

Effects of Cognitive Restructuring and Self-Management Techniques on Methamphetamine Abuse among Youth in Enugu State, Nigeria

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ABSTRACT

The study looked at how methamphetamine misuse among young people in Enugu State, Nigeria, was affected by cognitive restructuring and self-management approaches. The study was led by three research questions and three null hypotheses. The study's methodology was a quasi-experimental one. 953 youth from the twelve autonomous villages in the Igbo-Etiti Local Government Area made up the study's population, and 74 young were selected for the study's sample using purposive sampling. A standardised questionnaire called the Youth Methamphetamine Abuse Detecting Questionnaire was the tool utilised to gather the data (YMADQ). Internal consistency reliability coefficient for the test is 0.89. Analysis of Co-Variance was used to evaluate data relating to the hypotheses, whereas statistical mean was used to analyse data relating to the research questions (ANCOVA). According to the study's findings, young people who consume methamphetamine are substantially more likely to benefit from cognitive restructuring and self-management approaches. The study's findings also showed that the self-management strategy was superior to cognitive restructuring in terms of lowering methamphetamine usage. Finally, the results showed that there was no statistically significant difference between the effects of cognitive restructuring and self-management approaches on methamphetamine abuse among the experiment's young participants. It was suggested, among other things, that cognitive restructuring and self-management strategies be employed by counsellors and rehabilitators as successful treatments for young persons' abusing methamphetamine.

Keywords: Cognitive Restructuring, Self-Management Technique, Methamphetamine, Abuse, Youth.

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Introduction

The contemporary global enclave is full of stressors that make compounding demands on human beings. To be able to thrive successfully in the present society and grapple with the complexities thereof, all individuals especially the youth are making efforts to increase their coping mechanisms by learning one behaviour or the other. Some of the behaviours are good and help the youth to function optimally and become productive members of their society while others are actually counter-fitting and lead the individuals that learned them into trouble. One of the behaviours/habits that have caused serious mayhem among youth in the present time is drug abuse.

Drug abuse is defined as the self-medication or the administration of a drug in abnormally low or excessive quantities. Drug misuse is defined simply by Mandel (2020) as the usage of particular drugs to induce pleasurable effects on the brain. According to Robinson, Smith and Segal (2021), drug abuse may result in psychic and or physical dependence, functional impairment and a deviation from approved social norm. Consequently, Nigeria currently has a serious public health concern and burden due to the expanding drug use issue. The National Drug Law Enforcement Agency (NDLEA) has released data showing that 40% of Nigerian teenagers between the ages of 18 and 25 are severely involved in drug addiction (Premium Times, 2021). Furthermore, according to the World Drug Report-2019 published by the UN Office on Drugs and Crime (UNODC), 271 million (3-5%) people worldwide (aged 15 to 64) reported using drugs in the preceding year.

According to Radfar and Rawson (2014), methamphetamine (*Mkpurummiri*) is currently the second most commonly misused illicit drug in the world after cannabis. This has recently caused considerable controversy in Enugu State. Methamphetamine is the most widely used recreational drug in several states, behind alcohol and marijuana, according to the USA Department of Justice (Drug enforcement Administrator, 2007). East and Southeast Asia is home to about two-thirds of the world's users, while North America, notably the United States and Northern Mexico, accounts for about one-fifth (Radfar & Rawson, 2014).

An estimated 35 million people use methamphetamine (meth) worldwide, with over 10 million users in the United States (Salamanca *et al.*, 2015). Above a million Americans over the age of 12 and roughly 0.5% of the population in the USA were estimated to have tried methamphetamine (United Nations in Salamanca *et al.*, 2015). The invention of crystal meth can be dated to Japan in 1919, and it is said that during World War II, when it was given to pilots on suicide missions known as Kamikaze, it was extensively abused. After World War II (1970s), when the disastrous effects on the depressed and obsessive patients it was administered on became apparent, it was abandoned and banned. Although it was believed that Mexico's drug cartels had taken control of the crystal meth user population in the 1990s and had moved into Nigeria in 2016 to establish labs.

