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Influence of Birthsex on Readmissions due to Nonadherence to Psychotropic Medications

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2024

Abstract

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Moro Osumanu

MBA, Alvernia University, 2010

BS, Pennsylvania State University, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

Walden University

May 12, 2024.

Abstract

Hospital directors at psychiatric hospitals in Ghana are struggling to reduce readmissions that are caused by nonadherence to psychotropic medications. Hospital readmissions and their associated costs have become an increasing concern over the last several years. The purpose of this quantitative correlational study was to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications. The Donabedian model was used as the theoretical framework for this study. The research question was developed to determine which birthsex category has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital study site. The target population consisted of male and female adult patients ranging from 18 to 55 years old who have been remitted to the psychiatric hospital study site due to nonadherence to psychotropic medications from 2018 to 2021. The study site was a psychiatric hospital located in Ghana. The results indicated that neither birthsex category has a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital study site. With this information, psychiatric hospital administrators in Ghana may develop birthsex male/birthsex female clinical programs to reduce readmissions due to nonadherence to psychotropic medications.

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Dedication

I would like to dedicate this study to my late parents (Alhaji Osumanu and Hajia Mariama English), my wife and kids, my extended family, and close friends who have been very supportive through this journey.

Acknowledgments

First and foremost, I would like to thank Almighty Allah for making this research possible with the help and guidance that He gave, for giving me a strong belief that this research will be done nicely and properly. I will thank Dr. Albert Gale (my chair) and the entire committee members who supported and encouraged me throughout the entire dissertation process.

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Section 1: Foundation of the Study and Literature Review

I conducted this quantitative study to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications. Abdullah-Koolmees et al., (2021), Barnett et al., (2020), and Semahegn et al., (2020) stated that psychotropic medications nonadherence can lead to readmissions. The study was conducted because psychiatric hospitals in Ghana are struggling to reduce readmissions due to nonadherence to psychotropic medications (see Semahegn et al., 2020). Psychiatric readmissions due to nonadherence to psychotropic medications may negatively impact health care government funding, which could result in a reduction in staffing, programming, and the quality of patient care (Semahegn et al., 2020). I also conducted this study because there is little to no literature on the influence of birthsex on readmissions due to nonadherence to psychotropic medications.

The study contributes to positive social change by demonstrating which birthsex cell has the greatest positive influence on readmissions due to nonadherence to psychotropic medications. With this information, psychiatric hospital administrators in Ghana may develop birthsex male/birthsex female clinical programs to reduce readmissions due to nonadherence to psychotropic medications, contributing to positive social change. In this section, I present the background of the study, problem statement, purpose of the study, research question and hypotheses, theoretical framework, nature of the study, literature search strategy, a review of the literature, key definitions, assumptions, scope and delimitations, limitations, and the significance of the study before concluding the section with a summary.

Background

Abdullah-Koolmees et al., (2021), Barnett et al., (2020), and Semahegn et al., (2020) stated that psychotropic medications nonadherence can lead to readmissions. Repeated hospitalizations to a psychiatric unit, affecting primarily the seriously mentally ill, are a substantial problem (Gaynes et al., 2015). Between 40% and 50% of patients with a history of repeated psychiatric hospitalizations are readmitted within 12 months (Gaynes et al., 2015). Readmissions are costly and disruptive to individuals and families and can lead both providers and patients to feel demoralized or have a sense of failure (Gaynes et al., 2015).

The gap in knowledge addressed in the current study was that although researchers have investigated psychotropic medications nonadherence can lead to readmissions (Semahegn et al., 2020), there was little to no literature on the influence of birthsex on readmissions due to nonadherence to psychotropic medications. This study was needed to determine which birthsex cell, male or female, has the greatest positive influence on readmissions due to nonadherence to psychotropic medications. With this information, psychiatric hospital administrators in Ghana may develop birthsex male/birthsex female clinical programs to reduce readmissions due to nonadherence to psychotropic medications, contributing to positive social change. The results of this study may also lead to more efficient use of hospital capital, improvement in patient care, reduction in readmissions, and enhanced government funding due to reduction in readmissions.

Problem Statement

The research problem addressed in this study was that directors of psychiatric hospitals in Ghana were struggling to reduce readmissions that are caused by nonadherence to psychotropic medications (see Semahegn et al., 2020). Psychotropic medication nonadherence can exacerbate the patient's illness, reduce treatment effectiveness, and leave the patient less responsive to subsequent treatment (Semahegn et al., 2020). Other consequences of nonadherence to psychotropic medications include rehospitalization, poor quality of life or psycho-social outcomes, relapse of symptoms, increased comorbid medical conditions, wastage of health care resources, and increased suicides (Semahegn et al., 2020). Comprehensive intervention strategies should be designed to address factors associated with psychotropic medication nonadherence (Semahegn et al., 2020).

