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Predictors of Homelessness Among Female Veterans And Civilians

VICTORIA CARIDAD JUSTINIANO QUINONES
Walden University

Walden University

College of Health Sciences and Public Policy

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Victoria C. Justiniano Quiñones

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Review Committee
Dr. Harold Griffin, Committee Chairperson, Public Health Faculty
Dr. Aimee Ferraro, Committee Member, Public Health Faculty
Dr. Chinaro Kennedy, University Reviewer, Public Health Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
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Abstract

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Victoria C. Justiniano Quiñones

Professional Certificate-Medical Technology, Inter American University of Puerto Rico-San Germán Campus, 2011

BS, Inter American University of Puerto Rico-San Germán Campus, 2009

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health-Epidemiology

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Abstract

Homelessness among female veterans is a problem that is likely to increase as growing numbers of women in the U.S. military reestablish themselves into their communities as veterans. There has been increasing concern about the greater risk for homelessness found among female veterans when compared to their nonveteran counterparts, so further investigation of homeless incidence by gender is also warranted. This quantitative, exploratory study was grounded in the social ecological theory, the Balshem and colleagues conceptual model of risk factors for veteran homelessness, and the Susser, Moore, and Link conceptual model which investigated causal pathways that are possible risk factors to become homeless. Data from the Centers for Disease Control and Prevention—2019 Behavioral Risk Factor Surveillance System survey were used to determine whether there is a relationship between age, alcohol use, depression, employment status, income level, and housing instability (as measured by other arrangement rather than own or rent a home) among female veterans and civilians. Logistic regression and multiple logistic regression were used to determine which independent variables are associated with homelessness among veterans and among civilians. The results of this study contributed to the overall understanding of the burden of homelessness on the United States and its territories; therefore, it could be used to inform interventions and programs to reduce homelessness among female veterans.

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Dedication

This dissertation is dedicated to my family who shared my vision. Many sacrifices were made on both ends throughout my entire dissertation journey. Also, and mainly my grandparents, “Irma & Fendo”, who always believed in me and were always there (from heaven). My aunt (Zulma-tima) who have always supported me when I felt that the completion of all and any in my journey would never occur. Thank you for inspiring me to be always more and a better person. I am grateful for my life partner “Yade” who believed in me and kept telling me I could do this. You all are my rock. And lastly, my “study buddy cat” who remained by my side many long nights and days, my faithful “Beibi”. Thank you, Siobhan, for being a course partner at Walden and keep supporting each other throughout this entire journey since we met at the Atlanta Residency (2016). Dr. Lester Torres Rivera, thank you, for always helping me to better understand the quantitative research courses. Also, thank you, Dr. Carlamarie Noboa Ramos, professor Iván Pagán and Dr. Zulma Quiñones Rivera-Howell, for reviewing my drafts and providing excellent recommendations. Your encouragement and support have been invaluable. Without all these wonderful people, this never would happen; ¡Gracias!

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Chapter 1: Introduction to the Study

A variety of groups are working together at the local, state, and national level to eradicate homelessness in the United States by accomplishing *functional zero*, which means that individuals who have become homeless receive access to main services and care (Cho, 2015). According to Tsai and Rosenheck (2015), homelessness has been considered a public health concern for over 30 years, but there is a lack of cohort or prospective studies of homelessness to identify the incidence of homelessness. There are groups of individuals who experience homelessness in different ways, but all homelessness is characterized by extreme poverty coupled with a lack of stable housing (National Health Care for the Homeless Council, 2020). Housing instability includes a variety of challenges, such as having difficulty paying rent, overcrowding, moving frequently, living with relatives, or spending the bulk of household income on housing (Frederick et al., 2014; Kushel et al., 2006). Researchers should identify new cases of homelessness; therefore, by mitigating the predictors that can lead to homelessness, positive social implications can be accomplished. Exploring the incidence of homelessness by measuring and predicting homeless incidence is critical for primary and secondary prevention. The research findings may positively impact society through health promotion and educational efforts to increase knowledge regarding homelessness among female veterans and civilians. The findings might also allow healthcare providers, patients, and the general community to prevent and control this public social issue by developing frameworks to ensure the well-being and health services needed for female adults living with one or more of the identified predictors. Better understanding of the

predictors influencing homelessness among female veterans and nonveterans may improve their health outcomes by innovating healthcare systems and reducing disparities in the health care access. The findings of this study have the potential to inform and outline policy that can improve delivery of health services for female veterans and nonveterans by establishing tailored interventions that facilitate the use of healthcare resources for these populations, thereby minimizing homelessness.

This chapter includes a review of literature that provides background and perspective on predictors of homelessness among female veterans and civilians. In addition, the purpose statement, research questions, theoretical framework, and nature of the study will be presented. I will also provide concise definitions of key concepts, followed by brief discussion of the assumptions, scope, and delimitations, as well as limitations of specific research aspects that were critical to the meaningfulness of the study, such as potential weaknesses and biases of the study. To conclude the chapter, I will outline the potential contributions of the research to the individual, community, society, and public health practice in the study significance section, highlight the main points covered in the chapter, and provide a transition to the next chapter in the summary.

Background

Approximately 80% of homeless veterans experienced mental health illnesses and/or drug use disorders after their time in their service (U.S. Department of Veterans Affairs, 2017). Some individuals refer to the homeless population as the invisible class (Schweid, 2016). A variety of risk factors associated with homelessness impact veterans and nonveterans (Woolsey & Naumann, 2015). For example, risk factors such as mental

illness, alcohol use, and low or unstable income, among others, can worsen the risk for homelessness (Woolsey & Naumann, 2015).

Predictors exist among veterans becoming homeless due to psychotic disorders, drug use, income level, racial lines, and housing vulnerability (Tsai & Hoff, 2017). Montgomery et al. (2015), found that veterans were two or more times as likely to screen positive for homelessness or risk if they had a diagnosis of a cognitive or behavioral health conditions in their study. In addition, veterans suffering from some sort of mental illness such as post-traumatic stress disorder (PTSD) can increase the vulnerability to become homeless (Woolsey & Naumann, 2015).

In the United States, researchers determined that time trends and patient characteristics associated with the use of second-generation antipsychotics (SGAs) in veterans with PTSD without comorbid schizophrenia or bipolar disorders, using the Department of Veterans Affairs national administrative data 2003–2010 (Bauer et al., 2014). The researchers found that SGAs are widely used for PTSD, although without strong evidence base (Bauer et al., 2014). With substantial numbers of veterans returning from Iraq/Afghanistan conflicts with PTSD, it is important to characterize the extent of SGA use and identify associated factors (Bauer et al., 2014).

Researchers provided information related to the examination of frequent mental distress among veterans who participated in the 2019 Behavioral Risk Factor Surveillance Survey who had and had not experienced housing instability in the past 12 months (Bossarte et al., 2014). A review of the literature provided findings that revealed that higher health care costs are most strongly associated with diagnosed mental health

disorders, followed by long-term physical health conditions (Burns et al., 2017). Patel (2015) provided information related to the existing gaps in U.S. mental health care programs. To improve mental health care coverage, it is essential to address the credibility gap between the paradigms of the diagnosis and treatment of mental disorders adopted by specialists and much of the rest of the world. To bridge this gap, specialists should adapt current classifications such as the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*) into one that can communicate effectively with communities, a task that would need to distinguish distress from disorders, based on the need for biomedical interventions.

According to the review of the literature, researchers explored disparities in housing status among veterans with general medical, cognitive, and behavioral health conditions (Montgomery et al., 2015). The researchers found disparities in housing instability among Veterans Health Administration (VHA) outpatients with cognitive and behavioral health conditions, suggesting the need to develop appropriate interventions to mitigate homelessness or risk (Montgomery et al., 2015). Furthermore, a study which included the following, sampled U.S. veterans, assessed homelessness in the United States, involved homelessness as an outcome or dependent variable and examined variables in relation to homelessness as a main study aim with the intent to identify risk factors or characteristics associated with homelessness (Tsai et al., 2015). The researchers found that robust risk factors were substance use disorders and mental illness, followed by low income and other income-related factors (Tsai et al., 2015). Meshberg-Cohen et al. (2014) explained that counseling centers are needed at a local, state, and national

level, so that they can address the precise employment needs of U.S. veterans that have some sort of disability and/or substance abuse consumption issues.

These studies were needed to expand the knowledge regarding the examination of the extent to which the possible identified predictors can lead to homelessness among female veterans' and among civilians. The findings of these studies had the potential to provide information to reduce disparities in healthcare access among these populations and a better understanding of factors that influence health resource utilization patterns in the public health field and health care services.

Problem Statement

Researchers did not know the extent to which the identified predictors (age, alcohol use, depression, employment status, and income level) can lead to housing instability among female veterans and among civilians. There has been increasing concern about the greater risk for homelessness found among female veterans when compared to their nonveteran counterparts (Montgomery et al., 2015; Tsai & Rosenheck, 2015), so further investigation of homeless incidence by gender is also warranted (Tsai & Hoff, 2017). According to Tsai and Hoff (2017), unmarried veterans or those diagnosed with a drug use disorder were found to be more than twice as likely to become homeless; and that Blacks who had an annual income less than $25,000 were more than 1.5 times as likely to become homeless. Mental health clinics are serving more new homeless individuals annually (Tsai & Hoff, 2017). According to Tsai and Hoff, monitoring early signs of housing vulnerability and preventing homelessness in this susceptible population may be an important step in the Veterans Affairs' (VA) efforts to end veteran

homelessness. This strategic goal is contained in the Department of Veterans Affairs Fiscal Year 2018-2024 Strategic Plan (U.S. Department of Veterans Affairs, 2019).

Some individuals refer to the homeless population as the invisible class (Schweid, 2016). A variety of risk factors associated with homelessness impact veterans and nonveterans (Woolsey & Naumann, 2015). For example, risk factors such as mental illness, substance abuse, low or unstable income, among others, can worsen the risk for homelessness (Woolsey & Naumann, 2015). There are a variety of predictors such as psychotic disorders, drug use, income level, racial lines and housing vulnerability, which can lead veterans to become homeless (Tsai & Hoff, 2017). Montgomery et al. (2015), found that veterans in their study were two or more times as likely to screen positive for homelessness or risk if they had a diagnosis of a cognitive or behavioral health condition. In addition, suffering from some sort of mental illness such as PTSD can increase veterans' vulnerability to become homeless (Woolsey & Naumann, 2015).

Purpose

The purpose of this study was to determine whether there is a relationship between age, alcohol use, depression, employment status, income level, and housing instability (as measured by other arrangement rather than own or rent a home). Behavioral Risk Factor Surveillance System (BRFSS) survey among female veterans and civilians. I selected a randomized population, female individuals—25 years and older, from a secondary dataset, the BRFSS survey. According to the U.S. Department of Veterans Affairs (2016), "The median age for women veterans is 49" (p. 3). On the other hand, the median age for women nonveterans is 46 (U.S. Department of Veterans Affairs,

2016). Given the knowledge gap and disparities in healthcare access among these populations, a better understanding of factors that influence health resource utilization patterns in the public health field and health care services will be needed.

Research Questions and Hypotheses

This study addressed the following research questions:

RQ1: Is there an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$1: There is no association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$1: There is an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ2: Is there an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$2: There is no association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$2: There is an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ3: Is there an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$3: There is no association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$3: There is an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ4: Is there an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$4: There is no association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$4: There is an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ5: Is there an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$5: There is no association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$5: There is an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ6: Is there an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$6: There is no association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$6: There is an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ7: Is there an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$7: There is no association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$7: There is an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ8: Is there an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$8: There is no association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$8: There is an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ9: Is there an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$9: There is no association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$9: There is an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ10: Is there an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$10: There is no association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$10: There is an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ11: Do age, alcohol use, depression, employment status, and income level predict housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$11: Age, alcohol use, depression, employment status, and income level do not significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$11: Age, alcohol use, depression, employment status, and income level significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ12: Do age, alcohol use, depression, employment status, and income level predict housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$12: Age, alcohol use, depression, employment status, and income level do not significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$12: Age, alcohol use, depression, employment status, and income level significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

Theoretical and Conceptual Framework for the Study

The theoretical framework for this study was the social ecological theory. This model has been used for understanding the multifaceted and interactive effects of individuals and environmental factors that influence homelessness (National Health Care for the Homeless Council, 2016). This model was related to this study because I studied the association between predictors that can lead to homelessness among female veterans and nonveterans. An understanding of the multiple factors at all SEM levels is needed to develop effective interventions according to individuals' behaviors (Coreil, 2010).

The conceptual base for this study was Balshem et al.'s (2011) conceptual model of risk factors for veteran homelessness, which describes the relationship between

veterans' preservice, service, and postservice experiences and homelessness. This model was related to this study because I used similar variables to predict homelessness among veterans. For instance, in Balshem et al.'s study, the risk factors used were low or unstable income, mental health disorders such as anxiety, depression and PTSD, and alcohol and drug abuse, among others. According to Balshem et al., most of the measures used in the analysis of risk factors and individual characteristics including measures of substance abuse, mental health and social support have been established on populations other than the homeless. As a result of the lack of information regarding the risk factors mentioned above and its impact on the homeless, the authors recommended that further research be undertaken.