Methamphetamine can also be referred to as dextro-methamphetamine, Crystal Meth or by street name *Mkpurummiri* (because of the nature of the drug), Speed, chalk, crank, ice crystal and meth. Crystal Meth is highly addictive and synthetic and is classified as a psycho stimulant drug which is on increased popularity usage among Nigerians, especially Enugu State. In Enugu State Methamphetamine substance abuse is spreading like wildfire, which results to death and other complicated situations hence a source of worry for every Tom, Dick and Harry. The intensity of the increase in Enugu State is worrisome and problematic. According to Vanguard (2021), methamphetamine, a highly addictive stimulant substance akin to cocaine, is currently being abused heavily by Nigerian youngsters. According to the National Drug Law Enforcement Agency (NDLEA), 40% of Nigerian teenagers between the ages of 18 and 35 are heavily involved in drug misuse, notably methamphetamine (Premium time, 2021).

The National Drug Law Enforcement Agency, NDLEA, in March 2019 discovered a residential building turned into a drug factory at No 1 Zion Avenue, Phase 6, Trans-Ekulu, Enugu, where methamphetamine (*Mkpurummiri*) was being produced in commercial quantities for export to overseas, particularly South Africa (Ujumadu, 2021). However, there is every possibility that methamphetamine substance found to be

produced locally at Trans-Ekulu, Enugu State could increase the rate at which the youth consume it around the environs. A similar factory was discovered in Ozalla, Nkanu West Local Government Area of Enugu State, though officially reported sealed since 2019 by NDLEA (Ujumadu, 2021).

Methamphetamine addicts can consume the powdered drug through smoking, ingesting it, snorting it, injecting it, or injecting it. Hart in Salamanco *et al.* (2015) highlighted the route of consuming methamphetamine to include oral injection, smoking, snorting, intravenous injection and anal insertion. The negative effects of the drug cannot be over-emphasized as it can lead to instant death. But if the abuser survives it, their brain may be adversely affected. This is due to methamphetamine's ability to elevate levels of dopamine or epinephrine, two naturally occurring chemicals, in the brain. Dopamine helps with motivation, physical movement, and reinforcing positive behaviour. According to Downes and Whyte (2005), the effects of meth usage include the release of neurotransmitters like serotonin, dopamine, and adrenaline. According to Ujumadu (2021), ingesting even small doses of methamphetamine can have the same negative effects on one's health as ingesting cocaine or amphetamines. A decrease in hunger, quicker breathing, a rapid and irregular heartbeat, higher blood pressure, and an increase in body temperature are a few of these.

However, the intake of crystal meth can produce euphoria and stimulants effects (neuropsychiatric disorder) which elicit myriads of social consequences of behavioural disorder. Thus, its intake hampers and dilutes the value system and ethical standard of society. The value system may be diluted because the addicts are usually experience paranoia, aggression, visual and auditory hallucination, mood disturbances, and delusions among others. Methamphetamine produces immediate effect of euphoria due to the intravenous method of administration (Hart *et al.*, 2008). In addition to increasing libido for sexual activity, crystal meth also significantly raises the risk of contracting HIV and other related infectious diseases (Ellis & Urbina in Salamanca, 2015). It dehydrates saliva, reduces the mouth's ability to counteract strong acids produced, causing teeth and gums to erode, and may even harm teeth (meth mouth) (Evans *et al.*, 2012).

