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AN INVESTIGATION ON DIFFERENTIAL LEVELS OF GRIT AND COGNITIVE FAILURES AMONG THOSE DIAGNOSED WITH SUBSTANCE USE DISORDER AND NORMAL POPULATION

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Abstract:

This study investigated the difference in grit levels of those diagnosed with substance use disorder and normal population. A total of 52 in all, 26 from Enugu state neuropsychiatric centre (17 males and 9 females) and 26 students of Ihiala Nursing School (17 males and 9 females). The participants were selected using convenience sampling method. The ages of the participants

ranged from 18 to 32. Two instruments used to gather data in the study were the Grit Scale and cognitive failure questionnaire. The study is a survey research; cross sectional design was adopted for the study; Multivariate Analysis of Variance was used in analysing the statistics. The findings show that The mean score of normal people in grit is 44. 46 while that of those diagnosed with substance use disorder is 35.42, showing that there is significant difference between normal people and those diagnosed with substance use disorder in grit. This implies that there is a significant difference in the grit levels of non addicts and addicts, (M= 44.46, 35.42, SD=3.74, 5.64) , p=.01. The second findings revealed that there is no difference in cognitive levels of non addicts and addicts, (M = 48.08, 47.56, SD =11.11, 15.53), p =.78. By the implication of this finding, it is recommended that clinicians in the management of substance use disorder, addicts can be taught and encouraged to be gritty. In so doing, they can cope with addiction treatment and avoid relapse. Besides, Clinicians should also devout more time in inculcating some of the positive behavioural characteristics in those who are suffering from substance use disorder. Finally, youths can as well be encouraged to imbibe positive behavioural characteristics which can help them exhibit some positive behaviours.

Introduction:

Background to the Study:

For over two decades in Nigeria, substance use disorder has accounted for more than 60% of psychiatric hospitalized cases (Bakare and Isah, 2016; United Nations Office on Drugs and Crime, 2019). Substance use disorder describes both the use of illicit, or illegal, substances and the misuse of legal substance like alcohol, nicotine, or proscription drugs. Substance use disorder or drug addiction is a lingering condition categorized either by one or in combination of two or three of the following ; drug seeking and use that is compulsive, or difficult to control, despite harmful consequences (National Institutes on Drug Abuse, 2018, Zou, Wang, d'Oleire, Ding and Chen, 2017). The initial decision to take drugs is voluntary for most people, but repeated drug use can lead to brain changes that challenge an addicted person's self-control and interfere with their ability to resist intense urges to take drugs. Substance addiction involves tolerance (increasing amounts of the substance are needed to achieve the desired effect) and withdrawal symptoms (when the substance use is stopped or reduced unpleasant physical symptoms result) Barlow and Durand, 2009).

It is also evidenced that most of the patients diagnosed with substance use disorder have an accompanying behaviour symptoms, including changes and decline in the levels of adaptive behaviour and personality characteristics. Within the behavioural sciences there are many personality and behavioural tendencies that are categorised as risk factors (e.g. procrastination, Dishonesty, laziness, aggressiveness and cognitive failure) while, some other personality and behavioural tendencies are categorized as positive or protective factors (e.g. self-esteem, resilience, hardworking, generosity and grit). Risk factors are related to undesirable or pathological behaviour outcomes, but protective factors are related to desirable behavioural outcomes.

Usually, human behaviours are generally conceptualized to be either overt or covert depending on the modality of their manifestations (Stolurow and Walker, 1962, Blair and Ristic, 2019). Grit and cognitive failures are examples of covert behavioural tendencies which are important for understanding the direction of the individual's mental health. Scholars have argued that the

major impacts of most of the abused substances include their ability to make one dependent on them, and their ability to hinder the routine and acceptable behaviour pattern of such individual (Sarkar, 2004). This is true because most of these abused substances are known to disrupt the normal physio-psycho-social part-ways that control human behaviour (Volkow, Mchaelides and Baler, 2019). One of the ways to provide evidence of the impact of substance dependency on behaviour is through comparative analysis between different individuals who are characterised with different conditions. Given the importance of Grit and cognitive failure as protective and risk factors respectively, the present study will explore the extent of their manifestation by comparing patients diagnosed with substance use disorder with a sample of normal population.

Grit:

The personality characteristic (grit) is perseverance, zeal, hard work and passion for long term goals (Duckworth, Peterson, Matthew, and Kelly 2007; Katherine, Culin, Tsukayama and Duckworth, 2014). Grit entails working arduously toward challenge, maintaining effort and interests over years despite difficulties, failure, adversity, and plateaus in progress.