The gap in the literature that this research study addressed was that there was little to no literature on the influence of birthsex on readmissions due to nonadherence to psychotropic medications. I reviewed 575 peer-reviewed, scholarly articles, and none of them discussed the influence of birthsex on readmissions due to nonadherence to psychotropic medications. The findings of the study indicate which birthsex cell, male or female, has the greatest positive influence on readmissions due to nonadherence to psychotropic medications.

Purpose of the Study

The purpose of this quantitative study was to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications. Abdullah-Koolmees et

al., (2021), Barnett et al., (2020), and Semahegn et al., (2020) stated that psychotropic medications nonadherence can lead to readmissions. The independent variable in this study was birthsex with male and female cells. The dependent variable was readmissions due to nonadherence to psychotropic medication.

<p align="center">**Research Question and Hypotheses**</p>

The research question and hypotheses were:

RQ: Which birthsex category has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital?

$H_0 1$: Neither birthsex category has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital.

$H_a 1$: One of the birthsex categories has greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital.

I used a chi-square test to analyze the total patient population ($N = 1,818$) by randomly sampling 22% of the total patient population of patients who had been readmitted due to nonadherence to psychotropic medications. The random sample size was 400 patients who had been readmitted due to nonadherence to psychotropic medications. A chi-square test was appropriate for this study because it allowed me to assess whether the observed frequency distribution of a categorical variable significantly differs from its expected frequency distribution. Performing a chi-square test allowed me

to examine which birthsex cells, male or female, has the greatest influence on readmissions due to nonadherence to psychotropic medications.

Theoretical Framework

The theoretical framework of this quantitative study was based on the Donabedian model. Donabedian (2005) first described the three elements of the Donabedian model in 1966. The three components of the Donabedian model for evaluating the quality of care underpin the measurement for improvement and are structure, process, and outcomes (Donabedian, 2005). A more detailed explanation of the model is provided later in this section.

The research problem addressed in this study was that directors of psychiatric hospitals in Ghana were struggling to reduce readmissions that are caused by nonadherence to psychotropic medications (Semahegn et al., 2020). In the model, Donabedian (2005) stated that structure measures influence process measures, which in turn affects outcome measures. The theoretical framework helped me determine which birthsex cell, male or female (i.e., the independent variable), has the greatest influence on readmissions due to nonadherence to psychotropic medications (i.e., the dependent variable). By considering structure, process, and outcomes, areas for improvement can be identified and develop targeted interventions to enhance patient care and adherence to psychotropic medications (Backhouse & Ogunlayi, 2020). The Donabedian model helped me to understand how these factors interact within the healthcare system.

Nature of the Study

I used a correlation design for this study because correlation allows for the investigation of the relationship between the variables. The independent variable in this study was birthsex with male and female cells. The dependent variable was readmissions due to nonadherence to psychotropic medication. Readmissions due to nonadherence to psychotropic medications is the process of being readmitted to a psychiatric hospital (Semahegn et al, 2020).

I used secondary data in this study in the form of medical records data from 2018 to 2021 of patients between 18 to 55 years old readmitted to the study site psychiatric hospital due to nonadherence to psychotropic medications. The study site psychiatric hospital only admits patients from 18 to 55 years of age. The medical records department of the study site psychiatric hospital was responsible for the safekeeping and management of the medical records. The medical records department provided me with information from the medical records that met the research criteria (i.e., data on the patients' birthsex with male and female cells and readmissions due to nonadherence to psychotropic medication). The medical records department coded the data set prior to distributing it to me. I analyzed the secondary data by using a chi-square test to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications.

Literature Search Strategy

I used the following databases and search engines, accessed through the Walden University Library, to search for literature: PubMed, Psycharticles, ProQuest, PsycINFO, Academic Premier, SAGE, JSTOR, ResearchGate, EMBASE, ScienceDirect, Google

Scholar, Cochrane Library, Emerald, EBSCO, and Elsevier. The key search terms and combinations of search terms were *psychotropic medications, psychiatric hospitals in Ghana, nonadherence to psychotropic medications, birthsex (male and female), Donabedian theory, dependent variable, independent variable, covariate variables, quantitative methodology, correlation design,* and *chi-square test.* The scope of literature reviewed included peer-reviewed and seminal articles published from 2016 to 2021. I selected the articles included in this study to identify the main ideas of the study and for their focus on the topic of patients readmitted due to nonadherence to psychotropic medications at psychiatric hospitals from 2018 to 2021.

Literature Review Related to Key Variables and/or Concepts

The studies included in this literature review are related to the constructs of interest and were derived from the 575 peer- reviewed articles, dissertations, and other articles related to the topic of readmission due to nonadherence to psychotropic medications, previous studies that used the theoretical framework of the Donabedian model, and previous correlational studies. I discuss three studies in detail in this subsection: Abdullah-Koolmees et al. (2021), Barnett et al. (2020), and Semahegn et al. (2020). All three studies found that nonadherence to psychotropic medications leads to readmissions.

