



## Study of Depression Indices amongst In-Patients at Federal Neuro Psychiatric Hospital, Kaduna – Nigeria

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### ABSTRACT

Depression is a common mental disorder that lowers mood, loss of interest or pleasure, decreased energy, feelings of guilt low self-worth, disturbed sleep, appetite and poor concentration. Depression contributes significantly to the global burden of diseases and affects people in all communities across the world. Records of 112 in-patients at the Federal Neuro Psychiatric Hospital Barnawa Kaduna was studied for a period of four years in which the characteristics of patients and the level of mental depression affecting the patients was considered. This research work measures the level of depression in males and females with respect to their marital status and statistical procedures were to investigate if there is significant variation in the reported cases of mental depression across age groups. The analysis carried out reveals that depression in male and female is dependent on marital status. Crammer's V shows that the relationship between occupation and gender is moderately correlated and Kruskal-Wallis test show that there's no statistical significance in the distribution of age across years. Based on the analysis carried out we recommend that government and all other relevant agencies should put extra effort in creating awareness and enlighten the general public on the causes and trends of mental illness in general. Government should also provide facilities in various health centers in order to aid the work of health practitioners; more effort should be put to health education and counseling. Family members and loved ones also were found to have played a large role in curbing the menace, by helping the individual control the negative thoughts and creating a supportive home environment.

**Keywords:** Depression , In-patient, Mental Illness, Kruskal-Wallis, Crammer's V

### INTRODUCTION

Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest (Haddad and Gunn, 2011). It is sometimes referred to as major depressive disorder or clinical depression. It affects how an individual feel, think and behave and can lead to a variety of emotional and physical problems. A depressed individual may have trouble doing normal day-to-day activities, and sometimes he may feel as if life isn't worth living. Depression is not just a weakness of the body that can be easily overlooked. Depression may require long-term treatment (O'Donnohue, 2012)

Nigeria is by far Africa's most depressed country already, with 7 million people diagnosed with the condition, according to World Health Organization [WHO], (2017). In comparison, Ethiopia has 4.48 million, while the Democratic Republic of Congo has 2.87 million with depression. Adewuya & Oladipo (2019)

Depression is rising around the world: WHO identifies it as the planet's leading cause of

disability and found that cases skyrocketed 18.4 percent between 2005 and 2015. But Nigeria has further obstacles: the country has long failed to collect data on the mental health of its citizens, which keeps experts and authorities from developing coherent policies to fix the situation. But far from being a big issue, depression, like other mental health issues in Nigeria, is shrouded in secrecy. Cultural traditions and social stigmas push many sufferers into isolation and away from seeking help (O'Donnohue, 2012)

Nigeria has no mental health laws other than the colonial-era Lunacy Act, which dates to 1958 and allows legal and medical authorities to detain those deemed to be mentally unhealthy without many guidelines or processes reflecting

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a modern understanding of psychiatry. In the absence of laws and effective policies, some turn to traditional and spiritual healers for help. Adewuya & Oladipo (2019).

Human health is among the most important values in all societies. Depression is a kind of mood (affective) disorders. It could be mild, moderate or severe, recurrent (repeated), psychogenic or reactive (WHO, 2017). There are some differential peculiarities in the forms and development of depression.

Depression influences about 20 million Americans each year (National Institute of Mental Health, 2013; Mental Health America, 2013; University of Maryland Medical Center, 2011) and between 5% - 10% of the population in Brazil, Germany, and Turkey (Adewuya & Oladipo, 2019). Its spread in some other countries is probably similar. A lot of different groups in the societies suffer from depression. The age boundaries of this illness widen among the elderly people (Wood *et al.*, 2010; Büchtemann *et al.*, 2012; Bose & Neelakandan, 2013) and youth (Tezvaran, Akan, and Zahmaciog, 2012; Cole *et al.*, 2012). Depression is more typical for the people advanced in age (about 50 years old) than for the young people (Wood *et al.*, 2010; Patten, Gordon-Brown, and Meadows, 2010). The representatives of different kinds of occupations also experience this disorder in some moment of their life even the doctors (Braithwaite *et al.*, 2020). Women suffer more by depression than men do (Buchtemann *et al.*, 2012), but men commit a suicide at least three times more often than the women do and two-third of the suicide acts are due to depression (WHO, 2017).

Depression is related to suicide ideas and attempts, and it diminishes efforts in work and study; to decrease interest in life, and other people. Depression changes a big part of human life. There are some somatic, behavioural and emotional changes related to depression. The depressive person suffers from lowering of mood, sadness, anxiety, reduction of energy, decrease in activity, loss of appetite, weight loss or weight growth, changes in libido. Interest, concentration, and motivation are reduced, but helplessness and indecisiveness are increased. Tiredness after even minimum effort is common. Sleep is disturbed (the typical problem is waking earlier in the morning several hours before the usual time). Appetite is diminished.

