ENVIRONMENTAL STRESS, SEX AND ACADEMIC PERFORMANCE AMONG A SAMPLE OF NIGERIAN POLYTECHNIC STUDENTS

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Abstract

This study was a cross-sectional survey that examined the influence of Environmental Stress and sex on Academic Performance among Students of Adamawa State Polytechnic, Yola. A total of 139 students were sampled from various departments in the institution using two sampling techniques. Participants responded to measures of demographic characteristics, Environmental Worry Scale (EWS), which was used to measure environmental Stressors; and students' Academic Performance, which was assessed using their CGPAs. Three hypotheses were formulated and tested using Two-Way Analysis of Variance. Results indicate that students who experienced high level of environmental stress significantly recorded lower mean score on academic performance than their counterparts who experienced average and low stress. However, there was no sex difference in academic performance and no significant interactive effect of environmental stress and gender on academic performance. The study concluded that environmental stress is one of the major reasons accounting for poor academic performance amongst polytechnic students in Nigeria irrespective of sex. Based on these findings, the research recommends for provision of adequate facilities and stress management interventions to reduce environmental stress and consequently improve academic performance of Nigerian higher education students.

Keywords: *Environmental Stress, Sex, Academic Performance.*

Introduction

Academic performance of students has always been a subject of interest to every educational institution around the world. Globally, research has indicated that, despite increasing concern and attention, educational performance among students, especially at tertiary educational level has remained consistentlypoor (Hijazi & Naqvi, 2016; Shahjahan, Kazi, Ahmed &Rabiul, et al. 2021;Zajacova, 2022). This situation holds in Nigerian context where previous empirical evidences have pointed to persistent decline in academic performance among students of higher institutions, with prevalence rate ranging from 16 to 22% (Yusuf, Okanlawun, & Oladayo, 2020). This increasing prevalence and its imminent consequences is an indication that poor academic performance is a recurring problem that needs continuous research to identify new trends and risks, towards effective intervention.

According to Mohammad, Fadzillah and Kamsah, (2007) academic performance is the extent to which a student, a teacher, or an institution has achieved their short-term or long-term educational goals. Gatersleben, and Griffin, (2017) argued that it is the measurement of students' achievement at the end of the academic year. This achievement can be measured by the final grades earned by a student, standardised test scores, cognitive

tests and dropout rates. Williams (2021) noted that academic performance is defined by students' reporting of past semester CGPA/GPA and their expected GPA for the current semester. The grade point average (GPA) is now used by most tertiary institutions as a convenient summary measure of the academic performance of their students. The GPA is a better measurement because it provides greater insight into the relative level of performance of individuals and different groups of students. Relatedly, poor academic performance according to Asikhia (2010) is any performance that falls below a desired standard. Similarly, poor academic performance is conceived as the performance of an individual or candidate in a learning situation in which he or she fails to attain a set standard of performance in a given evaluation exercise such as a test, an examination or series of continuous assessments. In this perspective, a candidate who scores below the set standard is regarded as showing poor academic performance in school.

In Adamawa State Polytechnic Yola, numerous indicators of low academic performance are visible. Notable among these are; high rate of students dropout, increase in crime, suicidal thought, substance abuse, cultism, and early marriage, which have been observed in the area. This may have potential negative impact on the students, the institution and society in general.According to Aremu (2010) academic failure is not only frustrating to the students and the parents; its effect is equally grave on the society in terms of dearth of manpower in all spheres of the economy and

politics. For example, low academic performance among students could lead to high dropout, which may further escalate the security situation in the volatile area. Thus, despite government's efforts to improve academic performance through scholarships, training of the lecturers, and provision of infrastructure and so on, academic performance in the polytechnic has surprisingly remained low.

Poor academic performance among students have previously been associated with demographic, socio-economic and environmental factors. For instance, Kausar, Kiyani and Suleman (2017)implicated low socio-economic status with poor academic performance among secondary school students. Previous researches by Odeh et al. (2015), and Yusuf et al. (2020) have also linked low academic performance with low socio-economic status, alcohol use, gender and school location. However, students' academic performance is not affected by socioeconomic background and other demographic factors alone.There are other factors inherent in the school environment that may negatively affect the performance of students, especially at the higher level of education. One crucial factor that has the potential to influence students' performance at tertiary school level, but which research has given limited attention, especially in the north-east is environmental stress.

Environmental stress refers to a negative subjective psychological response to an environmental stimulus. It involves and interaction and subjective interpretation or response to a stimulus or stressors in an environment (Bilota & Evans, 2013).

