SCHOOL OF PUBLIC HEALTH
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FACTORS INFLUENCING NON-ADHERENCE TO MEDICATION IN MENTAL HEALTH CARE SERVICE: A CASE STUDY OF PANTANG PSYCHIATRIC HOSPITAL

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DECLARATION

I hereby declare that excluding precise references which have been duly acknowledged, this proposal is my own work towards my Master of Public Health dissertation and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University or elsewhere.

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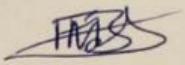

.....6th August, 2021.....

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Date

DEDICATION

This work is dedicated to my mother, Nana Adwoa Serwaah Nkrante for her immense support.

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ABSTRACT

Background: Mental illness affects all ages, ethnic, racial, socio-economic and cultural groups. Mental disorders accounted for 14% of the worldwide burden of diseases, a 2% rise in prevalence over a period of a decade. The prevalence of mental disorders in Ghana is 13%. Out of 24.6 million persons in Ghana, about 650,000 suffer from severe mental disorders while 2,166,000 people suffer from moderate to mild mental disorders. Many interventional strategies have been devised to help mental health victims through medication treatment and rehabilitation. However, literature has shown that, there is an increased rate of relapse, re-hospitalization and suicide due to non-adherence to psychotropic medication.

Objectives: To identify factors that influence non-adherence to psychotropic medications among mental health patients

Methods: Descriptive cross-sectional study using quantitative methods was employed for the purpose of this study. Consecutive sampling was used to sample 140 participants from the Pantang Psychiatry Hospital OPD registry of which 139 were considered responsive. Structured questionnaire was administered to respondents. Data was captured and cleaned using MS Excel. STATA 15 was used to analyze the data with a level of significance set at 0.05.

Results: Among 139 respondents, the mean age was 34 years (SD= 10.9). The prevalence of non-adherence to psychotropic medication among the 139 participants was 3.6%. Univariate analysis indicated that respondents who had challenges during treatment (*OR= 5.8, CI [1.29-26.01]*), age (*OR=6.0, CI [1.32-9.21]* for 40 to 49 years and *OR=12.8, CI [1.40-9.09]* for >50) and no formal education *(OR=1.5, CI [0.48-7.17])* were associated with higher odds of non-adherence. However, in predictive multivariable analysis, challenges *(aOR=6.5,CI[1.33-*

32.60]) and no formal education *(aOR=9.5, CI[3.87-23.46])* remained associated with higher odds of non-adherence to psychotropic medications.

Conclusion: The study revealed that, there is a low rate of non-adherence to psychotropic medications among patients receiving treatment at the Pantang Psychiatry Hospital. These patients who were not adhering to medication was as a result of no formal education and the challenges faced during their management or treatment period. Among such challenges were adverse reaction, delay at health facility, financial constraint and lack of motivation. Also considering the low rate of non-adherence to psychotic medication, non-adherence is not a predominant problem. However, measures should be instituted to ensure total adherence.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The World Health Organization (2013) has well described mental wellbeing as a 'state of health in which everyone accepts one's ability, faces normal life pressures, can work well and contribute effectively to their own society. Mental illness affects all ages, ethnic, racial, socio-economic and cultural groups (USDOHAHS Mental Health, 2001). The problem of mental and behaviour disorder has increased by 38% from 1990 to 2010 universally (Murray & Lopez, 2013)

Globally, the World Health Organization (WHO, 2013) estimates that one in four people are likely to be afflicted with mental illness. Mental health disorders are known contribute to the disease burden in every country. It is established that, mental illness contributed 21·2% of global years lived disabilities (YLDs)in 2013, that is, about 3 times higher than the disability associated with all infectious diseases (Vigo et al., 2016). The prevalence of mental illnesses in Ghana is 13 percent, according to Doku et.al (2012). In Ghana, about 650,000 out of 24.6 million people suffer from serious mental disorders, while 2,166,000 people suffer from moderate to mild mental disorders (WHO, 2014). Canavan et al (2013) reported that about 21% of Ghanaian adults at any time experience moderate to extreme psychological distress. According to Doku et.al (2012), the prevalence of mental disorders in Ghana is 13%. Out of 24.6 million persons in Ghana, about 650,000 suffer from severe mental disorders while 2,166,000 people suffer from moderate to mild mental disorders (WHO, 2014). Canavan et al (2013) estimated that around 21% of adult Ghanaians experience moderate or severe psychological distress at any time. With the current population of about 30.42 million, the

proportion of people suffering from different types of mental disorders in Ghana is likely to increase.