In a quantitative study, Abdullah-Koolmees et al. (2021) reported that patients who did not initiate prescribed psychotropic medications were associated with an increased risk of rehospitalization. The researchers used a chi-square test to determine if there is a relationship between nonadherence to psychotropic medications and

readmissions. Abdullah-Koolmees et al. conducted a quantitative study to find patterns and averages, make predictions, assess causal relationships, and generalize results to wider populations in the study. The researchers employed a correlational design to determine if there is a relationship between nonadherence to psychotropic medications and readmissions. The researchers approached the research problem by assessing the association between distinct phases of nonadherence to psychotropic medication and readmission due to nonadherence to psychiatric medications (Abdullah-Koolmees et al., 2021). A strength of their study was the use of a methodology that allowed for the identification of specific intervention points that can be tackled in future research to prevent psychiatric readmission (Abdullah-Koolmees et al., 2021). A weakness of their study approach was that there were limited data available.

In another quantitative study, Barnett et al. (2020) conducted a retrospective chart review of all patients admitted to an inpatient psychiatric unit in Lilongwe, Malawi from January 1 to December 31, 2011. The researchers used a chi-square test to test for associations between readmissions during the study period and patient variables. Barnett et al. stated that given limited psychiatric inpatient capacity in sub-Saharan Africa, psychiatric readmissions present a considerable challenge to the region's health care delivery systems. The researchers recommended that new strategies to improve medication adherence in the community should be investigated as a means of reducing readmissions and keeping patients at home in Malawi. The strength of their study was that the study utilized existing medical records, which reflect actual patient experiences in a clinical setting. The weakness of the study was that the study relied on existing

records, there may be selection bias. Certain patient groups or conditions might be overrepresented or underrepresented.

Semahegn et al. (2020) records a systematic review and meta-analysis to examine the pooled proportion of psychotropic medication nonadherence and synthesized the associated factors with medication nonadherence among major psychiatric disorder patients. Previous systematic reviews had indicated that medication nonadherence is a common challenge in the treatment of psychiatric disorders (Semahegn et al., 2020). A strength of Semahegn et al.'s study was that the findings of the systematic review and meta-analysis can be used to inform policymakers, clinicians, and other caregivers to establish an integrated approach to boost therapeutic alliance and improve medication adherence. A weakness of their study was that almost half of patients with major psychiatric disorder were shown to not adhere to their psychotropic medication.

The rationale for the selection of the variables for the current study was based on an extensive literature review, including the three articles discussed in this subsection by Abdullah-Koolmees et al., (2021), Semahegn et al., (2020), and Barnett et al. (2020). All three studies found that psychotropic medications nonadherence can lead to readmissions. The variables for the current study were readmissions due to nonadherence to psychotropic medication (i.e., the dependent variable) and birthsex with male and female cells (i.e., the independent variable). The dependent variable in the research question of the current study was also a variable used in the quantitative studies of Abdullah-Koolmees et al., Barnett et al., and Semahegn et al. (2020). I conducted the current study

because the influence of birthsex on readmissions due to nonadherence to psychotropic medications at the study site psychiatric hospital was unknown.

Definition of Terms

Birthsex: The sex that someone was assigned when they were born (Griffin, 2020).

Chi-square test: One of the most popular nonparametric tests that involves the assessment of one or more independent variables, each with two or more levels containing the frequency of categorial data (Coolidge, 2021).

Correlation design: A research design used to investigate relationships between variables without the researcher controlling or manipulating any of the variable (Coolidge, 2021).

Psychotropic medications: Any medication that affects behavior, mood, thoughts, or perception (English et al, 2012).

Readmissions due to nonadherence to psychotropic medications: The process of being readmitted to a psychiatric hospital (Semahegn et al, 2020).

Assumptions

There were no aspects of the current study that could not be demonstrated to be true. The data source was reputable because the study site psychiatric hospital is a licensed health care institution under the supervision of Ghana Health Services. The psychiatric hospital was responsible for the gathering, storing, and safe keeping of patient data. The research question could be answered, and a chi-square test could be conducted

in this quantitative study. I conducted the current study to examine which birthsex has the greatest influence on readmissions due to nonadherence to psychotropic medications.

Scopes and Delimitations

The research problem addressed in this study was that directors of psychiatric hospitals in Ghana were struggling to reduce readmissions that are caused by nonadherence to psychotropic medications (Semahegn et al., 2020). Readmissions due to nonadherence to psychotropic medications provided the basis or platform to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications.

The study was based on secondary patient data from the study site psychiatric hospital. The secondary data included readmissions due to nonadherence to psychotropic medication at the psychiatric hospital from 2018 to 2021. The age range of patients included in the data set was from 18 to 55 years old. The estimated size of the patient population from 2018 to 2021 was 1,818. I excluded patients who were readmitted to the psychiatric hospital due to other diagnoses than readmissions due to nonadherence to psychotropic medications from the data set.