According Williams (2021) environmental stressors are things or events that cause stress such as destructive weather, events and crowding. Within the school environment, factors such as noise, lecturer's stress, work overload, epileptic power supply and lack or insufficient teaching aids could constitute stress to students. The transition of students from college to the polytechnic environment is particularly very challenging and can presents numerous physical, financial, intellectual and social stressors that many students may consider as stress. This situation could negatively affect motivation, impair cognitive abilities and ultimately lead to poor academic performance (Olabiyi &Abayomi,2010)

In addition to environmental stress, sex is another factor that has been implicated in academic performance among college students. Studies have reported sex differences in academic performance among university students, with evidences indicating that, when faced with school stress, female students tend to outperform their male counterparts (Khamaineh & Zaza, 2010; Yusuf, et al. 2020). However, within higher institutions of learning, especially in the study area, it is unclear if occupational stress and sexcan influence academic performance that has become a recurring problem. It is based on this that identified knowledge gap that the study objectives were formulated, to examine the role of environmental stress and sex on academic performance among students of Adamawa state polytechnic, Yola. Accordingly, it was hypothesized that; (1) there will be a significant difference in academic performance of students based on their exposure to low, average and high environmental stress, (2) there will be significant sex difference in academic performance of the polytechnic students and (3), there will be significant interactive influence of environmental stress and sex on the academic performance of students of the polytechnic.

METHOD

Design
The present research adopted a cross-sectional survey design to sample eligible students at Adamawa State Polytechnic, which is a tertiary educational institution located in Yola, Adamawa state, Nigeria. The choice of the cross-sectionalsurvey design was informed by its ability to facilitate large, efficient and timely data collection over a short period in order to determine how environmental stress and sex influence academic performance of the participants. Similarly, the research setting was chosen because of personal observations and anecdotal evidences which clearly indicated declining academic performance among students of the polytechnic, thus raising serious research concerns.

Participants and Procedure
Participants for the study comprised 139 eligible and available students currently undergoing Diploma and Higher National Diploma programmes at Adamawa state polytechnic, Yola. The students' age was from 16 to 45 years, with the mean age 38.9, $SD = 7.056$. Majority of the students, 74 (49.7%) were males, while 65(43.6%) were females. About 71% of the students were single. Further information revealed that,

25(16.8%) were in Public Administration department, 2(1.3%) Mass Communication, 16(10.7%) in Banking and Finance, 28(18.8%) in Accounting, 21(14.1%) Business Administration, 25(16.8%) Marketing and 22 (14.8%) were drawn from Social Development. On sponsorship, 72(48.3%) were being sponsored by their parents, 41(27.5%) were self-sponsored students, 12(8.1%) were on scholarship, while 14(9.4%) were being sponsored by relatives. In order to guarantee equal participation, minimize research bias and ultimately ensure external validity of results, the research employed two sampling techniques to recruit research participants. The first stage involved randomly selecting 7 out of 14 departments in the polytechnic. In the second stage, 139 out of 1200 students who met inclusion criteria for the research were selected using convenience sampling method. Inclusion criteria required participants to have experience of environmental stress, be students of the polytechnic and give consent to participate in the research. The Taro Yamani formula for was employed to arrive at the sample size of 150, but only 139 administered questionnaires were returned with usable data.

The researchers sought and obtained permission from the relevant authorities of the institution. Upon this permission, participants were consented, recruited at their various departments. The research employed and trained two students on data gathering protocol who facilitated assisted in administering questionnaires to the participants. Participants were assured of their willingness to decline participation should they feel uncomfortable with the research and the potential benefits accrued to participation. As part of the benefits, the findings of the research would be communicated to relevant authorities for implementation in order to improve academic performance of the students in the polytechnic and beyond. A total of 150 questionnaires were administered to well-consented students across the seven departments. Each questionnaire took approximately 10 minutes of the respondent's time. In all, data collection lasted for approximately two weeks, beginning from 31st October to 13th November, 2022. At the end of approximately two-week data collection period, (139) fully filled questionnaires (out of the 150 administered) were returned, representing 92.6% return rate.

Instruments

A standardised questionnaire was utilised to collect data from participants. Socio-demographic variables were measured in the first section of the questionnaire, with individual items assessing sex, department, age, marital status and source of sponsorship.

Environmental stress was assessed using a 17-item Environmental Worry Scale developed by Bowler and Schwarzer, (1991) to measures environmental stress among individuals including students. Accordingly, Students who were eligible and available responded to the scale with endpoints that ranged from 1 (not at all true) to 4(exactly true). The scale has been revalidated for use in students' population and found to have acceptable psychometric properties. For example, the internal consistency coefficient

of the EWS has been validated in the Nigerian context. Using the Cronbach Alpha method, Adeola (2018) noted that the scale has a Cronbach Alpha of .88, showing a strong reliability score. In the present study, we found a reliability coefficient ($\alpha = 0.84$), indicating that the instrument is a reliable measure of environmental stress in Nigerian polytechnic students.