In Ghana the occurrence of mental illness has been predicted at 13% of the grown-up population (Walker & Osei, 2017). The International Classification of Diseases (ICD) notes that mental illness is "not an exact term," but it is commonly used "... to indicate the presence of a clinically recognizable set of signs or behaviors associated with anxiety and interference with individual functions in most instances" (World Health Organization, 2013).

Mental health disorders are normally classified using the International Classification of Diseases (ICD-10) or the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 2000; World Health Organization, 2011). ICD-10 categorises mental health issues into ten main groups including: schizophrenia/schizotypal disorders; affective disorders (e.g. depression); neurotic/stress-related disorders (e.g. anxiety); personality disorders (e.g. psychopathy); disorders of psychological development; and, disorders linked to the use of psychoactive substances (e.g. alcohol), Mental retardation, disorder of psychological development, behavioral and emotional disorders with onset usually occurring in childhood and adolescence, in addition, a group of unspecified mental disorders.(World Health Organization, 2011) .

In Ghana, by policy, accessibility to mental health treatment is free of charge at the government hospital. However, if there is shortage of medication in the hospital, patients have to buy privately since the National health insurance scheme (NHIS) does not include mental health services (Ofori-Atta, Read, & Lund, 2010). Patients with mental disorders mostly do well on psychological and social interventions and medication for recovery (Jenkins & Baingana, 2010). Psychosocial mediation usually includes cognitive behavioral remedy, adherence treatment, and psycho-education (Velligan et al., 2009). WHO (2010) define adherence as "the rate at which a person sticks to his or her prescribed route of action against a particular health

condition. Otherwise, is termed as non-adherence or non-complaince (Dodds, Rebair-Brown, & Parsons, 2000; Haynes, McDonald, & Garg, 2002)

Reports on prevalence of medication adherence among persons with mental disease have ranged from 8% to 85%, with the greatest adherence rates evaluated between 40% and 70% (Clatworthy, Bowskill, Rank, Parham, & Horne, 2007; Gray, White, Schulz, & Abderhalden, 2010a; Lingam & Scott, 2002). Absence of social help, intellectual shortfalls, and a poor restorative organization together have appeared to be solid forecasters for non-adherence, which could account for high rates of relapse, hospitalization, and management obstruction, suicidal ideations, and disabled long-term functioning on the other hand (Hofer & Fleischhacker, 2011).

In Ghana, mental health care is still in its infancy in terms of spread, development and resources. For example, in primary health care, there are no expert doctors in mental health, and in 2008 there were only 10 psychiatrists in Ghana, compared to 13,074 doctors to Ghana's population of 24,252,438 (Doku, & Awakame, 2012; Ofori-Atta & Ohene, 2015). This situation forces caregivers to be the main bulwark of care and support for patients, or else the patient will be vulnerable to relapse and readmission (Chien & Wong, 2007).

1.2 Statement of Problem

The issue of non-adherence to medication and management in mental health care is an emerging concern. It has been identified by several studies that mental health disorders contribute a significant quota to the burden of disease (Read & Doku, 2012; Ofori-Atta & Ohene, 2015). Treatment options for such disorders require strict adherence as there are great chances of relapse, however medication non-adherence is reported to be a prominent problem facing the management of these disorders. Moreover, increased use of urgent admission, rising suicides, poor social and occupational functioning and a decreased quality of life have been

correlated with medication non-compliance. Semahegn et. al. (2018) maintains that adherence in pharmacological therapy of major psychiatric conditions is a most crucial, yet demanding path. However, there is no evidence of non-compatibility and its related factors with psychotropic medication.

Ideally, full adherence or good adherence to prescribed medication should be 80% or more ((Kane, Kishimoto, & Correll, 2013). However, a study conducted in Ghana among caregivers of mental health patients stated non-adherence to psychotropic medicines among patients with schizophrenia as 54.5% (Kretchy, Osafo, Agyemang, Appiah, & Nonvignon, 2018). Using this study as the current situation to non-adherence to psychotropic medication in Ghana, gives a gap of 25.5% away from the ideal situation.