The findings of this study provide the directors of psychiatric hospitals in Ghana with research information that neither birthsex categories had a greater positive influence on readmissions due to nonadherence to psychotropic medications at the study site psychiatric hospital. With this information, the administrators of psychiatric hospitals in Ghana may develop birthsex male/birthsex female clinical programs to reduce readmissions due to nonadherence to psychotropic medications.

Limitations of the Study

There were no limitations of the study as related to the design and methodological choices. The only bias that might be present in the study was on my part as the researcher. I attempted to address researcher bias by following strict protocols set by the ethics committee of the site psychiatric hospital and the review process at Walden University.

Significance of the Study

The findings of this quantitative study may provide the directors of psychiatric hospitals in Ghana with research information regarding which birthsex has the greatest influence on readmissions due to nonadherence to psychotropic medications that they can use to change their related policies. Patients who have been readmitted due to nonadherence to psychotropic medications could be provided with a specific birthsex clinical programs.

Summary and Conclusions

In this section, I provided the background of the study, problem statement, purpose of the study, research question and hypotheses, theoretical framework, nature of the study, literature search strategy, review of the literature, key definitions, assumptions, scope and delimitations, limitations, and significance of the study.

Ghanaians were being readmitted to a mental health hospital because of nonadherence to psychotropic medications (Semahegn et al., 2020). Readmissions of people who cannot comply with the psychotropic medication orders may result in the loss of employment and the opportunity to improve the mental health of Ghanaian society

(Semahegn et al, 2020). I conducted this study to determine the influence of birthsex on readmissions due to nonadherence to psychotropic medications. Determining which birthsex of the cells (i.e., male or female) has the greatest influence on readmissions due to nonadherence to psychotropic medications may offer the directors of psychiatric hospitals in Ghana with research information to develop birthsex male/birthsex female clinical programs. In the next section, I discuss the study's research design and data collection process.

Section 2: Research Design and Data Collection

Introduction

The purpose of this study was to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications. In this section, I discuss the research design and rationale, methodology, population, sampling, and sample procedures used to collect data, instrumentation, operationalization of constructs, data analysis plan, threats to validity, and ethical procedures.

Research Design and Rationale

The independent variable was birthsex (with male and female cells), and the dependent variable was readmissions due to nonadherence to psychotropic medication. I used a quantitative correlation design this study because correlation allows for the investigation of the relationship between the variables. The time and resource constraints were consistent with the correlation research design because I had no control of the variables, the data for this research had already been gathered, and I only had the ability to statistically analyze the data. I used a chi-square test to examine the influence of birthsex with cells (male or female) on readmissions due to nonadherence to psychotropic medications.

Methodology

Target Population

The target population of this research study was composed of male and female adults ranging from 18 to 55 years of age who were readmitted to the study site psychiatric hospital in Ghana due to nonadherence to psychotropic medications between

2018 and 2021. To be included in the study, the individuals readmitted to the psychiatric

hospital between 2018 and 2021 had a primary diagnosis of nonadherence to

psychotropic medications. The medical records department of the study site psychiatric

hospital validated that nonadherence to psychiatric medication was a legitimate diagnosis

used by the medical staff of the hospital. The estimated size of the target population from

2018 to 2021 was 1,818.

Sampling and Sampling Procedures

A chi-square test involves the assessment of one or more independent variables,

each with two or more levels containing the frequency of categorical data (Coolidge,

2021). I used a Chi-square test to analyze the population by randomly sampling 22% of

the total population ($N = 1,818$) of patients at the study site who had been readmitted due

to nonadherence to psychotropic medications. A chi-square test was appropriate for this

study because it allowed me to assess whether the observed frequency distribution of a

categorical variable significantly differs from its expected frequency distribution. Use of

a chi-square test allowed me to examine which birthsex cells, male or female, have the

greatest influence on readmissions due to nonadherence to psychotropic medications. I

used the random sample size of 400 patients to analyze the total population of 1,818

patients who had been readmitted due to nonadherence to psychotropic medications.

The population included the closed medical records of psychiatric patients

readmitted to the study site psychiatric hospital between 2018 to 2021 with a primary

diagnosis of readmissions due to nonadherence to psychotropic medications. The age

range of participants was 18 to 55 years old. All other patients' data were excluded.

To collect data for the current study, the medical records department of the study site extracted population data from 2018–2021 with the following criteria: patients between the ages of 18–55 years old, birthsex with cells of male and female, and readmissions due to nonadherence to psychotropic medications. The medical records department replaced each patient name with a numerical coding number before providing me with the masked data.

To gain access to the data set, I sent a letter to the clinical coordinator, director, and the ethics committee of the study site psychiatric hospital. The letter contained a description of the study, the data to be collected, how patient confidentiality would be protected, and how data would be used. The data source is reputable because the study psychiatric hospital is a licensed health care institution under the supervision of Ghana Health Services. The study site psychiatric hospital was responsible for the gathering, storing, and safe keeping of patient data.