Findings have also revealed that the consumption of methamphetamine has profound immunological implications as the drug targets specific organs like kidney, lungs, pancrease, liver, spleen brain and heart (Volkow *et al.*, 2010). methamphetamine abuse can lead to skin breakdown, infective staphylococcal endocardites, cardiovascular pathology, genital warts, syphilis, gonorrhea, chlamydia, HIV, hepatitis C virus (HCV) infection and death (Nair and Saiyed in Salamanca *et al.*, 2015). Semple, Zians *et al.*, (2008) emphasize that some problems related with methamphetamine abuse include; emotional imbalance, social stigma, despair, heritability, patterns of childhood abuse and low income. Consequently, the best option to adopt in reduction of such crises remains recourse to counselling approaches. For the Enugu State youth to adjust socially and emotionally as regards methamphetamine abuse, they need proper counselling. Since the inculcation and maintenance of desirable behaviours among individuals are entrusted upon the shoulders of counsellors (Ezunu *et al.*, 2020), the need therefore to explore effective counselling techniques for combating the problem of methamphetamine abuse among youth becomes inevitable. Hence, the researchers selected two prominent behaviour intervention measures known as cognitive restructuring and self-management techniques and determined their efficacy in reducing methamphetamine abuse among youth in Enugu state.

The cognitive restructuring technique (CRT) addresses the potential impact of clients' attributions on the modification and maintenance of behaviour (Oguzie *et al.*, 2018). It entails changing unfavourable and idealistic notions to realistic ones (Beck, 2011). Cognitive restructuring, according to Umezulike and Eneasator (2010), is a re-education of clients that entails altering the way clients believe or adhere to specific unhelpful beliefs. CRT is a method for changing negative or self-defeating thought patterns and purposefully replacing them with positive, constructive self-talk, according to Livingstone (2008). The method is a problem-focused strategy designed to recognise and alter dysfunctional ideas, thoughts, and behavioural patterns connected to the clinical issue. (Chigbu *et al.*, 2022). According to Chigbu *et al.*, (2020), cognitive restructuring is a set of coordinated counselling process aimed at helping individuals

modify and re-organize their mindsets positively towards a more worthwhile and productive self-concept and dependable. In the context of this study, cognitive restructuring technique refers to a counselling strategy used in helping young people to reduce the consumption of methamphetamine substance.

Previous studies have demonstrated the efficacy of the cognitive restructuring strategy in treating young people's maladaptive behaviour (Abodike & Ebenebe, 2016; Oguzie *et al.*, 2018). Also, Rowson *et al.* (2004) affirmed that cognitive restructuring is the most effective treatment for methamphetamine addiction. Similarly, Nicole and Richard (2008) in their study found that treatment with cognitive restructuring technique was associated with reductions in methamphetamine use among young people. Out *et al.*, (2021) observed that cognitive restructuring can also have a significant impact on the reduction of some behavioural disorders like drug abuse. In addition, Jalali *et al.*, (2018) concluded that the technique reduces methamphetamine craving among abusers. The objective of the cognitive restructuring technique is to change thought patterns, therefore the researchers believed that if used, this strategy would be a real instrument in ending methamphetamine abuse among kids in Enugu State. However, in a situation where abusers do not learn how to counter their irrational thoughts that lead to unbridled use of the drug, the need for the use of self-management technique comes up.

Self-management technique is a method for changing behaviour in which users are trained to identify their own target behaviours and note when those behaviours occur or do not (Buckmann, 2015). A model of self-regulated learning was developed based on Bandura's (1986) social cognitive theory, in which individual, environmental, and behavioural factors interact to provide students control over their behaviour. The purpose of the self-management strategy, according to Oguzie *et al.*, (2019), is to get a person to take ownership of his own decisions and actions. Oguzie *et al.* (2020) claim that the interplay of three factors—self-monitoring, self-evaluation, and self-reinforcement—leads to personal self-management of behaviour. The primary elements of self-management strategies are planning, goal-setting, time management, self-motivation, stress management, and responsibility. It is usually designed to help in resolving one's emotions, thought and behaviour. Operationally, self-management techniques are tips that will help an addict enhance his abilities to control his thought, feelings and actions. According to Oguzie *et al.*, (2020), it is essential that clients receive self-management training so they can take charge of their activities and develop the ability to self-regulate their behaviour. Self-management approach is a behaviour intervention strategy that can be utilised to assist drug abusers in developing sufficient self-awareness and self-control over their illogical need for drugs for the purposes of this study.

