Original Research Article

Confirmatory Analysis of Differentiation of Self Inventory Short Form among Nigeria Police Academy Cadets

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Abstract: In quest to study self-differentiation with the view of enhancing mental health among Nigeria police cadets and similar populations, the researchers carried out study to confirm the validity and the reliability of the instrument, differentiation of self-inventory short form (DSI-SF) among the population. Cross sectional method using convenient sampling technique was employed to select 346, males =240 and female =106 of the police cadets, their age range between 17 and 27. Pearson-moment correlation was used to confirm that the total self-differentiation inventory short form and all it subscales is a significant valid and reliable instrument for the measurement of self-differentiation among Nigeria Police Cadets. The instruments can confidently be utilized by researchers to measure self-differentiation. Practitioners can trust it reliability and validity to measure and evaluate self-differentiation among this population and similar.

Keywords: Confirmatory factor analysis, Self-differentiation short form, Nigeria police academy, Cadets.

INTRODUCTION

Self-differentiation enhances individual's capacity to maintain healthy relational functioning. The independence-related constructs such as self-differentiation are important for optimal personal functioning and psychological well-being. A family that is well-differentiated enables individuals achieves a higher level, which in turn relates closely with lower level of anxiety and psychological symptoms (Bowen, 1978). The traditional practice, mostly within psychology and other associated mental health professions over the years had been to assess, diagnose and treat anxiety and other psychological symptoms. In recent time, there is shift in focus resulting from awareness and evidence emanating from studies that revealed that prevention of psychological conditions helps averts or reduce cost that treatment could engulf. Huppert (2009) reported that there is a strong possibility that increasing flourishing (psychological well-being) in population might do more to reduce common mental and behavioural problems than by focusing exclusively on the treatment of disorder.

The awareness and obvious important role that self-differentiation plays in the sustenance of mental health, attracts attention of researchers and mental health practitioners. The concept of self-differentiation emanates from family system theory of Bowen (Bowen, 1978). It means people clearly define themselves and their beliefs, they can navigate their life and control themselves and rationally decide in most problematic situations in which most people show unintentional behaviour and make illogical decisions. On the other hand, undifferentiated people have no defined identity and are affected by the emotional wave of their surrounding people notably family, and experience high chronic anxiety and are vulnerable to the psychological problems (Ghader & Soltani, 2017). This had resulted to a number of attempts to developed measuring instruments for self-differentiation to enable researchers explore the construct.

Skowron & Friedlander (1998) were moved by the realization that despite the importance of Bowen's theory of self- differentiation in the field of family therapy, there were relatively few studies that examines the construct, obviously because of unavailability of the suitable measure of the construct. As the result, they embarked on a task and developed an appropriate measure that could be used to measure the construct, a self-report instrument, the Differentiation of Self Inventory (DSI). The DSI is a multidimensional measure of differentiation that focuses specifically on adults (age

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25+), their significant relationships, and current relations with family of origin. They carry out the study with six-hundred and nine adult participants in a series of 3 studies.

Sarikaya *et al.,* (2018) conducted validity and reliability study of Differentiation of Self Inventory Short Form on students in Turkish. The students of university in Turkish were recruited aged span from 20 to 64 ($\bar{x}$ = 30.69, sd = 9.56). The structure of the scale was validated by confirmatory factor analysis and the significance of the difference between the 27% upper and lower groups. Self-esteem, trait anxiety, and authenticity metrics were used to the convergent validity. Reliability analyses were conducted with internal consistency and two-week interval test-retest methods. The result of confirmatory factor analysis, the goodness of fit values was reached at the acceptable limits and the four-component structure of DSI-SF was verified. According to the results of the independent sample t test and MANOVA on the difference of the 27% upper and lower groups, scale scores differ significantly in the lower and higher levels of differentiation of self. Moreover, the results obtained from the correlation analysis show that the scale provides convergent validity. The Cronbach's alpha internal consistency coefficient was .82. Findings showed that Differentiation of Self Inventory Short Form is a valid and reliable measurement tool.