Instrumentation and Operationalization of Constructs

The chi-square test was first developed by Karl Pearson in 1900 (Franke et. al, 2012). I calculated the variable/scale score of readmissions due to nonadherence to psychotropic medications by using a chi-square test. The reliability values of the chi-square test were consistent with the results when the test was repeated under similar conditions. The validity of the chi-square test accurately assessed the influence of birthsex on readmissions due to nonadherence to psychotropic medications. I used a chi-square test to analyze the population under study by randomly sampling 22% of the total population of patients ($N = 1,818$) who had been readmitted due to nonadherence to

psychotropic medications. The random sample size was 400 patients. A chi-square test was appropriate for this study because it is used to assess whether the observed frequency distribution of a categorical variable significantly differs from its expected frequency distribution (see Coolidge, 2021). Use of a chi-square test allowed me to examine which birthsex cells, male or female, had the greatest influence on readmissions due to nonadherence to psychotropic medications.

The operational definition of the dependent variable is the variable that is being measured or tested in correlation (Cameron & Bernstein, 2022). The dependent variable is dependent on the changes of the independent variable (Cameron & Bernstein, 2022). The birthsex is a variable that could influence the relationship on the dependent variable (see Cameron & Bernstein, 2022). The independent variable is measured by the changes it causes to the dependent variable (Kaliyadan & Kulkarni, 2019). The birthsex was manipulated by examining the influence of each cell (i.e., male or female) on readmissions due to nonadherence to psychotropic medications. I measured the variable of birthsex on the degree of influence on readmissions due to nonadherence to psychotropic medication (see Mukaka, 2012).

Data Analysis Plan

In this study, I analyzed the data using is a chi-square test. The data set from 2018–2021 were screened by using the inclusion criteria established for the study (i.e., patients between the ages of 18–55 years old, birthsex with cells of male and female, and readmissions due to nonadherence to psychotropic medications). The data cleaning for

this research study was done by checking that the data set did not contain data entry errors. I removed any data errors before analyzing the data.

The research questions and hypotheses were as follows:

RQ: Which birthsex category has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital?

$H_0 1$: Neither birthsex category has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital.

$H_a 1$: One of the birthsex categories has a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital.

I used a chi-square test to analyze the population by randomly sampling 22% of the total population of patients ($N = 1,818$) who had been readmitted due to nonadherence to psychotropic medications. The random sample size was 400 patients. A chi-square test was appropriate for this study because it can be used to assess whether the observed frequency distribution of a categorical variable significantly differs from its expected frequency distribution (Coolidge, 2021). A chi-square test involves the assessment of one or more independent variables, each with two or more levels containing the frequency of categorical data (Coolidge, 2021). Use of a chi-square test allowed me to examine which birthsex cells, male or female, have the greatest influence on readmissions due to nonadherence to psychotropic medications.

The rationale for the inclusion of the birthsex was to examine the influence the cells (i.e., male or female) on readmissions due to nonadherence to psychotropic medications. The findings of this quantitative study provide the directors of psychiatric hospitals in Ghana with research information that they can use to develop birthsex male/birthsex female clinical programs on readmissions due to nonadherence to psychotropic medications.

Threats to Validity

The external validity addressed any limitations. Any factors that were affected by the generalizability were a possible threat to the validity of the study (Kamper, 2020). In this study, only birthsex with cells of male and female from the hospital was generalized by using secondary data set. The generalization was limited to one psychiatric hospital.

Internal validity is defined as the extent to which the results represent the truth in the secondary data set and, thus, are not due to methodological errors (Patino & Ferreira, 2018). The possibility of using the incorrect data sets could result in a threat to internal validity (Patino & Ferreira, 2018).

The statistical conclusion validity of a research study are held when the conclusions of the research study are found on an adequate analysis of the secondary data sets (García-Pérez, 2012). There were no threats to construct or statistical conclusions in the current study. The data source was reputable because the study site psychiatric hospital is a licensed health care institution under the supervision of Ghana Health Services.

Ethical Procedures

The medical records department of the study site psychiatric hospital was responsible for the safekeeping and management of the medical records and data used in this study. The medical records department provided me with information from the 2018–2021 medical records that met the inclusion criteria (i.e., patients' birthsex, patients between the ages from 18 to 55 years old, and readmissions due to nonadherence to psychotropic medications). Each eligible data set was coded by the medical records department prior to distribution to me. The current study was reviewed and approved by the Walden University Institutional Review Board and the approval number for this study was 08-08-23-0986405.

Summary

In this section, I discussed the research design and rationale, methodology, population, sampling procedures used to collect data, instrumentation and operationalization of constructs, data analysis plan, threats to validity, and ethical procedures. In this study, I employed the quantitative method and a correlation design. A chi-square test was used to analyze the population by randomly sampling 22% of the total population of patients ($N = 1,818$) who had been readmitted due to nonadherence to psychotropic medications. The random sample size was 400 patients. A chi-square test was appropriate for this study because it is used to assess whether the observed frequency distribution of a categorical variable significantly differs from its expected frequency distribution (see Coolidge, 2021). Use of a chi-square test allowed me to examine which birthsex cells, male or female, have the greatest influence on readmissions due to

nonadherence to psychotropic medications. This section included the research design and rationale, methodology, population, sampling, and sample procedures used to collect data, instrumentation and operationalization of constructs, data analysis plan, threats to validity, and ethical procedures. In the next section, I describe the data collection process for the secondary data set used in the study as well as present the results of the study.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this quantitative study was to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications. The research question was: Which birthsex category has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital?. In this section, I discuss the data collection process for the secondary data set used as well as present the results of the study.