Self-esteem and self-confidence are reduced. Some ideas of guilt or worthlessness are often present, as well as feeling rejected and alone (WHO, 2017).

There are a lot of reasons for depression: unemployment, financial problems, social isolation, stress, crisis situations, and conflict with the relatives, friends, colleagues, and institutions, physiological and hormonal processes related to heredity. (Izard, 1977). Depression is even related to seasonal changes, especially to the spring and fall. (Adewuya & Oladipo, 2019). Such events are inevitable and mainly uncontrollable in human life. Everyone has different tolerance to their occurrence, but the interaction of several factors often is crucial for development of depression. In many cases, an individual's effort is not enough to overcome it. High depression is associated with high maladaptive coping and low social support (Thorsteinsson *et al.*, 2013). The uncontrolled attempts to overcome depression could lead to some forms of drug abuse. That is why the role and assistance of psychologists, psychiatrists and other specialists is important in our society. The treatment of depression is complex. It includes some medicines, psychotherapy, and the possible changes of the way of life and the environment. Moderate physical activity is important in preventing depression and stress. (Gavric, 2012).

### Wendy Treynor's Depression Theory

According to social psychologist Treynor (2009) depression happens when one is trapped in a social setting that rejects the self, on a long-term basis (where one is devalued continually), and this rejection is internalized into self-rejection, winning one rejection from both the self and group, social rejection and self-rejection respectively. This chronic conflict seems inescapable, and depression sets in. Stated differently, according to Treynor (2009) the cause of depression is as follows: One's state of harmony is disrupted when faced with external conflict (social rejection) for failing to measure up to a group's standard(s). Over time, this social rejection is internalized into self-rejection, where one experiences rejection from both the group and the self. Therefore, the rejection seems inescapable and depression sets in. In this framework, depression is conceptualized as being the result of long-term conflict (internal and external), where this

conflict corresponds to self-rejection and social rejection, respectively, or the dual needs for self-esteem (self-acceptance) and belonging (social acceptance) being unmet, on a long-term basis. The solution to depression therefore, is to end the conflict (get these needs met): Navigate oneself into an unconditionally accepting social environment, so one can internalize this social acceptance into self-acceptance, winning ones' peace both internally and externally (through self-acceptance and social acceptance self-esteem and belonging, respectively), ending the conflict, and the depression (McDaid *et al.*, 2008).

**METHODOLOGY**

Tables 1 – 3 were obtained from extracts of records from the Statistics unit of the Federal Neuro Psychiatric Hospital Barnawa Kaduna over a period of four years (2015 - 2019)

Table 1: Data on Gender and Marital Status of Mentally Depressed Patients

| Gender/<br>Marital Status | Male | Female |
|---------------------------|------|--------|
| Married                   | 10   | 61     |
| Single                    | 25   | 16     |

Source : Federal Neuro Psychiatric Hospital Barnawa Kaduna

Table 2: Age-distribution of Mentally Depressed Patients

| (15-25<br>Years) | (26-36<br>Years) | (37-47<br>Years) | (48 Years<br>-above) |
|------------------|------------------|------------------|----------------------|
| 12               | 14               | 5                | 4                    |
| 7                | 18               | 4                | 5                    |
| 3                | 4                | 2                | 2                    |
| 2                | 10               | 3                | 3                    |
| 3                | 8                | 2                | 1                    |

Source : Federal Neuro Psychiatric Hospital Barnawa Kaduna

Table 3: Occupational -distribution of Mentally Depressed Patients

| Gender/<br>Occupation | Male | Female |
|-----------------------|------|--------|
| Employed              | 9    | 11     |
| Self-employed         | 8    | 10     |
| Unemployed            | 18   | 56     |

Source : Federal Neuro Psychiatric Hospital Barnawa Kaduna

**Test Procedures**

The degrees of freedom(df) is  $df = (r - 1)(c - 1)$  where r is the number of levels for one categorical variables, and c is the number of levels for the other categorical variable. The expected frequency counts are computed separately for each level of categorical variable. The test statistic is a chi-square random variable  $\chi^2$  defined by the equation,  $\chi_c^2 = \sum_{i=1}^c \sum_{j=1}^c \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$ . where  $O_{ij}$  is the observed frequency count and  $E_{ij}$  is the expected frequency count. The P-value is the probability of observing a sample statistic as extreme as the test statistic. Since the test statistic is a chi-square, we use it to assess the probability associated with the test statistic using the desired degrees of freedom (Ramachandra & Chokos, 2009)

The Cramer's v is one of the nominal measures of correlation which can be applied to a research situation where an individual wishes to determine the degree of association that exists between nominal variable.

This method is being employed when the size of the matrix varies, say  $m \times n$ . And the computation formula is

$$V = \sqrt{\frac{\chi^2}{N(K-1)}}$$

Where K is the smallest dimension of the matrix, K could be either the row or column.