In other to ensure dichotomous scores for low, average and high environmental stress, total Environmental Worry Scale scores were divided using mean and standard deviation. Thus, participants who scored equal or below the mean ($\bar{x}=26.57\pm4.97$), were dichotomized into low stress, those whose scores were one standard deviation above the mean ($\bar{x}=26.57\pm4.97$), were dichotomized into average stress, while those whose scored two standard deviation above the mean ($\bar{x}=26.57\pm4.97$) were considered to have experienced high environmental stress.

Academic performance. Academic performance was measured using students' Cumulative Grade Point (CGPA) for a session. Students were made to communicate their current CGPA to the researchers to enable them establish the link between environmental stress and academic performance.

Data Analyses
Data were analysed using Statistical Package for Social Sciences (SPSS Version-22), Mean, standard deviations and frequency counts were used to analyse demographic data, while a 3x2 ANOVA was used to determine the main and the interaction effects of environmental stress and sex on academic performance.

Results.

Descriptive Results
The mean scores of the groups of participants on academic performance are shown in Table 1, while Two-Way ANOVA summary table presents results of the independent and interaction effects in Table 2

Table 1: Showing Mean Scores ($\bar{x}$)and Standard Deviation (SD) ofEnvironmental Stress and Sex on Academic Performance of the respondents

Variables	Levels	Mean	SD	N
Environmental Stress	Low	3.23	.95	52
	Average	2.82	.99	44
	High	2.57	1.08	43
Sex	Male	2.77	.98	74
	Female	3.04	1.07	65

The results presented in Table 1 indicated that students who experienced high level of environmental stress recorded lower mean score of academic performance (x̄=2.57; SD=1.08) than those who experienced average (x̄=2.82;SD.99) and low level of environmental stress (x̄=3.23;SD=.95). The results further showed that female students slightly recorded higher mean score on academic performance (x̄=3.04; SD= 1.07) than their male counterparts (x̄=2.77; SD=.98). Tests of significance of the means are reported in table 2 below.

Table 2: Two- Way ANOVA summary table showing the main and interactive influence of environmental stress and sex on academic performance of the respondents

Source	*SS*	*Df*	*MS*	*F*	*P*	*Eta Sq.*	*Remarks*
Environ. Stress (A)	10.88	2	5.044	5.056**	<.01	.071	Sig.
Gender (B)	1.960	1	1.960	1.965	>.05	.015	Not Sig.
A x B	.746	2	.373	.374	>.05	.006	Not Sig
Error	132.674	133	.998				
Total	1313.732	138					

The table above showed that environmental stress has significant independent influence on academic performance among the polytechnic students. More specifically, we observed a significant difference among students who experienced low, average and high levels of environmental stress on academic performance (F (2, 133) = 5.044, p< .05). The results clearly show that environmental stress reduces the level of academic performance of students by 7.1% (*Etasq.* = .071). This implies that environmental stress is a barrier to effective learning and performance and thus confirmed hypothesis one.

On the contrary**,** results did not show significant difference between male and female students on academic performance (F (1, 138) = 1.965, p> .05). This means that sex is less likely to determine changes observed in the academic performance of students in the study area with a weak size effect of 1.5% (*Etasq.* = .015). The result is not in agreement with hypothesis two and is therefore not confirmed. Similarly, results from the 2-way analysis of variance revealed no significant interaction effect of environmental stress and sex on academic performance (F (2, 138) = .374; p> .05). Thus, the effect of environmental stress on academic performance is same across sex with a minimal difference of 0.6% (*Etasq.* = .006), implying that environmental stress and sex are less likely to jointly influence academic performance of the students in the study area.

Discussion

Over the past two decades, studies have shown persistent decline in academic performance across all levels of education in Nigeria. Despite the findings and

interventions however, low academic performance still remain a serious challenge, especially at tertiary education level. This research therefore examined environmental stress and sex as risk factors to poor academic performance among a sample of conveniently sampled students at a polytechnic in Nigeria. Three hypotheses were formulated and tested using 2x3 analysis of variance. Result of the first hypothesis indicated a significant difference in academic performance based on varying degrees of environmental stress experiences that the students were exposed to. It was specifically observed that, students who experienced higher environmental stress reported diminished academic performance, more than those with average and low stress experience. The result implies that, when students are exposed to unpleasant external stimuli in the environment, such as overcrowded lecture theatres, meaningless materials, limited study time and many others, it may lead to negative reaction that impede academic performance. This result is justifiable on the ground that excessive stress can impair cognitive functions, leading to poor concentration and memory impairment, which will ultimately affect academic performance. The result is corroborated by previous findings by Ahmed, Tayyub and Ismail (2020) and Nepal (2016) which found significant influence of environmental stress on academic performance among students.