Self-management is applicable to those in recovery from substance abuse disorders and any co-occurring mental health issues (Sequerecovery.com, 2020). Findings from Botvin *et al.*, (2009) indicate that substance use can decline through self-management technique (decision making, problem solving, self-reinforcement and self-control skills). Betiku (2013) noted that behavioural intervention strategies such as self-management technique have the capacity for guiding individuals towards developing new and acceptable behaviours. Methamphetamine which is a deadly drug stimulant has ushered death, infection, anger, violence, frustration, depression and hallucination among the youth and the entire society. Hence, establishing the effects of counselling intervention measures such as cognitive restructuring and self-management techniques will provide counsellors and other stakeholders with good knowledge of various strategies that can be used to reduce or possibly eradicate the menace of methamphetamine abuse among youth in Enugu state.

Research Questions

1. Using the results of the pretest and posttest, what impact does the cognitive restructuring technique have on methamphetamine consumption among young people in the state of Enugu?
2. Using the results of the pretest and posttest, what impact does the self-management strategy have on methamphetamine abuse among young people in Enugu State as compared to the control group?

3. Based on the results of their pre- and post-tests, how effective were cognitive restructuring technique and self-management approaches in reducing methamphetamine abuse among young people in Enugu State?

Null Hypotheses

1. It is more likely that the effect of cognitive restructuring technique on methamphetamine abuse among the youth in Enugu state when compared with those in the control group will not significant using their posttest scores.
2. It is more likely that the effect of self-management technique on methamphetamine abuse among the youth in Enugu state when compared with those in the control group will not be significant using their posttest scores.
3. It is more likely that there is no significant difference in the effectiveness of cognitive restructuring technique and self-management techniques on methamphetamine abuse among the youth in Enugu state using their pre-test and post-test scores.

Research Methodology

Research Design

For this study, a quasi-experimental pretest-posttest control group non-randomized research design was used. The design is referred to as quasi experimental by Oguzie *et al.*, (2018) since participants are not randomly assigned to the experimental or control groups.

Sample Size & Technique

Study comprised 953 youth from the twelve autonomous villages in the Igbo-Etiti Local Government Area of Enugu State made up the survey's population, and a purposive sampling technique was utilised to select a total of 74 respondents for the study. Ethical permission was obtained from the Department of Guidance and Counselling Ethical Considerations Committee (DGCECC).

Data Collection Tool

A standardised questionnaire known as the "Youth Methamphetamine Abuse Detecting Questionnaire (YMADQ)" was utilised to collect the data. This tool was created by researchers and approved by three professionals from the Faculty of Education at Nnamdi Azikiwe University in Awka. Additionally, pilot research using the test-retest procedure over a two-week period was carried out among a group of thirty methamphetamine addicts in a separate region with similar geographic characteristics. The instrument produced a Cronbach Alpha of 0.89, which was deemed sufficient for the investigation. Four research assistants assisted the researchers in administering the questionnaire to the respondents directly. Analysis of covariance (ANCOVA) was used to test the hypotheses and answer research questions utilising the data obtained for the study.

Results

Table 1: *Results cognitive restructuring technique (CRT) and those in the control group (CG).*

Source of Variation	N	Pre-test Mean	Post-test Mean	Reduction Mean	in Remarks
CRT	21	54.56	32.48	22.08	Effective
CG	29	56.20	54.37	1.83	

Norm=37.21, CRT=Cognitive restructuring technique, CG=Control group

Using the information in Table 1, it can be seen that while children in the control group had pre-test mean scores of 56.20 and post-test mean scores of 54.37, with mean reductions of 1.83 and 22.08, respectively, those who had cognitive restructuring therapy had pre-test mean scores of 54.56 and post-test mean scores

of 32.48, with mean reductions of 22.08. As a result, the cognitive restructuring technique (CRT) proved successful in lowering methamphetamine usage among the experiment's juvenile participants. Furthermore, among young people who received cognitive restructuring therapy, the post-test mean score for methamphetamine usage (32.48) was lower than the average (37.21).