Data Collection of Secondary Data Set

I received the secondary data from the study site psychiatric hospital medical records department, and the data set from 2018–2021 included the patients' age (they ranged from 18–55 years old), birthsex with cells of male and female, and readmissions due to nonadherence to psychotropic medications. The medical records department masked each patient name with a numerical coding number. The validity of the actual data was reputable because the study site psychiatric hospital is a licensed health care institution under the supervision of Ghana Health Services. The psychiatric hospital was responsible for the gathering, storing, and safe keeping of patient data. There was no discrepancy in the use of the secondary data from the plan presented in Section 2.

A chi-square test involves the assessment of one or more independent variables, each with two or more levels containing the frequency of categorical data (Coolidge, 2021). I used a chi-square test to analyze the data by randomly sampling 22% of the total population of patients ($N = 1,818$) who had been readmitted due to nonadherence to

psychotropic medications. A chi-square test was appropriate for this study because it is used to assess whether the observed frequency distribution of a categorical variable significantly differs from its expected frequency distribution (see Coolidge, 2021).

Results

Table 1 shows the frequency of the number of birthsex males and birthsex females after the total population of 1,818 have been randomly sampled by Statistical Package for the Social Sciences (SPSS).

Table 1

Frequency Number of Birthsex Male and Birthsex Female

Category	Frequency
Birthsex male	205
Birthsex female	195
Total	400

Table 2 shows the observed and expected cell frequencies of birthsex male and birthsex female by using the chi-square formula.

Table 2

Observed and Expected Cell Frequencies

	Birthsex male	Birthsex female
Observed cell frequency	205	195
Expected cell frequency	200	200

A chi-square test is useful for analyzing differences in categorical variables (Coolidge, 2021). The categorial variables were birthsex male and birthsex female. In a chi-square test, the null and alternative hypothesis would be as follows:

H_0: Pm = Pf

H_a: Pm = Pf

Where Pm = the probability of birthsex male has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital and Pf = the probability of birthsex female has the greatest positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital A chi-square test is a measure of the difference between the observed and expected frequencies of the outcomes of a set of events or variables. I obtained the Chi-square test value by using the following formula:

$$\chi^2 = \frac{(\text{Observed Cell Frequency} - \text{Expected Cell Frequency})^2}{\text{Expected Cell Frequency}}$$

$$\chi^2 = \frac{(205\text{-}200)^2}{200} + \frac{(195\text{-}200)^2}{200}$$

$$\chi^2 = \frac{(5)^2}{200} + \frac{(\text{-}5)^2}{200}$$

$$\chi^2 = 0.125 + 0.125$$

$$\chi^2 = 0.25 \text{ chi-square value}$$

The number for the degrees of freedom is obtained by the using the formula:

$$df = \text{number of cells - 1}$$

$$df = 2 - 1 = 1$$

Comparing the derived chi-square value of 0.25 with the critical value in the chi-square distribution (Coolidge, 2021), the critical value of the chi-square at $p = .05$ with df = 1 is 3.84. The derived value of $\chi^2 = 0.25$ does not exceed the critical value $\chi^2 = 3.84$ at p = .05 with $df = 1$. The critical value for a chi-square test with 1 degree of freedom and a significance level of 0.05 was approximately 3.84. Since the derived chi-square value was 0.25, which was smaller than the critical value, I failed to reject the null hypothesis at the 0.05 significance level. Therefore, I concluded that neither birthsex categories has a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital. Although, it was observed that birthsex males had more frequencies than birthsex females, the differences were not statistically significant enough based on the calculations and the chi-square distribution used (Coolidge, 2021). The results of this study can be used for generalization for other psychiatric hospitals in Ghana that have received readmissions due to nonadherence to psychotropic medications.

Summary

Comparing the derived chi-square value of 0.25 with the critical value in the chi-square distribution (Coolidge, 2021), the critical value of the chi-square at $p = .05$ with df = 1 is 3.84. The derived value of $\chi^2 = 0.25$ does not exceed the critical value $\chi^2 = 3.84$ at p = .05 with $df = 1$. The critical value for a chi-square test with 1 degree of freedom and a significance level of 0.05 was approximately 3.84. Since the derived chi-square value

was 0.25, which was smaller than the critical value, I failed to reject the null hypothesis at the 0.05 significance level. Therefore, I concluded that neither birthsex category has a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital. Although, it was observed that birthsex males had more frequencies than birthsex females, the differences were not statistically significant enough based on the calculations and the chi-square distribution used (see Coolidge, 2021).