An additional conceptual base was used for nonveterans: the Susser et al. (1993) conceptual model, which investigated causal pathways that are possible risk factors to become homeless. This conceptual model was related to this study because I used similar variables to predict homelessness among nonveterans. In illustration, in Susser et al.'s study, the risk factors used were anxiety, depression, gender, alcohol and drug use and abuse, race, among others. With my findings, the results were compared to those of Susser et al.; therefore, parities were pursued between studies. After reviewing each of these conceptual models and the social ecological theory, one can understand that they were able to be used as the underpinning for the current research. The difference between this study and the above two conceptual models is that this research focused on female veterans and civilians. In Chapter 2, I provide further explanations detailing the major conceptual propositions that were addressed in these studies.

Nature of the Study

In this study, I used an exploratory research design by using secondary quantitative data provided by the Centers for Disease Control and Prevention (CDC) 2019 BRFSS survey. The 2019 BRFSS survey included data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. The dataset also contains information about demographic characteristics. An exploratory design can be used when no initial studies have been completed or relied on to predict an outcome (University of Southern California, 2019). This exploratory design, in the preliminary stage of investigation, was appropriate to further explanatory research as well as to add to the knowledge base of the selected phenomenon.

Logistic regression and multiple logistic regression were conducted to determine if there is an association between independent and dependent variables. I performed logistic regression to observe whether there is an association between each predictor variable under study, which are categorical variables, with the DV (housing instability—females ongoing unstable living conditions), which is a binary variable. Multiple logistic regression was used to predict housing instability and its variation in female veterans and civilians. Multiple logistic regression model is proposed for studying data when there is a single dichotomous outcome and more than one independent variable (Boston University School of Public Health, 2013). This variation depended on the independent variables (predictors) under study (age, alcohol use, depression, employment status and income level). These forms of multiple logistic regression were appropriate to determine which

predictor variables (age, alcohol use, depression, employment status, and income level) have the most predictive power of housing instability among female veterans and civilians. I looked to satisfy the statistical assumptions. I used descriptive statistics frequencies and percentages to determine the study demographic characteristics. I conducted these statistical analyses with the SPSS software package.

Definitions of Terms

For the purpose of examining the association between the predictors under study with homelessness among female veterans and nonveterans, the following key terms are defined.

Alcohol use: "a chronic brain disorder marked by compulsive drinking, loss of control over alcohol use, and negative emotions when not drinking" (National Institute on Alcohol Abuse and Alcoholism, 2021).

Civilian: "a person who is not a member of the armed forces" (International Committee of the Red Cross, n.d.).

Depression: "is a common and serious medical illness that negatively affects how you feel, the way you think and how you act" (Torres, 2020).

Homelessness: "housing deprivation in its most severe form" (Crowley, 2003). "Lacking a regular nighttime residence or having a primary nighttime residence that is a temporary shelter or other place not designed for sleeping" (Stewart B. McKinney Homeless Assistance Act 1987).

Housing instability: "means that a household has not yet experienced homelessness. It includes living in overcrowded and/or substandard housing; difficulty

paying rent and/or mortgage; and experiencing frequent moves due to economic and/or affordability reasons" (Raleigh Wake Partnership to End Homelessness, 2021).

Predictor variable: "is the name given to an independent variable used in regression analyses" (Salkind, 2010).

Risk factor: a variable, "emanating from an individual or from the environment that contributes to their adversities" (Johnson, 2014, p. 18).

Veteran: "means a person who served in the active military, naval, or air service and who are discharged or released under conditions other than dishonorable" (38 CFR § 3.1).

Assumptions

It is important to state the underlying assumptions made in this study for the purpose of future researchers who might want to carry out a similar study in another setting (Leppink, 2017). Self-reporting is a common approach for gathering data in epidemiologic and medical research (Althubaiti, 2016). However, bias can arise from social desirability, recall period, sampling approach, or selective recall. I assumed that the participants who responded to the CDC's 2019 BRFSS survey were honest and, therefore, that the collected demographic data are accurate.

Scope and Delimitations

Because gender and social demographics are an important part of the American homelessness landscape, I aspired to share knowledge about predictive factors that influence homelessness among female veterans and civilians. The results of this study contributed to the overall understanding of the burden of homelessness on the United

States and its territories. The specific focus was chosen based on the fact that exposure and the outcomes of interest had already occurred at the time of study initiation, the data was available, and afforded me the opportunity to investigate potential relationships (see Frankfort-Nachmias & Nachmias, 2008).

The participants selected for inclusion in this study were female veterans and civilians—25 years and older. Female veterans included those who served on active duty in the U.S. Armed Forces, either in the regular military or in a National Guard or military reserve unit. At the time of the 2019 BRFSS survey, the researchers' investigation was focused on the heterogeneity in community-level rates of sheltered and unsheltered homelessness, separately and combined, and provided insight into underlying community-level factors associated with homelessness within the United States. All ethnicities were included. Men were excluded because this study focused on two comparison groups (female veterans and civilians). The participants' selection was made because current literature states that there has been an increasing concern regarding the risk of housing instability among female veterans and civilians.

Although applicable, I did not use the transition theory as a contributing theory to guide this study. The transition theory has the following fundamentals. It is a model that contributes to human development focusing on individuals' life changes. This theoretical framework is often used to support investigations that relate to adult career transitions and is viable for women transitioning from military to civilian life (Greer, 2017).

The findings were not generalizable to the general population because this study focused on female veterans and civilians. As mentioned previously, I used a dataset in

this research that is considered a statistical representation of the 2019 BRFSS survey, which included a heterogeneity in community-level rates of sheltered and unsheltered homelessness, separately and combined, and provided insight into underlying community-level factors associated with homelessness across the United States. The dataset also contains demographic characteristics of community types as of a specified survey reference date. A large sample was part of the study, increasing the statistical power and external validity (see Sedgwick, 2014). The results of this study were useful in providing preliminary and representative data about the predictors influencing homelessness among female veterans and civilians.

Limitations

I identified limitations to this study that are relevant to its validity. Because of the exploratory design to be used for this quantitative study, it was important to note the threats to internal validity that can exist. This study is limited to the use of previously collected data. Since the data were not collected to answer the specific information that the researcher would like to have may not have been collected; or data may not have been collected in the geographic region of interest, in the years the researcher would have chosen, or on the specific population that is the focus of interest (Boslaugh, 2007; Doolan & Froelicher, 2009). In addition, since I, as the secondary researcher, did not participate in the data collection process and do not know exactly how it was collected; therefore, I do not know how well it was done and if data were affected by problems such as low response rate or respondent misunderstanding of specific survey questions. Notably, such recorded information may be the result of bias by the caseworker (Coohey, 2006;

Shadoin & Carnes, 2006). Research bias (experimenter bias) occurs when researchers try to influence the results of their work, in order to portray a certain outcome (Shuttleworth, 2009). In this study, research bias may occur when interpreting the results. A potential limitation in this study is that I have not included confounding variables which are unexpected variables that diminish the internal validity of the research findings.

These elements might impact internal validity; however, there are strategies to mitigate this issue and maintain objectivity. When analyzing the findings, I used multiple people to code the data, verify with more data sources, corroborate for alternative explanations, and review findings with peers (Regoniel, 2013). The analyzed archival data was obtained through ethical, professional, and proper procedures available to other researchers.

Significance

In this study, I uniquely addressed the need to understand homeless incidence among female veterans and among civilians, by identifying predictors that can lead to housing instability. The possible identified predictors are defined as age, alcohol use, depression, employment status, and income level. The research findings may positively impact society through health promotion and educational efforts to increase knowledge regarding homelessness among female veterans and civilians. The findings might also allow healthcare providers, patients, and the general community to prevent and control this public social issue by developing frameworks to ensure the well-being and health services needed for female adults living with one or more of the identified predictors. Better understanding of the predictors influencing housing instability among female

veterans and nonveterans may improve their health outcomes by innovating healthcare systems and reducing disparities in health care access. The findings of this study have the potential to inform and outline policy that can improve health services delivery for female veterans and civilians by establishing tailored interventions that facilitate the use of healthcare resources for these populations; thereby, minimizing homelessness.

Summary

The CDC (2017) considered that homelessness is associated with declines in physical and mental health. There has been increasing concern about the greater risk for homelessness found among female veterans when compared to their nonveteran counterparts (Montgomery et al., 2015; Tsai & Rosenheck, 2015), so further investigation of homeless incidence by gender is warranted (Tsai & Hoff, 2017). In this regard, it is critical to understand the factors that can predict housing instability among female veterans and civilians. In this study, I determined whether there is an association between a variety of predictors such as age, alcohol use, depression, employment status, and income level among female veterans and civilians. The research findings might serve to reduce disparities in healthcare access among these populations and a better understanding of factors that influence health resource utilization patterns in the public health field and health care services.

Chapter 2: Literature Review

The purpose of this study was to determine whether there is a relationship between age, alcohol use, depression, employment status, income level, and housing instability among female veterans' and civilians. Researchers did not know the extent to which the identified predictors can lead to homelessness among the populations previously mentioned. Tsai and Hoff (2017) observed that unmarried veterans or those diagnosed with drug use were found to be more than twice as likely to become homeless; and that Blacks who had an annual income less than $25,000 were more than 1.5 times as likely to become homeless. Nearly, 80% of homeless veterans experienced mental health illnesses and/or substance use disorders after their active duty (U.S. Department of Veterans Affairs, 2017). Risk factors associated with homelessness impact veterans and civilians and can worsen the risk for homelessness (Woolsey & Naumann, 2015).

In this chapter, I describe in detail the process and criteria used to locate appropriate content for inclusion in the literature review. The literature search strategy included current and relevant information related to the problem, which served as the catalyst for this study, the topic, the variables that were examined, the theory underpinning the study, and the research tradition that was identified and discussed. The chapter includes an exhaustive review and synthesis of extant studies conducted globally regarding the constructs of interest and research tradition that were consistent with the scope of this study. I conclude this chapter with a summary of available research literature and the gaps in knowledge that were addressed.

Literature Search Strategy

The Walden University Online library was the primary source that I used to obtain peer-reviewed literature for this study. Most sources (83.2%) were accessed through the ProQuest, Medline, and PUBMED databases. Other databases, including Google Scholar, Inter-university Consortium for Political and Social Research (ICPSR), EBSCO, and the Cochrane Database of Systematic Reviews, were used, resulting in 10.1% of the sources accessed. I also explored additional websites of local, national, and multinational organizations, such as the Veterans Affairs, the U.S. Department of Housing and Urban Development (HUD), the Office of Policy Development and Research (PD&R), the Substance Abuse and Mental Health Services Administration (SAMHSA), the World Health Organization (WHO), and the CDC, as a means to expand and 25 validate the accuracy of information presented in some primary sources, resulting in 6.7% of the total sources accessed.

Key search terms used to identify relevant sources included *female veterans*, *female civilians*, *U.S. veterans*, *homelessness*, *homeless incidence*, *housing instability*, *predictors*, *veterans' affairs*, *mental health*, *factors associated*, *predisposing factors*, *risk factors*, *social determinants of health*, *social ecological model (SEM)*, *meta-analysis*, and *cohort studies*. In addition, these key terms were combined as a strategy to maximize the search, as illustrated in Table 1. I searched for peer-reviewed sources that contained quantitative data on the subjects of interest and research tradition. My search strategy was restricted to (a) quantitative studies published in English or Spanish; (b) quantitative studies that include overall research design and data sources (e.g., cross sectional design,

secondary data analysis, and administrative databases); (c) quantitative studies that reported female veterans and/or civilians without a permanent house (e.g., history of healthcare services, hospitalization, emergency room, or department) as the primary outcome; and, (d) predictors such as age, income, alcohol use, availability of mental health care providers, mental health conditions (e.g. depression), educational level, age, drug use and abuse, unemployment, among others. Literature excluded included (a) quantitative studies that involved male veterans and civilians and (b) quantitative studies published in languages other than Spanish or English.

I also searched for non-peer-reviewed sources to expand my investigation of the constructs of interest, validate the accuracy of information presented in some primary sources, and provide up-to-date data about the research topic. The appropriateness of these sources was determined by the following requirements: (a) information published within the past 5 years; (b) information cited from a credible source (e.g., WHO, CDC); (c) information that included the qualification of the authors; and (d) information that provided evidence from other sources (e.g., peer reviewed, 62%; or non-peer-reviewed, 44%). Overall, I evaluated the literature reviewed in detail to ensure their quality, reliable, and applicability to this study. The accuracy, authority, objectivity, and research tradition were my criteria for evaluating information from the search strategy. Works (e.g., articles, texts, and white papers) that were not properly critiqued were excluded from the review of the literature.

Depending on the isolation of the term or the combination of terms I used, my search yielded 105 relevant articles, whereas total results from each search ranged

between eight and 1,950 articles. Related key terms, such as *female veterans and homelessness, U.S. veterans and homelessness, female civilians and homelessness,* often produced different findings. Each article that met the inclusion criteria also provided numerous additional sources within its content and reference section. For example, my search identified some dissertations that contained literature about predictors of homelessness related to U.S. female veterans.

Research literature about predictors of homelessness among female veterans is limited; therefore, there is little information on the factors that can lead to homelessness for this population. This led me to examine other sources that could help fill the existing gaps in knowledge in this area. To gather the background and information on predictors of homelessness among female veterans and civilians, I accessed websites for organizations including the Veterans Affairs, WHO, and SAMHSA.