Grit is a much discussed and debated topic, both among education researchers and in public forums (Ris, 2015). Why do some individuals accomplish more than others of equal intelligence? Ris (2015) is of the view that grit may likely contribute to it. The gritty individual approaches achievement as a marathon; his or her advantage is stamina (Duckworth, 2007). Whereas disappointment or tedium signals to others that it is time to change trajectory and cut losses, the gritty individual sustains the course. Grit has also been defined as the tendency to pursue long term goals with sustained zeal and hard work (Katherine, Culin, Tsukayama and Duckworth, 2014). It is a known fact, that notwithstanding what may be called the negative impact of grit such as stress, it has been found to predict academic success (Duckworth, Peterson, Matthew and Kelly, 2007; Edoka, Okoli, Ajaelu, Ofojebe, Chime, Ozougwu, Eze and Uzo, 2020) and non-academic success (Duckworth et al , 2007).

Cognitive failure:

Another variable of interest in this study is cognitive failure, coined by Broadbent et al. (1982) to refer to minor slips that cause the normally smooth flow of intended action (physical or mental) to be disrupted. Cognitive failure reflects a global liability towards frequent lapses in cognitive control (Carrigan and Barkus, 2016). Their origin has been traced to memory problems, attention problems errors in the implementation of intentions or errors caused by distractions. It also involves clumsiness and problems in social interactions or problems in processing information. Cognitive failures are minor errors in thinking reported by clinical and non-clinical individuals during everyday life (Carrigan and Barkus, 2016).Cognitive failure can as well be defined as absent-mindedness, that is, mistakes or errors people make because of slips of attention or memory failure (Reason and Mycielska, 1982). Martin (1983) defines everyday cognitive failure as a cognitively based error that occurs during the performance of a task that a person is normally successful in executing. Cognitive failure is not a positive behavioural outcome, and has been found to predict daily stress, anxiety and the related (Mahoney, Dalby and King, 1998).

Statement of the problem:

Substance dependency has been identified as one of the leading cause of psychological problems (Berhanu, Worku and Shiferaw, 2014). It has been stated that over 15 percent of adult population have had substance dependency problems in the past or present in Nigerian (UNODC, 2016). It is also evident that substance use disorder is synonymous with addiction and has numerous

behavioural consequences such as antisocial behaviours and other covert behaviours which are highly maladaptive. Although, some people who abuse substances may argue that such acts do not have any behavioural implication in their daily routine .However, ample evidence have shown that most abused substances can alter the physiological, cognitive, emotional and general behavioural manifestations.

Therefore it might be expected that some behavioural functioning such as grit and the level of cognitive functioning (cognitive failure) may arguably be influence by substance use. Given that these two characteristics are important for daily routine and the sparsely of studies that describe how substance use can influence them. This present study adopted a comparative approach of those diagnosed of substance use disorder and normal population to examine if there could be differences in the report of grit and cognitive failure.

Research Questions:

The study provided answers to the following questions:

i. Will there be difference in grit levels of those diagnosed with substance use disorder and normal population?
ii. Will there be difference in cognitive failure levels of those diagnosed with substance use disorder and normal population?

Purpose of the Study:

The general purpose of the study was to do a comparative study of drug addicts and non-drug addicts in grit and cognitive failure among the youths. Specifically, the researcher seeks to:

i. To find out if there will be difference in grit levels of those diagnosed with substance use disorder and normal population.
ii. To find out if there will bedifference in cognitive failure levels of those diagnosed with substance use disorder and normal population.

Operational definition of key study variables:

i. **Grit** is perseverance and passion for long term goals as measured by Duckworth et al (2007).
ii. Cognitive failure refers to minor slips that cause the normally smooth flow of intended action (physical or mental) to be disrupted as measured by Broadbent et al. (1982).
iii. A diagnosed substance use disorder person is a hospitalised patient / person who has develop a Pattern of substance use leading to clinically significant impairment or distress as manifested by two of the eleven DSM 5 factors (2013).
iv. Normal person: refers to a person who has not developed a pattern of substance use leading to clinically significant impairment or distress as listed in DSM 5 (2013).

Methods:

Participants:

The participants of this study were 52 in all, 26 from Enugu state neuropsychiatric centre (17 males and 9 females) and 26 students of Ihiala Nursing School (17 males and 9 females). The participants were selected using convenience sampling method. The ages of the participants ranged from 18 to 32.

Instruments:
Two instruments used in the study were the Grit Scale and cognitive failure questionnaire

Grit Scale:
The scale contains 12- items and was developed by Duckworth et al (2007). The items are scored on a 5 – point Likert response pattern ranging from 1= not at all like me to 5= very much like me. Items contained in the scale include statements such as: I have overcome setbacks to conquer an important challenge; my interests change from year to year. The reverse items of the scale include items – 2, 3,5,7,8 and 11. The grit scale has two subscales-one level measures perseverance of effort and the other measures passion (consistency of interest). The items that measure consistency of interest (passion) are items 2, 3,5,7,8, and 11, whereas the rest of the items measure perseverance of effort. The developers reported a high internal consistency (α .85) for the overall scale and for each factor (consistency of interest α =. 84; perseverance of effort α = .78). The present researcher obtained an internal consistency (Cronbach alpha) reliability of .70 using 47 students from the Department of psychology Igbariam campus. Grit was correlated with the big five personality traits (conscientiousness), and a concurrent validity of r= .402, p <. 007 was obtained.