Poor adherence to psychotropic medication poses significant community health consequences. This is because poor adherence to prescribed medication affects treatment outcomes and reduces the certainty of the action of the medication. This heightens the probability of symptoms relapse (Crowe & Wilson, 2011; Gray, White, Schulz, & Abderhalden, 2010). In addition, it prolongs recovery time and results in regular hospitalizations, as well as continuous functional impairment (Cramer & Rosenheck, 1998). Consequences of medication non-adherence can possibly result in low value of life for patients, their relatives and careers. It will also result in increased economic and social burden as the government will have to allocate resources for care (Ascher-Svanum et al., 2006; Gray et al., 2010a; Jeste et al., 2003).

Evidence of variations have been reported in age, gender and socioeconomic status concerning medication non-adherence. However, few have examined adherence across multiple conditions to determine whether associations between adherence and patient characteristics are consistent. Such information could be helpful to service providers like Pantang Psychiatric Hospital to develop focused interventions.

In view of the consequences of non-adherence to psychiatric medicines, this study seeks to identify the factors influencing patients' non-adherence to psychiatric medication among mental health patients at the Pantang psychiatric hospital.

1.3 Justification

Findings from this study can be used to increase awareness among medical officers and other health professionals, including managers of healthcare institutions, to strategize action-oriented services targeted at reducing the rate of non-adherence. In addition, it will add and enrich existing knowledge in literature.

1.3 General Objective

To examine the factors influencing patients' non-adherence to psychiatric medication using Pantang Psychiatric Hospital as a case study.

1.3.1 Specific Objectives

i. To explore the perceptions of patients about psychotropic medications
ii. To measure the prevalence of patients' non-adherence to psychiatric medication
iii. To determine factors influencing non-adherence to psychiatric medication among patients.

1.4 Research questions

The following research questions will be answered in order to achieve the objectives of the report.

i. What are the perceptions of patients about psychotropic medications?

ii. What is the prevalence of patients' non-adherence to psychiatric medication?

iii. What are the factors influencing non-adherence to psych[redacted]

Institute of Medicine (2003). *Health professional education*: A bridge to quality. Washington, D. C.: National Academic Press.

Janz, N., K., & Becker, M., H., (1984). The Health Belief Model: A decade later. *Health Education Behavior 11(1): 1–47.*

Jaramillo–Gonzalez et al 2014). The frequency of re–hospitalization and associated factors in Colombian Psychiatric patients: A Cohort Study. *Biomed Central Psychiatry, 14:161.*

Jarman, N. C. et al., (2010). Perceived Treatment Effectiveness, Medication Compliance, and complementary and Alternative Medicine Use among Veterans with Bipolar Disorder, *The Journal of Alternative and Complementary Medicine. 16(3):251–255.*

Jenq, G., Tinetti, M. (2012). The journey across the Healthcare (dis)continuum for Vulnerable Patients. *Journal of the American Medical Association, 307(20): 2157–2158.*

Jonsdottir, H., Opjordsmoen, S., Birkenaes, A. B., Simonsen, C., Engh, J. A., Ringen, P. A., Vaskinn, A., Friis, S., Sundet, K., & Andreassen, O. A. (2013). Predictors of medication adherence in patients with schizophrenia and bipolar disorder. *Acta Psychiatrica Scandinavica, 127*(1), 23–33.

Alkatheri, A. M., & Albekairy, A. M. (2013). Does the patients' educational level and previous counseling affect their medication knowledge? *Annals of Thoracic Medicine, 8*(2), 105–108. https://doi.org/10.4103/1817-1737.109823

Asare, J. (2012). Comment: A Historical Survey of Psychiatric Practice in Ghana (1962). *Ghana Medical Journal, 46*(3), 114–115.

Berk, L., Hallam, K. T., Colom, F., Vieta, E., Hasty, M., Macneil, C., & Berk, M. (2010). Enhancing medication adherence in patients with bipolar disorder. *Human Psychopharmacology: Clinical and Experimental, 25*(1), 1–16.

Czobor, P., Van Dorn, R. A., Citrome, L., Kahn, R. S., Fleischhacker, W. W., & Volavka, J. (2015). Treatment adherence in schizophrenia: A patient-level meta-analysis of combined CATIE and EUFEST studies. *European Neuropsychopharmacology, 25*(8), 1158–1166. https://doi.org/10.1016/j.euroneuro.2015.04.003

Fleck, D. E., Keck Jr, P. E., Corey, K. B., & Strakowski, S. M. (2005). Factors associated with medication adherence in African American and white patients with bipolar disorder. *The Journal of Clinical Psychiatry*.

Greenhouse, W. J., Meyer, B., & Johnson, S. L. (2000). Coping and medication adherence in bipolar disorder. *Journal of Affective Disorders*, *59*(3), 237–241.