However, findings from the research showed that students' sex is not a significant factor in academic performance. There is no sex differences in academic performance among polytechnic students in Nigeria; rather, school-related environmental stress is the major reason accounting for a significant decline in students' academic performance. This finding is corroborated by the findings of Shahjahan et al. (2021) and (Khamaineh & Zaza, 2010), which found significant sex difference in academic performance among urban university students in Bangladesh. Domestically, the study is somewhat in agreement with the research findings of Yusuf et al.(2020), which found gender difference in students' academic performance.

The research findings did not establish significant interaction between environmental stress and students' sex on students' academic performance, thus contradicting what has been documented in previous literature showing significant interaction between demographic characteristics, stress and academic performance of secondary school pupils (Rukhshanda & Afzal, 2018).The implication of this result is that poor academic performance amongst the sampled students is not explained by the interaction of stress and sex. Therefore, reactions to the various school-related stressors such as overcrowded classes, work overload, poor teaching and stressful lecturers can affect the performances of students in higher institutions irrespective of whether they are males or females.

The conclusion drawn from this study is that tertiary education students who experience very environmental or school stress, especially at very high level stands higher chances of reporting low academic performance irrespective of sex. This calls for policy on stress management among

students in higher institutions in Nigeria. Consequently, the recommend that, in addition to provision of relevant facilities that reduce school stress, government and the school authority should design and implement effective stress management programmes for students of all category of students. In addition, given the dearth of empirical work on this very important issue, it is recommended that more research be carried out to fully explore other salient causes of low academic performance among students in Nigeria. Further studies should focus on other factors affecting academic performance and should institute interventions on stress management to reduce the persistent problem of low academic performance among tertiary education students in Nigeria.

Despite these impressive findings, the research is not without limitations. The use of cross-sectional survey and limited sample size (139) are serious limitations that may have affected the validity and the extent to which these findings can be generalised to similar population.

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AGE AND GENDER DIFFERENCE IN MEDICATION ADHERENCE AMONG PSYCHIATRIC PATIENTS IN BEHAVIOURAL MEDICINE UNIT KARU GENERAL HOSPITAL FCT-ABUJA

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Abstract

The study examined age and gender difference in medication adherence among psychiatric patients in behavioural medicine unit Karu General Hospital FCT-AbujaNigeria. The consisted of sixty two (62) males and seventy five (75) females with age bracket ranging from 17 years and above. The participants responded to two sets of research instruments these are Illness Perception Questionnaire Brief (IPQ-Brief) and Self report Morisky Medication Adherence Scale (MMAS-8). Two hypotheses were stated and tested. The study employed the use of simple statistical techniques such as Inferential statistics, used for data analysis of the two hypotheses postulated in the study and the result revealed a no statistically significant difference in medication adherence among psychiatric patients at BMU Karu, Abuja $F(2, 134) = 1.030$, $P > .05$. There was no statistically significant difference between male and female psychiatric patients in BMU Karu General Hospital, Abuja; $t(135) = 0.054$, $P > 0.05$. The findings were discussed in line with the existing literature cited in this study. In conclusion, this study reveals that medication adherence does not relatively differ among psychiatric patients. On the basis of the findings, it was recommended among others that, Mental health professionals and the health care policy should work to increase the level of psychotropic medication adherence so as to decrease self- stigma associated with mental illness.

KeyWords: Age and Gender, Medication Adherence, Psychiatric Patient,Behavioural Medicine Unit.

Introduction

Illness perceptions are the organized cognitive representations or beliefs that patients have about their illness. These perceptions have been found to be important determinants of behaviour and have been associated with a number of important outcomes, such as treatment adherence and functional recovery (Leventhal et al., 2017). There is a consistent pattern to the way patients structure their perceptions of illness.

Illness perceptions generally contain an identity component, which includes the name of the illness and the range of symptoms that the patient believes are associated with the condition. They also contain beliefs about the cause of the illness and how long it will last. Illness perception components include beliefs about the personal consequences of the condition for the patient and their family, as well as the extent to which the illness is amenable to personal control or to control by

treatment (Leventhal et al., 2008).