Table 2: Results *self-management technique (SMT) and those in the control group (CG)*.

Source of Variation	N	Pre-test Mean	Post-test Mean	Reduction in Mean	Remarks
SMT	24	51.05	18.94	32.11	Effective
CG	29	56.20	54.37	1.83	

CRT=Self-management technique

In contrast to the control group, which had pre-test mean scores of 56.20 and post-test mean scores of 54.37 with a mean reduction of 1.83, those who underwent self-management therapy had pre-test mean scores of 51.05 and post-test mean scores of 18.94, with a mean reduction of 32.11. The experiment's young participants' abuse of methamphetamine was consequently reduced thanks to the self-management technique. Furthermore, the post-test mean score for methamphetamine abuse among kids who received self-management therapy was 32.11, which was lower than the standard of 37.21.

Table 3: Results *cognitive restructuring technique (CRT) and self-management technique (SMT)*

Source of Variation	N	Pre-test Mean	Post-test Mean	Reduction in Mean	Remarks
CRT	21	54.56	32.48	22.08	More Effective
SMT	24	51.05	18.94	32.11	

According to data in Table 3, adolescents treated with cognitive restructuring had pretest mean scores of 54.56 and posttest mean scores of 32.48, with mean methamphetamine abuse reduced by 22.08, while adolescents treated with self-management had pretest mean scores of 51.05 and posttest mean scores of 18.94, with mean methamphetamine abuse reduced by 32.11. Self-management strategy is more successful than cognitive restructuring technique in lowering methamphetamine abuse among young people, with a mean reduction of 32.11 greater than 22.08.

Table 4: *ANCOVA on the effect of cognitive restructuring technique (CRT)*

Source of Variation	SS	Df	MS	Cal. F	p-value	P ≤ 0.05
Corrected Model	11107.811	2	3.536			
Intercept	102.232	1	102.232			
Pretest	5.264	1	5.264	214.134	.000	S
Treatment	6302.216	1	6302.216			
Error	1532.300	18	14.513			
Total	64210.00	21				
Corrected Total	11232.211	20				

Table 4 demonstrates that the computed F is 214.13 with a Pvalue of 0.00, which is less than 0.05, at the 0.05 level of significance, with a 1df numerator and a 20df denominator. Consequently, the initial null hypothesis is disproved. Therefore, there is a considerable impact of cognitive restructuring approach on youth methamphetamine usage.

Table 5: ANCOVA on the effect of self-management technique (SMT)

Source of variation	SS	df	MS	Cal. F	Pvalue	P ≤ 0.05
Corrected Model	1205.121	2	2310.420			
Intercept	213.231	1	213.231			
Pretest	5.121	1	5.121			
Treatment	211.235	1	211.235	218.241	.000	S
Error	54211.000	21	16.717			
Total	61421.000	24				
Corrected Total	10242.201	23				

Table 5 demonstrates that the estimated F is 218.241 with a Pvalue of 0.00, which is less than 0.05, at 0.05 level of significance, 1df numerator, and 23df denominator. The second null hypothesis is therefore disproved. Therefore, self-management techniques have a major impact on youth methamphetamine usage.

