal.

Theoretical Blueprint for the Scale

A theoretical blueprint for the Impact of Grief Scale (IGS) (Adolescent Version) is as follows:

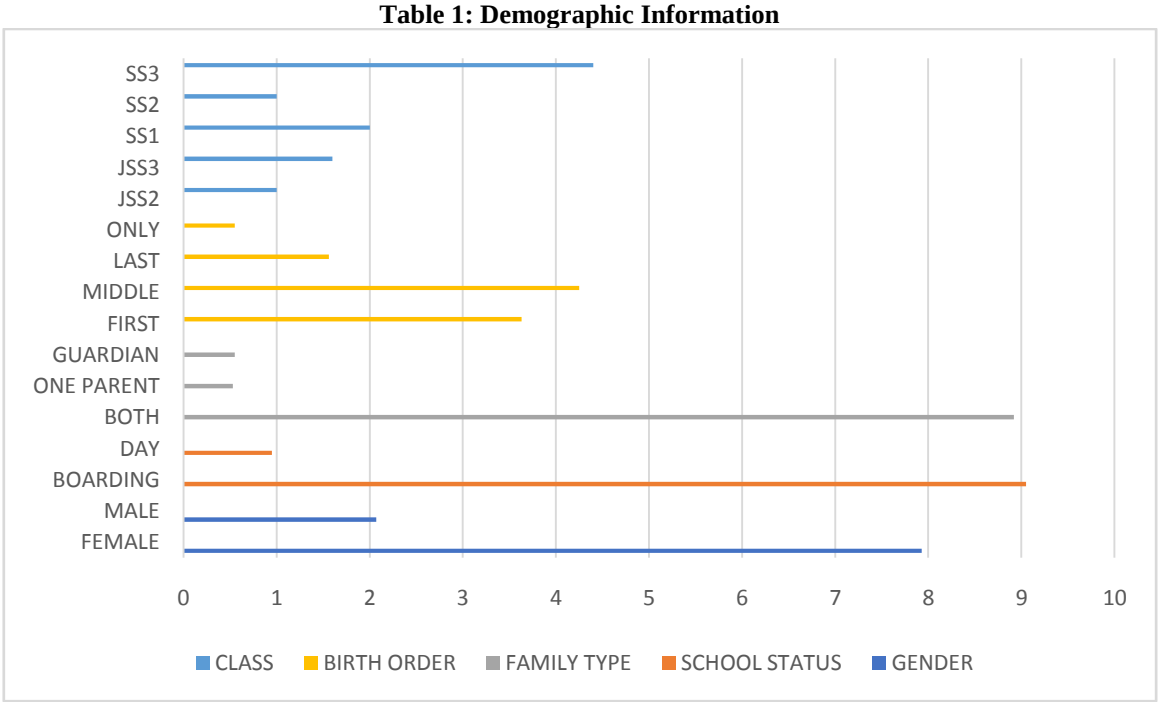
1. The IGS is based on some of the DSM-V diagnostic criteria for Prolonged Grief Disorder
2. The IGS has twenty questions corresponding to the four impact dimensions of grief: Physical, Spiritual, Psychological and Cognitive.
3. The IGS uses a five-point Likert scale to rate the frequency of each symptom: strongly disagree (1), disagree (2), Neutral (3), Agree (4) and strongly agree (5).
4. The IGS score is calculated by adding the scores of the twenty questions. You can calculate component scores by adding the scores for the items in each category. For example, add the scores for items 1- 4 to get the physical impact score. Do the same for the psychological impact (questions 5-13), spiritual impact (questions 14-15), and cognitive impact (questions 16-20).
5. Total Score: The total score is the sum of all the individual items' scores and can range from 20 (if all questions are scored 1) to 100 (if all questions are scored 5).
6. The reverse-scored item is worded in the opposite direction, and the score should be calculated with this formula:
   (Number of scale points) + 1 – (Respondents answer) such as items 13 and 15
   Item 13, the respondent chose highly agree, which is 5; score = 5 + 1 – 5 = 6-5 = 1; the score for question 13 for the respondent is 1, not 5
7. The higher the score, the more significant the perceived impact of grief. Here is how to interpret the scores:
   Low Impact: Total score of 20-40
   Moderate Impact: Total score of 41-60
   High Impact: Total score of 61-80
   Very High Impact: Total score of 81-100

III. Results

The results of the study include the demographic frequencies, the Cronbach Alpha and factorial analysis to determine the reliability and validity of the scale.

Demographic results

Table 1: Demographic Information



The table indicates the percentage scores (1:10) of gender, birth order and family type distribution of the participants. Understanding these distributions is crucial as it can impact the generalizability of findings to different populations.

Cronbach`s Alpha Reliability Test Results

The reliability test of the research instruments was conducted using Cronbach`s Alpha test, which tested 25 items of the questionnaire using SPSS. Cronbach's alpha coefficient measured the research instruments' internal consistency or reliability.

Table 2: Cronbach's Alpha Reliability Statistics for all items

Reliability Statistics	
Cronbach's Alpha	N of Items
.814	25

The results of the test indicated a high level of internal consistency at 0.814 as indicated on Table 2. The score of .814 was beyond the recommended threshold of 0.7 (Bonett& Wright, 2015). Therefore, the instruments were considered to be sufficiently reliable.

Table 3:Cronbach's Alpha Reliability Statistics for Physical Component

Reliability Statistics for Physical Component	
Cronbach's Alpha	N of Items
.684	4

The reliability statistics for the physical scale scored a value of .684 which suggests moderate reliability. Reliability indicates the consistency of measurement, where when the value is closer to 1, is considered more reliable.

Table 4:Cronbach's Alpha Reliability Statistics for Psychological Component

Reliability Statistics for Psychological component	
Cronbach's Alpha	N of Items
.752	9

The Cronbach's Alpha Reliability Statistics test for Psychological Scale measuring 9 items scored .752. A Cronbach's Alpha value of .752 is generally considered acceptable for assessing the internal consistency or reliability of a psychological scale. It indicates a moderate to good level of reliability.

Table 5: Cronbach's Alpha Reliability Statistics for Spirituality Component

Reliability Statistics for Spirituality component	
Cronbach's Alpha	N of Items
.747	8

A Cronbach's Alpha value of .747 for the spirituality sub-scale is indicative of a moderate to good level of reliability. It suggests that the items in the sub-scale are internally consistent, measuring a similar underlying construct.

Table 6: Reliability Statistics for Cognitive Component

Reliability Statistics	
Cronbach's Alpha	N of Items
.713	5

A Cronbach's Alpha value of .713 for the Cognitive component indicates a moderate internal consistency or reliability level. This suggests that the items in the Cognitive Sub-Scale are reasonably consistent in measuring the same underlying construct. In general, a Cronbach's Alpha above .70 is considered acceptable.

Descriptive Statistics

Table 7: Components Scores

Descriptive Statistics of the Components of the scale			
	N	**Mean**	**Std. Deviation**
Physical	416	14.0361	2.90677
Psychological	403	30.4467	5.71452

Spirituality	416	24.3654	4.58033
Cognitive	416	14.0120	2.98468

These mean scores provide insight into the reported experiences of individuals dealing with grief across various aspects. Overall, on average, the respondents reported moderate levels of psychological and spiritual impact, while physical and cognitive impacts were lower on average. These mean scores collectively paint a picture of the varied and complex emotional and psychological experiences that adolescents may go through while grieving.

Mean and Standard Deviation for all Items

Table 8: Mean and Standard Deviation for all items

	My appetite changed and I didn't feel like eating	I had trouble falling asleep, and I woke up frequently at night	I was more tired or had less energy than usual	I had headaches	I felt sad	I was often reminded of the person who is no longer with me.	I was anxious or worried	I often felt like crying and was unable to control my emotions	I felt hungry or frustrated	I felt guilty about things I did or didn't do before the person passed away	I preferred to be alone; I didn't want to be disturbed	I needed support from friends, family, or a counselor to help me cope with my grief.	I expressed my feelings through writing, art, or talking to a counsellor about my experiences	My loss made me question if God exists	Grief has increased my faith in God and I pray more than before	I found it difficult to concentrate on tasks	I found it hard to make decisions	I often found myself lost in thoughts	My performance at school was affected: my grades dropped, I found it hard to keep up with school assignments	I was scared about my future without the person
Mean	3.5793	3.2885	3.6370	3.5313	3.8966	4.2668	3.9543	3.8534	4.0096	3.5124	3.3486	3.6683	3.5288	3.0865	3.8486	3.4183	3.0144	3.9014	3.3678	3.7284
N	416	416	416	416	416	416	416	416	415	404	416	416	416	416	416	416	416	416	416	416
Std. Deviation	1.04752	1.08371	1.03224	.88030	1.11567	.78753	.94694	1.08445	.97550	1.29796	1.38012	.76398	.94379	1.19727	.81767	1.18344	1.03425	.79298	1.22300	1.16816

These mean scores provide insight into the reported experiences of individuals dealing with grief across various aspects.