People with mental illness are well aware of the societal prejudice toward them and are concerned(Rüsch et al., 2005). The potential stigma anxiety increases among people who have a greater tendency toward self-stigma than in the case of stigmatization by others (Rüsch et al., 2005). An individual expecting rejection or condemnation by others tends to be socially withdrawn (Livingston & Boyd, 2010). Outpatients who adopted these prejudices about psychiatric patients haveshown to have less belief that their mental state will improve, are more depressed, and show poor self-concept (Ritsher& Phelan, 2004).

The beliefs patients hold about how their condition is treated and the effectiveness of the available treatment make up the illness perceptions cure-control component. Patients who have stronger beliefs about the efficacy of treatment and less concerns about the nature of the treatment tend to better adhere to treatment and rehabilitation programmes. Cure-control component beliefs can be divided into perceptions about how much treatment, such as medication, is likely to help their condition and how the patient's own behaviour can influence the course of the illness. Lay beliefs about the effectiveness of treatments for mental health disorders tends to be negative, particularly for psychopharmacological medication and this is likely to influence the adoption of medication treatment and adherence (Lauber et al., 2001).

The final illness perception component is called consequences and characterized as the perceived effect of the illness on the patient's life. The consequences component includes general beliefs about the impact of the illness on the patient's personal life, family, social relationships and finances as well as how disabling the illness is likely to be. The poor level of knowledge in the general public about mental illness and in some cases the nature of the illness itself, such as depression, may influence some patients to adopt overly negative consequent beliefs which in turn can adversely affect the adoption of more active coping strategies.

Weingarten and Cannon (2008) conducted a study on age as a major factor affecting adherence to medication for hypertension in a general practice population. An audit of the treatment of hypertension in a general practice revealed that 51 out of 246 patients prescribed medication did not collect their monthly supply of drugs. There were no significant differences between the adherers and the non-adherers in sex, severity of hypertension, type or complexity of medication. The patient's age was the only factor which was associated with adherence. Patients under the age of 55 years or over 65 years had significantly lower adherence than those aged 66-74 years. Most previous studies coming from hospital-based or clinical trial populations have failed to demonstrate this association with age which may be characteristic of an unselected general practice population. The results may not be applicable to populations of different social or cultural background but they suggest appropriate directions for health promotion efforts in our community.

Marie et al. (2014) evaluates the differences

between women and men in medication use, medication adherence, and prescribing alignment with clinical guidelines. They conducted an analysis of pharmacy and medical claims for 29.5 million adults with prescription benefits administered by a pharmacy benefits manager in the United States, age 18 and older, between January 1, 2010, and December 31, 2010. Prevalence and intensity of medication use were evaluated by sex, age group, and medication type (acute vs. chronic). Medication adherence was measured by the percentage of patients with a medication possession ratio (MPR) 80%. The percentage of patients receiving guideline-based treatment was measured for diabetes and select cardiovascular conditions. The study population comprised 16.0 million women and 13.5 million men with continuous pharmacy benefit eligibility. Women were significantly more likely than men to use one or more medications during the analysis period (68% vs. 59%, respectively and women used more unique medications, on average, than men (5.0 vs. 3.7 medications per year, respectively. Differences in drug utilization were observed for all age groups and medication types. For all clinical metrics evaluated, women were less likely than men to be adherent in their use of chronic medications, and they were less likely to receive the medication treatment and monitoring recommended by clinical guidelines. They concluded that there are significant disparities between women and men in their intensity of medication use, their adherence to medications, and their likelihood of receiving guideline-based drug therapy. These differences may indicate a need for more personalized drug selection and therapeutic management to improve clinical outcomes.

Generally, the various illness perception components show logical inter-relationships. When illnesses are seen as having large consequences they are usually also perceived as having a longer timeline and poorer treatment efficacy. Symptoms also play a critical role in the development of illness perceptions. When there are no symptoms, it is hard for patients to maintain that they have an on-going illness. Perhaps the most interesting aspect of illness perceptions is how much illness perceptions vary between patients who have similar conditions. It is this individual perspective that lies at the heart of illness perception work. This approach proposes that by understanding the way a patient conceives of their condition can help understand their behaviour and lead to new ways to assist their adjustment to illness (Weinman & Petrie, 1997). Thus, it is plausible that illness perceptions play a role in non-adherence among patient. This can profoundly affect care-seeking behaviour and adherence to recommended interventions (Barrowclough et al., 2001).