Jonsdottir, H., Opjordsmoen, S., Birkenaes, A. B., Simonsen, C., Engh, J. A., Ringen, P. A., Vaskinn, A., Friis, S., Sundet, K., & Andreassen, O. A. (2013). Predictors of medication adherence in patients with schizophrenia and bipolar disorder. *Acta Psychiatrica Scandinavica*, *127*(1), 23–33.

Murray, C. J. L., & Lopez, A. D. (2013). Measuring the Global Burden of Disease. *New England Journal of Medicine*, *369*(5), 448–457. https://doi.org/10.1056/NEJMra1201534

Pandey, A., Suskin, N., Patel, T., & Choudhry, N. (2017). Lower Educational Levels May Be an Important Determinant of Adherence to Evidenced-Based Therapies in Post-Mi Patients. *Journal of the American College of Cardiology*, *69*(11 Supplement), 1847. https://doi.org/10.1016/S0735-1097(17)35236-1

Sendt, K.-V., Tracy, D. K., & Bhattacharyya, S. (2015). A systematic review of factors influencing adherence to antipsychotic medication in schizophrenia-spectrum disorders. *Psychiatry Research*, *225*(1), 14–30. https://doi.org/10.1016/j.psychres.2014.11.002

Taibanguay, N., Chaiamnuay, S., Asavatanabodee, P., & Narongroeknawin, P. (2019). Effect of patient education on medication adherence of patients with rheumatoid arthritis: A randomized controlled trial. *Patient Preference and Adherence*, *13*, 119–129. https://doi.org/10.2147/PPA.S192008

Turner, A., Hochschild, A., Burnett, J., Zulfiqar, A., & Dyer, C. B. (2012). High Prevalence of Medication Non-Adherence in a Sample of Community-Dwelling Older Adults with Adult Protective Services-Validated Self-Neglect. *Drugs & Aging*, *29*(9), 741–749. https://doi.org/10.1007/s40266-012-0007-2

Vigo, D., Thornicroft, G., & Atun, R. (2016). Estimating the true global burden of mental illness. *The Lancet. Psychiatry*, *3*(2), 171–178. https://doi.org/10.1016/S2215-0366(15)00505-2

Walker, G. H., & Osei, A. (2017). Mental health law in Ghana. *BJPsych International*, *14*(2), 38–39.

J. Xiao, W. Mi, L. Li, Y. Shi, and H. Zhang, "High relapse rate and poor medication adherence in the chinese population with schizophrenia: Results from an observational survey in the people's Republic of China," *Neuropsychiatric Disease and Treatment*, vol. 11, pp. 1161–1167, 2015

Kavanuagh, K., Duncan–McConnell, D, Greenwood, K., Trived, P., & Hykes, T. (2003). Educating acute inpatients about their medication: Is it worth it? Study group education for patients on a psychiatric intensive care unit. *Journal of Mental Health. 12(1): 71–80.*

Kazadi, N. J. B., Moosa, M. Y. H., & Jeenah, F. Y. (2008). Factors associated with relapse in schizophrenia. *South African Journal of Psychiatry. 14(2): 52–62.*

Kikkert, et al (2006) Medication adherence in schizophrenia: Exploring patients', careers' and professionals' views. *Schizophrenia Bulletin 32(4): 714–794.*

LaCalle, E., & Rabin, E, (2010). Frequent users of emergency departments: The myths, the data and policy implications. *Annals of Emergency Medicine. 56(1), 42–48.*

Lacro JP, Dunn LB, Dolder CR, Leckband SG, Jeste DV. Prevalence of and risk factors for medication nonadherence in patients with schizophrenia: a comprehensive review of recent literature. J Clin Psychiatry. 2002;63(10):892–909.

Lee MS, Lee HY, Kang SG, et al. Variables influencing antidepressant medication adherence for treating outpatients with depressive disorders. J Affect Disord. 2010;123(1–3):216–221.

Ligen, M. A. et al (2008). Continuing care after inpatient psychiatric treatment for patients with psychiatric and substance use disorders. *Psychiatric Services 59(9): 982–988.*

Lin, E., Diaz–Granados, N., Stewart, D. E., & Bierman, A. S. (2011). Post discharge care for depression in Ontario. *Canadian Journal of Psychiatry, 56(8), 481–489.*

Lindamer, L. A., Liu, L., Somerfield, D. H., Folsom, D. P., Hawthorne, W., Garcia, P., Jeste, G. V. (2012). Predisposing, enabling and need factors associated with high service use in a public mental health system. *Administration & Policy in Mental Health system, 39, 200–209*

Lingam R, Scott J. Treatment non-adherence in affective disorders. Acta Psychiatr Scand. 2002;105(3):164–172. 11.