In this section, I presented the results of the study. In the next section, I will discuss the application to the professional practice and implications for social change.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this quantitative study was to examine the influence of birthsex on readmissions due to nonadherence to psychotropic medications. I used a correlation design for this study because correlation allows for the investigation of the relationship between the variables (Coolidge, 2021). A continuous variable is a type of quantitative variable that can take on any value within a certain range or interval (Kaliyadan & Kulkarni, 2019). The independent variable in this study was birthsex, and the dependent variable was readmissions due to nonadherence to psychotropic medication. The cells of the independent variable are male and female. I conducted the study to examine which birthsex (i.e., male or female) has the greatest positive influence on readmissions due to nonadherence to psychotropic medications. The findings of this study provide the directors of psychiatric hospitals in Ghana with research information showing that neither birthsex category has a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital. The study findings may also result in more efficient use of hospital capital, improvements in patient care, a greater reduction in readmissions, and enhanced government funding due to a potential to reduce readmissions.

I used a chi-square test to analyze the data by randomly sampling 22% of the total population of patients ($N = 1,818$) who had been readmitted due to nonadherence to psychotropic medications. A chi-square test was appropriate for this study because it is used assess whether the observed frequency distribution of a categorical variable

significantly differs from its expected frequency distribution (Coolidge, 2021). The results indicated that neither birthsex category had the greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital.

Interpretation of the Findings

Abdullah-Koolmees et al. (2021), Barnett et al. (2020), and Semahegn et al. (2020) stated that psychotropic medications nonadherence can lead to readmissions. In a quantitative study, Abdullah-Koolmees et al. found that patients who did not initiate prescribed psychotropic medications were associated with an increased risk of rehospitalization. In another quantitative study, Semahegn et al. reported that psychotropic medication nonadherence and its associated factors among patients with major psychiatric disorders can lead to readmissions. The current quantitative study indicated that neither birthsex category had a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital.

The current study was based on the Donabedian model that includes the idea that structure measures influence on process measures, which in turns affects outcome measures (see Donabedian, 2005). The study approach dealt with the concept of outcome in the form of which birthsex category (i.e., male or female) had the greatest positive influence on readmissions due to nonadherence to psychotropic medications. The study approach dealt with the concept of structure from the Donabedian model in the form of patients readmitted (i.e., the dependent variable) because of nonadherence to psychotropic medications (i.e., the independent variable). The premise of the Donabedian

model related to the research question in the same manner that it related to the study approach. The logical connections between the key elements of the Donabedian theory were structure model in the form of patients readmitted (i.e., the dependent variable), process in the form of nonadherence to psychotropic medications (i.e., the dependent variable), and outcome in the form of which birthsex category (i.e., male or female).

The results indicated that neither birthsex category had a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital. The findings of this quantitative study provide directors of psychiatric hospitals in Ghana with research information that may be used to help develop a rehabilitation unit for birthsex males/birthsex females to reduce readmissions due to nonadherence to psychotropic medications. Future research should explore other factors, such as race and ethnicity, on readmissions due to nonadherence to psychotropic medications at a psychiatric hospital.

Limitations of the Study

The results of this study were limited to one psychiatric hospital in Ghana. Although the study was limited to one psychiatric hospital in Ghana, the results could be applied to other psychiatric hospitals in Ghana. Another limitation was that the data analysis was for a period between 2018 and 2021.

Recommendations

The findings of this quantitative study provide directors of psychiatric hospitals in Ghana with research information indicating that neither birthsex category has a greater positive influence on readmissions due to nonadherence to psychotropic medications at

the psychiatric hospital. Psychiatric hospitals may benefit from providing a rehabilitation unit for birthsex males/birthsex females to reduce readmissions due to nonadherence to psychotropic medications. The rehabilitation unit may provide extensive transition training by advocacy groups, care providers, and counsellors who would be able to support patients in their transition back into the community. Future research should explore other factors, such as race and ethnicity, on readmissions due to nonadherence to psychotropic medications at a psychiatric hospital.

Implications for Professional Practice and Social Change

This study showed that neither birthsex category had greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital. The findings of this quantitative study may offer the directors of psychiatric hospitals in Ghana with an incentive to conduct further research in birthsex male/birthsex female-specific clinical programs.

Professional Practice

The findings of this study may offer the directors of psychiatric hospitals in Ghana with an incentive to conduct further research in birthsex male/birthsex female-specific clinical programs. The findings of this study may also help directors of psychiatric hospitals to design birthsex male/birthsex female programs that may be more effective in providing patients with the tools to better adhere to psychotropic medications upon discharge.

Positive Social Change

Psychiatric hospitals may benefit from providing a rehabilitation unit for birthsex males/birthsex females to reduce readmissions due to nonadherence to psychotropic medications. The rehabilitation unit may provide extensive transition training by advocacy groups, care providers, and counsellors who may be able to support patients in their transition back into the community.