Statement of the problem
Previous studies from developed countries attributed the reasons for non- adherence to antipsychotic medications including limited insight, low therapeutic alliance, presence of positive symptoms, comorbid substance abuse, unemployment, low social functioning, and side effects (Dassa et al., 2010). Although there is a dearth of evidence on non- adherence from developing countries, studies from Africa reported that poverty, lack of family support, perspective

of illness and stigma, lack of insight, failure to improve with treatment, and long queues when attending outpatient appointments were the important reasons for non-adherence; meanwhile, developing countries in Asia reported that financial problems, distance from hospitals, social and cultural myths, illiteracy and lack of insight, and side effects were the reasons for non-adherence (Victoria etal., 2008).

Globally, 30% to 65% rate of non-adherence is reported among people with severe mental illness (American Pharmacists Association, 2013). The average rate of 50% had been reported among patients with schizophrenia, with a range of 4% to 74% (Haddad et al., 2014). Among patients with bipolar disorders, the non-adherence rate to long term was reported to range between 20% and 66% (Sajatovic et al., 2007). Also, the estimated non-adherence rates among unipolar depression patients were reported to range from 13% to 52.7% (Stein-Shvachman et al., 2013). 42.2% non-adherence rate was reported in Ethiopia and 74% in Egypt on the African continent (Amr et al., 2013) In Nigeria, the recorded rates of non-adherence among patients with mental illness ranged from 48% to 55.5% in Southern Nigeria, and 49.4% in Kaduna and 34.2% in Jos, North-western and North-central Nigeria respectively (Danladi et al., 2013). These studies have been done but neglected the aspect of the psychiatric patients or patients with mental illness and even if there are, only few studies have been conducted among the psychiatric patients or patients with mental illness. Non adherence among patients with mental illness may be attributed to multifactorial influences such as; age,

gender, poor insight, negative attitude towards medications, shorter duration of illness, poor therapeutic alliance and poor social support (Kassis et al., 2014).

Research Questions

The study will be guided by the following research questions

i.   What is the difference on Medication adherence between younger and older Psychiatric patients accessing the Behavioural Medicine Unit of Karu General Hospital?

ii.   What is the gender difference in Medication adherence among the Psychiatric patients accessing the Behavioural Medicine Unit of Karu General Hospital?

Objectives of the Study

The study will examine the following objectives

i.   To determine the difference on Medication adherence between younger and older Psychiatric patients accessing the Behavioural Medicine Unit of Karu General Hospital.

ii.   To ascertain the gender difference in Medication adherence among the Psychiatric patients accessing the Behavioural Medicine Unit of Karu General Hospital.

Hypotheses

The following hypotheses will be tested in the study.

i.   There will be a significant age difference on Medication adherence between younger and older Psychiatric patients accessing the Behavioural Medicine Unit of Karu General

Hospital.

ii. There will be a significant gender difference in Medication adherence among the Psychiatric patients accessing the Behavioural Medicine Unit of Karu General Hospital.

Methods

Design

The design of choice for this study was a Cross-Sectional survey using the Ex-post facto design. The Ex-post facto design was chosen because the variable of interest (i.e. medication non adherence) already existed in the individual before the study. The independent variables are the illness perception how it influenced the dependent variable medication adherence .

Participants

One hundred and thirty seven(137) patients receiving treatment at the Behavioural Unit Karu were selected respectively to participate in the study of different illness. Their age range was from 18 above and their demographic characteristics were described.

Sample Size / Sampling Technique

Purposive sampling technique was used in selecting the sample size of one hundred and thirty seven (137) patients. This sampling method was used based on the readiness of participants to participate in the study. All the participant were selected based on their willingness to participate in the study.

Instruments

Two instruments for data collection was questionnaire which was divided into four sections. Section A was the biodata, section B, Illness Perception Questionnaire Brief (IPQ - Brief) while section C, Self report Morisky Medication Adherence Scale (MMAS-8).

Section B: Illness Perceptions Questionnaire–Brief (IPQ-Brief): The Brief IPQ developed by Broadbenta et al., (2006). This scale includes eight items and an additional item, which investigates the causal factors. Eight items on the scale, except for the ninth item investigating the causal factors, had a Likert- type scoring between 0 and 10. The first 5-item form the cognitive illness representations, namely, consequences (Item 1), timeline (Item 2), personal control (Item 3), treatment control (Item 4), and identity (Item 5). Two of the items form the emotional illness perceptions, namely, concern (Item 6) and emotions (Item 8). One item assesses illness coherence (Item 7). In computing the score, the scores of Items 3, 4, and 7 are reversed and added to that of Items 1, 2, 5, 6, and 8. A higher score reflects that a person feels more threatened by the illness. (Broadbenta et al., 2006). The content validity of this scale was conducted in Turkey (Tugba et al., 2017). The scale recorded the reliability of 0.78 in this study.