Values of V is interpreted as a nominal measure of correlation. If it falls below 0.1 it is considered to be **very weak** correlation. Values of V between 0.1 and 0.19 is a **weak** correlation. Values of V between 0.20 and 0.29 is a **moderate** correlation while the values of from 0.3 and above is a strong correlation (Aliyu, 2012).

The Kruskal-wallis test is the non-parametric equivalent of the one way ANOVA. It is a method used for comparing several independent random samples and can be used as a nonparametric alternative to the one way ANOVA. The kruskal-wallis test statistics for k sample, each of size  $n_i$  is  $H = \frac{12}{n(n+1)} \sum_i^k \left( \frac{R_i^2}{n} \right) - 3(n+1)$

Where  $n$  is the total number (all  $n_i$ ) and  $R_i$  is the sum of the ranks (from all pooled sample) for the  $i^{\text{th}}$  sample and  $k$  is the number of populations sampled.

The null hypothesis of the test is that all  $K$  distribution function are equal. The alternative hypothesis is that at least one of the populations tends to yield large value than at least one of the other population (Kruskal, 1968).

## RESULTS AND DISCUSSION

Table 4: Chi-Square Tests Result of Marital Status as a Factor for Depression

|                                    | Value               | Df | Asymp. Sig. (2-sided) |
|------------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square                 | 26.600 <sup>a</sup> | 1  | .000                  |
| Continuity Correction <sup>b</sup> | 24.462              | 1  | .000                  |
| Likelihood Ratio                   | 26.555              | 1  | .000                  |
| Fisher's Exact Test                |                     |    |                       |
| Linear-by-Linear Association       | 26.363              | 1  | .000                  |
| No of Valid Cases                  | 112                 |    |                       |

- a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.81.  
 b. Computed only for a 2x2 table

### Interpretation

Table 4. gives the chi-square result of the analysis. Since the P-value of the Pearson chi-square (0.000)  $< \alpha$  (0.05), therefore we reject  $H_0$  and conclude that depression in male and female is dependent on marital status.

Table 5: Chi-Square Tests Result of Gender as a Factor for Depression

|                              | Value              | Df | Asymp. Sig. (2-sided) |
|------------------------------|--------------------|----|-----------------------|
| Pearson Chi-Square           | 4.871 <sup>a</sup> | 2  | .088                  |
| Likelihood Ratio             | 4.758              | 2  | .093                  |
| Linear-by-Linear Association | 4.209              | 1  | .040                  |
| McNemar-Bowker Test          | .                  | .  | . <sup>b</sup>        |
| N of Valid Cases             | 112                |    |                       |

- a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.63.

### Interpretation

Table 5. is the result of the "Pearsons chi-square row". It shows that p-value=0.088. This tells us that there is no statistically significant association between gender and occupation as related to depression.

Table 6: Symmetric Measures

|                      |                      | Value | Asymp. Std. Error <sup>a</sup> | Approx. T <sup>b</sup> | Approx. Sig.      |
|----------------------|----------------------|-------|--------------------------------|------------------------|-------------------|
| Nominal by Nominal   | Phi                  | .209  |                                |                        | .088              |
|                      | Cramer's V           | .209  |                                |                        | .088              |
| Interval by Interval | Pearson's R          | .195  | .097                           | 2.082                  | .040 <sup>c</sup> |
| Ordinal by Ordinal   | Spearman Correlation | .205  | .096                           | 2.195                  | .030 <sup>c</sup> |
| N of Valid Cases     |                      | 112   |                                |                        |                   |

- a. Not assuming the null hypothesis.  
 b. Using the asymptotic standard error assuming the null hypothesis.

### Interpretation

Table 6 show phi and crammer's v output = (0.209). Hence the association between occupation and gender is moderately correlated.

Checking the significance difference between age-groups, The required hypothesis is

$H_0: \mu_i = 0, i = 1,2,3,4$  (insignificant) versus  $H_1: \mu_i \neq 0, i = 1,2,3,4$  (significant)

At the  $\alpha = 0.05$  % level of Significance. The appropriate test statistic is

$$H = \frac{12}{n(n+1)} \sum_i^k \left( \frac{R_i^2}{n} \right) - 3(n+1)$$

Table 7: SPSS OUTPUT on Kruskal Wallis Test

| Hypothesis Test Summary |   |   |      |                             |
|-------------------------|---|---|------|-----------------------------|
|                         | Null Hypothesis   | Test                                    | Sig. | Decision                    |
| 1                       | The distribution of age is the same across categories of years. | Independent-Samples Kruskal-Wallis Test | .695 | Retain the null hypothesis. |

Asymptotic significances are displayed. The significance level is .05.