Conclusion

I conducted this study to determine the influence of birthsex on readmissions due to nonadherence to psychotropic medications from 2018 to 2021. The findings indicated that neither birthsex category had a greater positive influence on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital. The psychiatric hospital may benefit from providing a rehabilitation unit for birthsex male/birthsex female patients to reduce readmissions due to nonadherence to psychotropic medications. This rehabilitation unit may provide extensive transition training by advocacy groups, care providers, and counsellors who would be able to support patients in their transition back into the community. Future research should explore other factors, such as race and ethnicity, on readmissions due to nonadherence to psychotropic medications at the psychiatric hospital.

References

Abdullah-Koolmees, H., Nawzad, S., Egberts, T., Vuyk, J., Gardarsdottir, H., & Heerdink, E. R. (2021). The effect of non-adherence to antipsychotic treatment on rehospitalization in patients with psychotic disorders. *Therapeutic Advances in Psychopharmacology, 11*(3), 5-13. https://doi.org/10.1177/20451253211027449

Backhouse, A., & Ogunlayi, F. (2020). Quality improvement into practice. BMJ (Clinical research ed.), 368, m865. https://doi.org/10.1136/bmj.m865

Barnett, B. S., Kusunzi, V., Magola, L., Borba, C. P. C., Udedi, M., Kulisewa, K., & Hosseinipour, M. C. (2020). Risk factors for readmission among a cohort of psychiatric inpatients in Lilongwe, Malawi. *International Journal of Psychiatry in Clinical Practice, 24*(1), 25-30. https://doi.org/10.1080/13651501.2019.1699116

Cameron, E. L., & Bernstein, D. A. (2022). Research methods and statistics. In *Illustrating concepts and phenomena in psychology. Springer texts in education. (pp.12-14)*. Springer. https://doi.org/10.1007/978-3-030-85650-2_1

Coolidge, F. L. (2021). *Statistics: A gentle introduction*. Sage. https://doi.org/10.4135/9781071939000

Donabedian, A. (2005). Evaluating the quality of medical care: 1966. *The Milbank Quarterly, 83*(4), 691–729. https://doi.org/10.1111/j.1468-0009.2005.00397.x

English, B. A., Dortch, M., Ereshefsky, L., & Jhee, S. (2012). Clinically significant psychotropic drug-drug interactions in the primary care setting. *Current Psychiatry Reports, 14*(4), 376–390. https://doi.org/10.1007/s11920-012-0284-9

Franke, T. M., Ho, T., & Christie, C. A. (2012). The chi-square test: Often used and more

    often misinterpreted. *American Journal of Evaluation, 33*(3), 448-458.

    https://doi.org/10.1177/1098214011426594

Bradley N Gaynes, Carrie Brown, Linda J Lux, Mahima Ashok, Emmanuel Coker-

    Schwimmer, Valerie Hoffman, Brian Sheitman, and Meera Viswanathan, (2015,

    May). *Management strategies to reduce psychiatric readmissions* (Technical

    Briefs, No. 21) [Internet]. Agency for Healthcare Research and Quality.

    https://www.ncbi.nlm.nih.gov/books/NBK294451

Griffin, C. (2020). Immunizing birthsex: Ontology's place in the pandemic. *Derrida*

    Today, 13(2), 159-164. https://doi.org/10.3366/drt.2020.0232

Jaramillo-Gonzalez, L. E., Sanchez-Pedraza, R., & Herazo, M. I. (2014). The frequency

    of rehospitalization and associated factors in Colombian psychiatric patients: A

    cohort study. *BMC Psychiatry, 14*(161).

Kaliyadan, F., & Kulkarni, V. (2019). Types of variables, descriptive statistics, and

    sample size. *Indian Dermatology Online Journal, 10*(1), 82–86.

    https://doi.org/10.4103/idoj.IDOJ_468_18

Miola, A. C., & Miot, H. A. (2022). Comparing categorical variables in clinical and

    experimental studies. *Jornal Vascular Brasileiro, 21*, e20210225.

    https://doi.org/10.1590/1677-5449.20210225

Miot, H. A. (2018). Correlation analysis in clinical and experimental studies. *Jornal*

    Vascular Brasileiro, 17(4), 275–279. https://doi.org/10.1590/1677-5449.174118

N. H. Nie, C. H. Hull, J. G. Jenkins, K. Steinbrenner and D. H. Bent, McGraw-Hill, Nie.

(1976). SPSS Statistical Package for the Social Sciences, second edition. New

York: McGraw-Hill Book Co., 1975. *Journal of Advertising, 5*(1), 41-42,

https://doi.org/10.1080/00913367.1976.10672624

Semahegn, A., Torpey, K., Manu, A., Assefa, N., Tesfaye, G., & Ankomah, A. (2020).

Psychotropic medication non-adherence and its associated factors among patients

with major psychiatric disorders: A systematic review and meta-analysis.

Systemic Reviews, 9, 17. https://doi.org/10.1186/s13643-020-1274-3