Section C: Self report Morisky Medication Adherence Scale (MMAS-8) developed by Morisky, et al. (1986). It is a 8-item questionnaire that inquires whether or not the participant has problems taking medications. It is a validated assessment tool with psychometric properties. The participant answers Yes or No to a set of seven (7) questions while the 8 question is answered with a 5-item Likert scale. Responses are coded by a designated rule and calculated for

the total obtaining scores of 0 is high adherence, score of 1 to 4 is moderate adherence while a score of less than 4 indicates low adherence. The psychometric properties was developed by Morisky et al; 1986; Kraper et al., 2004; Nelson, 2006; Strirrat et al; (2015) with the internal consistency and validity of the questionnaire was represented by a Cronbach's alpha value of 0.69.

Statistics: Descriptive statistics of Mean, Standard Deviation was employed for demographic data while inferential statistics of Independent t- test and ANOVA, Regression and Pearson Product Moment Correlation was used to test the differences and relationship that exist among the variables.

Results

Data Presentation

Table 1: Frequency and Percentages of the Characteristics of Participants.

VARIABLES	FREQUENCY	PERCENTAGES
Age		
17-25 years	48	35.0
26-35 years	47	34.3
Above 35 years	42	30.7
Total	**137**	**100%**
Gender		
Male	62	45.3
Female	75	54.7
Total	**137**	**100%**
Marital status		
Single	92	67.2
Married	31	22.6
Divorced	14	10.2
Total	**137**	**100%**
Educational status		
Primary	5	3.5
Secondary	48	35.0
Tertiary	84	61.3
Total	**137**	**100%**
Religion		
Christianity	69	50.4
Muslim	68	49.5
Total	**137**	**100%**
Duration of Illness		
Less than 1 month	11	8.0
1-5 months	44	32.1
6-20 months	8	5.8
Above 20 months	78	54.0
Total	**137**	**100%**

Table 1 shows the frequency and percentages of the characteristics of 137 psychiatric patients in Karu General Hospital whose age ranged between 17 to 55 years with a mean age of 30.63 and standard deviation of 8.128; age was further grouped as 17-25 years (N= 48, 35%), 26-35 years (N= 47, 34.3%) and 36 years above (N= 42, 30.7%); Gender: male (N= 62, 45.3%) and female (N= 75, 54.7%); Marital status: single (N= 5, 3.5%), married (N= 31, 22.6%) and divorced (N= 14, 10.2%); Educational status: primary (N= 5, 3.5%), secondary (N=48, 35.0%) and Tertiary (N= 84, 61.3%); Religion:

Christianity (N= 69, 50.4%) and Muslim (N= 68, 49.5%) and Duration of illness: Less than 1 month (N= 11, 8%), 1-5 months (N= 44, 32.1%), 6-20 months (N= 8, 5.8%) and above 20 months (N= 78, 54%).

Hypothesis 1: stated that, there will be a significant age difference in medication adherence among psychiatric patients accessing the Behavioural Medicine Unit, Karu General Hospital, Abuja. This hypothesis was tested with One-way analysis of variance (One-way ANOVA) in table 2 and 3.

Table 2: Summary of ANOVA Results of the Age Difference in Medication Adherence among Psychiatric Patients in BMU Karu, Abuja.

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.125	2	5.563		
Within Groups	723.692	134	5.401	1.030	.360
Total	734.818	136			

Sig. Level @ 0.05

Table 3: Means and Standard Deviations of the Difference in Medication Adherence in BMU Karu, Abuja

Age	N	Mean	Standard Deviation
17-25 years	48	6.77	2.528
26-35 years	47	6.94	2.100
36 years above	42	7.45	2.319
Total	**137**	**7.04**	**2.324**

Table 2 shows the mean difference in medication adherence according to age brackets where the results revealed a no statistically significant difference in medication adherence among psychiatric patients at BMU Karu, AbujaF(2, 134) = 1.030, P > .05. In other words, the hypothesis was not confirmed in this study. This implies

that medication adherence does not relatively differ among psychiatric patients in BMU Karu, Abuja. Further analysis in table 3 presents the mean and standard deviation scores of the difference in medication adherence among psychiatric patients in BMU Karu Abuja.

Hypothesis 2: stated that, there will be a significant gender difference in medication adherence among psychiatric patients accessing the Behavioural Medicine Unit, Karu General Hospital, Abuja. This hypothesis was tested using Independent Sample-test in table 4.