Table 6: ANCOVA on the posttest scores of cognitive restructuring and self management techniques on methamphetamine abuse among youth

Source of variation	SS	df	MS	Cal. F	Pvalue	P ≤ 0.05
Corrected Model	1248.264	2	571.145			
Intercept	512.274	1	512.274			
Pretest	271.125	1	271.125			
Treatment	411.053	1	411.053	5.262	.146	NS
Error	474121.725	42	37.237			
Total	342660.000	45				
Corrected Total	22623.603	44				

The estimated F is 5.26, as shown in Table 6, with a Pvalue of 0.15, which is greater than 0.05, at the 0.05 threshold of significance, 1df numerator, and 44df denominator. As a result, the third null hypothesis is rejected. Therefore, there is no appreciable difference between the impact of self-management and cognitive restructuring strategies on teenage methamphetamine use.

Discussion

The study's initial finding demonstrated that, when compared to the control group, the cognitive restructuring strategy was successful in lowering teenage methamphetamine abuse. The results also showed a significant difference in posttest mean scores between the groups using the cognitive restructuring strategy and the controls. Again, compared to those in the control group, participants in the cognitive restructuring approach group showed a substantial decline in their methamphetamine usage mean scores. This would mean that after undergoing cognitive restructuring therapy, the individuals in the group who used the approach learned more about their illogical beliefs and thoughts regarding methamphetamine. This finding is line with the report of previous researchers who found that cognitive restructuring technique was effective in reducing various maladaptive behaviours among young people (Abodike & Ebenebe, 2016; Oguzie *et al.*, 2018). Supporting the finding, Rowson *et al.* (2004) affirmed that cognitive restructuring is the most effective treatment for methamphetamine addiction. Moreso *et al.*, (2008) in their study found that treatment with cognitive restructuring technique was associated with reductions in methamphetamine use among young people. A possible reason for the effectiveness of cognitive restructuring technique in reducing methamphetamine abuse as found in this study may be that the students through the treatment package has learnt to drop their faulty thinking and irrational beliefs

and develop more realistic, adaptive and beneficial ones about drug use. Jalali *et al.*, (2018) concluded that the technique reduces methamphetamine craving among abusers.

According to the study's findings, self-management techniques were more successful than traditional counselling in lowering methamphetamine consumption among young people in the treatment group. In particular, the results showed that, based on their pre-test results, every individual in the experimental and control groups had previously abused methamphetamine. Forty percent of Nigerian teenagers between the ages of 18 and 25 are heavily involved in drug addiction, according to the National Drug Law Enforcement Agency (NDLEA) (Premium Times, 2021). This result indicates that the magnitude of the mean difference between the experimental and control groups in the posttest was significant. This discovery is in line with what other researchers have found in the past (Sequerecovery.com, 2020; Botvin *et al.*, 2009).

One possible reason for the reduction in the methamphetamine abuse among the participants may be that through the self-management technique training, the youth gained better understanding of the consequences of their drug abuse, and that may have encouraged them to monitor and control their irrational thoughts, emotions and actions. Perhaps, during the experiment, the methamphetamine abusers acquired the various self-management skills that facilitate their ability to control their craving for the drug. In support to the above, Betiku (2013) states that behavioural intervention strategies such as self-management technique have the capacity for guiding individuals towards developing new and acceptable behaviour.

Ultimately, this study's findings showed that there were differences between the cognitive restructuring and self-management approaches' efficacy in lowering teenage methamphetamine abuse. In particular, the study found that self-management techniques were superior to cognitive restructuring techniques in terms of lowering methamphetamine usage. The null hypothesis test, however, showed that there was no significant difference between the two strategies' efficacies. This could imply that, despite the fact that the individuals in the self-management technique group experienced benefits that were slightly greater than those experienced by those in the cognitive restructuring technique group, the difference was insignificant. This shows that self-management strategies and cognitive restructuring are both powerful and successful in treating teenage methamphetamine misuse. This result is consistent with the findings of earlier researchers Hawkins and Ford (2008), who came to the conclusion that the efficacy of the two strategies is not significantly different.