### Interpretation

Since p-value (0.695) >  $\alpha(0.05)$  we therefore do not reject the null hypothesis and conclude that there's no significant difference across the considered age group at 5% level of significance.

### Conclusion

Based on the analysis carried out, it was observed that depression in male and female is dependent on marital status. It is also observed that the married individuals are more depressed. Crammer's V shows that the relationship between occupation and gender is moderately correlated and Kruskal-wallis test show that there's no statistical significant in the distribution of age across years.

Based on the findings, it is recommended that government and all other relevant agencies should put extra effort in creating awareness and enlighten the general public on the causes and trends of mental illness in general, these enlightenments should be directed to all age groups.

Government should also provide facilities in various health centers in order to aid the work of health practitioners, more effort should be put to health education and counseling. With all that is being said, family member's care and love also have a large role to play in curbing the menace, by :helping the individual control his or her negative thought; create a supportive home environment; Know the warnings sign of suicide and most especially, encourage treatment.

### REFERENCES

- Adewuya, A.O & Oladipo, E.O (2019). Prevalence and associated factors for suicidal behaviours(ideation, planning and attempt) among high school adolescents in Lagos, Nigeria. *Eur. Child Adolesc. Psychiatry*.  
<https://doi.org/10.1007/s00787.019-01462-x>.
- Aliyu, U. (2012). *Statistical methods for biometrics and medical research*, revised edition. Millennium printing and Publishing company Limited Kaduna, Nigeria.
- Bose, P. C. & Neelakandan R.(2013). A study on hospital anxiety and depression among aged groups. *Indian Streams Research Journal*, 3, 1-4.
- Braithwaite R, Rocha T.B., Kieling C., Korhrt B.A., Mondelli V., Adewuya A.O., and Fisher H.L(2020). Predicting the risk of future depression among school-attending adolescents in Nigeria using a model developed from Brazil. *Journal of Psychiatry research* 294,113511

- Buchtemann D. Luppá M., Bramesfeld A. and Riedel-Heller S.(2012). Incidence of late-life depression: A systematic review. *Journal of Affective Disorders*, 142, 172-179.
- Cole D. A., Sun-Joo C., Martin N.C., March J.S., Compas B.E, Rohde P., Essex M.J., Curry J.F., Slattery M.J, Youngstrom E.A., Findling R.L., Goodyer I.M., Weissman M., Hyde J.S., Fore-hand R., Felton J.W, and Maxwell M.A. (2012) Are Increased Weight and Appetite Useful Indicators of Depression in Children and Adolescents? *Journal of Abnormal Psychology*, 121, 838-851.
- Gavric, Z.(2012) Determining the score for depression and its relationship with the level of physical activity in a patient at the family medicine. *Open Journal of Depression*, 1, 1-7.
- Haddad M. and Gunn J. *Fast Facts: Depression*. Abingdon, Oxford: Health Press Limited. (2011).
- Izard, C.E. (1977) . *Human emotions*. New York: Plenum Press.
- McDaid D, Knapp M. & Raja S.(2008). Barriers in the mind: promoting an economic case for mental health in low and middle income countries. *World Psychiatry*. 7(2). 79 – 86
- O'Donoghue, W.(2012) *Cognitive Behaviour Therapy: Core Principles for Practice*. Hoboken, NJ: Wiley. Pp. 215 -219
- Kruskal, W. (1968), "When are Gauss-Markov and Least Squares Estimators Identical? A Coordinate-Free Approach," *The Annals of Mathematical Statistics*, 39: 70–75.
- Patten S. B., Gordon-Brown L., and Meadows G.(2010) Simulation studies of age-specific lifetime major depression prevalence. *BMC Psychiatry*, 10, 85-100.
- Ramachandra, K.M. & Chokos C.P (2009). *Mathematical Statistics with applications*. Academic Press
- Tezvaran Z., Akan H., and Zahmaciog O.(2012). *Risk of depression and anxiety in high school students and factors affecting it*. *Health MED*, 6, , 3333-3339.
- Thorsteinsson E.B., Ryan S.M., and Sveinbjornsdottir S..(2013). The mediating effects of social support and coping on the stress-depression relationship in rural and urban adolescents. *Open Journal of Depression*, 2,1-6.
- Treynor, W.(2009). *Towards a General Theory of Social Psychology: Understanding Human Cruelty, Human Misery, And Perhaps, a Remedy(A Theory of the Socialization Process.)* Redondo Beach,CA: Euphoria Press. Pp. 72 -80
- Wood B.M., Nicholas M.K., Blyth F., Asghari A., & Gibson S.(2010). The utility of the short version of the depression anxiety stress scales (DASS-21) in elderly patients with persistent pain: Does Age make a difference? *Pain Medicine*, 11, 1780-1790.
- World Health Organization,(2017). *Depression and other common Mental Disorders Global Health Estimates*. World Health Organization, Geneva, Switzerland.