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Psychometric Properties of Difficulties in Emotion Regulation Scale (DERS) on Young Nigerian People

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Abstract

A cross-sectional survey design was adopted to validate the Difficulties in Emotion Regulation Scale (DERS) on Nigerian university undergraduates. A multistage sampling technique was used to purposively select 1338 (*mean age* ± *SD* 19.86 ± 2.95) participants made up of 512 (38.3%) male, and 826 (61.7%) were female. Participants were drawn from four selected universities in Osun state, southwestern Nigeria. Participants responded to the Difficulties in Emotion Regulation Scale, and the Structured Interview for Disorders of Extreme Stress (SIDES) Affect Dysregulation Scale. Observed internal consistency of DERS showed a Cronbach's alpha coefficient of .90, a Spearman-Brown coefficient of .80 and Guttman Split-Half coefficient of .80. The items that measure awareness of emotion had a weak corrected item-total correlation and did not discriminate well. A significant positive correlation was observed between DERS and SIDES, revealing a correlation coefficient validity score of ($r = .622, p = .000$). The DERS has acceptable psychometric properties for the Nigerian population. Observed gender-based norms were ≥ 113.15 and ≥ 114.07 for male and female respectively. DERS is found to be gender-sensitive. A re-work or expunging of the items measuring awareness to fit with the construct of emotional regulation was recommended.

Keywords

Psychometric Properties, Emotion Regulation Scale, Nigeria

1. Introduction

Emotion dysregulation has been defined as a multidimensional construct encompassing maladaptive responses to negative affective states. Emotion dysregulation is described by a lack of emotional awareness and understanding, no acceptance or avoidance of emotions, an unwillingness to experience negative affective states as part of achieving desired goals, difficulties controlling behaviour in the face of emotional distress, and deficits in the modulation of emotional arousal (Glenn & Klonsky, 2010; Gratz & Roemer, 2004). Emotion dysregulation has been linked to suicidal behaviour (Gomez-Exposito et al., 2016; Pisetky, Haynos, Lavender, Crow, & Peterson, 2017). It is characterized by difficulties in emotional awareness, clarity, and acceptance and difficulties managing emotions and refraining from impulsive behaviours when in distress (Gratz & Roemer, 2004). The diagnosis and symptoms of emotional dysregulation are linked to an increased risk of future suicide attempts (Smith, Velkoff, Ribeiro, & Franklin, 2019). According to Rania, Monell, Sjolander and Bulik (2020), emotion dysregulation was linked to suicidality in Swedish participants. Suicide, according to some popular beliefs, is an attempt to flee, motivated by severe negative emotional experiences and occurring with little to no planning (e.g., Mann, Wateraux, Haas, & Malone, 1999).

Some theories which emphasize the significant emotional (e.g., fear) and physical (e.g., pain) distress associated with suicide attempts contend that people must gradually develop the capacity to commit lethal self-harm and that they are more likely to do so through deliberate attempts to die rather than frantic attempts to escape aversive states (Joiner, 2005). It might be stated that if suicide attempts are attempts to escape painful affective states, emotion dysregulation could be a credible motivating force behind this behaviour.

Distress Tolerance (DT), the ability to experience, tolerate, and function in the context of negative affective states (Simons & Gaher, 2005), and negative urgency (NU), the tendency to act rashly in the context of negative affective states (Whiteside & Lynam, 2001), are two more specific affect-related constructs that are included in Emotion Dysregulation. ED has been linked to a number of harmful behaviours, including substance abuse (Buckner, Keough, & Schmidt 2007), binge eating (Anestis, Selby, & Joiner, 2007), and unsafe sexual behaviour (Messman-Moore, Walsh, & DiLillo, 2010; Tull, Weiss, Adams, & Gratz, 2012).

The Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004) is a widely used but controversial self-report tool that assesses emotion dysregulation in a broad sense. To date, the original validation document has been cited approximately 3000 times, translated into various languages, and inspired the creation of several short forms (DERS-16; DERS-SF; DERS-18) (Bjureberg et al., 2016; Kaufman et al., 2016; Victor & Klonsky, 2016). The DERS' theoretical paradigm (Gratz & Roemer, 2004) is based on "third-wave" cognitive behavioural therapy approaches, which argue that experiential avoidance plays a fundamental role in the genesis and maintenance of most forms of emotional disturbance.

Experiential avoidance is described as intolerance of (typically negative) emotional events as well as maladaptive attempts to escape them (e.g., Hayes et al., 1996). Emotion regulation abilities are considered intact in this framework when an individual can behave in a way that helps the achievement of a priori goals, especially in the face of negative affect or other intense emotional experiences.

The model upon which the DERS is based (Gratz & Roemer, 2004) proposes four broad facets of emotion regulation: 1) awareness and understanding of emotions; 2) acceptance of emotions; 3) the ability to control impulses and behave in accordance with goals in the presence of negative affect; 4) access to emotion regulation strategies that are perceived to be effective for feeling better. This methodology has mostly been adopted in practical clinical research and therapy settings. This clinical-contextual model of emotion regulation is fundamentally different from popular emotion regulation models based on basic affective science (Aldao, 2013; Gross & Jazaieri, 2014). Affective science-based frameworks have a narrower conception of emotion regulation and place a greater emphasis on process rather than anticipated trait-level abilities (Aldao, 2013; Gross & Jazaieri, 2014; Gross, 2015).

The DERS was created to measure trait-level perceived emotion regulation capacity, as defined by the clinical-contextual paradigm of Gratz and Roemer (2004). The original development and validation study's exploratory factor analysis showed a six- or seven-component structure. The six-factor structure was deemed more interpretable and was divided into six sub-dimensions: 1) a lack of emotional Awareness (Awareness); 2) a lack of emotional clarity (clarity); 3) difficulty regulating behaviour when distressed (Impulse); 4) difficulty engaging in goal-directed cognition and behaviour when distressed (Goals); 5) unwillingness to accept certain emotional responses (Non-acceptance); 6) a lack of access to strategies for feeling better. Several later factor analytic investigations back up the initial six-factor model's fit across a range of populations, including undergraduate students (Perez et al., 2012) and teenagers (Weinberg & Klonsky, 2009; Neumann et al., 2010). Despite the wide use and acceptance of this scale, it is yet to receive adequate research attention in Nigeria.

The DERS has not been validated on any Nigerian population to our knowledge. The undergraduates from Nigerian universities were chosen not because they had the greatest levels of emotion-related illnesses. Emotion dysregulation, on the other hand, is a substantial health concern for roughly 5% to 10% of teenagers and young people in the general population, according to figures in the literature. Depression is now again an increasing concern among Nigeria's student population. Depressive symptoms have been linked to a disruption in negative emotion regulation (Folk, Zeman, Poon, & Dallaire 2014; Tahmouresi, Bender, Schmitz, Baleshzar, & Tuschen-Caffier, 2014; Keenan & Hipwell, 2005). Problems in emotion management have also been linked to the emergence of depression symptoms (Feng, Keenan, Hipwell, Henneberger, Rischall, & Butch et al., 2009). The authors believe that utilizing undergraduates as subjects to validate

the DERS was sufficient for obtaining appropriate psychometric characteristics for the general population. Based on the aforementioned and the socio-cultural diversity of Nigeria, this study attempted to evaluate the DERS using Nigerian samples in order to determine its validity and reliability coefficients for the Nigerian population.

2. Materials and Methods

Study setting

This study was carried out in four different universities in Osun State. These included one Public State-owned University, two Private Faith-based Universities, and one private non-faith-based University.

One thousand three hundred thirty-eight undergraduates were drawn from four universities in Osun state, southwestern Nigeria. The eligibility criteria included registered undergraduate students who were currently on full-time study bases at the time of data collection and were found within the selected universities campuses. Also, only those who consented to be part of the study were included.