García S, Martínez-Cengotitabengoa M, López-Zurbano S, et al. Adherence to antipsychotic medication in bipolar disorder and schizophrenic patients: a systematic review. J Clin Psychopharmacol. 2016; 36(4):355–371

Maan, C. G., Munnawar, H, M. S. Heramani, N. & Lenin R. K., (2015). Factors affecting noncompliance among psychiatric patients in the Regional Institute of Medical Science, *Journal of Pharmacy 5(1): 1–7.*

Madi, N., Zhao, H., & Li, J. F (2007). Canadian Institute for Health Information survey. Hospital readmissions for patients with mental illness in Canada. *Healthcare Quarterly, 10(2), 30–32.*

Mahmod, T. K. et al (2010). Adherence to Drug Therapy in Psychiatric Patients. *Journal of Pharmaceutical Sciences and Research 2(11): 700–703*

Maneesakorn, S., Robson, D., Gourney, K. & Gray, R. (2006) Adherence therapy for people with schizophrenia in Chaing Mai, Thailand. *Journal of Clinical Nursing, 16:1302–1312.*

Marcus, S., Olfson, M., (2008) Outpatient antipsychotic treatment and inpatient costs of schizophrenia. *Schizophrenia Bulletin 34:173–180.*

Marom, S., Munitz, H., Jones, P. B. Weizman, A., & Hermesh, H. (2005). Familial Expressed Emotion: Outcome and Course of Israeli Patients with Schizophrenia. *Schizophrenia Bulletin, 28(4), 731–743.*

Marshall, M, et al, (2011). Day hospital versus admission for acute psychiatric disorders. *Cochrane Databases of Systematic Reviews. 12.*

McCabe, R., Bullenkamp, J., Hansson, L., Lauber, C., Martinez–Leal, R., & Rossler, W. (2012). The Therapeutic Relationship and adherence to Antipsychotic Medication in Schizophrenia. *PLoS one. 7(4).*

McCormick–Brown, K., (1999). Health Belief Model. Retrieved from 25/06/2016 http://hsc.nsf.edu/–kmbrown/Health_Belief_Model_Overview.htm.

McIntosh, A., Colon, L. Lawrie, S. & Stanfield, A. C. (2009). Compliance therapy for Schizophrenia (review). *The Cochrane Library 1: 4–5.*

Mibei, F. (2013). *Noncompliance to Medication in Psychiatric Patients.* Turku University of Applied Sciences, Finland.

Morken G., Widen J.H. & Grawe R. W. (2008) Non adherence to antipsychotic medication, relapse and re–hospitalization in recent–onset schizophrenia. *Biomed Central Psychiatry, 8(32):1471–244.*

Mulaik, J., S. (1992). Noncompliance with medication regimens in severely and persistently mentally ill schizophrenic patients. *Issues in Mental Health Nursing 13(3), 219–327.*

Munro S, Lewin S, Swart T, Volmink J. A review of health behaviour theories: How useful are these for developing interventions to promote long-term medication adherence for TB and HIV/AIDS. BMC Public Health. 2007;7:

Murray, C. J. L., & Lopez, A. D. (2013). Measuring the Global Burden of Disease. *New England Journal of Medicine, 369*(5), 448–457. https://doi.org/10.1056/NEJMra1201534

National Alliance on Mental Illness. *Facts about Mental Illness* (2010). Retrieved from 14/02/2016: http://www.nami.org|Content|NavigationMenu|Inform_Yourself|About_Mental_Illness_html

National Institute of Mental Health. (2009). retrieved from: 14/02/2016 http://www.healthyplace.com/other–infor/psychiatridisorderdefinitions/psychiatric–medications/menu–id–71/

Nkangala, M. (2011). Risk factors re–hospitalization of patients with mental disorders, University of Malawi.