Conclusion

The researchers came to the conclusion that cognitive restructuring and self-management approaches are significantly beneficial in lowering teenage methamphetamine usage based on the findings of this study and the debate that followed. Additionally, it was found that self-management techniques are superior than cognitive restructuring techniques in reducing teenage methamphetamine abuse. However, the study came to the conclusion that there was no statistically significant difference in the effects of cognitive restructuring and self-management approaches on teenage methamphetamine usage.

Recommendations

1. That cognitive restructuring and self-management techniques should be used by counsellors and rehabilitators as effective techniques in treating methamphetamine abuse among young people. Counsellors and rehabilitators should as a matter of importance ensure that they acquire adequate knowledge of the techniques so as to be able to help combat the abuse of methamphetamine by youth in Enugu state.
2. Counsellors and rehabilitators use self-management technique more in treating methamphetamine abusers than cognitive restructuring technique. This is because, self-management technique proved more effective in handling youth with the problem.

3. Government should employ the services of counsellors in all rehabilitation facilities across the country.
4. Parents, caregivers and the public should quickly refer any youth found to be abusing methamphetamine to professional counsellors for effective counselling intervention using cognitive restructuring and self-management techniques.

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Conflict of Interest

Authors have no conflict of interest.

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References

- Abodike, N.A. & Ebenebe, R.C. (2016). Effect of cognitive restructuring on lying tendency among secondary school students in Awka education zone. *The Educational Psychologist*, 10(1), 232-239
- Beck, J.S. (2011). *Cognitive behaviour therapy: Basics and beyond* (2nded.). New York: The Guilford Press.
- Betiku, S.A. (2013). *Psychology in the new millennium* (6th ed.). New York: Holt, Rinehart & Winston Inc.
- Buckmann, S. (2015). *Don't forget about self management*. Bloomington, IN: Indiana Resource Center for Autism.
- Chigbu, E.F., Oguzie, A.E., Obi, J.S. & Ngwaka. (2022). *Guidance and Counselling for special needs*. Owerri: Scannergraphics printing press.
- Chigbu, E.F., Ngwaka, C. & Nnadi, C.N. (2020). Counsellor's perception of cognitive restructuring as a counselling strategy for enhancing self-esteem among secondary school students in Enugu state. *Sapienta Foundation Journal of Education, Sciences and Gender Studies*, 2(3), 267-274.
- Downes, M.A. & White, I.M. (2005). Amphetamine-induced movement disorder. *Energy Med. Australia*, 17, 277-280. doi:10.1111/j.1742-6723.2005.00735.
- Drug Enforcement Administration (2007). *New data show significant disruptions in US. Methamphetamine*. Washington Publisher.
- Evans, Z.P; Miller, P.M; Sftvmut, Z.F.U.; Tjhojgdbou, T., GPS, U; Boe, M.Q; et.al (2012). Methamphetamine abuse and oral health: A pilot study of "Meth mouth". 43, 229-237.

- Ezunu, E.N., Oguzie, A.E., Aigbokhaode, A. & Ezunu, O.E. (2020). Socio-demographic determinants of attitude towards voluntary counselling and testing (VCT) in Delta State, Nigeria. *Journal of Guidance and Counselling Studies*, 4(1), 44-60.
- Hart, C.L., Gunderson, E.W., Perez, A., Kirkpatrick, M.G; Thurmond, A. & Comer, S.D. (2008). Acute physiological and behavioural effects of Intranasal Methamphetamine humans. *Neuro-Psychopharmacology*, 33, 1847-1855. Doi: 10.1038/sj.npp.1301578.
- Hawkins, A.S. & Ford, A. (2008). Effects of multimodal strategies using cognitive restructuring technique, meditation and imaginary on managing test anxiety in Texa, USA. *International Journal of Education*, 1(1), 181 – 189.
- Lalali, F., Hashemi, S.F. & Hasani, A. (2018). The effectiveness of Cognitive-Behavioural Group Therapy in Reducing Craving among Methamphetamine abusers living with HIV/AIDS. *Journal of Drug Abuse*, 4, 2-9.
- Livingstone, M. (2008). Cognitive restructuring intervention on maladaptive behavior among students. *International Journal of Psychology*, 26(11), 570-581.
- Mandel, A. (2020). *What is drug abuse?* <https://www.news-medical.net/health/What-is-Drug-Abuse.aspx>.
- Otu, M.S., Dike, I.C., Ebizie, E.N., Chigbu, E.F & Otu, F.M. (2021). Cognitive behavioural therapy and stress reduction among primary education pupils in Nigeria. *Journal of Rational-Emotive & Cognitive-Behaviour Therapy*. DOI: <https://doi.org/10.1007/s10942-021-00403-5>.
- Nicole, K.L. & Richard, A.R. (2008). *A systematic review of cognitive and/or behavioural therapies for Methamphetamine dependence*. <https://www.ncbi.nlm.nih.gov/pmc/articles/pmc4445690/>
- Oguzie, A.E., Ani, D.P., Obi, B.A. & Onyegirim B.O. (2018). Effect of cognitive restructuring technique on fear tendency among secondary school students in Owerri Municipal Council of Imo state. *International Journal of Advanced Research and Publications*, 2(1), 34-38.
- Oguzie, A.E., Obi, J.S.C. Chigbu, E.F. (2020). *Principles of interpersonal relationship: A psychological approach*. Awka: De-Emerald Printing and Publishing Company.
- Oguzie, A.E., Obi, J.S.C. & Nnadi, G.C. (2019). Effect of self-management technique on shyness among secondary school students in Imo state, Nigeria. *International Journal of Education and Research*, 7(5), 241-252.
- Rawson, R.A., Marinelli-Casey, P., Anglin, M.D., Dickow, A., Frazier, Y., Gallagher, C. et.al. (2004). A Multi-site comparison of psychosocial approaches for the treatment of Methamphetamine dependence. 99, 708-717. Doi: 10.1111/j.1360.0443.2004.00707.x
- Robinson, L., Smith, M. & Segal, J. (2021). *Understanding drug abuse and addiction*. Retrieved from <https://www.helpguide.org/articles/addictions/drug-abuse-and-addiction.htm>
- Roll, J.M., Petry, N.M., Stitzer, M.L., Bretcht, M.L., Peire, J.M. McCann, M.J. (2006). Contingency management for the treatment of Methamphetamine use disorders. 163, 1993-1999. Doi: 101176/appi.ajp.163.11.1993.
- Salamanca, S.A., Sorrentino, E.E., Nosanchuk, J.D. & Martinez, L.R (2015). *Impact of Methamphetamine on infection and immunity*. *Frontiers in Neuroscience Neuropharmacology*. Retrieved from <https://www.frontiersin.org/articles/10.3389/fnis.2014.00445/full>
- Semple, S.J., Zians, J., Strathdee, S.A. & Patterson, T.L; (2008). Methamphetamine using Felons. *Psychosocial and Behavioural Characteristics*, 17, 28-35. Retrieved from doi: 10.1080/10550490701756294.

- Ujumadu, V. (2021). Mkpurummiri: The Drug destroying Igbo Youths. Retrieved from <https://www.vasnguardgv.com/2021/11/mkpuru-mmiri-the-drug-destroying-Igbo-youths/>
- Umezulike, R.Q. & Eneasator, E.U. (2010). *Application of counselling skills and techniques*. Onitsha: Ofona Publishers.
- Vangneke, (2021). How Mkpurummiri is destroying and killing Igbo youths.
- Volkow, N.D. Fowler, J.S., Wang, G.J. Shumay, E., Telang, F. & Thanos, P.K. (2010). Distribution and Pharmacokinetics of Methamphetamine in the human body: Clinical Implications. Retrieved from doi:10.1371/journal.pone.0015269.