Factor Analysis

Factor analysis involves the extraction of values which indicate the strength of the relationship between physical, psychological, spiritual and cognitive variables and their impact on grief. Higher extraction values suggest a stronger relationship with the underlying factor.

Table 9: Factor Analysis

Communalities		
	Initial	Extraction
Physical	1.000	.432
Psychological	1.000	.738
Spirituality	1.000	.764
Cognitive	1.000	.850
Extraction Method: Principal Component Analysis.		

While using the extraction method of component analysis factor analysis, the physical impact of grief scored an extraction of .432, the psychological impact scored an extraction of .738, spirituality scored an extraction of .764, while the cognitive scored an extraction of .850.

These values suggest that the cognitive impact of grief has the most robust relationship with the underlying factor being analysed, followed by spiritual, psychological, and then physical impact. The closer the extraction value is to 1, the stronger the relationship. According to these extraction values, it seems like cognitive aspects are playing a significant role in the overall factor being analysed in this study.

Table 10: Factor Analysis

Component Matrix[a]	
	Component
	1
Physical	.657
Psychological	.859
Spiritual	.874
Cognitive	.922
Extraction Method: Principal Component Analysis.	

In this case, cognitive impact seems to have the most robust relationship with the principal component, followed by spiritual, physiological, and then physical impact. These scores can help understand the contribution of each impact to the overall principal components identified through Principal Component Analysis.

Table 11: Principal Component Analysis for all items

Component Matrix[a]					
	Component				
	1	2	3	4	5
My appetite changed and I didn't feel like eating	.627		.628		
I had trouble falling asleep, and I woke up frequently at night				-.561	
I was more tired or had less energy than usual	.733				
I had headaches					.620
I felt sad	.754				
I was often reminded of the person who is no longer with me.	.863				
I was anxious or worried	.842				
I often felt like crying and was unable to control my emotions	.859				
I felt hungry or frustrated	.767				
I felt guilty about things I did or didn't do before the person passed away	.707				
I preferred to be alone; I didn't want to be disturbed		.556			
I needed support from friends, family, or a counselor to help me cope with my grief.	.534				
I expressed my feelings through writing, art, or talking to a counsellor about my experiences		.505	.579		
My loss made me question if God exists				.607	
Grief has increased my faith in God and I pray more than before		.860			
I found it difficult to concentrate on tasks			-.579	-.532	
I found it hard to make decisions			-.634		
I often found myself lost in thoughts	.604				
My performance at school was affected: my grades dropped, I found it hard to keep up with school assignments	.510	.655			
I was scared about my future without the person	.640				.586
Extraction Method: Principal Component Analysis.					

Factor analysis on all items indicates that overall, most of the items seems to have a close relationship with grief, based on the fact that the closer the extraction value is to 1, the stronger the relationship.

IV. Discussion

The study, with the objective of developing a new scale for measuring the impact of grief on adolescents, validating the new scale and reporting the scale development process, followed the expert recommendations for scale development in the social sciences. From the results, the reliability and validity scores indicate that the scale can be used for measuring the impact of normal grief responses on adolescents in the African population. In addition, adolescents seem to be impacted by grief more in the cognitive component. The earlier focus group discussion on grief indicated that grief produced shame for the adolescents when they returned to school after a loss. This might point to the higher impact in the area of cognition. In addition, the cognitive component reported the highest Cronbach Alpha score of .922.

However, more studies are needed to confirm its adaptability to other populations outside this research sample. Moreover, the new scale did not ultimately achieve a balance between positively and negatively worded items. In addition, more studies are needed to confirm the effect of gender on the responses, given that this study reported a gender imbalance among the sample population.

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