Nuechterlein, K. H. Dawson, M. E. Ventura, J., Gitlin, M., Ventura, J., Goldstein, M., J., Snyder, K. S. Yee, C. M., & Mintz, J (1992). The vulnerability/stress model of schizophrenic relapse: a longitudinal study. *Schizophrenia Bulletin, 18(3): 387–425.*

Olfson, M. et al (2009). Predicting Medication Noncompliance after Hospital Discharge among Patients with Schizophrenia. *Psychiatric Services. Vol. 353: 487–488.*

Pandey, A., Suskin, N., Patel, T., & Choudhry, N. (2017). Lower Educational Levels May Be an Important Determinant of Adherence to Evidenced-Based Therapies in Post-Mi Patients. *Journal of the American College of Cardiology*, *69*(11 Supplement), 1847. https://doi.org/10.1016/S0735-1097(17)35236-1

Pasic, J. Russo, J. & Roy–Byrne, P. (2005). High utilizers of psychiatric emergency services. *Psychiatric Services*, 56(6): 678–684.

Prince, J., D., et al (2008). Psychiatric re–hospitalization among elderly persons in the United States, Psychiatric Services, 59(9): 1038–1045.

Read, U. (2012) Non–compliance in Pharmacotherapy. *Indian Journal of Psychological Medicine, 49: 438–460.*

Reddy, M. S., (2012) Non–compliance in Pharmacotherapy. *Indian Journal of Psychological Medicine, 34(2): 107–109.*

Robin, E. et al. (2015). Nurses' perceptions of medication adherence in schizophrenia: results of ADHES cross–sectional survey. *Therapeutic Advances in Psychopharmacology. 5(6): 339–350.*

Sariah, E. A. Out water, H.A. & Khadijah, I. Y. (2014) Risk and protective factors for relapse among individuals with schizophrenia: A qualitative study in Dar es Salaam, Tanzania. *Biomed Central Psychiatry 14:240.*

Schmutte, T., Dunn, C. L. & Sledge, W. H. (2010). Predicting time to readmissions in patient's withredent histories of recurrent psychiatric hospital; ization; a matched–control survival analysis. *Journal of Nervous and Mental Disease 198(12): 860–863.*

Sendt, K.-V., Tracy, D. K., & Bhattacharyya, S. (2015). A systematic review of factors influencing adherence to antipsychotic medication in schizophrenia-spectrum disorders. *Psychiatry Research*, *225*(1), 14–30. https://doi.org/10.1016/j.psychres.2014.11.002

Shields, P. & Rangarjan, N. (2013). a Playbook for Research Methods: Integrating Conceptual Frameworks and Project Management. Stillwater, OK: *New Forums* Press. p24.

Smith, H. M. (2005). *Factors leading to frequent readmission to Valkenberg Hospital for patients suffering from severe mental illness*. University of Western Cape, South Africa.

Smyth, R. (2004). Exploring the usefulness of a conceptual framework as a research tool: A researcher's reflections. *Issues in Educational Research*, 14(2): 167–180.

Stretcher, V., J., & Rosenstock, I. M., (1997). The Health Belief Model. *Cambridge Handbook of Psychology*. Cambridge, United Kingdom: Cambridge University press.

Swanson, R. A. (2013). *Theory Building in Applied Disciplines*. San Francisco, CA: Berrett–Koehler Publishers.

Taibanguay, N., Chaiamnuay, S., Asavatanabodee, P., & Narongroeknawin, P. (2019). Effect of patient education on medication adherence of patients with rheumatoid arthritis: A randomized controlled trial. *Patient Preference and Adherence, 13*, 119–129. https://doi.org/10.2147/PPA.S192008

Thiedke, C. C. (2007) What do we really know about patient satisfaction? *Family Practice Management*, 33– 36

Tooth G. Studies in Mental Illness in the Gold Coast. London: H.M.S.O., 1950

Troika, L., Quitman, L., & Schster, S. (2002). *Handbook for writers*. Upper Saddle River. N. J. Prentice Hall.

Turner, A., Hochschild, A., Burnett, J., Zulfiqar, A., & Dyer, C. B. (2012). High Prevalence of Medication Non-Adherence in a Sample of Community-Dwelling Older Adults with Adult Protective Services-Validated Self-Neglect. *Drugs & Aging, 29*(9), 741–749. https://doi.org/10.1007/s40266-012-0007-2

USDOHAHS Mental Health. (2001). Culture, race, and ethnicity a supplement to mental health: a report of the Surgeon General

Uwakwe, R. & Otakpor, A. (2014). Public mental health–using the Mental Health Gap Action Program to put all hands to the pumps. *Journal of Public Health* 2:33

Vigod, S.N., Taylor, V. H., Fung, K. & Kurdyak, P. A. (2013). Within–hospital readmission: An indicator of readmission after discharge from psychiatric hospitalization. *Canadian Journal of Psychiatry*, 58(8): 476–481.