Skowron and Smith (2003) developed 46-item differentiation of self-Inventory-Revised (DSI-R), is perhaps the most widely used and psychometrically validated instrument measuring family system theory's concept of self- differentiation (Bowen 1978). Given the substantial length of DSI-R which post difficulty for data collection, Drake *et al.,* (2015) offered to developed the differentiation of self-inventory-short form (DSI-SF), it consists of 20 items. However, based on the limitation that was discovered with DSI-SF, a brief version of 4-factor DSI-R using data from two adult samples (sample 1: n = 541 sample 2: n = 302), was empirically validated. First they conducted CFA on the full 46- items DSI-R on sample 1 to help identify items strongly representing each factor. Then conduct CFAs comparing the model of fit between the brief DSI the DSI-SF the full DSI-R on both samples. Results indicate that the brief DSI has the strongest model fit in both samples. Finally, comparison of association among the brief DSI, the DSI-SF, and full DSI-R and various relevant variables showed similar correlation. The brief DSI provide counsellors and researchers in the area of psychology, organizational behaviour, and business a useful measure of differentiation of self when circumstances prohibit the use of the full DSI-R.

Drake *et al.,* (2015) sought to retain the structure and reliability of the four subscales of the Differentiation of Self Inventory - Revised yet make the instrument more efficient by reducing the total number of items within each subscale. The graded response model was applied to data collected from a sample of college students (n = 355) that was primarily Caucasian (73%), and female (55%). The scale items were chosen based on the item characteristic curves of the graded response model and on the individual item content. A second study provided supportive evidence of concurrent criterion validity for the Differentiation of Self - Short Form, demonstrating relationships with symptoms of depression, state anxiety, trait anxiety, perceived stress, and self-esteem. As expected, the Differentiation of Self - Short Form was positively related to self-esteem and negatively related to symptoms of depression, state anxiety, trait anxiety, and perceived stress. Evidence of convergent validity was supported through a positive relationship between the subscales of the Differentiation of Self Inventory –Short Form and the Level of Differentiation of Self Scale. The Differentiation of Self - Short Form was shown in Study 2 to be more efficient than the Differentiation of Self – Revised. The Emotional Control subscale retained 98% of the internal consistency of the full version subscale with 25% of the items; Emotional Reactivity subscale retained 95% of the internal consistency of the full version subscale with 55% of the items; Fusion with Others subscale retained 92% of the internal consistency of the full version subscale with 50% of the items; and the I-Position subscale retained 97% of the internal consistency of the full version subscale with 45% of the items. The full scale score of the Differentiation of Self - Short Form performed similarly retaining 99% of the internal consistency of the full version full scale score with 43% of the items. Finally, in Study 3, preliminary estimates of four-week test-retest reliabilities were established. The test retest reliabilities ranged from .72 (Fusion with Others subscale) to .85 (Differentiation of Self - Short Form Full Scale).

Development of the Differentiation of Self Inventory short form (DSI-SF) sought to retain the structure and reliability of the four subscales of the Differentiation of Self Inventory - Revised yet make the instrument more efficient by reducing the total number of items within each subscale. From a sample of 355 college students, the scale items were chosen based on the item characteristic curves (ICCs) of the graded response model and on the individual item content. The structure of the DSI-SF was developed using the graded response model GRM. Each of the subscales to be tested was judged to be unidimensional; that is to say, that the subscales were found to measure a single trait. The graded response model (GRM) seemed to have a moderate fit to most of the subscales. In addition, the Item characteristic curves (ICCs) of each subscale, showing the distribution of each item along the subscale of its respective trait in differentiation of self, led to the selection of items that were believed to be structurally representative of the construct. The items from each subscale that were chosen were also reviewed for content to ensure that each item represented the constructs that they purported to measure. Thus, the DSI-SF was created

using 20 of the "best" items that demonstrated distinct parameters on the ICC and had consistent content. The internal consistencies of the new DSI-SF subscales, and full scale score, indicated that the subscales were reliable.

Traditionally, differentiation of self has been measured primarily by one of four instruments: The Differentiation in the Family System Scale (DIFS) (Anderson & Sabatelli, 1992), the Differentiation of Self Inventory (DSI) (Skowron & Friedlander, 1998), Differentiation of Self-Inventory Revised (DSI-R) (Skowron & Schmitt, 2003), The Level of Differentiation of Self Scale (LDSS) (Haber, 2003). Miller, Anderson and Keala (2004) indicate that the LDSS and the DSI are the two scales that are most often used to assess differentiation of self. The DSI and its derivatives have been used extensively to study differentiation of self because of the multiple facets that it assessed and psychometric properties (Miller *et al.,* 2004). Despite the empirical support for the DSI-R, it can be cumbersome to use in research and clinical situations due to the length of the instrument. The DSI-R consists of 46 items and takes approximately 10-15 minutes to complete. In a research setting this can be a significant limiting factor, in determining what other instruments can be included in the study, reducing the number of items in the differentiation of self-had effectively increased the willingness of people to participate in a study. Hence the choice of DSI-Short Form (DSI-SF), for this study.

The reliability of Differentiation of Self Inventory Short Form (DSI-SF) was reported by, Drake, Murdock, Marszalek and Barber (2015) and Skowron and Schmitt (2003), the internal consistency and what each subscale and the total scores measures respectively. The Emotional Cut off (EC) (3 items) subscale measures distancing oneself from strong emotions had a moderate internal consistency coefficient ($\alpha = .79$). The Emotional Reactivity (ER) (6 items) subscale assesses the tendency to react to stressful situations with strong emotions and a good internal consistency coefficient ($\alpha = .80$). The Fusion with Other (FO) (5 items) subscale measures how much of the person's identity is intrinsically related to other people had a moderate internal consistency coefficient ($\alpha = .68$). The I-Position (IP) (6 items) subscale measures the ability for the person to maintain independence in close relationships had a moderate internal consistency coefficient ($\alpha = .70$). The DSI-SF-Full scale, however, had a very good internal consistency coefficient ($\alpha = .88$).

The validity of the Differentiation of self-inventory short form (DSI-SF) was reported by Drake, Murdock, Marszalek and Barber (2015), the Convergent Validity. Bivariate Pearson correlations were used to assess the relationship between the DSI-SF full scale score, subscales, perceived stress, symptoms of depression, state anxiety, trait anxiety, general self-esteem, and the LDSS. Out of the 595 potential participants only 385 completed all of the measures of the 261 participants that were eliminated most were women (62.2%) and identified as Caucasian (n = 155, 59.4%), Asian (n = 37, 14.2%), African American (n = 25, 9.6%), Hispanic (n = 11, 4.2%), Other (n = 6, 2.3%), and Multiracial (n = 15, 5.7%), some participants chose not to report their ethnicity (n = 12, 4.6%).

The correlation analysis supported the criterion validity of the DSI-SF in a college sample. The correlation matrix between the subscales of the DSI-SF and other measures used and the following was reported. The IP subscale was negatively related to stress (r = -.60, p < .001), symptoms of depression (r = -.46, p < .001), state anxiety (r = -0.51, p < .001), and trait anxiety (r = -0.68, p < .001). The IP subscale was positively related to general self-esteem (r = .56, p < .001). The Emotional Cut-off (EC) subscale was also negatively related to stress (r = -.37, p < .001), symptoms of depression (r = -.44, p < .001), state anxiety (r = -.35, p < .001), and trait anxiety (r = -.45, p < .001). The EC subscale was also positively related to general self-esteem (r = .40, p < .001). The ER subscale was negatively related to stress (r = -.56, p < .001), symptoms of depression (r = -.51, p < .001), state anxiety (r = -.46, p < .001), and trait anxiety (r = -.63, p < .001). The Emotional Reactivity (ER) subscale was positively related to general self-esteem (r = .46, p < .001). The Fusion with Others (FO) subscale was negatively related to stress (r = -.51, p < .001), symptoms of depression (r = -.46, p < .001), state anxiety (r = -.46, p < .001), and trait anxiety (r = -.57, p < .001). The FO subscale was positively related to general self-esteem (r = .46, p < .001).

The criterion validity of the DSI-SF-Full scale was also supported in this sample. The DSI-SF-Full was negatively relationship to stress (r = -.66, p < .001), symptoms of depression (r = -.62, p < .001), state anxiety (r = -.57, p < .001), and trait anxiety (r = -.75, p < .001). The DSI-SF-Full scale, like the subscales, was positively related to general self- esteem (r = .61, p < .001). The IP subscale had a positive relationship with the Levels of Differentiation of Self Scale (r = .52, p < .001), as does the EC subscale (r = .22, p < .001), ER subscale (r = .45, p < .001), and FO subscale (r = .61, p < .001). Supportive evidence for convergent validity for the DSI-SF-Full was also found for the college sample with a positive relationship between the DSI-SF-Full and the Levels of Differentiation of Self Scale r = .57, p < .001.

Self-differentiation has been reported to be associated with psychological well-being which is also related to mental health. Psychological well-being is integral to mental health; it is manifests through optimal functioning of individuals. When study is carried out on the construct among the target population, the reveal finding would provide guide to enhance and sustain self-differentiation that it associated outcome is pleasing (i.e. improved psychological well- being). To achieve this, a

valid and reliable measuring instrument need to be in place or available. The researchers could not find available developed and or validated measure of self-differentiation for Nigeria police cadets that could enable examining self-differentiation among the population. All the studies reported are all carried out in foreign countries, it become difficult to investigate the construct, self-differentiation, among police cadets. As the result, it will be difficult to have a research-based finding that could guide assessment, intervention plan and intervention. Therefore, the benefit that could be available to improve mental health or sustains it from findings cannot be enjoyed.

The study objective is to confirm the validity and reliability of Differentiation of self-inventory short form among Nigeria police cadets. The study would reveal whether the differentiation of self-inventory short form is a valid and reliable measure of self-differentiation among Nigeria police cadets or not. Similar to study by Dauda *et al.,* (2021) which confirmed the validity of religious life and orientation scale among the Nigeria police academy cadets to enable study of the variable. Therefore, interested researchers could make inform decision whether it is suitable to use to measure the construct in their study among Nigeria police cadets or not. Relevant practitioners can equally decide if they can use it to assess, plan intervention and evaluate self-differentiation among the target population. Differentiation of self-inventory short form is an instrument use to measure self-differentiation construct. Self-differentiation is the construct that emerged from Bowen's family system theory, it is all about the ability to balance intelligence and emotion.

The hypothesis is that confirmation of Differentiation of self-short form is significantly valid and reliable among Nigeria police academy cadets.

MATERIAL AND METHODS

It has become imperative to ascertain the suitability of the instrument to this target population. This is important, especially that the selected instrument is developed and validated somewhere around the world, location or environment and culture of the population is quite different with Nigerian's. Nigeria Police Academy Cadets (N = 346; 106 females and 240 males) modal age 20 years old volunteered and participated, although the sampling determination table, research Advisors (2006) at 95% level of confidence interval and 5.0% margin of error recommended minimum of participants N=322 since the size of the population is known (2080 cadets). But this number (346) was arrived at because the

researchers administered 400 questionnaires and 346 questionnaires returned were properly completed. 24 of the questionnaires returned were screened out for incomplete responses and 30 of the questionnaires were not return. Out of this number, 214 were Christians, 129 were Muslims and 3 other religions. Cross-sectional research survey using quantitative method.

Differentiation of self-inventory short form (DSI-SF) (Drake, Murdock, Marszalek & Barber, 2015). The DSI- SF consist of 20-item, the 20-items are divided into four subscales: Emotional Cut off (EC), Emotional Reactivity (ER), Fusion with Others (FO) and I-Position (IP). Some of the sample items include: I'm overly sensitive to criticism, and I'm fairly self- accepting. Participants rate each item on a 6-point Likert scale: 1=Not at all characteristic of me. 2=Slightly characteristic of me. 3=Moderately characteristic of me. 4=More characteristic of me. 5=Very characteristic of me. 6=Extremely characteristic of me, where higher values indicate more differentiation of self. The DSI-SF has been used as a measurement of a person's overall differentiation of self. Scoring: The number of items for each subscale are as follows: EC=4,7 and 15; ER=6,9,11,14, 16 and 18; FO=2,5,8,13, and 17; IP=1,3,10,12,19 and 20. As with the DSI-R (Skworon & Schmitt, 2003) several of the items in the DSI-SF are reverse scored (i.e. a 6=1, 5=2, 4=3, etc). The following items are reverse score: EC=4,7, and 15; ER=6,9,11,14, and 16; FO=2,5,8,13 and 17; and IP=20. To calculate a subscale score, take the average of all items within a subscale (i.e. average of 1+2+3). For the total scale, like with the subscales, average of the subscales is taken (i.e., average of EC1+EC2+EC3).

Permission to administered questionnaires was sought from the relevant authority of the Nigeria Police Academy Wudil, Kano state, Nigeria. The 400 questionnaires with the assistance of two Psychologists were administered, monitored and retrieved from the participants at various time base on the time the participants complete their responses. Finally, 346 of the returned questionnaires that were completely responded were the ones analysed using Pearson-moment correlation analysis and Cronbach's alpha to ascertain the validity and reliability respectively of the instrument. The 54 of the questionnaires, some of them were not returned while the returned were not fully completed. SPSS version 21 was used to analyzed Pearson-moment correlation and Cronbach's alpha.

RESULTS AND DISCUSSION

Table 1: Summary of Internal Consistency for DSI-SF.

	DSI-SF
Cronbach's Alpha	.770
Number of Items	20

Table 2: Confirmatory analysis for Differentiation of Self Inventory Short Form (DSI-SF) subscales and the total scale

	I Position	Fusion with others	Emotional Cuff Off	Emotional Reactivity	Differentiation of Self Inventory
1. I tend to remain pretty calm even under stress	.626**				.318**
2. I usually need a lot of encouragement from others when starting a big job or task.		.615**			.492**
3. No matter what happens in my life, I know that I will never lose my sense of who I am.	.474**				.191**
4. I tend to distance myself when people get too close to me.			.764**		.369**
5. When my Boyfriend/Girlfriend criticizes me, it bothers me for days.		.635**			.576**
6. At times my feelings get the best of me and I have trouble thinking clearly.				.640**	.579**
7. I'm often uncomfortable when people get too close to me			.756**		.436**
8. I feel a need for approval from virtually everyone in my life.		.647**			.515**
9. At times, I feel as if I'm riding an emotional roller-coaster.				.462**	.382**
10. There is no point in getting upset about things I cannot change.	.580**				.289**
11. I'm overly sensitive to criticism.				.620**	.496**
12. I'm fairly self-accepting.	.469**				.383**
13. I often agree with others just to appease them.		.552**			.420**
14. If I have had an argument with my Boyfriend/Girlfriend, I tend to think about it all day.				.607**	.496**
15. When one of my relationship becomes very intense, I feel the urge to run away from it.			.632**		.464**
16. If someone is upset with me, I can't seem to let it go easily.				.531**	.394**
17. I often feel unsure when others are not around to help me make a decision.		.625**			.514**
18. I'm very sensitive to being hurt by others.				.670**	.554**
19. My self-esteem really depends on how others think of me.	.405**				.442**
20. I tend to feel pretty stable under stress.	.604**				.296**
Differentiation of Self Inventory	.609**	.819**	.591**	.828**	_

**. Correlation is significant at the 0.01 level (2-tailed).

n = 346

The correlation analysis showed that: I-position subscale inter-item correlation has a moderate coefficient; fusion with others subscale inter-item correlation has a moderate coefficient; emotional cut off subscale inter-item correlation has a good coefficient; emotional reactivity subscale inter-item correlation has a moderate coefficient; Differentiation of self- inventory total inter-subscale correlation has a good coefficient. Generally, all the items of each of the four subscales is significantly correlated and their correlation coefficient range between moderate and strong. Each of the four subscales are significantly correlated to Differentiation of Self Inventory total, three of the subscales have strong correlation coefficient but one (emotional cut off) has moderate correlation efficient. Lastly, all the individual items are significantly correlated to differentiation of self with low to moderate correlation efficient. These support that the instrument, Differentiation of Self Inventory short form can be used in confidence as a valid measure among Nigeria Police Academy cadets. This finding agrees with Drake, Murdock, Marszalek and Barber (2015)'s validity study carried out outside Nigeria, the correlation coefficients of all the subscales and the total full scale is supported.

CONCLUSION

The full total of the 20 items differentiation of self-inventory short form has a good internal consistency. Generally, the instrument has good internal consistency, with strong Reliability. Lastly, the

reliability analysis support that the instrument studied is a reliable measure among the Nigeria Police Academy Cadets. Drake, Murdock, Marszalek and Barber (2015)'s study is supported by this finding. In conclusion the instrument is a valid and reliable measure of self-differentiation among Nigeria police cadets.

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