Measurements

Two scales were used in this study. The first is the Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004), which measures how difficult it is to regulate one's emotions. With 36 items rated 1 - 5 (nearly never-almost usually), the DERS (Gratz & Roemer, 2004) assesses emotion dysregulation, yielding six subscales and a single total scale (range 36 - 180). The DERS has six subscales: nonacceptance (a negative attitude toward emotional distress; range 6 - 36), goals (difficulties engaging in goal-directed behaviour when upset; range 6 - 30), impulse (difficulties controlling one's behaviour when upset; range 6 - 36), Awareness (inability to pay attention and be aware of one's emotional responses; range 6 - 36), strategies (limited access to functional emotion regulation strategies when upset; range 6 - 42), and clarity (limited access to functional emotion regulation strategies when The DERS has reverse-scored items 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, and 34. The total score is arrived at by adding up checked items. Higher scores suggest greater problems with emotion regulation.

The second scale is the Structured Interview for Disorders of Extreme Stress (SIDES) Affect Dysregulation Scale (Brown, Houck, Lescano, Donenberg, Toulou-Shams, & Mello, 2012). SIDES measures emotion regulation difficulties in an adolescent population. The Affect Dysregulation Scale is a six-item self-reported measure of adolescents' frequency of difficulties with affect regulation. Items are measured on four points Likert scale ranging from "Not at all = 1" to "often = 4".

Existing Psychometric Properties of DERS

The Difficulties in Emotional Regulation Scale has a reported Cronbachs alpha of .93 as reported by the developer. The DERS has good test-retest reliability and acceptable construct and predictive validity (Gratz & Roemer, 2004; Gratz &

Tull, 2010). Internal consistency in the current sample was good for the overall scale ($\alpha = .93$) and subscales (α s = .80 - .89) (Weiss, Gratz, & Lavender, 2015). Some recent studies also showed adequate psychometric properties in adults and adolescents with Emotional Dysregulation (Monell, Bjureberg, Nordgren, Hesser, & Birgegård, 2020; Nordgren, Monell, Birgegård, Bjureberg, & Hesser, 2019). For instance, Monell et al. (2020) reported excellent internal consistency for goals and impulse (Cronbach α s = .90 and .91, respectively) and good internal consistency for the remaining four subscales (α s = .81 - .90). DERS also has acceptable validity coefficients (Egan et al., 2011; Sloan et al., 2017).

Statistical Analysis

Descriptive statistics, including mean and standard deviation, were used to determine demographic characteristics of the participants. The internal consistency/reliability of DERS, Cronbach's alpha, Spearman-Brown coefficient and Guttman Split-Half coefficient was calculated and obtained to determine the extent to which items in DERS were interrelated. To determine the concurrent validity Pearson's Correlation Analysis was used to correlate DERS with Structured Interview for Disorders of Extreme Stress (SIDES) Affect Dysregulation Scale (Brown, Houck, Lescano, Donenberg, Tolou-Shams, & Mello, 2012). The item-total correlations were also obtained to test the relationship between each item and the composite/total score.

3. Results

The demographic distribution of respondents by sex indicated that 512 (38.3%) of the respondents were male while 826 (61.7%) were female. Distribution by age shows that the respondents' mean \pm standard deviation age was 19.86 ± 2.95 , with their age ranging between 15 and 30 years. Distribution by institutions of learning revealed that 505 (37.7%) were students of Osun State University (UNIOSUN), 374 (28%) were students of Redeemers' University Ede, Osun State (RUN), 189 (14.1%) were students of Fountain University Oshogbo, Osun State, lastly 270 (20.2%) were students of Oduduwa University Ipetumodu Osun State (OUI). Distribution of respondents by level of study showed that 409 (30.6%) were 100 level students, 241 (18.0%) were 200 level students, 363 (27.1%) were 300 level students, 276 (20.6%) were 400 level students, 49 (3.7%), while 500 level students. Also 1302 (97.3%) were single, 33 (2.5%) were married while 3 (.2%) were engaged.