Table 4: Summary Results of the Difference between Male and Female Psychiatric Patient's on Medication Adherence

Gender	N	Mean	SD	Df	t	P
Male	62	7.05	2.243			
				135	0.054	.957
Female	75	7.03	2.405			

Sig. Level: P < .05

Table 4 presents the mean and standard deviation scores on the difference between male and female psychiatric patients in medication adherence. The results revealed that, male (M= 7.05; SD= 2.243) and female (M= 7.03; SD= 2.405). Furthermore, the analysis revealed a no statistically significant difference on medication adherence between male and female psychiatric patients in BMU Karu General Hospital, Abujat(135) = 0.054, $P > 0.05$NS. Thus, the hypothesis was not confirmed in this study.

Discussion

The first hypothesis stated that, there will be a significant difference on medication adherence between younger and older psychiatric patients accessing the Behavioural Medicine Unit, Karu General Hospital, Abuja. This hypothesis was not confirmed in this study which implies that medication adherence does not relatively differ among psychiatric patients. The finding was consistent with Goldman, Holcomb and Perry, (2004), who in their study found large differences with age in younger patients between 21—50 years. Luscher et al. (2008) found no association with age on medication adherence in Goldman and Colleagues (2004) inpatients and outpatients, but Degoulet et al. (2003) found important differences in a hypertension follow-up clinic, with 1346 patients who were diagnosed of hypertension and research conducted with them. After follow for up to three years, the younger patients showed medication adherence than their counterpart. The first year drop-out rate was 15.5% and the patients were characteristically young males, obese, smokers, with moderate hypertension and of low socioeconomic status.

Similarly, this result is consistent with the studies of Jigar and Rajesh (2014) that examined the Role of Illness Perceptions and Medication Beliefs on Medication Compliance of Elderly Hypertensive Cohorts. And the result indicates that a total of 78 (66%) study samples were found to be noncompliant with their medications. Analysis revealed that perceptions about illness and beliefs about medication jointly played a significant role in the prediction of medication compliance (F ¼ 5.966, P < .05; R2 ¼ .212). Significant bivariate correlations

were observed between Morisky's test score versus Brief Illness Perception Questionnaire measure (r ¼ .332, P ¼ .001), Beliefs of Medication Questionnaire (BMQ) differential score (r ¼ .301, P ¼ .001), and BMQ components, such as specific necessity (r ¼ .250, P ¼ .008), specific concern (r¼_.231, P ¼ .001), and general overuse (r¼_.342, P ¼ .001).

In conclusion, the findings provide practical basis for designing interventions and programs aimed at compliance building in elderly populations having hypertension by incorporating the value and importance of patient perceptions of illness and medications in order to achieve desired patient outcomes.

The second hypothesis states that, there will be a significant gender difference in medication adherence among psychiatric patients accessing the Behavioural Medicine Unit, Karu General Hospital, Abuja. The result was not confirmed using Independent Sample-test that there is no statistically significant gender difference in medication adherence among psychiatric patients accessing the Behavioural Medicine Unit. This means statistically that on medication adherence between male and female psychiatric patients in BMU Karu General Hospital there is no difference. More so, in terms of medication adherence, gender is not a factor in the sense that everybody adhere to medication irrespective of the gender either male or female. This result is not consistent with the study of Marie et al. (2014) who opined that Women were significantly more likely than men to use one or more medications during the analysis period (68%

vs. 59%, respectively, and women used more unique medications, on average, than men (5.0 vs. 3.7 medications per year, respectively. Differences in drug utilization were observed for all age groups and medication types. For all clinical metrics evaluated, women were less likely than men to be adherent in their use of chronic medications, and they were less likely to receive the medication treatment and monitoring recommended by clinical guidelines. They concluded that there are significant disparities between women and men in their intensity of medication use, their adherence to medications, and their likelihood of receiving guideline-based drug therapy.

Conclusion
On the basis of the findings of this research, it was concluded that there is no statistically significant age difference in medication adherence among psychiatric patients accessing the Behavioural Medicine Unit, Karu General Hospital, Abuja. Also that there is no statistically significant gender difference in medication adherence among psychiatric patients accessing the Behavioural Medicine Unit, Karu General Hospital, Abuja.

Recommendations
The following recommendations were made based on the outcome of the research:

i.   Factors influencing treatment adherence, particularly illness perception can be incorporated as one of the teaching topics under caring for psychiatric patients by the Hospital management and the Doctors.

ii.   The Federal Government,

Psychologists and the Doctors should ensure integrating patients' subjective experiences in intervention programs which might have meaningful implications for the improvement of treatment adherence and patients' quality of life.

iii. Implementing suitable interventions by the law makers and hospital management to improve illness perception among psychiatric patients on medication adherence may enhance clinical and humanistic treatment outcomes.

iv. Clinical Psychologists educators should teach the psychiatric patients to emphasize each and every dimensions of medication adherence while giving information to patients with psychiatric issues.

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