My literature search included a global review of quantitative studies that examined the predictors of homelessness among female veterans and civilians. I obtained a total of 2,060 articles at the initial stage of the search, including 110 articles that were excluded because they included male veterans and civilians. In the second stage of the remaining 1,950 articles, I found that 832 articles were eligible for review because they were studies primarily related to predictors of homelessness among female veterans and civilians. In the last stage, of the remaining 832 eligible articles, a total of 34 articles were included in this literature review. Most studies used in the literature review were published within the last 5 years; however, relevant studies published between 1993 and 2014 were included to expand on current research.

Table 1

Literature Review Search Themes

Key search terms	Search terms
Homelessness	* female veterans, non-veterans (civilians), predictors, alcohol use and abuse, drug use and abuse, income, housing instability, mental health problems (anxiety, depression, post-traumatic stress disorder, dementia), trauma, ethnicity, social determinants of health, unemployment, cohort, retrospective, multiple logistic regression, logistic regression
Predictive factors	* homelessness, social ecological model, female veterans, non-veterans (civilians), alcohol use and abuse, drug use and abuse, income, housing instability, mental health problems (anxiety, depression, post-traumatic stress disorder, dementia), trauma, ethnicity, social determinants of health, unemployment, cohort, retrospective, multiple logistic regression, logistic regression
Predisposing factors (or age or gender)	* homelessness, social ecological model, female veterans, non-veterans (civilians), alcohol use and abuse, drug use and abuse, income, housing instability, mental health problems (anxiety, depression, post-traumatic stress disorder, dementia), trauma, ethnicity, social determinants of health, unemployment, cohort, retrospective, multiple logistic regression, logistic regression
Social ecological model (or SEM)	* homelessness, predictive factors, female veterans, non-veterans (civilians), alcohol use and abuse, drug use and abuse, income, housing instability, mental health problems (anxiety, depression, post-traumatic stress disorder, dementia), trauma, ethnicity, social determinants of health, unemployment, cohort, retrospective, multiple logistic regression, logistic regression

Theoretical Foundation

The social ecological model (SEM) was the theoretical framework for this examination of the predictive factors that can lead to become homeless between female veterans and civilians. SEM was introduced by Urie Bronfenbrenner in the 1970s as a conceptual model for understanding human development, and subsequently established as a theory in the 1980s (Bronfenbrenner, 1977). This model can be interpreted as the outcome of interactions among risk factors ranging from individual conditions to socioeconomic structures and environmental circumstances (National Coalition for the Homeless, 2007). Progressively, homeless individuals can experience vicissitudes in housing status such as living on the streets, shelters, transitional housing, hospitalization,

emergency rooms, correctional facilities due to incarceration, among others (SAMHSA, 2020). Incidence of homelessness can result in individual and social consequences, which are frequently harmful to the physical and mental well-being of the individual; therefore, social interactions with the community can be affected (Saelinger, 2006).

The major hypothesis of this model contends that behavior is affected by several levels of impact, which shape and are shaped by the social environment (National Health Care for the Homeless Council, 2016). The SEM associates individuals' environment with their perception of their surroundings (Sallis et al., 2009). The levels of influence included intrapersonal, interpersonal, organizational, community, and public policy (McLeroy et al., 1988). Disparities of this model have been used to determine the difficulties of homelessness, which are predisposed by individual circumstances, socioeconomic structures, and environmental conditions (Nooe et al., 2010). From a socioeconomic perception, individuals undergoing homelessness require a variety of resources and support systems to circumnavigate daily activities and attain a stable and permanent housing situation (National Health Care for the Homeless Council, 2016).

Researchers (Kline et al., 2010; Vogt et al., 2011) have focused only on the aspects of homeless individuals, rather than how and in what way the social environment can contribute to the cycle of homelessness. There is a need to explore the wellbeing of female veterans, particularly when they are current in undesirable circumstances that will have harmful impacts on their lives and may contribute to their becoming homeless when reintegrating civilian life (Kennedy, 2019). The ecological theory diverges from other approaches that focus on the biological or stress qualities of the homeless individual. This

model's approach focuses on various systems as well. The ecological systems theory is an approach to a study of human development that consists of a scientific analysis concerning the developing, reciprocal accommodation, during the life path within and current, developing human being (Bronfenbrenner, 1977).

The five systems included in this theory can be explained as follows. The first system, the microsystem, is the main environment, which is constituted of friends, classmates, family, educators, neighbors, and additional individuals with whom people have a personal relation. The microsystem is the perspective in which individuals have direct social relations with groups. The theory specifies that individuals are not just recipients of experiences they go through when socializing with individuals in the microsystem environment; they are also adding to the foundation of this environment (Kennedy, 2019). The second system is the mesosystem, which consists of the connections associating the microsystems in an individual's experience. For example, the association of an individual's family experience might be with his or her college experience. The third system is the ecosystem, which is the wider social system that includes environments in which the individual does not directly behave. Following, is the macro system environment, which is the existing culture of an individual. These cultural connections include socioeconomic, racial, and ethnic elements. The fifth system is the chronosystem, which includes the modifications and transformations throughout an individual's life cycle, as well as sociohistorical relationships. Comprehensive of these personal experiences are (a) family, peers, and locality; (b) the association between microsystems; (c) experiences in diverse social settings, such as work experiences that

affect other relationships; (d) culture and beliefs; and (e) events and transitions over the course of the individual's lifespan (Santrock, 2007).

Social Ecological Model Applicability

The theoretical framework of SEM was integrated into this study as the foundation and structure for the study rationale, problem statement, purpose, significance, and research questions. The ecological model provided a grounding base for the research design, methods, and analysis to be employed in order to explore predisposing factors that can lead to homelessness among female veterans and civilians. The constructs in the theory were incorporated into the research questions. In addition, this theoretical framework logically guided the development and understandings of the literature review for each construct of interest and study variable.

Conceptual Framework

In a systematic review of predictors to become homeless among veterans, Balshem et al. (2011) designed a conceptual model (see Figure 1) that provides a framework for this study's literature review and subsequent analyses. This model of risk factors for veteran homelessness described the relationship between veterans' preservice, service, and postservice experiences and homelessness. The researchers' model assigned a value in terms of weak or strong correlation of risk factors to veteran homelessness; therefore, it was designed to identify the strength of existing evidence from the literature review and assessing whether there was a direct or indirect association. Their conceptual model suggests that alcohol use and abuse, drug use, and mental health conditions have strong associations with homelessness, but the connections occur through a third variable

which Balshem et al. described as an undetermined exposure or mechanism (i.e., an indirect association). The model emphasizes that early life events have a strong, direct association with homelessness. Though, factors such as combat exposure and injury, military service, and readjustment problems have a weaker, indirect association with homelessness. Existing experiences such as low social assistance, insecure income, and incarceration seem to have a strong direct association with homelessness (Balshem et al., 2011).

Daly (2020) focused on the areas identified in the Balshem et al. (2011) conceptual framework, by first describing the prevalence of substance use among veterans experiencing homelessness, as well as predictors and perceptions of substance use and homelessness. Daly explored the interaction of childhood experiences on substance use and homelessness, which Balshem et al. found to have a strong and direct effect on homelessness among veterans. Daly also investigated to the areas where Balshem et al. found weak and indirect effects on homelessness among veterans, such as military experiences and employment difficulties.

In this literature review, I focused on the areas identified in Balshem et al.'s (2011) conceptual framework. For example, I described the prevalence of housing instability in the United States by using demographic characteristics (e.g., gender, veteran and. civilian status). I also described the predictors and experiences of alcohol use, depression, employment status, among others. I explored strong, weak and no associations between the predictors of housing instability among female veterans and civilians. According to Balshem et al., most of the measures used in the analysis of risk

factors and individual characteristics including measures of substance abuse, mental health and social support have been established on populations other than the homeless. As a result of the lack of information regarding the risk factors mentioned above and its impact on the homeless, the authors recommended that further research be undertaken.

An additional conceptual base was used for nonveterans: the Susser et al.'s (1993) conceptual model, which investigated causal pathways that are possible risk factors to become homeless. Crane et al. (2005) investigated the causes of homelessness in later life among newly homeless older individuals in selected urban areas of the United States, England, and Australia. Crane et al. applied this causal concept that in many cases, homelessness results from a combination of predisposing or risk factors (e.g., a housing shortage or an individual's mental health problem) and antecedent causes or "triggers" (e.g., withdrawal of a social security benefit or bereavement).

This conceptual model is related to this study because the researcher used similar variables to predict homelessness among nonveterans. In illustration, in Susser et al.'s (1993) study, the risk factors used were anxiety, depression, gender, alcohol and drug use and abuse, race, among others. The findings of my investigation were compared to Susser et al.'s study; therefore, parities were pursued between studies. After reviewing each of these conceptual models, one can understand that they can be used as the underpinning for this suggested research. The difference of this study from the above two conceptual models are that this research focused on female veterans and civilians.

Figure 1

Conceptual Framework for Homelessness Among Veterans

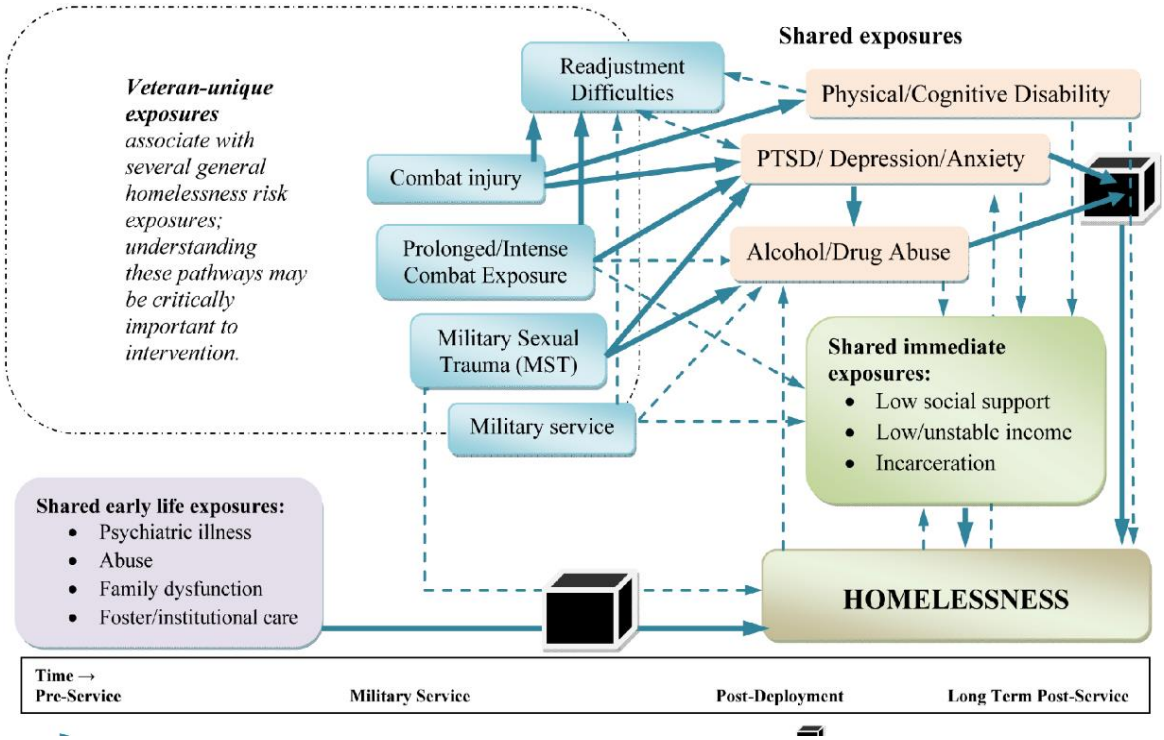
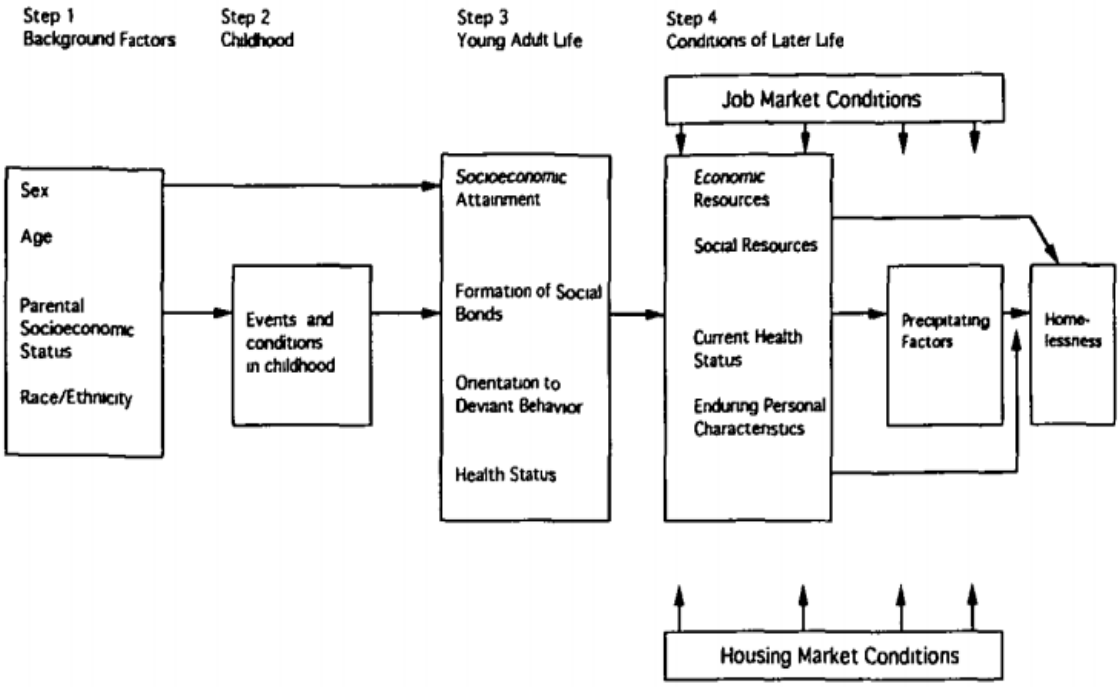


Figure 2

Pathways Into Homelessness



Literature Review Related to Key Variables and/or Concepts

Female veterans are a greatly distressed population with significant mental and physical health needs (Oster et al., 2017). Researchers (Thomas et al., 2014; Vogt et al., 2011; Wells et al., 2010; Whipple et al., 2011) have established that it is essential to address female veterans' homelessness, particularly because there has been an increase in female enlistments. Female veterans are undergoing after duty mental health issues. Female veterans' increased exposure to combat provides a need to examine gender disparities in combat-related depression, PTSD, among other mental health services. Investigators (Fargo et al., 2012; Hamilton et al., 2011) also underlined the significance of identifying the various risk factors regarding female veterans' homelessness and

trauma, such as how trauma's current impact mentally and physically, have affected female veterans and impeded their ability to obtain and sustain housing. Sairsingh (2018) found that female veterans continue to struggle with experiences of mental disorders after returning from deployment—depression, and PTSD are the most prevalent.

Homelessness

Homelessness is considered a chronic public health issue in the United States. (Giano et al., 2020). Approximately, 80% of homeless veterans experienced mental health illnesses and/or substance use disorders after their time in their service (U.S. Department of Veterans Affairs, 2017). As stated by Metraux (2018), veterans who do become homeless, most it will take place only after having returned to civilian life for at least a few years. A variety of risk factors associated with homelessness impact veterans and civilians (Woolsey & Naumann, 2015). For example, risk factors such as mental illness, substance abuse, low or unstable income, among others, can worsen the risk for homelessness (Woolsey & Naumann, 2015).

Homelessness is considered a condition in which an individual does not have a permanent, adequate residence (McKinney Vento Homeless Act, 1987). Some individuals refer to the homeless population as the invisible class (Schweid, 2016). According to Boothe (2017), several homeless female veterans considered themselves invisible since they would rather stay with family members than on the streets or shelters due to security concerns related to housing options for single mothers, for example. Female veterans are more likely to be mothers and mothers at a younger age compared to civilians (Gonzalez et al., 2020; U.S. Department of Veterans Affairs, 2011). Researchers

(Tsai et al., 2015), conducted a study regarding the characteristics and use of services among homeless and unstably housed U.S. veterans with custody of minor children and found that 30% of female veterans undergoing homelessness had children in custody; 45% of female veterans experiencing housing vulnerability had children in custody; and 11% of homeless veterans with children in custody had psychotic disorders.

A precise calculation of the numbers of homeless, overall, has been challenging, mainly due to the inconsistent and limited definitions of *homelessness* (Busch-Geertsema et al., 2016). As of 2017, there were around 554,000 homeless individuals in the United States on a given night, or 0.17% of the population (HUD's Annual Homeless Assessment Report, 2017). Moreover, of those 554,000 homeless individuals, 3,600 (9%) approximately, were women (HUD, 2017). As stated by the U.S. Department of Veterans Affairs (2017), there are 2 million women veterans in the United States and Puerto Rico. According to Bennett (2019), statistics have demonstrated that the number of homeless female veterans increased by 7%, compared to 1% of male veterans, from 2016 to 2017. However, statistics of female veterans who are homeless differ according to source and range from 3,300 (HUD, 2016) to 14,000 (Montgomery & Byrne, 2014) to 55,000 (Boothe, 2017). There is a significant number of women who cannot afford housing and are relying on families for accommodation; therefore, they are not counted in HUD and VA numbers (Boothe, 2017). Although, while female veterans overtake their male counterparts, and female civilians, in different aspects, the rate of female veteran homelessness has more than doubled since 2006 (Bennett, 2019).

As of 2019, there were 37,085 veterans experiencing homelessness in the United States on a single night, and 3,292 (8.9%) were female veterans (National Alliance to End Homelessness, 2019). Among homeless veterans, females are the fastest growing group (Absher, 2018). Studies that have also investigated female veterans, have described them as part of the larger population of homeless veterans and no differences were made regarding their individual needs (Chen et al., 2007; Gabrielian et al., 2016; O'Connell et al., 2016; O'Toole et al., 2017). The recurrent pattern of withdrawing and reverting to homelessness seems to be particularly challenging for veterans given that this population have been found to be at greater risk of returning to homeless services than civilians (Brown et al., 2017). According to a recent federal study, homeless individuals in the United States has risen since the Great Recession (Gee, 2017).

Predisposing Factors

Predisposing factors are focused on individuals' demographic and social characteristics (Andersen & Davidson, 2007). Demographic characteristics include age, gender, and marital status, while social characteristics determine the status of an individual in the community as well as their ability to cope with presenting problems and command resources to deal with those problems (Andersen, 1995). Relevant social measures include educational level, occupation, and ethnic and racial structure (Andersen & Davidson, 2007). Additional measures can include individual's social network and interactions that can facilitate or impede the use of healthcare resources (Andersen, 1995). Health beliefs are another predisposing factor, based on the attitudes, values, and

knowledge that individuals have regarding health that can influence their subsequent perception of need and use of healthcare services (Andersen, 2008).

In the United States, there are a variety of factors that can lead to homelessness such as lack of affordable housing, low-income, drug use and abuse, mental health conditions (e.g., depression), lack of needed services, natural disasters (e.g., hurricanes), unemployment, having no family or supported relatives, divorce, physical disability, eliminations of funds (e.g., pensions), gambling, among other factors. Homelessness can affect any individual in the United States. Different segments of the population such as families, veterans, domestic violence victims, children, ex-convicts, the elderly, are affected by this social and public health issue. Communities can be affected financially and physically due to homelessness or individuals undergoing lack of shelter (von Wurden, 2018). For example, many female veterans have experienced depression after living military services (Thomas & Hunter, 2019). Numerous female veterans have experienced the same stressors as male veterans such as financial hardship, difficulty transitioning to civilian life, isolation, relationship challenges, and depression (Pittaro, 2018). As of 2016, the suicide rate for women veterans was 1.8 times greater than the suicide rate for non-veteran women (U.S. Department of Veterans Affairs, 2018).

Alcohol Use and Employment Status

Findings from this literature review suggest that veterans strive to preserve employment after discharge from the military (U.S. Department of Veterans Affairs, 2015). Unemployment is considered by veterans undergoing homelessness as a contributing factor to their housing status (Metraux et al., 2017). Researchers (Stacy et

al., 2017), found that veterans experiencing homelessness who are drug users identified the drug use as a frequent cause for job loss, and were more likely to have alcohol (instead of drug) use diagnoses, and to have greater scores on alcohol use measures. As of 2019, the unemployment rate for male veterans declined to 3.0%, and the rate for female veterans (3.7%) varied slightly over the year (U.S. Department of Labor, 2020).

Homeless Predictors

Predictors exist among veterans becoming homeless due to psychotic disorders, drug use, income level, racial lines, and housing instability (Tsai & Hoff, 2017). Montgomery et al. (2015), found that veterans were two or more times as likely to screen positive for homelessness or risk if they had a diagnosis of a cognitive or behavioral health conditions in their study. In addition, veterans suffering from some sort of mental illness such as PTSD can increase the vulnerability to become homeless (Woolsey & Naumann, 2015). Women veterans have a higher prevalence of PTSD compared to civilian women or male veterans (U.S. Department of Veterans Affairs, 2019). According to Levahot et al. (2018), found that women veterans had a PTSD rate of 11%, compared with 6% for female civilians and 5% for male veterans, and this may be due to several factors such as number of trauma types, type of trauma, and social factors. PTSD is a common mental health condition that varies by gender and veteran status (Levahot et al., 2019). Moreover, a study by Duan-Porter et al. (2018), researchers found that trauma exposures, including from events preceding military service, were more prevalent for veterans' and non-veterans. For example, veterans who had undergone military sexual trauma (MST) are at greater risk of homelessness (U.S. Department of Veterans Affairs,

2019). As stated by the Veterans Affairs (VA, 2016), women are more likely to be anxious and have more stress, as well as prevent incidents that remind them of the trauma compared to men.

Housing Instability

Housing instability includes a variety of challenges, such as having difficulty paying rent, overcrowding, moving frequently, living with relatives, or spending the bulk of household income on housing (Frederick et al., 2014; Kushel et al., 2006). There are groups of individuals who experience homelessness in different ways, but all homelessness is characterized by severe deprivation coupled with a lack of stable housing (National Health Care for the Homeless Council, 2020). Households are considered to be cost burdened if they spend more than 30% of their income on housing and severely cost burdened if they expend more than 50% of their income on housing (Bailey et al., 2015). Cost-burdened households have slightly left over each month to spend on other essentials (e.g., food, clothing, utilities, and health care (Hernandez, 2016; Kushel et al., 2006).

Due to a limited rental market with few affordable vacancies, individuals with the lowest incomes may be compelled to rent substandard housing that exposes them to health and safety risks (Hernandez, 2016; Joint Center for Housing Studies, 2016). To reduce the impact of housing instability on health outcomes and health disparities it is important to do more research on this topic; therefore, it will facilitate to address housing instability as a social determinant of health by the public health efforts (Healthy People, 2030).

Social Determinants of Health (SDH)

According to Healthy People 2020 (2020), the social determinants of health (also known as social and physical determinants of health) consider the social factors and physical circumstances of the environment in which individuals are born, live, learn, play, work, and age; therefore, these determinants can influence a wide range of health, functioning, and quality-of-life outcomes. A variety of examples can be explained as follows. Childhood adversity alters the gender gap in alcohol use disorders and drug use disorder risk, and in ways that are different for veterans compared with civilians (Evans et al., 2018). Current research throughout the United States has declared marijuana as one of the most used substances of individuals who end up in homeless shelters (Carmona et al., 2017; Patanwala et al., 2018; Stringfellow et al., 2016). According to Daly (2020), in her study, she found that review of published literature provided a variety of data identifying drug use as a barrier to secure housing for veterans experiencing homelessness. Researchers (Green & Thorogood, 2014; Neubauer, et al., 2019), stated that observations are critical to added a better understanding of barriers and facilitators associated with drug use treatment for veterans undergoing homelessness, to recognize opportunities for development in services grounded on an empathetic comprehension of the connection among drug use and homelessness in veterans, and to improved support recovery and housing requests of veterans experiencing homelessness who use drugs.

A study conducted by Narain et al. (2018), researchers found that female veterans with lack of food were also more likely to screen positive for anxiety and depression and were more likely to be in fair to poor health. Another study conducted by Iverson et al.

(2017), found evidence about intimate partner violence (IPV) been prevalent in women veterans who were screened for a traumatic brain injury through Veterans Affairs, and they also found that IPV can be connected to several treatable health problems like depression and substance use disorder. According to Yu et al. (2020), female veterans in the United States cope with a disproportionate risk of housing instability and interpersonal violence, mostly committed by intimate partners or including non-partner sexual violence, as compared to both male veterans and female civilians.

Researchers (Montgomery et al., 2020), found that veterans who were older and had chronic medical and mental health conditions, and requested related care, were at increased odds of getting single-site housing. A study developed by Hendrikx et al. (2020), researchers found that veterans are more likely than civilians to encounter work difficulties, but there persists lack of research investigating contributing factors, mainly among samples of treatment-seeking veterans. As stated by Daly (2020), identifying how a variety of social determinants of health impact veterans' housing status as well as drug use will also support further targeted treatment approaches.

Mental Health Conditions—depression, homelessness and others (e.g., PTSD)

Female veterans are almost 250% more likely to commit suicide compared to female civilians (Price, 2018). Individuals with both PTSD and depression are three times at higher risk of suicide compared to patients undergoing with one of the mental health disorders (Albott, 2019). Researchers Goldstein et al. (2017) conducted a quantitative study regarding the impact of military trauma exposures on posttraumatic stress and depression in female veterans. Their findings demonstrated that different traumatic

experiences may result in a variety of psychiatric symptoms, for example, sexual assault and sexual harassment were associated with both PTSD and depression (Goldstein et al., 2017).

Most women veterans are stressed to stunned unemployment and homelessness (Byrne et al., 2013; Montgomery et al., 2015). Moreover, a study by Tran et al. (2017), researchers found that long-term unemployed veterans had a significantly greater number of days with poor mental health than long-term unemployed civilians. Homelessness among female veterans is increasing and expected to rise further as more women enter the military (Kenny & Yoder, 2019). Female veterans encounter remarkably high rates of homelessness that may be associated with psychosocial incidents including unhealthy alcohol use and experience of IPV (Ditcher et al., 2017). Veterans, in general, were at greater risk for homelessness than civilian populations but did not provide prevalence rates for this statement (Tsai & Rosenheck, 2015). Most studies have demonstrated that female veterans undergoing homelessness is considered a concern, and the challenges are different among female homeless veterans, male homeless veterans and civilians (National Veterans Foundation, 2015).

In the United States, researchers determined that time trends and patient characteristics associated with the use of SGAs in veterans with PTSD without comorbid schizophrenia or bipolar disorders, using the Department of Veterans Affairs national administrative data 2003-2010 (Bauer et al., 2014). The researchers found that SGAs are widely used for PTSD, although without strong evidence base (Bauer et al., 2014). With substantial numbers of veterans returning from Iraq/Afghanistan conflicts with PTSD, it

is important to characterize the extent of SGA use and identify associated factors (Bauer et al., 2014). Without intervention, these concerns can put female veterans at higher risk of homelessness (USDVA, 2016). Another study conducted by Kennedy (2019), found that female veterans are undergoing postmilitary mental health issues; therefore, increased exposure to combat provides a need to study gender differences in combat-related PTSD, depression, and hopelessness mental health services.

Availability of Mental Health Care Providers

Individuals cannot access care if it does not exist in their geographic area, or if providers will not treat them because of insurance, housing instability, low income or other issues (National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Care Services; Committee on Health Care Utilization and Adults with Disabilities, 2018). Researchers provided information related to the examination of frequent mental distress among veterans who participated in the 2019 Behavioral Risk Factor Surveillance Survey who had and had not experienced housing instability in the past 12 months (Bossarte et al., 2014). A review of the literature provided findings which revealed that higher health care costs are most strongly associated with diagnosed mental health disorders, followed by long-term physical health conditions (Burns et al., 2017). Female veterans, the fastest increasing sector in the military, have distinctive pre-military descriptions and military experiences that are associated with post-military physical and mental health service needs (Burkhart & Hogan, 2015). Patel (2015) provided information related to the existing gaps in U.S. mental health care programs. To improve mental health care coverage, it is essential to

address the credibility gap between the paradigms of the diagnosis and treatment of mental disorders adopted by specialists and much of the rest of the world. To bridge this gap, specialists should adapt current classifications such as *DSM-5* into one that can communicate effectively with communities, a task that would need to distinguish distress from disorders, based on the need for biomedical interventions.

Risk Factors

According to the review of the literature, researchers explored disparities in housing status among veterans with general medical, cognitive, and behavioral health conditions (Montgomery et al., 2015). The researchers found disparities in housing instability among VHA outpatients with cognitive and behavioral health conditions, suggesting the need to develop appropriate interventions to mitigate homelessness or risk (Montgomery et al., 2015). Furthermore, a study in which researchers included the following, sampled U.S. veterans, assessed homelessness in the United States, involved homelessness as an outcome or dependent variable and, examined variables in relation to homelessness as a main study aim with the intent to identify risk factors or characteristics associated with homelessness (Tsai et al., 2015). The researchers found that robust risk factors were substance use disorders and mental illness, followed by low income and other income-related factors (Tsai et al., 2015). Meshberg-Cohen et al. (2014) explained that counseling centers are needed at a local, state, and national level, so that they can address the precise employment needs of U.S. veterans that have some sort of disability and/or substance abuse consumption issues.

Income

Female veterans diverge from their male veteran counterparts regarding the ratio of men to women, minority status, economic status, and age (Strong et al., 2018). Female veterans, with an average annual salary of $36,900, have greater profits compared to female civilians at $27,300 (Nanda et al., 2016). Moreover, female veterans worked additional hours per week and more weeks per year, on average, compared to female civilians (Nanda, et al., 2016). However, military positions and training are not constantly exchangeable to the civilian workforce, placing a variety of veterans at a disadvantage when competing for employment (National Coalition for Homeless Veterans, n.d.).

According to the National Hospice and Palliative Care Organization (NHPCO, 2020), a multifaceted variety of predictors exist that can lead to homelessness—lack of affordable housing, sustainable income, access to healthcare services, mental health conditions (depression, PTSD, anxiety, among others), drug use, among others. Researchers (Brown et al., 2017), developed a study about predictors of homeless services re-entry within a sample of adults receiving Homelessness Prevention and Rapid Re-Housing Program (HPRP) assistance, and their findings demonstrated that veterans or civilians obtaining rapid rehousing services, or whose income did not increase during the HPRP, had substantially greater risk of reverting to homeless services. Overall, veterans were considerably at greater risk of re-entry when prevention and rehousing were examined separately (Brown et al., 2017).

These studies were needed to expand the knowledge regarding the examination of the extent to which the possible identified predictors can lead to housing instability

among female veterans' and civilians. The findings of these studies had the potential to provide information to reduce disparities in healthcare access among these populations and a better understanding of factors that influence health resource utilization patterns in the public health field and health care services. For purposes of this study, the previous discussed information enhances the need of this study.

Summary and Conclusions

In this chapter, a review of literature about the predictors that can lead to homelessness among female veterans and civilians. The literature review performed illustrated the factors associated to homelessness, the impact of homelessness on healthcare utilization patterns, and the individuals' characteristics that can lead to homelessness. The published evidence demonstrated that predictors of homelessness imposes a burden on healthcare utilization, and this can vary among populations. Most research that explored the risk factors of becoming homeless used the SEM, and were observational studies including retrospective cohort design, as this study proposed. SEM was described for the role it plays to the overall scheme of understanding the human development and how it can contribute to a better understanding of the intentions of this study and analysis of results.

The literature illustrated that gender, and the mental health state of an individual were factors that predispose the risk of becoming homeless. Since the predictors of homelessness among female veterans and civilians has been related with the magnitude of healthcare utilization patterns, a better understanding of factors that influence these patterns can be used to guide public health policy and practices to improve outcomes in

the homeless population. In Chapter 3, I discuss the research methodology, including data collection and analysis, and provide details about the research setting and study sample. Internal and external threats to validity are also identified.

Chapter 3: Research Method

The purpose of this study was to determine whether there is a relationship between age, alcohol use, depression, employment status, and income level, and the incidence of housing instability among female veterans and civilians. In this chapter, I provide an overview and rationale of the research design used to address the research questions concerning the relationships between the variables being examined. The population selection and sampling procedures of this study are also described. In this chapter, I include an outline of the data collection and analysis plan with an explanation detailing how research questions were addressed using specific variables and circumstances that influenced the study. Finally, the ethical issues and methods used to preserve research integrity are presented in this chapter.

Research Design and Rationale

For this study, I used an exploratory research design by using secondary quantitative data provided by the CDC 2019 BRFSS survey. An exploratory design can be used when no initial studies have been completed or rely on to predict an outcome (University of Southern California, 2019). This exploratory design, in the preliminary stage of investigation, was appropriate to further explanatory research as well as to add to the knowledge base of the selected phenomenon. The appropriateness of the exploratory design was reinforced based on the fact that the exposure and outcomes of interest had already occurred at the time of study initiation, the availability of data, and the resource and time constraint. The use of this design is intended to establish a baseline of

knowledge on this topic, which previous research has demonstrated a lack of investigation in female veterans and civilians.

Methodology

The population used in this research is considered a statistical representation of the 2019 BRFSS survey, which included a collection of state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services (CDC, 2020). The dataset also contains demographic characteristics. The final total BRFSS survey universe in 2019 was 418,268 individuals.

Sampling and Sampling Procedures

The sample for this study consisted of female veterans and civilians, 25 years and older, from the 2019 BRFSS survey. Data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services; demographic characteristics (i.e., age, employment status, income, housing instability—as measured by other arrangement rather than own or rent a home); and presence of comorbidities (i.e., alcohol use and depression) were extracted for each participant in the sample. Details of the sampling procedures are presented below.

The participants selected for inclusion in this study were female veterans and civilians—25 years and older. Female veterans included those who served on active duty in the U.S. Armed Forces, either in the regular military or in a National Guard or military reserve unit. At the time of the report (2019), behavioral risk factors for the adult population living in households with telephones in the state, across the United States, including the District of Columbia, Puerto Rico, Guam, and the Virgin Islands, were

included. All ethnicities were included. Men were excluded because this study focused on two comparison groups (female veterans and civilians). The 2019 BRFSS survey universe excluded behavioral risk factors for the adult population living in noneligible households (i.e., vacation homes, group homes, and institutions) and that did not have telephone service in the state, across the United States, including the District of Columbia, Puerto Rico, Guam, and the Virgin Islands (CDC, 2019). The participants' selection was made because current literature states that there has been an increasing concern regarding the risk of becoming homeless among female veterans and civilians. As a reference data from the 2019 BRFSS survey, 42,146 (10.08%) of female individuals participated in the investigation.

The power analysis serves to determine the probability that a given statistical test will detect an accuracy relationship between variables (Kang, 2013). For this study, I used the Free Statistics Calculators (Version 4.0) software to calculate the power analysis and determine that the optimal sample size was 400 cases to ensure a 95% confidence level with a margin of error of 0.05. This software is considered an appropriate tool to calculate the correct sample size; this has been supported by its wide use in a number of studies (Soper, 2020). The type of power analysis chosen within Free Statistics Calculators was an a priori sample size calculator for multiple regression-given α, power, effect size (.5) and number of predictors (5) in each set, and the statistical test was multiple logistic regression. These forms of multiple logistic regression were appropriate to determine which predictor variables (age, alcohol use, depression, employment status,

income level) have the most predictive power of homelessness among female veterans and civilians.

The power level for this study was 0.95, which means that if there is a relationship, there is a 95% chance of detecting that in this study (Kang, 2013). This power level has been used in previous behavioral and social research (Dumas-Mallet et al., 2017; Ranstad et al., 2014; Trochim, 2006). I used an alpha level of 0.05, which is the standard for social science research because of its power to persuade the scientific community to accept or not accept the research hypothesis (see Palesch, 2014). In addition, previous studies that examined predictors associated to becoming homeless among veterans and civilians have also used an alpha level of 0.05 (Iwundu et al., 2020).

Procedures for Recruitment, Participation, and Data Collection

Recruitment and Participation

A sample entry is a number taken from a list of possible telephone numbers. To comply with BRFSS standards for participation, sample records must be justified as a probability sample from all households in the designated area. All who participated in 2019 met the criteria.

Informed Consent

I did not obtain the participants' informed consent for data collection because the data were obtained from secondary data sources, and no actual data collection was conducted in the study. The Federal Policy for the Protection of Human Subject explains the research activities to which the policy does not apply and includes (a) research involving the collection or study of existing data, documents, or records, if the

information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects, or if research is conducted by or subject to the approval of department or agency administration, and which are designed to study, evaluate, or otherwise examine public benefit or services programs; (b) procedures for obtaining benefits or services under those programs; and possible changes in or alternatives to those programs or procedures (Office for Human Research Protections, 2009). This study met the requirement for federal exemption because it met the aforementioned criteria.

Data Collection

Information used to address the research questions of this study were obtained from the 2019 BRFSS dataset. The 2019 BRFSS survey included data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. The dataset also contains demographic characteristics of community types as of a specified survey reference date. The 2019 BRFSS survey was originally published by the CDC and was reproduced here with the Department's permission.

The system used for monitoring interviewers varied from listening to the interviewer only at an on-site location to listening to both the interviewer and respondent at a remote location. All states had the capability to tabulate disposition code frequencies by interviewer. These data were the primary means for quantifying interviewer performance.

Instrumentation and Operationalization of Constructs

The 2019 BRFSS survey instrument was a 134-page document with 14 core sections and 31 optional modules. The researchers collected uniform, state-specific data on preventive health practices and risk behaviors that are linked to chronic diseases, injuries, and preventable infectious diseases that affect the adult population. Factors assessed by the BRFSS include tobacco use, health care coverage, HIV/AIDS knowledge and prevention, physical activity, and fruit and vegetable consumption. Data are collected from a random sample of adults (one per household) through a telephone survey. This instrument is appropriate to further explanatory research as well as to add to the knowledge base of the selected phenomenon. Permission to use the dataset was requested from the CDC (see Appendix). All potential variables were examined for any issues related to data quality and availability. This assessment of potential variables involved exploratory descriptive analysis of independent variables available at the county, metropolitan statistical area, or state levels from a number of data sources within the same domains that have been identified in prior research.

Data Analysis Plan

The Statistical Package for the Social Sciences (SPSS, Version 25) was the software used for data analysis. I used descriptive statistics—frequencies and percentages with numeric representations of data were conducted to determine the cohort demographic characteristics. From frequency distributions to tables were used to present the age, social category (female veteran or civilian), presence of comorbidities (alcohol

use, depression, income, employment status, and presence of housing instability in the individuals).

Operationalization

The operational definitions of the study variables (age, alcohol use, depression, employment status, income level, and own or rent a home) are described in Table 2.

Table 2

Study Variables Operational Definition

Variables	Level of measurement	Description
Age (in years)	Ordinal	Fourteen-level age category, where Age 18 to 24 = 1, Age 25 to 29 = 2, Age 30 to 34 = 3, Age 35 to 39 = 4, Age 40 to 44 = 5, Age 45 to 49 = 6, Age 50 to 54 = 7, Age 55-59 = 8, Age 60 to 64 = 9, Age 65 to 69 = 10, Age 70 to 74 = 11, Age 75 to 79 = 12, Age 80 or older = 13, Don't know/refused or missing = 14
Alcohol use	Continuous	One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you drink on the average? (A 40 ounce beer would count as 3 drinks, or a cocktail drink with 2 shots would count as 2 drinks.) Where 1-76 = Number of drinks, 77 = Don't know
Depression	Nominal	Has a doctor or other healthcare provider EVER told you that you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)? Where 1= Yes and 2= No
Employment status	Nominal	Are you currently: (employment status), where 1 = employed, 2 = unemployed, 3 = retired
Income level	Ordinal	Is your annual household income from all sources: (If respondent refuses at any income level, code "Refused.")Where 1 = Less than $10,000, 2 = Less than $15,000 ($10,000 to less than $15,000), 3 = Less than $20,000 ($15,000 to less than $20,000), 4 = Less than $25,000 ($20,000 to less than $25,000), 5 = Less than $35,000 ($25,000 to less than $35,000), 6 = Less than $50,000 ($35,000 to less than $50,000), 7 = Less than $75,000 ($50,000 to less than $75,000), 8 = $75,000 or more, Refused = 99
Own or rent a home	Nominal	Do you own or rent your home? (Home is defined as the place where you live most of the time/the majority of the year.), where 1= housing instability and 2= Stable

Prior to conducting the analysis, relevant assumptions of the statistical tests used in the study were examined. Data should meet the following assumptions to ensure appropriate representation of data. Using IBM SPSS (Version 25), the identification of the dependent variable as measured on a dichotomous scale, the identification of one or more independent variables, the identification of independence of observations, the dependent variable had mutually exclusive and exhaustive categories, were examined with no severe violations noted. Additional descriptive statistics were used to evaluate the assumptions of the proposed statistical test. Once assumptions were analyzed, I ran the multiple logistic regression analysis (R^2) in which the predictor variable predicted the criterion to be determined. Logistic regression, and multiple logistic regression were conducted to determine if there is an association between independent and dependent variables. The research questions and hypotheses that addressed this study are illustrated in Table 3.

Table 4 demonstrates the statistical analysis to answer the research questions. Logistic regression was performed to observe if there is an association between each predictor variable under study and the DV (housing instability—females ongoing unstable living conditions), which is a binary variable. Multiple logistic regression was used to predict housing instability and its variation in female veterans and civilians. Multiple logistic regression model was proposed for studying data when there is a single dichotomous outcome and more than one independent variable (Boston University School of Public Health, 2013). This model was used to predict housing instability and its variation in female veterans and civilians. This variation depended on the independent

variables (predictors) under study (age, alcohol use, depression, employment status and income level) These forms of multiple regression were appropriate to determine which predictor variables (age, alcohol use, depression, employment status and income level) have the most predictive power of housing instability among female veterans and civilians.

The results of this study were useful in providing preliminary and representative data about the predictors influencing housing instability among female veterans and civilians. Results to be considered statistically significant were set at a confidence interval of 95%, level of significance (α) equal to 0.05. The *p* value was compared to α; if the *p* value is equal to or less than α, I would reject the null hypothesis. If the *p* value was greater than α, then I would fail to reject the null hypothesis. Findings from the multiple logistic regression analyses were reported by the mean and 95% confidence interval, the *t* statistic or *F* ratio, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the significance (*p* value) and effect size. In Chapter 4, tables 5, 6, and 7 were used to illustrate the results of the regression models.

Table 3

Study Research Questions and Hypotheses

Research questions	Null hypothesis	Alternative hypothesis
RQ1: Is there an association between age with housing instability (other arrangement rather than own or rent a home) among female veterans?	There is no association between age with housing instability (other arrangement rather than own or rent a home) among female veterans.	There is an association between age with housing instability (other arrangement rather than own or rent a home) among female veterans.
RQ2: Is there an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?	There is no association between age with housing instability (other arrangement rather than own or rent a home) among female civilians.	There is an association between age with housing instability (other arrangement rather than own or rent a home) among female civilians.
RQ3: Is there an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?	There is no association between alcohol use with housing instability (other arrangement rather than own or rent a home) among female veterans.	There is an association between alcohol use with housing instability (other arrangement rather than own or rent a home) among female veterans.
RQ4: Is there an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?	There is no association between alcohol use with housing instability (other arrangement rather than own or rent a home) among female veterans civilians.	There is an association between alcohol use with housing instability (other arrangement rather than own or rent a home) among female civilians.
RQ5: Is there an association between depression with housing instability (other arrangement rather than own or rent a home) among female veterans?	There is no association between depression with housing instability (other arrangement rather than own or rent a home) among female veterans.	There is an association between depression with housing instability (other arrangement rather own or rent a home) among female veterans.
RQ6: Is there an association between depression with housing instability (other arrangement rather than own or rent a home) among female civilians?	There is no association between depression with housing instability (other arrangement rather than own or rent a home) among female civilians.	There is an association between depression with housing instability (other arrangement rather own or rent a home) among female civilians.
RQ7: Is there an association between employment status with housing instability (other arrangement rather than own or rent a home) among female veterans?	There is no association between employment status with housing instability (other arrangement rather than own or rent a home) among female veterans.	There is an association between employment status with housing instability (other arrangement rather own or rent a home) among female veterans.
RQ8: Is there an association between employment status with housing instability (other arrangement rather than own or rent a home) among female civilians?	There is no association between employment status with housing instability (other arrangement rather than own or rent a home) among female civilians.	There is an association between employment status with housing instability (other arrangement rather own or rent a home) among female civilians.
RQ9: Is there an association between income level with housing instability (other arrangement rather than own or rent a home) among female veterans?	There is no association between income level with housing instability (other arrangement rather than own or rent a home) among female veterans.	There is an association between income level with housing instability (other arrangement rather own or rent a home) among female veterans.
RQ10: Is there an association between income level with housing instability (other arrangement rather than own or rent a home) among female civilians?	There is no association between income level with housing instability (other arrangement rather than own or rent a home) among female civilians.	There is an association between income level with housing instability (other arrangement rather own or rent a home) among female civilians.
RQ11: Does age, alcohol use, depression, employment status and income level predict housing instability (other arrangement rather than own or rent a home) among female veterans?	Age, alcohol use, depression, employment status and income level do not significantly predict housing instability (other arrangement rather than own or rent a home) among female veterans.	Age, alcohol use, depression, employment status and income level significantly predict housing instability (other arrangement rather own or rent a home) among female veterans.
RQ12: Does age, alcohol use, depression, employment status and income level predict housing instability (other arrangement rather than own or rent a home) among female civilians?	Age, alcohol use, depression, employment status and income level do not significantly predict housing instability (other arrangement rather than own or rent a home) among female civilians.	Age, alcohol use, depression, employment status and income level significantly predict housing instability (other arrangement rather own or rent a home) among female civilians.

Table 4

Statistical Analyses by Research Question

Research questions	Dependent variable	Independent variables	Statistical test
RQ1: Is there an association between age with housing instability (other arrangement rather than own or rent a home) among female veterans?	Housing instability	Age	Logistic regression
RQ2: Is there an association between age with housing instability (other arrangement rather than own or rent a home) among female civilians?	Housing instability	Age	Logistic regression
RQ3: Is there an association between alcohol use with housing instability (other arrangement rather than own or rent a home) among female veterans?	Housing instability	Alcohol use	Logistic regression
RQ4: Is there an association between alcohol use with housing instability (other arrangement rather than own or rent a home) among female civilians?	Housing instability	Alcohol use	Logistic regression
RQ5: Is there an association between depression and housing instability (other arrangement rather than own or rent a home) among female veterans?	Housing instability	Depression	Logistic regression
RQ6: Is there an association between depression and housing instability (other arrangement rather than own or rent a home) among female civilians?	Housing instability	Depression	Logistic regression
RQ7: Is there an association between employment status with housing instability (other arrangement rather than own or rent a home) among female veterans?	Housing instability	Employment status	Logistic regression
RQ8: Is there an association between employment status with housing instability (other arrangement rather than own or rent a home) among female civilians?	Housing instability	Employment status	Logistic regression
RQ9: Is there an association between income level with housing instability (other arrangement rather than own or rent a home) among female veterans?	Housing instability	Income level	Logistic regression
RQ10: Is there an association between income level with housing instability (other arrangement rather than own or rent a home) among female civilians?	Housing instability	Income level	Logistic regression
RQ11: Does age, alcohol use, depression, employment status and income level predict housing instability (other arrangement rather than own or rent a home) among female veterans?	Housing instability	Age Alcohol use Depression Employment status Income level	Multiple logistic regression
RQ12: Does age, alcohol use, depression, employment status and income level predict housing instability (other arrangement rather than own or rent a home) among female civilians?	Housing instability	Age Alcohol use Depression Employment status Income level	Multiple logistic regression

Threats to Validity

External Validity

Threats to external validity arise when researchers make inaccurate inferences from the sample to other people, settings, and past or future situations (Creswell, 2009). In order to address threats to external validity, the findings were not generalizable to the general population because this study focused on female veterans and civilians. As mentioned previously, I used a dataset in this research that is considered a statistical representation of the U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. The dataset also contains demographic characteristics of community types as of a specified survey reference date. A large sample was part of the study, increasing the statistical power and external validity (see Sedgwick, 2014). The results of this study were useful in providing preliminary and representative data about the predictors influencing homelessness among female veterans and civilians.

Internal Validity

Threats to the internal validity include experiences, treatments, or procedures that threaten the researcher's ability to make correct inferences from the data about the population being studied (Creswell, 2009). In this study, research bias may occur when interpreting the results. These elements might impact internal validity, however, there are strategies to mitigate this issue and maintain objectivity. When analyzing the findings, I can use multiple people to code the data, have participants review the results, verify with

more data sources, corroborate for alternative explanations, and review findings with peers (Regoniel, 2013).

Ethical Procedures

Prior to study data collection, the Institutional Review Board (IRB) from Walden University reviewed the approval of the investigation. The archival data to be analyzed was obtained through ethical, professional, and proper procedures available to other researchers. The 2019 BRFSS report was originally published by the CDC and was reproduced in this research with the Department's permission. There are no identified risks for participants and because the study included secondary data, information of the participants was not affected by inclusion in the study. Participants were unaware of the study, as well as if whether or not they would be anonymous. Withdrawal from the study was not possible because of the inclusion criteria and exploratory design using archival data.

Summary

In this chapter, I provided an explanation of the study methodology, with research questions focusing on whether or not there is a relationship between age, alcohol use, depression, employment status, income level, and housing instability (other arrangement rather than own or rent a home) among female veterans and civilians—25 years and older. I used an exploratory design and multiple logistic regression to obtain a representative sample size to analyze and interpret results accurately. Threats to the validity and ethical procedures were also presented to preserve the research integrity of

this study. In the next chapter, the results of the study are presented, and each research question is addressed and supported by a quality discussion.

Chapter 4: Results

The purpose of this study was to determine whether there is a relationship between age, alcohol use, depression, employment status, and income level, and the incidence of housing instability among female veterans and civilians. I used the quantitative approach in this study to find the differences in the variables of the research. Included in this chapter are the following: the timeframe, methods for data collection, what was employed for recruiting participants, response rates of implied participants, any withdrawals from data collection methods discussed in Chapter 3, the demographic characteristics of the sample, and representativeness of the sample. I next describe the results of the data in detail, including a report of the descriptive statistics that characterize the sample, an evaluation of whether the sample data met statistical assumptions for logistic regression and multiple logistic regression, and a detailed report of statistical findings (formulated by research questions and hypotheses). I used SPSS to perform the different statistical analyses and evaluate the following research questions and hypotheses:

RQ1: Is there an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$1: There is no association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$1: There is an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ2: Is there an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$2: There is no association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$2: There is an association between age with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ3: Is there an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$3: There is no association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$3: There is an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ4: Is there an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$4: There is no association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$4: There is an association between alcohol use with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ5: Is there an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$5: There is no association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$5: There is an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ6: Is there an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$6: There is no association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$6: There is an association between depression with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ7: Is there an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$7: There is no association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$7: There is an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ8: Is there an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$8: There is no association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$8: There is an association between employment status with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ9: Is there an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$9: There is no association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$9: There is an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ10: Is there an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$10: There is no association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$10: There is an association between income level with housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

RQ11: Do age, alcohol use, depression, employment status, and income level predict housing instability (as measured by other arrangement rather than own or rent a home) among female veterans?

$H_0$11: Age, alcohol use, depression, employment status, and income level do not significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

$H_1$11: Age, alcohol use, depression, employment status, and income level significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female veterans.

RQ12: Do age, alcohol use, depression, employment status, and income level predict housing instability (as measured by other arrangement rather than own or rent a home) among female civilians?

$H_0$12: Age, alcohol use, depression, employment status, and income level do not significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female civilians.

$H_1$12: Age, alcohol use, depression, employment status, and income level significantly predict housing instability (as measured by other arrangement rather than own or rent a home) among female civilians. A summary is presented at the end of the chapter with the answers to the research questions and a transitional presentation of the findings into an introduction to the next chapter.

Data Collection

Sample Selection

Deidentified data used in this study were archival and came from the CDC 2019 BRFSS survey. I proceed to work with this data after receiving IRB approval (11/23/2021) from Walden University (# 11-23-21-0579715). Based on the current database, revisions had to be made for the type of statistical analysis. The chosen target population for this study consisted of 42,146 (10.08%) female individuals who participated in the 2019 BRFSS survey. From those 42,146 female individuals, 11,043 cases did not have missing values. Data were previously weighted and stratified; therefore, tends to decrease the probability of errors, increase the accuracy of population estimates, and augment the generalizability of the results to more representative of the population (LeBlanc & Fitzgerald, 2000; Osborne & Costello, 2004). The study results are generalizable for the population under study, female veterans and civilians—25 years and older.

For this study, I used the Free Statistics Calculators (Version 4.0) software to calculate the power analysis and determine that the optimal sample size was 400 cases to ensure a 95% confidence level with a margin of error of 0.05. For this study, I included

all female veterans and civilians—25 years and older, who participated in the 2019 BRFSS survey and did not have missing values. The final population of the study consisted of 11,043 female veterans and civilians—25 years and older. I calculated descriptive statistics to describe the variables associated with the participant sample.

Baseline Descriptive and Demographic Characteristics

Data for this study were coded, compiled, and analyzed with the application of Complex Samples using SPSS (Version 25.0). The collected data included weighted scores of the 2019 BRFSS survey. I calculated descriptive statistics for the demographic variables. Female veterans included those who served on active duty in the U.S. Armed Forces, either in the regular military or in a National Guard or military reserve unit. Data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services, as well as demographic characteristics, were extracted for each participant in the sample. At the time of the report (2019), behavioral risk factors for the adult population living in households with telephones in the state, across the United States, including the District of Columbia, Puerto Rico, Guam, and the Virgin Islands, were included. All ethnicities were included. The demographic characteristics of the sample are further described in Table 5.

Table 5

Sample Demographic Characteristics (N = 11,043)

Characteristics	Estimate	Unweighted Count
Veteran status		
Veteran	49,167 (2.3%)	280
Civilian	2,095,781 (97.7%)	10,763
Age		
25 to 39	103,428 (4.8%)	320
40 to 54	290,494 (13.5%)	1,068
55 to 69	652,273 (30.4%)	3,669
70 or older	1,098,753 (51.2%)	5,986
Average drink per day		
1	1,317,988 (62.4%)	7,019
2	554,758 (26.3%)	2,707
3	134,161 (6.4%)	638
4 or more	105,784 (5%)	511
Housing status		
Housing instability	337,731 (15.7%)	1,940
Stable	1,807,218 (84.3%)	9,103
Employment status		
Employed	714,643 (33.3%)	3,515
Unemployed	270,513 (12.6%)	1,188
Retired	1,159,792 (54.1%)	6,340
Income level		
Less than $15,000	189,779 (8.8%)	855
$15,000 to less than $25,000	468,327 (21.8%)	2,181
$25,000 to less than $50,000	705,685 (32,9%)	3,744
$50,000 or more	781,157 (36.4%)	4,263
Depressive disorder		
Yes	456,628 (21.3%)	2,297
No	1,682,836 (78.7%)	8,709

Results

Testing Statistical Assumptions

I examined the assumptions underlying each statistical test prior to the analysis. Using IBM SPSS (Version 25), the identification of the dependent variable as measured on a dichotomous scale, the identification of one or more independent variables, the identification of independence of observations, the dependent variable had mutually exclusive and exhaustive categories, were examined with no severe violations noted. The study's sample demonstrated the characteristics of the population so that the sample findings can be generalized to the target population—female veterans and civilians (25 years and older).

Statistical Analysis Findings

Research Question 1

Logistic regression was performed to observe whether there is an association between age (IV) and the DV (housing instability) among female veterans. A significance level of .05 was used to ensure a 95% confidence. The logistic regression model was statistically significant among female veterans, $p < .05$; therefore, the null hypothesis was rejected. The model explained 24.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Female veterans between 25 to 39 years old, and 55 to 69 years old demonstrated a likelihood of exhibiting housing instability compared to female veterans between 40 to 54 years old.

Research Question 2

Logistic regression was performed to observe if there is an association between age (IV) and the DV (housing instability) among female civilians. The logistic regression model was statistically significant among female civilians, $p < .05$; therefore, the null hypothesis was rejected. The model explained 6.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Decreasing age was associated with an increased likelihood of exhibiting housing instability among female civilians.

Research Question 3

Logistic regression analysis was performed to observe if there is an association between alcohol use (IV) and the DV (housing instability) among female veterans. A significance level of .05 was used to ensure a 95% confidence. The logistic regression model was statistically significant among female veterans, $p < .05$; therefore, the null hypothesis was rejected. The model explained 5.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Increasing the average alcohol drinks per day in the past 30 days was associated with an increased likelihood of exhibiting housing instability among female veterans.

Research Question 4

Logistic regression was performed to observe if there is an association between alcohol use (IV) and the DV (housing instability) among female civilians. The logistic regression model was statistically significant among female civilians, $p < .05$; therefore, the null hypothesis was rejected. The model explained 2.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Increasing the

average alcohol drinks per day in the past 30 days was associated with an increased likelihood of exhibiting housing instability among female civilians.

Research Question 5

Logistic regression analysis was performed to observe if there is an association between depression (IV) and the DV (housing instability) among female veterans. A significance level of .05 was used to ensure a 95% confidence. The logistic regression model was statistically significant among female veterans, $p < .05$; therefore, the null hypothesis was rejected. The model explained 4.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Ever told if the participant had a depressive disorder was not associated with an increased likelihood of exhibiting housing instability among female veterans.

Research Question 6

Logistic regression analysis was performed to observe if there is an association between depression (IV) and the DV (housing instability) among female civilians. The logistic regression model was statistically significant among female civilians, $p < .05$; therefore, the null hypothesis was rejected. The model explained 1.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Ever told if the participant had a depressive disorder was not associated with an increased likelihood of exhibiting housing instability among female civilians.

Research Question 7

Logistic regression was performed to observe if there is an association between employment status (IV) and the DV (housing instability) among female veterans. A

significance level of .05 was used to ensure a 95% confidence. The logistic regression model was not statistically significant among female veterans, $p > .05$. The model explained 2.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Unemployed female veterans were 1.923 times more likely to exhibit housing instability compared to the employed counterparts.

Research Question 8

Logistic regression analysis was performed to observe if there is an association between employment status (IV) and the DV (housing instability) among female civilians. The logistic regression model was statistically significant among female civilians, $p < .05$. The model explained 5.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Unemployed female civilians were 3.578 times more likely to exhibit housing instability compared to the employed counterparts. The logistic regression model was statistically significant among female civilians, $p < .05$; therefore, I failed to reject the null hypothesis.

Research Question 9

Logistic regression analysis was performed to observe if there is an association between income (IV)—treated as a four-level categorical variable, and the DV (housing instability) among female veterans. The logistic regression model was statistically significant among female veterans, $p < .05$; therefore, the null hypothesis was rejected. The model explained 28.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Decreasing income was associated with an increased likelihood of exhibiting housing instability among female veterans.

Research Question 10

Logistic regression analysis was performed to observe if there is an association between income (IV)—treated as a four-level categorical variable, and the DV (housing instability) among female civilians. The logistic regression model was statistically significant among female civilians, $p < .05$; therefore, the null hypothesis was rejected. The model explained 13.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. Increasing income was associated with an increased likelihood of exhibiting housing instability among female civilians.

Research Question 11

I conducted a multiple logistic regression analysis to examine the extent to which the independent variables (age, alcohol use, depression, employment status, and income level) predicted the dependent variable of housing instability among female veterans. The multiple logistic regression analysis determines if the predictors under study significantly predicted housing instability among the population under study. A level of significance of .05 was used in the multiple logistic regression analysis. There is a significant predictive relationship if the *p* value is less than the level of the significance value. Based on the multivariate logistic regression test, table 6 illustrates that age, alcohol use, depression, employment status, and income can predict housing instability among female veterans. The multiple logistic regression model was statistically significant among female veterans, $p < .05$. The model explained 50.0% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. The predictor variables were also investigated individually. As individual variables, age, alcohol use, depression,

employment status and income level did not predict housing instability among female veterans. Female veterans between 25 to 39 years old, and 55 to 69 years old demonstrated a likelihood of exhibiting housing instability compared to female veterans between 40 to 54 years old, given the other predictors under study. The average alcohol drinks per day in the past 30 days was associated with an increased likelihood of exhibiting housing instability among female veterans, given the other predictors under study. Ever told if the participant had a depressive disorder, employment status and income level was not associated with an increased likelihood of exhibiting housing instability among female veterans, given the other predictors under study. The Cox and Snell R^2 (measure of effect size) of the logistic regression was .258, which means the predictors under study explained a variance of 25.8% in predicting housing instability among female veterans.

Table 6

Multiple Logistic Regression Among Female Veterans (n = 48,815)

		95% CI		*p*-value
Predictor	Odds ratio	Lower	Upper	
Age (years old)				< .001*
25 to 39	127.383	15.498	1047.040	
40 to 54	.082	.044	.151	
55 to 69	.163	.076	.349	
Average drinks per day in the last 30 days	2.287	1.538	3.400	< .001*
Depression	.393	.176	.879	.024
Employment status	.432	.259	.720	.002
Income	.307	.179	.527	< .001*

* *p* value statistically significant at < .05

Research Question 12

I conducted a multiple logistic regression analysis to examine the extent to which the independent variables (age, alcohol use, depression, employment status, and income level) predicted the dependent variable of housing instability among female civilians. Based on the multivariate logistic regression test, table 7 illustrates that age, alcohol use and income can predict housing instability among female civilians, while depression and employment status cannot predict housing instability among female civilians. The model explained 18.1% (Nagelkerke R^2) of the variance in housing instability and correctly classified 100% of cases. The predictor variables were also investigated individually. Decreasing age was associated with an increased likelihood of exhibiting housing instability among female civilians, given the other predictors under study. The average alcohol drinks per day in the past 30 days was associated with an increased likelihood of exhibiting housing instability among female civilians, given the other predictors under study. Ever told if the participant had a depressive disorder, employment status and income level was not associated with an increased likelihood of exhibiting housing instability among female civilians, given the other predictors under study. The Cox and Snell R^2 (measure of effect size) of the logistic regression was .104, which means the predictors under study explained a variance of 10.4% in predicting housing instability among female civilians. The multiple logistic regression model was statistically significant among female veterans, $p < .05$. On the other hand, age, alcohol use and income can predict housing instability among female civilians, while depression and

employment status cannot predict housing instability among female civilians; therefore, I failed to reject the null hypothesis.

Table 7

Multiple Logistic Regression Among Female Civilians (n = 2,058,616)

		95% CI		
Predictor	Odds ratio	Lower	Upper	*p* value
Age (years old)				< .001*
25 to 39	5.320	3.053	9.272	
40 to 54	2.084	1.453	2.989	
55 to 69	1.049	.814	1.352	
Average drinks per day in the last 30 days	1.160	1.020	1.320	.024
Depression	.811	.645	1.020	.073
Employment status	.975	.843	1.127	.731
Income	.465	.415	.520	< .001*

** p value statistically significant at < .05.*

Summary

The purpose of this study was to determine if there is a relationship between age, alcohol use, depression, employment status, income level, and housing instability (as measured by other arrangement rather than own or rent a home). Demographic characteristics, descriptive statistics analysis, logistic regression and multiple logistic regression analysis, were conducted to test the research questions and hypotheses posed in this study. For Research Questions 1 and 2, the findings of the logistic regression analysis demonstrated a significant association between age and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected.

Also, female veterans between 25 to 39 years old, and 55 to 69 years old demonstrated a likelihood of exhibiting housing instability compared to female veterans

between 40 to 54 years old, while decreasing age was associated with an increased likelihood of exhibiting housing instability among female civilians. For Research Question 3 and 4, the findings of the logistic regression analysis demonstrated a significant association between alcohol use and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected. Increasing the average alcohol drinks per day in the past 30 days was associated with an increased likelihood of exhibiting housing instability among female veterans and civilians. For Research Questions 5 and 6, the findings of the logistic regression analysis demonstrated a significant association between depression and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected. Ever told if the participant had a depressive disorder was not associated with an increased likelihood of exhibiting housing instability among female veterans and civilians; therefore, I failed to reject the null hypothesis. For Research Question 7, the logistic regression model was not statistically significant among female veterans, $p > .05$, therefore, I failed to reject the null hypothesis. For Research Question 8, the logistic regression model was statistically significant among female civilians, $p < .05$; therefore, the null hypothesis was rejected. Unemployed female veterans were 1.923 times more likely to exhibit housing instability compared to the employed counterparts, while unemployed female civilians were 3.578 times more likely to exhibit housing instability compared to the employed counterparts. For Research Questions 9 and 10, the findings of the logistic regression analysis demonstrated a significant association between income and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected.

Decreasing income was associated with an increased likelihood of exhibiting housing instability among female veterans, while increasing income was associated with an increased likelihood of exhibiting housing instability among female civilians. For Research Question 11, the findings of the multivariate logistic regression test demonstrated that age, alcohol use, depression, employment status, and income can predict housing instability among female veterans. The Cox and Snell R^2 (measure of effect size) of the logistic regression was .258, which means the predictors under study explained a variance of 25.8% in predicting housing instability among female veterans. For Research Question 12, age, alcohol use and income can predict housing instability among female civilians, while depression and employment status cannot predict housing instability among female civilians; therefore, I failed to reject the null hypothesis. Regarding the female civilian population, the Cox and Snell R^2 (measure of effect size) of the logistic regression was .104, which means the predictors under study explained a variance of 10.4% in predicting housing instability among female civilians. Chapter 5 contains the findings from the study, explains how they relate to the literature on this topic, suggests implications for action, and provides recommendations for future research.

Chapter 5: Discussion, Conclusion, and Recommendations

The purpose of this study was to determine whether there is a relationship between age, alcohol use, depression, employment status, income level, and housing instability among female veterans and civilians. In this study, I used an exploratory research design by using secondary quantitative data provided by the CDC 2019 BRFSS survey. SPSS (Version 25) was the software used for data analysis and generate results. The population under study were female veterans and civilians—25 years and older, from the 2019 BRFSS survey.

The results of this study contributed to the overall understanding of the burden of homelessness on the United States and its territories; therefore, it could be used to inform interventions and programs to reduce homelessness among female veterans. In this chapter, I will review the findings of this study, introduction, interpretations, limitations of the study, recommendations, implications, and conclusion.

Interpretation of the Findings

Demographic characteristics, descriptive statistics analysis, logistic regression, and multiple logistic regression analysis were conducted to test the research questions and hypotheses posed in this study. For Research Questions 1 and 2, the findings of the logistic regression analysis demonstrated a significant association between age and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected. Also, female veterans between 25 to 39 years old, and 55 to 69 years old demonstrated a likelihood of exhibiting housing instability compared to female veterans between 40 to 54 years old, while decreasing age was associated with an

increased likelihood of exhibiting housing instability among female civilians. Over 70% of homeless individuals are young adults below the age of 50; therefore, homelessness is more likely to affect people aged 24–50; hence, the homeless population is comparatively younger than the total U.S. population (Stasha, 2022).

For Research Questions 3 and 4, the findings of the logistic regression analysis demonstrated a significant association between alcohol use and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected. Increasing the average alcohol drinks per day in the past 30 days was associated with an increased likelihood of exhibiting housing instability among female veterans and civilians. Researchers (Stacy et al., 2017), found that veterans experiencing homelessness who are drug users identified the drug use as a frequent cause for job loss, and were more likely to have alcohol (instead of drug) use diagnoses, and to have greater scores on alcohol use measures.

For Research Question 5 and 6, the findings of the logistic regression analysis demonstrated a significant association between depression and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected. Ever told if the participant had a depressive disorder was not associated with an increased likelihood of exhibiting housing instability among female veterans and civilians; therefore, I failed to reject the null hypothesis. The Veterans Affairs understands that without intervention, mental health concerns can lead female veterans at higher risk of homelessness (Fargo et al., 2012; Kane, 2013). Homeless female veteran does experience higher levels of PTSD and depression (Stasha, 2022). Female veterans are six times more

likely to commit suicide than civilian counterparts, and present posttraumatic stress (PTS) rates that sit at approximately 20% (with some studies reporting statistics up to 50%), along with 20-30% for depressive disorders (Shields et al., 2020).

For Research Question 7, the logistic regression model was not statistically significant among female veterans, $p > .05$, therefore, I failed to reject the null hypothesis. For Research Question 8, the logistic regression model was statistically significant among female civilians, $p < .05$; therefore, the null hypothesis was rejected. Unemployed female veterans were 1.923 times more likely to exhibit housing instability compared to the employed counterparts, while unemployed female civilians were 3.578 times more likely to exhibit housing instability compared to the employed counterparts. Previous studies suggest that veterans strive to preserve employment after discharge from the military (U.S. Department of Veterans Affairs, 2015). Unemployment is considered by veterans undergoing homelessness as a contributing factor to their housing status (Metraux et al., 2017). In a study developed by Hendrikx et al. (2020), researchers found that veterans are more likely than civilians to encounter work difficulties, but there persists lack of research investigating contributing factors, mainly among samples of treatment-seeking veterans.

For Research Questions 9 and 10, the findings of the logistic regression analysis demonstrated a significant association between income and housing instability among female veterans and civilians, $p < .05$; therefore, the null hypothesis was rejected. Decreasing income was associated with an increased likelihood of exhibiting housing instability among female veterans, while increasing income was associated with an

increased likelihood of exhibiting housing instability among female civilians. Housing instability includes a variety of challenges, such as having difficulty paying rent, overcrowding, moving frequently, living with relatives, or spending the bulk of household income on housing (Frederick et al., 2014; Kushel et al., 2006). There are groups of individuals who experience homelessness in different ways, but all homelessness is characterized by severe deprivation coupled with a lack of stable housing (National Health Care for the Homeless Council, 2020).

For Research Question 11, the findings of the multivariate logistic regression test demonstrated that age, alcohol use, depression, employment status, and income can predict housing instability among female veterans. The Cox and Snell R^2 (measure of effect size) of the logistic regression was .258, which means the predictors under study explained a variance of 25.8% in predicting housing instability among female veterans. For Research Question 12, age, alcohol use and income can predict housing instability among female civilians, while depression and employment status cannot predict housing instability among female civilians; therefore, I failed to reject the null hypothesis. Regarding the female civilian population, the Cox and Snell R^2 (measure of effect size) of the logistic regression was .104, which means the predictors under study explained a variance of 10.4% in predicting housing instability among female civilians.

Predictors exist among veterans becoming homeless due to psychotic disorders, drug use, income level, racial lines, and housing instability (Tsai & Hoff, 2017). Approximately, 9 out of 10 individuals who live in the streets or shelters are adults aged 24 or more (Stasha, 2022). According to Kennedy (2019), both the homeless and

nonhomeless female veterans who were deployed/in combat endured levels of both PTSD, depression, and hopelessness. Pittman et al. (2012) found that PTSD and depression are comorbid conditions; PTSD and depression had comparable severity relating to a health-related quality of life concerns. Communities can be affected financially and physically due to homelessness or individuals undergoing lack of shelter (von Wurden, 2018). For example, many female veterans have experienced depression after living military services (Thomas & Hunter, 2019). Numerous female veterans have experienced the same stressors as male veterans such as financial hardship, difficulty transitioning to civilian life, isolation, relationship challenges, and depression (Pittaro, 2018).

My findings align with those of other studies that have demonstrated that female veterans undergoing homelessness is considered a concern, and the challenges are different among female homeless veterans, male homeless veterans and civilians (National Veterans Foundation, 2015). According to Boothe (2017), several homeless female veterans considered themselves invisible since they would rather stay with family members than on the streets or shelters due to security concerns related to housing options for single mothers, for example. Female veterans are more likely to be mothers and mothers at a younger age compared to civilians (Gonzalez et al., 2020; U.S. Department of Veterans Affairs, 2011). Researchers Tsai et al. (2015) conducted a study regarding the characteristics and use of services among homeless and unstably housed U.S. veterans with custody of minor children and found that 30% of female veterans undergoing homelessness had children in custody, 45% of female veterans experiencing

housing vulnerability had children in custody, and 11% of homeless veterans with children in custody had psychotic disorders. The findings were not generalizable to the general population because this study focused on female veterans and civilians. The results of this study were useful in providing preliminary and representative data about the predictors influencing homelessness among female veterans and civilians.

Relationship of the Findings to the Theoretical Framework

The ecological theory (Bronfenbrenner, 1977) was used to explain the consequences of risk factors that determine an individual's environment and socioeconomic circumstances. The ecological theory was essential to this study because homelessness can be understood, not by evaluating the attributes of the individual, but by comprehending the environmental and social circumstances of that individual (Stasha, 2022).

Limitations of the Study

I identified limitations that are relevant to the validity of this investigation. Because of the exploratory design to be used for this quantitative study, it was important to note the threats to internal validity that can exist. This study is limited to the use of previously collected data including the following. Data were not collected to answer the specific information that the researcher would like to have been collected; data were not collected in the geographic region of interest, in the years the researcher would have chosen, and on the specific population that was the focus of interest (Boslaugh, 2007; Doolan & Froelicher, 2009). In addition, since I did not participate in the data collection process and do not know exactly how it was collected, I do not know how well it was

done and whether data was affected by problems such as low response rate or respondent misunderstanding of specific survey questions. As the researcher for this study, I agree that recorded information may be the result of bias (Coohey, 2006; Shadoin & Carnes, 2006). Also, I did not include effect modification in my research design or perform a direct comparison of population groups by considering female veterans and civilians as independent variables. A potential limitation in this study is that I have not included confounding variables which are unexpected variables that diminish the internal validity of the research findings, and I did not have a specific measure for homelessness.

Recommendations

I identify opportunities for further research and changes in practices that may result in enhanced public health services coordination, care, and outcomes for female veterans and civilians. Future studies may explore the research questions using a different method, such as a mixed-method or qualitative approach. In this manner, the experiences and perspectives of the participants can be more deeply explored. This sort of research should be followed up on so that additional information for the literature of epidemiology is provided, including other health areas. Prospective research into what mental health concerns exist particular to female veterans should be addressed; therefore, this can explain why female veterans confront different challenges to reintegrate to civilian life after finishing their years of military service. Two notable examples not included in this study but recommended for future research are the study of women who endured military sexual trauma (MST) as well as the prevalence of substance abuse among female veterans. By understanding the prevalence of these factors among this population, social

programs can be developed to help and guide female veterans undergoing readjustments into their community. Also, future researchers may use the secondary data I used in this study to assess for effect modification by examining the association separately for each level of the third variable.

Additional studies may also focus on the same topic but use different research questions. Furthermore, future researchers might want to carry out a similar study in another setting (Leppink, 2017). Given the knowledge gap and disparities in healthcare access among these populations, a better understanding of factors that influence health resource utilization patterns in the public health field and health care services will be needed.

Implications

This study examined the predictive factors that influence homelessness among female veterans and civilians. The results of this study were useful in providing preliminary and representative data about the predictors influencing homelessness among female veterans and civilians. Researchers should identify new cases of homelessness; therefore, by mitigating the predictors that can lead to homelessness, positive social implications can be accomplished.

The findings of my study suggest a range of policy, housing, and service needs. Female veterans' increased risk of becoming homeless suggests the need for practitioners to address mental health, substance use, reintegration stability, and other health care needs and use trauma-informed interventions to ensure high-quality care. Practitioners also need to be well versed in military and veteran culture to provide the linkages to care

and support systems required by these veterans. For example, at an individual level, interventions should target younger female veterans. At a peer level, VA doctors should screen female veterans for depression and alcohol abuse and refer “problem cases” to case workers who can intervene before they end up homeless. At a community level, a community campaign could be used to recruit local businesses into a program that helps female veterans maintain employment. It is known that higher levels of education are typically associated with higher incomes; therefore, it provides skills that boost employment opportunities and incomes while helping to protect from socioeconomic vulnerabilities.

Conclusion

The purpose of this study was to determine whether there is a relationship between age, alcohol use, depression, employment status, income level, and housing instability among female veterans and civilians. Exploring the incidence of homelessness by measuring and predicting homeless incidence is critical for primary and secondary prevention. The research findings may positively impact society through health promotion and educational efforts to increase knowledge regarding homelessness among female veterans and civilians. The findings might also allow healthcare providers, patients, and the general community to prevent and control this public social issue by developing frameworks to ensure the well-being and health services needed for female adults living with one or more of the identified predictors. Better understanding of the predictors influencing homelessness among female veterans and nonveterans may improve their health outcomes by innovating healthcare systems and reducing disparities

in the health care access. The findings of this study have the potential to inform and outline policy that can improve health services delivery for female veterans and nonveterans by establishing tailored interventions that facilitate the use of healthcare resources for these populations, thereby minimizing homelessness.

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Appendix: BRFSS survey —Feedback from CDC

Reply from CDC/BRFSS [use; [CDC-1475054-T6V7P0] CRM:00707568

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Flegel, David (CDC/DDNID/NCCDPHP/DPH) (CTR) <ijt2@cdc.gov>
Mar 16/03/2021 11:33

Para: Victoria Justiniano Quinones

CC: CDC-INFO Response (CDC) <cdcinforesponse@cdc.gov>; Public Inquiries DPH (CDC) <PublicInquiriesDPH@cdc.gov>

Hello, Ms. Justiniano Quiñones!

Thank you for your BRFSS inquiry! Dave Flegel here. I am a tech writer, working with CDC in BRFSS.

Please note that the resources you find here on the BRFSS public website are for public use. You are welcome to use them! CDC - BRFSS Annual Survey Data

A few notes for you:

>The homepage is www.cdc.gov/brfss.
>The FAQ may be helpful, particularly item 14, which gives suggested citations for BRFSS materials CDC - BRFSS - BRFSS Frequently Asked Questions (FAQs)
>State-level data and MMSA (metropolitan/micropolitan statistical area) are available, as noted. County-level data are restricted. Data-users need to apply for access to that data set. Let me know and I can send you information on how to go that route. CDC does not release zip code data.
>The full data sets require the use of statistical software like SAS to open the data set, extract the data you need, and run your analyses. The Prevalence and Trends Tools and some of the prepared data sets available through the BRFSS data portal BRFSS Prevalence & Trends Data: Home | DPH | CDC give quick access to portions of the data sets. You do not need extra software to use these tools and prepared data sets that use the filter buttons. (You will see all of this on the BRFSS website. There are buttons to click to take you to them.)
>If you do use a full data set with software, be sure to read all of the support documents that are produced each year with the data set. You will need to know how to use things like the codebook to identify and use the different variables. There are all sorts of explanations on how the data are weighted and data users should have a good grasp of the resources before they begin.
>The annual survey has three major sections: Core, Optional Modules, and State-added questions. Please refer to the support documents for specific information about each section and considerations for using the data. If you want to use the optional module data, it is a good idea to read the Module Analysis document that has been published many different years. If a Module document is not available for your year of interest, you may still want to read the Module documents from other years. The step-by-step instructions on how to do these complex analyses can be useful.
>The questionnaire archive also can be helpful, if you want to find and confirm which topics were asked in which years and in which sections. You can find the archive here, as well as a historical question database that shows how the questions were used over the years and in which sections: CDC - BRFSS - Questionnaires

I hope this helps you get started. Good luck on your graduate work!

Sincerely,

David Flegel
Technical Writer/Editor
Working with the Behavioral Risk Factor Surveillance System
Office: 770.488.4611