Measure of Reliability of DERS

To determine the reliability coefficient and verify the internal consistency of the items and the factors of DERS on Nigerian population, Cronbach's alpha (or alpha coefficient), Spearman-Brown coefficient and Guttman Split-Half coefficient were used. As summarized in **Table 1**, the internal consistency measured by Cronbach's coefficient was $\alpha = .90$. The scale also has a Spearman-Brown coefficient of .80 and Guttman Split-Half coefficient of .80. Cronbach's alpha if item is deleted ranges from .86 to .88. The result of this analysis shows that DERS is

Table 1. Correlation coefficients of scale items in DERS.

Reliability Statistics				
Cronbach's alpha = .90				
Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I am clear about my feelings.	90.22	405.204	.235	.87
I pay attention to how I feel.	90.64	407.883	.203	.87
I experience my emotions as overwhelming and out of control.	90.44	398.045	.393	.87
I have no idea how I am feeling	90.69	396.804	.454	.86
I have difficulty making sense out of my feelings.	90.50	399.302	.367	.87
I am attentive to my feelings.	90.62	410.693	.156	.87
I know exactly how I am feeling.	90.30	408.566	.198	.87
I care about what I am feeling.	90.58	410.436	.161	.87
I am confused about how I feel.	90.57	395.180	.460	.86
When I'm upset, I acknowledge my emotions.	90.20	425.499	-.115	.88
When I'm upset, I become angry with myself for feeling that way.	90.39	393.372	.461	.86
When I'm upset, I become embarrassed for feeling that way.	90.57	389.975	.526	.86
When I'm upset, I have difficulty getting work done.	90.41	392.952	.491	.86
When I'm upset, I become out of control.	90.66	387.762	.585	.86
When I'm upset, I believe that I will remain that way for a long time.	90.66	391.306	.522	.86
When I'm upset, I believe that I will end up feeling very depressed.	90.68	388.609	.563	.86
When I'm upset, I believe that my feelings are valid and important.	90.17	424.981	-.106	.88
When I'm upset, I have difficulty focusing on other things.	90.30	395.786	.439	.86
When I'm upset, I feel out of control.	90.60	388.293	.570	.86
When I'm upset, I can still get things done.	90.09	415.627	.066	.87
When I'm upset, I feel ashamed at myself for feeling that way.	90.58	394.285	.477	.86
When I'm upset, I know that I can find a way to eventually feel better.	90.29	413.347	.106	.87
When I'm upset, I feel like I am weak.	90.49	393.558	.477	.86
When I'm upset, I feel like I can remain in control of my behaviours.	90.15	415.931	.058	.87
When I'm upset, I feel guilty for feeling that way.	90.57	391.487	.514	.86
When I'm upset, I have difficulty concentrating.	90.42	390.545	.523	.86
When I'm upset, I have difficulty controlling my behaviours.	90.71	390.086	.538	.86
When I'm upset, I believe there is nothing I can do to make myself feel better.	90.83	388.285	.587	.86
When I'm upset, I become irritated at myself for feeling that way.	90.74	392.965	.509	.86

Continued

When I'm upset, I start to feel very bad about myself.	90.77	390.492	.557	.86
When I'm upset, I believe that wallowing in it is all I can do.	90.84	387.388	.604	.86
When I'm upset, I lose control over my behaviour.	90.84	386.398	.637	.86
When I'm upset, I have difficulty thinking about anything else.	90.61	389.521	.569	.86
When I'm upset, I take time to figure out what I'm really feeling.	89.85	437.844	-.335	.88
When I'm upset, it takes me a long time to feel better.	90.42	394.016	.459	.86
When I'm upset, my emotions feel overwhelming.	90.40	393.935	.452	.86

Table 2. Pearson's correlation of factors and composite DERS.

N = 1338			
	Mean	Standard deviation	Factor-total correlation
Nonacceptance	15.1472	5.82441	.757**
Goals	13.5658	4.31021	.730**
Impluse	15.0755	5.09266	.813**
Awareness	16.4163	5.32301	.087**
Strategies	19.7526	6.73414	.849**
Clarity	13.1233	3.96475	.667**

reliable for the Nigerian population. Also, the items that measure Awareness of emotion (items 2, 6, 10, 17, and 34) have weak corrected item-total correlation. Put together, all items in the scale resulted in acceptable goodness-of-fit measures.