Automatic citation updates are disabled. To see the bibliography, click Refresh in the Zotero tab.

Wanzer, M. B., Booth–Buttetfield, M. & Gruber, K. (2004). Perceptions of healthcare providers' communication: relationships between patient–centered communication and satisfaction. *Health Care Communication*, 16(3), 363–384.

Webb, S., Yaguez, L., & Langdon, P. E. (2007). Factors associated with multiple readmission to a psychiatric hospital. *Journal of Mental Health*, 16(5), 647–661.

Williams, P. et al. (2014). Efficacy of triage system to reduce length of hospital stay. *British Journal of Psychiatry*, 5(2): 4–6.

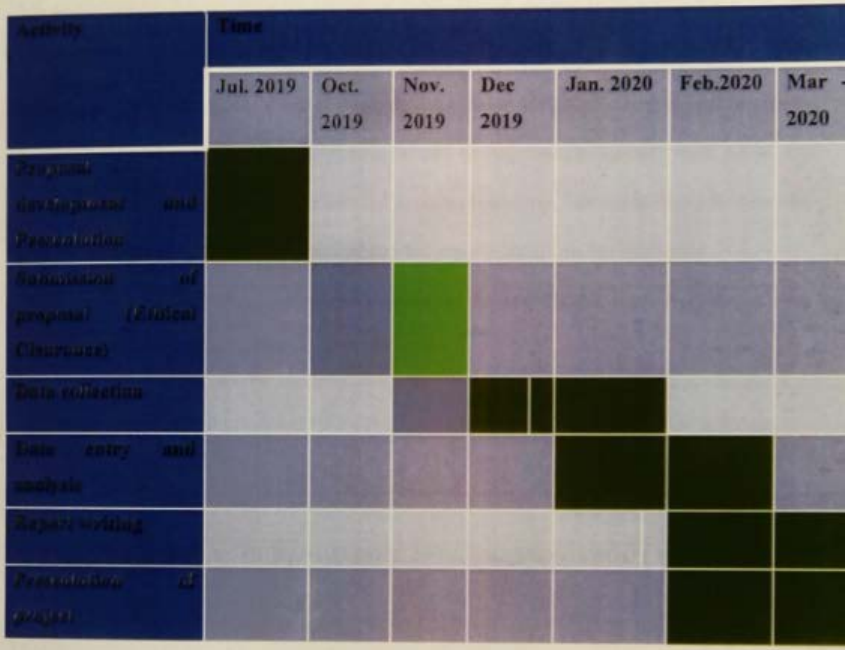
Williamson, T. (2002). Ethics of assertive outreach (assertive community treatment teams). *Current Opinion in Psychiatry*. 15: 543–547.

World Health Organization (2013). Retrieved from 12/12/2020: https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

World Health Organizatio (2014). Retrieved from 14/02/2016: www.who.int/topics/mental_halth/en/

APPENDICES

APPENDIX I: PROECT WORKPLAN



APPENDIX II: BUDGET (DETAILED)

ITEM	COST (GH Cedis)
Fees for Ethical Clearance	50.00
Printing	300
Stationery	100
Research Assistance	400
Transportation	200
Total	1050.00

APPENDIX III: QUESTIONNAIRE

QUESTIONNAIRE

My name is Nana Bemah Oduro, a Master of Public Health student at the University of Ghana undertaking a research on the topic ***'Factors influencing adherence to medication in Mental Health Care Service: A case study of Pantang Psychiatric Hospital'***. This research is strictly for academic purpose only". The responses as well as respondents' identity shall not in any manner be used in a way that will be harmful to their personality. The researcher will therefore be very grateful if you would spare sometime and answer the following questions

Factors influencing adherence to medication in Mental Health Care Service: A case stu **Pantang Psychiatric Hospital'**										
FORM NUMBER										
DATE OF INTERVIEW										

SECTION A: DEMOGRAPHIC INFORMATION ABOUT RESPONDENT

Code			
1.	What is your sex 1. Male 2. Female		sex
2.	What is your age in years (i.e. age at last birthday)?		ag
3.	What is the highest level of education? 1. No education 2. Primary 3. Middle/JSS/JHS 4. SSS/SHS/Secondary/Vocational/Technical 5. Tertiary		educ

4.	What is the level of your income? 1. Below 1000 2. 1000 – 2000 3. 2000 -3000 4. 3000- 4000 5. 4000 - 5000 6. 5000>		lev
5.	What is your employment status? 1. Formally employed 2. Informally employed 3. Unemployed 4. Student/Apprentice 5. Retiree		emp
6.	What condition are you being managed for?		cond
7.	How many medications are you on?		med
8.	For how long have you been on your medication?		durn
9.	How much does it cost you to get your medication per month? Please provide amount in the box.		cosm

SECTION B: MEDICATION ADHERENCE

Please, rate the following statements concerning MEDICATION ADHERENCE from "nev 'always" depending on how it applies to you.