Cognitive failure questionnaire:
The scale contains 25 items and was developed by Broadbent et al (1982). It is designed to measure cognitive failures in the individual. The maximum possible score of CFQ is 100. The items are scored on a 5- point Likert response pattern ranging from 0 = Never to 4 = Very often. Items contained in the scale include statements such as: Do you read something and find you haven't been thinking about it and must read it again? Do you have trouble making up your mind? Responses to all questions tend to be positively correlated. All the questions are worded in the same direction, rather than adopting the device of wording some questions positively and some negatively to cancel out biases favouring affirmation of denial (Broadbent et al 1982). The developers reported a coefficient alpha of 0.89. The present researcher reported coefficient alpha of .79.

Procedure:
At neuropsychiatric hospital Enugu, the chief clinical psychologist their aided the researcher in distributing a 12 item grit questionnaire and a 25 item cognitive failure questionnaire. At Ihiala school of Nursing, a research assistant helped out the researcher in distributing the same questionnaire distributed at Neuropsychiatric centre Enugu. The participants at Neuropsychiatric centre Enugu were those admitted in the hospital from the day of this research to two weeks of admission into the hospital facility, whereas the participants at Ihiala School of Nursing were chosen based on free will of the participants. In other words, the participants opted to participate in the research freely.

The questionnaire forms were completed by the participants from Enugu Neuropsychiatric Centre in their therapy hall with the aid of the chief clinical Psychologist at the centre, where as participants from Ihiala school of Nursing completed their questionnaire in their classrooms with the aid of two research assistants. Only participants who were willingly to take part in the study were given the questionnaire forms for completion. The participants had no difficulty in completing the questionnaires. Data were first of all collected from participants from Enugu

Neuropsychiatric Centre before proceeding to Our Lady School of Nursing Ihiala, so as to lighten the burden of matching. In both situations 52 questionnaire forms were distributed and 52 returned the forms and all of the questions of the questionnaire were properly completed.

Design/Statistics:

The study is a survey research; cross sectional design was adopted for the study; Multivariate Analysis of Variance was used in analysing the statistics.

Results:

Table 1.Summary table of mean and standard deviation of grit, cognitive failure, substance users and normal people.

Variable		Mean	Std	N
Grit	substance users	35.42	3.74	26
	Normal people	44.46	5.64	26
	Total	39.94	6.58	52
Cognitive f.	substance use	47.04	11.11	26
	Normal people	48.08	15.53	26
	Total	47.56	13.38	52

The mean score of normal people in grit is 44. 46 while that of those diagnosed with substance use disorder is 35.42, showing that there is significant difference between normal people and those diagnosed with substance use disorder in grit. There is no difference in cognitive failure those diagnosed with substance use disorder and normal people.

Table 2. Summary table of Manova analysis of Grit, Cognitive failure, those diagnosed with substance use disorder and normal people.

Source	DV	Sum of (ss)	df	Mean (ss)	F	Sig
Substance users and normal people	Grit	1062.02	1	1062.02	46.38	.01**
	Cognitive failure	14.02	1	14.02	.08	.78

The table above, the first finding revealed that there is a significant difference in the grit levels of non addicts and addicts, (M= 44.46, 35.42, SD=3.74, 5.64), p=.01

The second findings revealed that there is no difference in cognitive levels of non addicts and addicts, (M = 48.08, 47.56, SD =11.11, 15.53), p =.78

Summary of findings:

1. Normal people scored better than addicts in grit level.
2. Normal people did not score better than those diagnosed with substance use disorder in cognitive failure level.

Discussion:

The core objective of this research was to do a comparative study of grit and Cognitive failure in non addicts and addicts. Two hypotheses were tested and the results of the analysis were discussed. The first finding from the analysis showed that non addicts significantly differ from the addict in their grit level. it implies that non addict have more grit compared to addict. The ecological system theory views that a child's development within the context of the system of relationships that form his or her environment, and that theses layers of environment, each has an effect on a child's development. This implies that a child's environment can help him develop grit and as well reduce the tendency of substance addiction. Gierrero, Dudovitz, Chung, Dosanjh and Wong (2016) in their study: 'Grit: A Potential Protective Factor against Substance Use and Other Risk Behaviours among Latino Adolescents. In a sample of mostly Latino adolescents (89.5%), compared those with low grit, those with high grit had significantly lower odds of alcohol use in the last 30 days. The study of Griffin, McDermott, McHugh and Fitzmaurice (2016) is also in line with the result of this present study. They conducted a study tagged 'Grit in patients with substance use disorders'. The study aim was to examine the clinical relevance of the construct of grit among patients with substance use disorders. Grit-S scores were higher among older patients and those who were employed; scores were lower among those never married, diagnosed with a co-occurring psychiatric disorder, or who had used heroin during the past month.

Furthermore, the second finding of this study was rejected, which stated that there will be difference between addicts and non addicts in their cognitive failure levels. This did not tally with the ecological system theory which says that that the different complex layers of our environment contribute in shaping a child. This is also inconsistent with the study of Azaraeen and Memarian (2016), who carried out a researched captioned "Comparison of cognitive failures in addicts and non-addicts'. The results showed that cognitive failures components, including distraction, failure of memory, oversight and forgetfulness of addicted people are significantly higher than non-addicted people. Again, Tabatabaee, Sheikh, Malekirad and Samadi (2013), carried out a research titled 'Cognitive failures and meta-cognitive strategies of thought control in addicts and normal individuals'.

More so, the results of the statistical analysis (descriptive statistics, Independent t-test, MANOVA Regression analysis) showed that there were statistically significant differences between the components of the cognitive failures in addicts and normal individuals. Furthermore, the level of cognitive failures for addicts was higher than that of normal people. In addition, components of meta-cognitive strategies of thought control for addicts were less than those for normal individuals and this difference was significant. Meanwhile, another study which is inconsistent with the second finding of this study was conducted by Brodersen, Koen, Ponte, Sánchez, Segal, Chiapella, Torres, Tripodi and Lemberg (2014), titled 'Cognitive Function in Patients With Alcoholic and Non-alcoholic Chronic Liver Disease. Result showed that alcoholic patients with chronic liver disease showed a more important cognitive deterioration than those affected by hepatitis B or C virus.

Implications and Recommendations:

Nigeria as a country is does not have sufficient the standard centres for treating those who have substance use disorder. The result of this kind of study can actually contribute towards retraining

the health workers on the current development in management of those who have substance use disorder and informing the government to pay attention on the need to have dedicated well standard centre with multi-disciplinary team employed for the for treating those who have substance use disorder.

In the management of those with substance use disorder, addicts can be taught and encouraged to be gritty. In so doing, they can cope with addiction treatment and avoid relapse. The Nigerian youths can be encouraged to imbibe those positive behaviour characteristics in their lives which will help them exhibit socially desirable behaviour.

Recommendation for further studies:
From the findings of the study, the following recommendations were made:

- Attention should be focused on other treatment modalities other than the traditional psychotherapeutic modalities.
- Clinicians should also devout more time in inculcating some of the positive behavioural characteristics in those who are suffering from substance use disorder.
- It is also recommended that more research should be carried out with a bigger population which will aid in generalization.
- More research on this should be conducted in our local settings to consolidate the findings of this work.

Limitations of this study:
Some of the limitations encountered in this study, which can influence the outcome of the present study include:

- The outcome of this study should be adopted with caution in terms of generalization judging from its sample size. Future researchers should go for more representative sample.
- Matching the both groups of my sample in terms of age, educational level etc was very difficult, hence generalizing the findings of the work should be done with caution.
- Convincing some of the people with substance addiction to participate in the study was not an easy task.
- Fund was also a major limitation of the study.

Suggestion for future study:
Given the all-important nature of this study, future researchers should endeavour to incorporate wider samples, which will aid in generalization of its result. The present researchers also suggest that proper matching should be done, this will help in making the outcome of the research relevant.

Conclusion:

Personality characteristics influence behaviour either positively or negatively depending on if the personality characteristic is positive or negative. This study was a comparative study of grit and cognitive failure on addicts and non addicts. Participants were drawn from both Neuropsychiatric centre Enugu and Our lady School of Nursing Ihiala. Data was collected using grit scale and cognitive failure questionnaire. It has also been advised that care should be taken in generalizing the result of the research. From the result of the study, it is well seen that grit levels of both

addicts and non addicts differs which was in affirmation of the first hypothesis of the current research.

The second hypothesis of the research was rejected based on the result of the current research. The second hypothesis did not collaborate with other literature on the subject. The outcome of the research will go a long way in contributing to the management of those with substance use disorder. Youths can as well be encouraged to imbibe positive behavioural characteristics which can help them exhibit some positive behaviours.

Compliance with Ethical Standards Conflict of interest:

All authors declare that they have no conflict of interest. All participants filled the consent form to declare their free will to participate in the study. Again, this study was not funded by any person, group or organization.

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