Table 2 reveals that each of the factors in the scale has a significant positive correlation with the composite score of DERS.

Cronbach's alpha was also used to measure the unidimensionality and homogeneity of the factors of DERS. The observed Cronbach α are: nonacceptance $\alpha = .81$, goals $\alpha = .65$, impulse $\alpha = .70$, awareness $\alpha = .74$, strategies $\alpha = .78$ and Clarity $\alpha = .54$. Except for lack of emotional clarity, all the factors of DERS have a good and adequate internal consistency (Deepa-Enlighten, 2017).

The Measure of Validity of DERS

In previous studies, significant validity coefficients was found between DERS and related constructs. For instance in determining the convergent validity between DERS and the Anxiety and Depression sub-dimensions of the Symptom Checklist-90-R (SCL-90) (Derogatis, 1994), Egan et al. (2011) and Sloan et al. (2017) reported direct associations [$r(114) = .52, p < .01$] for anxiety and [$r(114) = .63, p < .01$] for depression. Also, Balaguer-Pich et al. (2018) reported a significant relationship between scores on the DERS and the Rosenberg Self-Esteem scale scores.

This validation exercise employed concurrent validity to show how well DERS compares to other standardized related tests. Using Pearson's correlations, the

observed correlation coefficient (r) between DERS and Structured Interview for Disorders of Extreme Stress (SIDES) Affect Dysregulation Scale (Brown et al., 2012) was .622, $p = .000$. This result showed that DERS is valid for the Nigerian population.

Norms for DERS

The 95% confidence interval (CI) was used to determine the cutoff points for DERS. The derived CI based on a sample of 481 male participants was between a range of 92.7 and 96.0. On the other hand, the derived CI for females based on 780 samples was between a range of 90.6 and 93.7. The mean plus one standard deviation of ≥ 113.15 and ≥ 114.07 was considered the cutoff points (norm) for the male and female samples. Scores above the norm implied emotion dysregulation. This is summarized in Table 3.

As summarized in Table 4, the score of the mean plus 1 standard deviation of each of the subscales of the DERS was used to determine the cutoff for the subscales.

4. Discussion

The focus of this study is to obtain a psychometric property for the difficulties in emotion regulation scale (DERS) for the Nigerian adolescent population. Consistent with previous findings (Gratz & Tull, 2010; Nordgren et al., 2019; Monell et al., 2020), the DERS on Nigerian samples has excellent internal consistency, showing a Cronbach's alpha of .90. This, by implication, shows a good inter-relatedness of the items of the DERS, unidimensionality and homogeneity of the construct (Cortina, 1993; Bland & Altman, 1997) among the Nigerian population. The alpha score is also not too high to render some items redundant as the alpha values did not exceed the maximum value of .90 (Streiner, 2003; DeVellis, 2003).

Our study's high Cronbach's alpha score shows that DERS has a strong internal

Table 3. 95% confidence interval of cutoff point determination for DERS by gender.

	Male	Female
Margin of error	1.68	1.53
Sample size	481	780
Sample mean	94.34	92.14
Standard deviation	18.81	21.926
95% confidence interval	94.34 (95% CI 92.7 to 96.0)	92.14 (95% CI 90.6 to 93.7)
Cut off	≥ 113.15	≥ 114.07

Table 4. Norms for dimensions of DERS.

Gender	Nonacceptance	Goals	Impulse	Awareness	Strategies	Clarity	DERS total
Male	≥ 20.7	≥ 17.65	≥ 19.86	≥ 22.28	≥ 26.56	≥ 17.20	≥ 113.15
female	≥ 21.16	≥ 18.03	≥ 20.61	≥ 20.93	≥ 26.35	≥ 17.29	≥ 114.07

consistency. However, the internal consistencies of the subscales showed a good and adequate internal consistency, unidimensionality and homogeneity of the construct (Bland & Altman, 1997; Streiner, 2003) for all items in the subscales except for lack of emotional clarity which reported ($\alpha = .54$). This indication showed that the clarity items should be used with caution among Nigerian samples (Deepa-Enlighten, 2017) or adapted to suit the population. The explanation for this could be due to social-cultural differences.

Again we found that the items that measure awareness reported weak corrected item-total correlation. For instance, it was observed that three of the six items that measure awareness (items 10, 17 and 34) reported negative corrected item-total correlation, while two other items had values of less than .20. According to Pope (2022), negative items-total correlation values are major red flags. Statistically, item-total values below .19 are indicators that the questions are not discriminating well and thus are highly ambiguous and confusing to the participants (Pope, 2022). The likely result of including the items measuring awareness in calculating the Cronbach's alpha of DERS is a slight reduction in the overall internal consistency of the scale. In other words, if the items used to measure awareness were to be dropped, the internal consistency of the DERS would be stronger. This finding supports some previous results (Osborne, Michonski, Sayrs, Welch, & Anderson, 2017; Hallion, Steinman, Tolin, & Diefenbach 2018). This finding suggests that construct items of emotional awareness are not strong enough in measuring emotional regulation (Hallion et al., 2018) among Nigerian samples as well as other populations on which similar results have been observed. Several studies, including Italian undergraduate students (Girromini et al., 2012), chronic pain patients (Kökönyei et al., 2014), adults with severe mental illness (Fowler et al., 2014), and adult outpatients receiving Dialectical Behavior Therapy (DBT) (Fowler et al., 2014), have found poor fit for a six-factor solution in a variety of populations (Osborne et al., 2017). In general, these studies suggest that a revised five-factor model with the Awareness subscale and items removed provides a better match to the data (Bardeen et al., 2012; Fowler et al., 2014; Osborne et al., 2017).

Finally, the obtained norm for the Nigerian sample is a novel addition to the scale as the developer, and previous users of DERS did not indicate a norm for the scale. The norm derived from this study also established the gender sensitivity of the scale. According to Goubet and Chrysikou (2019), the effect of gender on emotion regulation has not been given adequate study. Gender differences in emotion regulation may explain gender differences in clinical presentation in some psychopathologies (Hyde et al., 2008; Nolen-Hoeksema, 2012). Thus establishing norms in measures such as DERS is essential for clinical practice in addition to its usefulness in research.

5. Conclusion and Recommendations

Based on the findings, the 36-item DERS showed good internal reliability and a valid measure of emotional regulation. This analysis indicates that DERS is reli-

able and valid for the Nigerian population. Also, the items that measure awareness of emotion had a weak corrected item-total correlation. However, the items that measure the Awareness dimension did not discriminate well and thus were ambiguous and confusing to participants. Hence authors recommend that the awareness subscale be re-worked to fit with the construct of emotional regulation or expunged altogether from the scale. Norms for the composite and dimensions of DERS were established, and DERS is observed to be gender-sensitive based on this.

The DERS is recommended for use in clinical settings, especially among people with emotional disorders such as anxiety disorders, mood disorders, obsessive-compulsive disorders, psychotic disorders, eating disorders, conduct disorders and trauma-related disorders to assess emotion regulation. Also, the associations between emotion regulation, impulsivity and suicidal behaviours can be properly assessed using the DERS. Using the DERS could help make the proper diagnosis and the correct treatment procedure. Also, researchers' DERS can be used in research settings to provide information on the factors of Emotion Dysregulation across people in the general public and clinical settings.

Ethical Approval

Human subjects were used in this work; hence research ethics for human subjects were followed in accordance with the Helsinki Declaration. The Internal Research Ethics Committee of Redeemer's University in Nigeria reviewed the research purpose and recommended procedures. The National Code of Health Research Ethics and the Nigerian National Health Research Ethics Committee (NHREC) do not apply to this type of research.

Informed Consent

Prior to administering the instruments, respondents' consent was requested. Respondents were permitted to quit at any point throughout the survey because participation was optional and confidentiality was guaranteed.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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