10.	I forget to take my medication 1. Never 2. Rarely 3. Sometimes 4. Often 5. Always		fon

11.	I take my medication at the right time 1. Never 2. Rarely 3. Sometimes 4. Often 5. Always		rtn
12.	I take my medication in the prescribed dose 1. Never 2. Rarely 3. Sometimes 4. Often 5. Always		prc
13.	I stop taking my medication when the symptoms seem to have resolved 1. Never 2. Rarely 3. Sometimes 4. Often 5. Always		sm
14.	I take some unprescribed alternative herbal medications in addition to my medication 1. Never 2. Rarely 3. Sometimes 4. Often 5. Always		hm
15.	I return to my doctor for review of my medication at the scheduled time 1. Never 2. Rarely 3. Sometimes 4. Often 5. Always		rem

SECTION C: PERCEIVED BENEFITS

Please indicate the extent to which you disagree or agree about the belief of the efficacy of Psych medication to reduce the risk or the seriousness of your condition with the following statements ba on your experience

Strongly agree [1], Agree [2], Not Sure [3], Disagree [4], and Strongly Disagree [5].

NO.	STATEMENT	1	2	3	4	5
16.	My medications can solve other health issues					
17.	Without medications, I would become very ill					

18.	Sticking to my medication makes me feel good because it means I am taking care of my health					
19.	Seeking treatment is a good investment of my time in life					
20.	My health at present, depends on my medicines					
21.	My health in future, depends on my medicines					
22.	My medicines can make me better					

SECTION D: PERCEIVED SEVERITY

Please indicate the extent to which you disagree or agree based on your belief about how serious condition is and their consequences

Strongly agree [1], Agree [2], Not Sure [3], Disagree [4], and Strongly Disagree [5]

NO.	STATEMENT	1	2	3	4	5
23.	My condition will get worse without medication					
24.	My illness may lead to death					
25.	My illness would make life very difficult for me					
26.	Not taking medication will make my condition worse					
27.	My medication disrupts my life					
28.	My illness is not a serious mental health illness					
29.	People avoid my company, criticize and stigmatize me.					

SECTION E: PERCEIVED SUSCEPTIBILITY

Please indicate the extent to which you disagree or agree based on your belief on the possibility a rel if medications are not adhered to

Strongly agree [1], Agree [2], Not Sure [3], Disagree [4], and Strongly Disagree [5]

NO.	STATEMENT	1	2	3	4	5
30.	I am not at risk if I don't take my medicines					
31.	If I do not have symptoms, I do not take my medicines					
32.	My medications are a mystery to me					
33.	My medicines disrupt my life					

34.	My health at present, depends on my medicines					
35.	It is very unlikely that I will have relapse with or without my medications					

36. Challenges associated with adherence to psychiatric medication adherence among patients

Are you facing any challenges that hinder you from adhering to your medication? Please tick as appropriate

A. Yes ☐

B. No ☐

If Yes, what are those challenges?

A. Adverse Reaction

B. Financial Constraint

C. Delay at Health Facility

D. Lack of Motivation

E. Others (Please specify) .....

APPENDIX IV: GHS ETHICAL APPROVAL LETTER

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted

My Ref. GHS/RDD/ERC/Admin/App/19/692
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
GPS Address: GA-050-3303
Mob: +233-50-3139896
Tel: +233-302-681109
Fax + 233-302-685424
Email: ethics.research@ghsmail.org

13th December, 2019

Nana Bemah Oduro
P.O. Box DT 1987,
Adenta – Accra.

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	GHS-ERC 064/11/19
Project Title	Factors Influencing Adherence to Medication in Mental Health Care Service: A Case Study of Pantang Psychiatric Hospital
Approval Date	13th December, 2019
Expiry Date	12th December, 2020
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
Dr. Cynthia Bannerman
(GHS-ERC Chairperson)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra