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Sociodemographic and Psychosocial Factors and Wellbeing Among Adults 65 and Older in England

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Walden University

College of Health Professions

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Dainelle N'keeta Clark

has been found to be complete and satisfactory in all respects,
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Walden University
2021

Abstract

Sociodemographic and Psychosocial Factors and Wellbeing Among Adults 65 and Older in England

by

Dainelle N’keeta Clark

MS, Hood College, 2003

BA, Hood College, 1994

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

August 2021

Abstract

The increased number of older adults living longer parallels with the growth of public health concerns regarding the impact of sociodemographic and psychosocial factors (e.g., loneliness and social isolation) on older adults' wellbeing. The purpose of this quantitative study was to examine the association between loneliness, social isolation, the combined model of loneliness, and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support. The socioecological model (SEM) was used to evaluate the multiple levels of environmental determinants for loneliness, social isolation, and wellbeing. The target population included older adults 65 years and older from England who participated in the England Longitudinal Study of Aging (ELSA). The study design involved secondary ELSA data to run descriptive bivariate data analysis and inferential binary logistic regression statistics. The data analysis revealed a statistically significant association between loneliness and wellbeing (*OR* = .18; *p* = .01, *OR* = .2; *p* = .01, *OR* = 6.3; *p* = .01). No significant association was found between social isolation and wellbeing (*OR* = .89; *p* = .52, *OR* = 1.2; *p* = .52, *OR* = 1.2; *p* = .59) and combined loneliness and social isolation model and wellbeing (*OR* = .64; *p* = .54, *OR* = .93; *p* = .92, *OR* = .52; *p* = .4). The study’s findings can contribute to positive social change by validating SEM principles that multiple levels of environmental determinants influence human health and behavior outcomes. This information can be used to improve public health practices to identify older adults who are lonely, socially isolated, or both and develop more appropriate interventions necessary to meet older adults' needs to alleviate or reduce loneliness and social isolation.

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Dedication

This doctoral study is dedicated to God and His ordinance over my life. Habakkuk 2: 2-3 states, “And the Lord answered me, and said, Write the vision, and make it plain upon tables, that he may run that readeth it. For the vision is yet for an appointed time, but at the end, it shall speak, and not lie: though it tarry, wait for it; because it will surely come, it will not tarry” (King James Version). God has given me strength, endurance, and guidance to complete this doctoral journey. I dedicate this research to my mom, dad, grandmother, grandfather, and other family members who were instrumental in defining my vision about the importance of the quality of life, the wellbeing of the aging population, and the preservation of life.

Acknowledgments

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Section 1: Foundation of the Study and Literature Review

Introduction

Sociodemographic and psychosocial factors impact an individual's wellbeing throughout their life (Jebb et al., 2020; Stevenson & Rao, 2014). Social needs are known to change through the aging process, and the fulfillment of these social needs is relevant to older adults' health and wellbeing (Appau et al., 2020; Martín-María et al., 2020; Steptoe & Fancourt, 2020). When social needs are not met, researchers have suggested that older adults aged 65 years and older may experience an increased risk of loneliness and social isolation. Loneliness and social isolation are social factors that are recognized as health risk issues for older adults (Newall & Menec, 2019; Steptoe, Shankar, Demakakos, et al., 2013). Individuals' feelings of loneliness and social isolation increase as they grow older and experience vulnerable periods in life (Hawkley & Kocherginsky, 2018). Although the terminologies of loneliness and social isolation are sometimes associated or used interchangeably, the outcomes and interventions may be vastly different (Perissinotto et al., 2019). Loneliness is defined as the subjective feeling of isolation regardless of the individual's social network (Freedman & Nicolle, 2020; Perissinotto et al., 2019). In comparison, social isolation is defined as measuring the low quantity or quality of social contact of an individual's network (Freedman & Nicolle, 2020; Perissinotto et al., 2019).

The global predictions are the aging population aged 65 years and older will reach 1.25 billion by 2050, a half will be at risk of social isolation, and one-third will experience some degree of loneliness creates international public health concerns

(Fakoya et al., 2020; Santini et al., 2020). The high prevalence rate of loneliness and social isolation will expose older adults to epidemic proportions of risk for comorbidity and comortality if appropriate and effective interventions are not developed (Fakoya et al., 2020; Freedman & Nicolle., 2020; Malcolm et al., 2019; Perissinotto et al., 2019; Santini et al., 2020). Individually, researchers have observed loneliness and social isolation's direct and indirect effects on older adults' health, wellbeing, and quality of life and have acknowledged the increasing public health risk during the aging process. Despite the inconsistent findings from previous loneliness and social isolation research and lack of effective evidence of the impact of current interventions, the reduction of loneliness and social isolation and strengthening of social support remains a global focus (Freedman & Nicolle, 2020; Hawkley & Kocherginsky, 2018; Shiovitz-Ezra & Leitsch, 2010).

The lack of social support is one of many risk factors associated with loneliness and social isolation (National Academies of Sciences, Engineering, and Medicine [NASEM], 2020). Because individuals are social beings, social relationships (e.g., spouse/partner, children, family, and friends) and the quality of social relationships are essential during aging and influence the risk of loneliness and social isolation (Chen & Feeley, 2014; Hawkley & Kocherginsky, 2018; Newall & Menec, 2019). Gaining a better understanding of social support's use may yield a better understanding of older adults' social support intervention needs to reduce loneliness and social isolation (Menec et al., 2020; NASEM, 2020; Perissinotto et al., 2019).

Along with loneliness, social isolation, and social support, other factors such as age, gender, and ethnicity may impact health and wellbeing. According to Taylor et al. (2019), examining loneliness and social isolation in the minority older adult population is necessary to understand ethnicity's influence. Also, sociodemographic (e.g., lower-income, poor health) and psychosocial factors disproportionately affect the minority populations (Hawkley & Kocherginsky, 2018; Taylor et al., 2019).

Research evidence supports the need to assess each of the risk factors and the importance of healthcare professionals in proactively recognizing the impact of loneliness and social isolation on older adults' health outcomes and wellbeing (Fakoya et al., 2020; Perissinotto et al., 2019). As it relates to loneliness and social isolation, there is a potential for social change in better defining factors and the use of healthcare clinical settings as validated instruments to create more effective connections with older adults to improve their health (Perissinotto et al., 2019). Acknowledging each factor's potential risk and asking patients about loneliness and social isolation are valuable instruments to initiate and improve appropriate discussions amongst patients and healthcare providers (Perissinotto et al., 2019). Using the clinical assessment approach, healthcare professionals can assess the risk's additive impact on the health and wellbeing discussions between patients and health professionals. Perissinotto et al. (2019) explained that using this type of approach will allow healthcare professionals to make better assessments of what type of intervention (e.g., individual or structural) may be necessary for an older adult at risk, experiencing loneliness, social isolation, or both.

In Section 1 of the study, I will describe wellbeing as the research topic and explain the research gap. The section also includes the problem statement, purpose of the study, research questions, and hypotheses explaining why the study was needed to examine how age, sociodemographics, and psychosocial factors influence wellbeing. The theory supporting the research study is explained in the theoretical framework, and the nature of the study provides the rationale for the research design. The literature review outlines the search strategy of published literature and synthesizes the study's findings related to the independent and dependent variables. Also, definitions of the independent and dependent variables, assumptions of the study, the scope, limitations, delimitations, significance, summary, and conclusions of the study are described.

Problem Statement

Globally, health interventions and programs have focused on alleviating or reducing the impact and incidence of loneliness and social isolation in older adults by addressing related social factors such as social relationships, supports, skills, and interactions. Growing public health concerns and policy interest focus on the increasing burden of loneliness and social isolation on older adults' health and wellbeing because of contradictory evidence of current interventions' effectiveness (Fakoya et al., 2020; Jopling, 2015). Understanding the predictor characteristics risk of factors such as loneliness and social isolation individually and together is vital in determining the impact of the aging process on wellbeing outcomes (Appau et al., 2020; He et al., 2016; Malcolm et al., 2019; Newall & Menec, 2019). Because some individuals experience loneliness while having strong social connections, some individuals who participate in

social isolation are not lonely. The selection of a targeted intervention (e.g., individual or structured) may be the most effective way to alleviate the impact on wellbeing and meet the individual's needs (Fakoya et al., 2020).

Consequently, there is a lack of research that examines the combined risk of loneliness and social isolation on older adults' wellbeing (Malcolm et al., 2019; Newall & Menec, 2019). Learning and expanding the knowledge regarding direct and indirect relationships, moderating effects of loneliness, and social isolation together along with other related factors (e.g., social support, ethnicity) can help in developing future strategies for policies, programs, and interventions (NASEM, 2020; Newall & Menec, 2019).

A cross-country comparative study on loneliness and social isolation reported the United Kingdom as the most prominent (23% in the United Kingdom elderly populations to the United States [22%]and Japan]9%]; DiJulio et al., 2018). In another study, the United Kingdom was considered fourth-highest ranked (18%) out of 11 high income countries (e.g., United States) where older adults felt socially isolated (Abrams et al., 2020); Commonwealth Fund, 2017). The United Kingdom leads the way in implementing a government-led national strategy to tackle loneliness (including social isolation). Conversely, the United States has no government-backed national campaign (Perissinotto et al., 2019). In the United Kingdom, loneliness and social isolation are viewed as public health issues and not individual issues. The public also views the government as having a vital role in reducing and preventing loneliness and social isolation (DiJulio et al., 2018). The United Kingdom classified loneliness as a national priority in 2016 (Abrams et al.,

2020). In 2017, the United Kingdom launched a national campaign across the four United Kingdom's countries, England, Wales, Scotland and Northern Ireland to tackle loneliness (including social isolation) and appointed the first government ministerial lead on loneliness to develop and implement a national strategy to combat loneliness (including social isolation; HM Government, 2018). By tackling loneliness and social isolation, there is potential for improvement of older adults' health and wellbeing (Valtorta et al., 2018).

Because there is no one-size-fits-all intervention approach, there are remaining gaps in understanding on how to address loneliness, social isolation, and social support within the subgroups in the older adult populations (Jopling, 2015). It is recommended to diversify older adults' subgroups to tailor specific interventions to the subgroups (Fakoya et al., 2020). Tailored approach interventions need to be complex to incorporate all interacting factors. Researchers need to assess individuals' needs to explore the impact of factors, such as sociodemographic (i.e., age, gender, and ethnicity) and less well-researched groups (e.g., physical disabilities, ethnic minority groups, and lesbian/gay/bisexual/transgender) to develop effective tailored interventions (Fakoya et al., 2020; Jopling, 2015). Examining all factors (e.g., social support, gender, and ethnicity) that contribute to older adults' wellbeing and understanding the interactions and relationships can help in the development of better social resources and interventions for the older adult population (World Health Organization [WHO], 2011).

Preventative interventions designed to alleviate loneliness and social isolation need to address the delay or avoidance of support needs and be flexible to support older

adults' diverse communities and groups (Fakoya et al., 2020). There are valuable research findings on older adults' wellbeing from both the United Kingdom nation and individual countries like England. By understanding the interactions of age, gender, ethnicity, loneliness, and social isolation on older adults' wellbeing, the development and implementation of efficient environment-focused interventions can foster behavior changes and modifications to improve the overall wellbeing of older adults (Fakoya et al., 2020).

Purpose of the Study

The quantitative study addressed the association between loneliness, social isolation, the combined model of loneliness, and social isolation and wellbeing among older adults, 65 years and older, when accounting for age, gender, ethnicity, and social support in England. Older adults experience sociodemographic and psychosocial changes that can affect their wellbeing. Secondary data analysis of the cross-sectional England Longitudinal Study of Aging (ELSA) anonymized archived data was conducted to explore the association between the independent variables and the outcome. The ELSA study collected representative samples of men and women aged 50 years and older in England to measure health, psychology, lifestyle, and social connections over time (Roger et al., 2016). The independent variables in this study were loneliness and social isolation. The dependent variable was wellbeing. The covariate variables were age, gender, ethnicity, and social support.

Research Questions and Hypotheses

The research questions for this study were as follows:

Research Question (RQ)1: What is the association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

$H_0$1: There is no association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A1: There is an association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

RQ2: What is the association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

$H_0$2: There is no association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A2: There is an association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

RQ3: What is the relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

$H_0$3: There is no relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A3:There is a relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

Theoretical Foundation for the Study

The theoretical framework for this study was the socioecological model (SEM). According to the Institute of Medicine, the ecological model is a framework that places emphasis on the relationships between multiple determinants of health and how each affects health (as cited in Maus & Satariano, 2018). In 1979, Bronfenbrenner introduced new thinking of the ecological model by looking at the interactions of multiple levels of social influences on human development and behavior (as cited in Bronfenbrenner, 1979; Crosby et al., 2019; McLeroy et al., 1988). The ecological approach's premise focuses on the transactions and interrelations between health, the individual's behavior, and environmental determinants throughout life (Crosby et al., 2019; McLeroy et al., 1988). The ecological perspective poses that behaviors are affected by and affect multiple levels of environmental influences (e.g., social and physical; Crosby et al., 2019). Bronfenbrenner defined four levels of systems' influences that exist:, micro-, meso-, exo, and macro-subsystems (as cited in Crosby et al., 2019; Maus & Satariano, 2018; McLeroy et al., 1988).

The microsystem refers to face-to-face interactions (e.g., family and social networking). The mesosystem refers to interrelations of microsystems (e.g., family, school, peer groups, and church). The exosystem refers to the interaction from larger social systems (e.g., employment). The macrosystems refer to cultural beliefs and values that influence the microsystem and macrosystem (McLeroy et al., 1988). The ecological perspective implies that an individual's behaviors (e.g., positive and negative) are influenced through direct and indirect interaction with these systems (Crosby et al., 2019;

Sallis et al., 2008). There are four core assumptions when applying the SEM. First, the researcher acknowledges that there are multiple levels of influence on specific health behaviors. Secondly, each influence on the behaviors is interactional across the different environmental levels. Thirdly, when an intervention is proposed, it focuses on behavior-specific concerns and uses a multilevel intervention approach to be more effective in changing behavior. Finally, the ecological model of health behaviors emphasizes that the influence of environmental, policy, social, and psychological aspects all influence human behavior (Sallis et al., 2008).

The SEM allows for observation of the individual or population and perspectives that there is a connection between the various influences on health outcomes (Maus & Satariano, 2018). Researchers have acknowledged that there is no one factor (e.g., disease) that influences health and disease patterns, but multiple factors such as social and physical environments help shape health and disease patterns through the human life cycle (Maus & Satariano, 2018). Researchers have used the various SEM (e.g., four levels or five levels) to analyze health problems and develop intervention strategies to promote change (Stokols, 1996). Because behaviors are influenced on multiple levels, multilevel intervention approaches are needed (Sallis et al., 2008).

The rationale for using the SEM guiding principles is because it is a suitable framework to study the aging process (e.g., health patterns, functions, and longevity; Maus & Satariano, 2018). It fosters an understanding about how behaviors are formed and considers the interrelations and interdependencies of the health problem at multiple levels of environmental influences (Stokols, 1996). The SEM assumes that the patterns of

an individual's health and wellbeing within the human population are associated with "biologic, behavioral, social and environmental factors" (Maus & Satariano, 2018, p. 25). Also, multiple determinants of health can be studied, measured, described, tested, and hypothesized at multiple levels (Maus & Satariano, 2018). The model is used by various local, national, and international organizations (e.g., Healthy People and WHO) who have applied it to various populations (e.g., aging) for health studies and strategies to address social inequalities in health (Maus & Satariano, 2018).

According to Maus and Satariano (2018), demographics such as age, gender, and ethnicity are variables from the SEM that are interrelated. Social determinants of health, such as social networks, social support, and social capitals constitute a broader level of interactions within the SEM. Cognitive and physical activities are specific health behaviors known to lead to major health effects within the individual and the population (Maus & Satariano, 2018). Over the life span of an individual, these variables may interact and affect each other at different levels of the model (Maus & Satariano, 2018). By understanding the associations of age, gender, ethnicity, loneliness, social isolation, and social support on the wellbeing of older adults, the development and implementation of efficient environment-focused interventions can foster behavior changes and modifications and improve the overall wellbeing of older adults.

The four SEM levels relate to the three research questions founded in the subsection, research questions, and hypothesis subsection. The research questions related to the variables associated with the micro -, meso-, exo-, and macro-systems' effect on

older adults. Table 1 includes the multiple SEM levels associate with the research variables.

Table 1

Alignment of Ecological Levels With Associated Research Variables

SEM levels	Description	Research variable (s)	Research question (s) number
Microsystem	Individual risk factors, personal attributes, age, gender, health (biological or neurological risk)	Loneliness, social isolation, age, gender, and ethnicity	RQ1, RQ2, & RQ3
Mesosystem	Interpersonal, family, friends, groups	Loneliness, social support, age, gender, ethnicity, and social support	RQ1, RQ2, & RQ3
Exosystem	Community	Loneliness, social isolation, age, gender, ethnicity, and social support	RQ1, RQ2, & RQ3
Macrosystem	Policy, values, ideologies	Loneliness, social isolation, age, gender, ethnicity, and social support	RQ1, RQ2, & RQ3

Research Questions 1 through 3 align with the SEM's microsystem level because age, gender, and ethnicity are individually inherited demographics factors, and loneliness and social isolation are individually perceived or functional actions that may affect the individual's wellbeing. They are also contributing factors that can be affected by or affect the mes-, exo-, and macro-system in terms of accessibility of social resources (e.g., social support) and relevant laws and policies (e.g., subgroup populations, racism, and ageism, family structure; NASEM, 2020). All three research questions align with the micro-,

meso-, exo- and macro-system levels of the SEM because social support from external sources such as family members, friends, social groups (e.g., age, gender, and ethnicity) and appropriate support resources or policies are in place to foster potential interventions that may be effective to address loneliness and social isolation. Each of the research questions relates to all of the systems (e.g., micro-, meso -exo-, and macro-) because the levels deal with the demographic factors of age, gender, and ethnicity.

Nature of the Study

The nature of the study was a quantitative cross-sectional research design with a correlational approach. The quantitative cross-sectional design was based on the secondary data analysis of the ELSA. The ELSA research design included administering surveys to a representative sample of English men and women aged 50 years and older to collect numerical statistical data on multiple variables associated with the aging process. The measuring aspects, including health, economics, psychology, lifestyle, and social connections/relationships used quantitative techniques (Roger et al., 2016). The quantitative approach was an appropriate method to evaluate the ELSA generated numerical data and measurements. The correlational approach was an appropriate method to examine the association or relationships between demographics (e.g., age, gender, and ethnicity), social factors (e.g., loneliness and social isolation), and wellbeing among older adults. Also, I explored the predictive model for the outcome, wellbeing. The independent variables were loneliness and social isolation. The dependent variable was wellbeing. The covariate variables included age, gender, ethnicity, and social support.

The statistical analysis plan for analyzing the data included descriptive and inferential statistic methods.

Literature Search Strategy

The literature search included the use of Google Scholar and ResearchGate electronic search engines found in the Walden University Library, ProQuest Dissertation, National Center for Biotechnology Information, and databases that included English Longitudinal Study of Ageing, Health and Retirement Study (HRS), National Archived of Computerized Data on Aging, National Health and Nutrition Examination Survey, and National Social Life, Health, and Aging Project. The key search terms and combination of search terms included *loneliness, social isolation, perceived isolation, social needs, social norms, social connectiveness, social disconnectedness, social support, social support predictors and interventions, older adults, elderly, race, ethnicity, emotional, life satisfaction, wellbeing, subjective wellbeing,* and *personal wellbeing*. The literature review scope included peer-reviewed journal articles and written materials published between 2004 and 2020.

Literature Review Related to Key Variables and/or Concepts

Wellbeing and Health

Perceived judgment and feelings of one self's life satisfaction, also known as wellbeing, can influence health-related outcomes (Centers for Disease Control and Prevention [CDC], 2018; Tang et al., 2019). According to Emerson et al. (2020) and Jebb et al. (2020), personal wellbeing (also referred to as subjective wellbeing) constitutes one's functional mental status to evaluate positive and negative experiences in one's life

and one's own reactions to experiences and changes throughout one's life. Despite the many variations of the descriptions, wellbeing is multidimensional expressions of a personal meaning of life through the elements of positive (e.g., happiness) and negative (e.g., anxiety) feelings (e.g., referred to as hedonic or affective wellbeing), life satisfaction (e.g., referred to as evaluative wellbeing), and sense of worth, fulfillment, purpose, and meaningfulness (e.g., referred to as eudemonic wellbeing; Benson et al., 2019; Emerson et al., 2020; Office National Statistics [ONS], 2018a; Steptoe & Fancourt, 2020). The WHO captures wellbeing in the definition of health, which states that health holistically includes an individual's complete picture of the absence of disease and physical, mental, and social wellbeing (Appau et al., 2020; Emerson et al., 2020; WHO, 1948). A better understanding of the importance of wellbeing in an individual's life can create better health behaviors to be practiced throughout life.

Wellbeing plays a critical role in individuals' health. Research has shown that positive wellbeing is associated with positive health outcomes, such as reducing mortality and morbidity and increasing longevity in life (CDC, 2018; Diener & Seligman, 2004; Magyar & Keyes, 2019.). Steptoe and Fancourt (2020) revealed that an individual's sense of living a meaningful life or wellbeing has a bidirectional correlation to health and social outcomes, behaviors, and processes. Good health serves as a precursor that contributes to an individual living a meaningful life and remaining healthy and active (e.g., physical, social, and psychological; Farzianpour et al., 2015; Sováriová Soósová, 2016). Henceforth, having a sense of a positive, meaningful life may contribute to a potential protective property that reduces the risk of certain chronic health illnesses and disabilities

(Martín-María et al., 2020; Steptoe & Fancourt, 2020). The higher or more positive the purpose in life, the more positive the influence is on health (e.g., healthy lifestyle behaviors, physical activities, and sleep) and living longer (Martín-María et al., 2020; Steptoe & Fancourt, 2020).

In contrast, all higher levels of wellbeing do not reduce the greatest risk for all health diseases (CDC, 2018; Zaninotto & Steptoe, 2019). Inconsistences found within the wellbeing literature have been associated with social determinants in health, severe health problems, and other factors (Appau et al., 2020; CDC, 2018; Diener & Seligman, 2004). Examples of social determinants of health include the individual's socioeconomic status, living conditions, inequalities within different countries, and accessibility to resources (e.g., individual with disabilities, and social support; de la Fuente et al., 2018; Emerson et al., 2020). Severe health problems that affect or restrict the daily functions and activities of individuals and disabilities influence the variations within wellbeing (Diener & Seligman, 2004; Emerson et al., 2020). Other factors that may contribute to a person's perceptions and feelings about life include age, gender, and social relationship (e.g., loneliness, social isolation, and social support), race, and ethnicity cultural factors (CDC, 2018; Diener & Seligman, 2004; Steptoe & Fancourt, 2020). What an individual thinks and feels about their health, quality of social conditions, and social support relationships impact their overall health and wellbeing (Steptoe & Fancourt, 2020). Understanding how different factors impact wellbeing can promote a better understanding of wellbeing's critical role in health.

Wellbeing and Health Among Older Adults 65 Years and Older

Healthy living associated with wellbeing may vary with age. Age plays a vital role in an individual's wellbeing. In a like manner, wellbeing contributes to a healthier aging process (CDC, 2018; Steptoe & Fancourt, 2020). Although the definitions may vary across the world, an older adult is an individual 65 years and older ("Guidance 7. Living Well," n.d.; He et al., 2016; Orimo et al., 2006). Maintaining the wellbeing of older adults is a growing global public health concern due to the anticipated growth that the population will reach 1.25 to 2 billion by 2050 (Fakoya et al., 2020; Health and Human Services [HHS], 2019; Santini et al., 2020; Sováriová Soósová, 2016; Steptoe et al., 2015). Equally important is the sense of having a life that is meaningful and purposeful, which contributes to an individual's healthier aging (Steptoe & Fancourt, 2020). Improving or maintaining great wellbeing may promote longer and healthier lives (Steptoe & Fancourt, 2020).

Despite the notion that aging is associated with a decline in physical, cognitive, and functional aspects, some studies have revealed an inverse increase of social and emotional function in older adults and have identified them as feeling precursors to wellbeing (Burr et al., 2020; de la Fuente et al., 2018; Delhom et al., 2020; Tang et al., 2019). Farzianpour et al. (2015) found that a positive, healthy aging process consists of the older adult's ability to remain active and ensure a sense of life satisfaction through healthy outcomes and sustainability of physical, social, and psychological activities. Because individuals age differently (e.g., gradually and different rates of decline), the feeling that one's life is meaningful may vary over time due to the aging process and

change in life's circumstances (de la Fuente et al., 2018; Steptoe & Fancourt, 2020). Steptoe and Fancourt (2020) asserted that there is a bidirectional relationship between wellbeing and age-associated factors. Age-associated factors such as health status and social factors (e.g., family relationships, social roles, activities, and resources) affect older adults' wellbeing (Bowen et al., 2015; Sováriová Soósová, 2016; Steptoe et al., 2015).

A change in health status can lower wellbeing and predict an increased risk of mortality and comorbidity (Bowen et al., 2015; Diener & Seligman, 2004; Sováriová Soósová, 2016; Steptoe et al., 2015). The high prevalence of older adults with multiple chronic health conditions (e.g., cardiovascular and hypertension) may contribute to risk factors (HHS, 2019). In many cases, the severity of health problems affects or restricts older adults from daily functions and activities and influences their wellbeing (Diener & Seligman, 2004). Also, many older adults tie their sense of purpose to their social integration, economic success, and personal relationships (Delhom et al., 2020; Steptoe & Fancourt, 2020). Zaninotto and Steptoe (2019) emphasized that older adults with higher wellbeing and no depressive symptoms are more likely to live healthier extended lives without disabilities or chronic illnesses. A healthy aging process, coupled with a greater sense of wellbeing, promotes healthy and longer living in older adults.

Wellbeing and Social Needs

Humans are social beings and have social, physical, and safety needs. Satisfying social needs is essential for the overall health and wellbeing of older adults (Bruggencate et al., 2018). Although social needs may differ among older adults, they include the

underlying feelings of being loved, accepted, belonging and relationships, social supports, and social networking (Bruggencate et al., 2018). Individuals' perceptions and expectations shape their social needs (Bruggencate et al., 2018).

Bruggencate et al. (2018) maintained that the older adult population is heterogeneous with different races, ethnicities, cultural, life experiences, and personalities. The heterogeneous group may be happier engaging in social networks and activities or alone on their own (Bruggencate et al., 2018). An individual's diversity and cultural differences play an important role in shaping social needs and identifying differences in older adults' social needs (Bruggencate et al., 2018). Some older adults view social determinants of successful aging as their ability to remain socially active and maintain social relationships (Bruggencate et al., 2019). In some incidences, unmet social needs lead to loneliness and social isolation, which are linked to health illness and mortalities (Bruggencate et al., 2018). In contrast, satisfying social needs can be a proactive factor in physical and mental health illnesses (Bruggencate et al., 2018). The fulfillment of social needs is relevant for older adults' wellbeing.

Social needs change with age. During the aging process, older adults have fewer social roles and social connections due to various work status changes, absence or migration of children, and family and friends' loss (Bruggencate et al., 2018; Cudjoe et al. et al., 2020). A decline in social roles, social contact, and pandemics like the novel coronavirus' (COVID-19) influence the satisfaction of social needs and impact health and wellbeing during the aging process (Bruggencate et al., 2018; Van Orden et al., 2020). Diener and Seligman (2004) disclosed a correlation between individuals' higher

wellbeing and happiness with better social relationships (e.g., social activities and memberships) compared to individuals with low wellbeing. Commonly, older adults feel increasing periods of dissatisfaction associated with their social needs and experience disconnections from their social relationships, which may be the reason for increased vulnerable periods of loneliness and social isolation (Bruggencate et al., 2018; Hawkley & Kocherginsky, 2018; Van Orden et al., 2020). Studies have indicated a linkage of strong social relationships to older adults maintaining independence and living long lives (Bruggencate et al., 2018; Hawkley & Kocherginsky, 2018), and obtaining fulfillment and satisfaction of these social needs and relationships promotes positive health and wellbeing of older adults and are the determinants of successful aging (Bruggencate et al. et al., 2018; Van Orden et al., 2020).

Wellbeing, Loneliness, and Social Isolation

Loneliness and social isolation are factors that influence older adults' wellbeing. According to Fakoya et al. (2020), one-third of the older adult population experience loneliness, and 50% of older adults are at risk for social isolation (Fakoya et al., 2020; Hawkley & Kocherginsky, 2018). Loneliness and social isolation increase public health concerns during the aging process because of the direct and indirect effects on older adults' health and wellbeing (Chen & Feeley, 2014; Fakoya et al., 2020; Newall & Menec, 2019). Both loneliness and social isolation are distinctly different but moderately correlated. Researchers have shown that each has various associations with health outcomes and mortality (Rafnsson et al., 2020), which can range from episodic to chronic depending upon the individual perceptions or circumstances (NASEM, 2020).

Loneliness is an involuntary behavior of perceived feelings or emotions related to unmet social needs (Menec et al., 2020; Ong et al., 2016). An individual's dissatisfaction with the frequency of interaction or closeness of the relationships (e.g., confidants, family, and friends) impacts wellbeing (Menec et al., 2020; NASEM, 2020). Victor, Dobbs, Gilhooly, et al. (2020) identified loneliness as a critical driver in assessing the wellbeing of mid to later life. Older adults have shown an increased risk of psychological problems, physical impairment, and lowered wellbeing associated with loneliness (NASEM, 2020; Ong et al., 2016). Loneliness is also associated with functional decline and higher mortality risk (Ong et al., 2016; Rafnsson et al., 2020).

Social isolation is a voluntary behavior of perceived adequacy or lack of an individual's social relationship structure (Menec et al., 2020). Significant risk of mortality, morbidity, and wellbeing is linked to social isolation in older adults (NASEM, 2020). Ong et al. (2016) identified contradicting findings in loneliness and social isolation's abilities to predict mortality when accounting for covariate factors. Taylor (2020) implied that older adults with increased social isolation factors associate with increased loneliness, and understanding the connection between both is vital for overall clinical practices. Social isolation, decreased social relationships, and support from early life are associated with loneliness in later years (Yang & Gu, 2020). Cudjoe et al. (2020) indicated that social resources (e.g., social support, networks, and connections) act as preventative factors to loneliness and social isolation and mitigators to the risk associated with health and wellbeing. Understanding the prevalence of loneliness and social

isolation is tied to understanding the health impact risk factors have on the population (NASEM, 2020).

Wellbeing and Social Support

Older adults' social needs depend on their perceived satisfaction with their social relationships. Social and supportive relationships are essential factors of predicator characteristics of loneliness, social isolation, and wellbeing (CDC, 2018; Tang et al., 2019). Wellbeing is affected by positive and negative social relationships through social support and social engagement (Appau et al., 2020; Tang et al., 2019). Also, social relationships are necessary for maintaining health (Steptoe, Shankar, Demakakos, et al., 2013).

Rafnsson et al. (2020) indicated that the lack or impoverishment of social relationships results in decreased social interactions, diminished cognitive stimulation, increased vulnerability of cognitive decline, and reduced wellbeing. Tang et al. (2019) suggested that social support and investment in socioemotional relationships are essential for maintaining and improving older American adults' wellbeing because of personal, meaningful activities. Social relationships serve as protective factors for older adults in times of social network loss or death (e.g., family or friend), during natural disasters like COVID-19 or emotional or interpersonal conflicts (Sarla et al., 2020; Van Orden et al., 2020).

Social support networks, including family ties and friends, contribute to older adults’ higher wellbeing and life satisfaction (NASEM, 2020). The frequency of the social relationship also determines functionality and mortality (NASEM, 2020).

Individuals who exhibit high levels of happiness rate social relationships and social interactions positively compared to older adults who identify as lonely or socially isolated (Diener & Seligman, 2004; NASEM, 2020). Social networking may differ according to numerous factors such as social and economic position, demographics, social contacts, and employment (Sarla et al., 2020). Individuals who lack companions reported lower wellbeing than individuals who do (Sarla et al., 2020). Negative relationships can affect an older adult's health and wellbeing (NASEM, 2020). A social relationship can influence older adults' sense of meaning and purposeful life.

Key Study Variables

With the increased longevity of older adults, questions arise about population aging effects (e.g., positive or negative) on health, the sustainability of wellbeing, social engagement, and maintaining productivity in older adults' lives (WHO, 2011). Health status, demographics, and family changes associated with population aging affect older adults' independence (WHO, 2011). Examining all factors contributing to older adults' wellbeing and understanding interactions and relationships are critical to developing better resources and interventions for the older adult population (WHO, 2011). In this study, the key dependent variable examined was wellbeing. Wellbeing was chosen because of its bidirectional relations that impact older adults' overall health status and outcome (Steptoe & Fancourt, 2020). The key independent variables examined were loneliness and social isolation. These key independent variables were chosen because each is a critical driver in the predictive influences on wellbeing (Victor, Dobbs, Gilhooly, et al., 2020). The covariate variables were age, gender, ethnicity, and social

support. Relevant research related to each of the variables will be discussed in the sections that follow.

Epidemiology of the Global Health Status of Older Adults

Globally, countries estimated health disease burden rate, the average age of death and loss due to disease, was age of 65 years old (Chang et al., 2019). In 2015, the older adult population reached 55 million, approximately 7–8.5% of the world's population, excluding Africa, Latin America, the Caribbean, and parts of Asia (He et al., 2016). Historically, Europe is classified as one of the 22 oldest countries globally, with a high percentage of older adults that make up the total population of at least one million people. In 2015, adults aged 65 years and older made up 17.4% of the European population. Between 2025 through 2050, the total older adult population will grow globally to a doubling number of 1.6 billion, and two-thirds of the older adults will reside in Asia (He et al., 2016). By 2050, European older adults will make up more than 25% of the population (He et al., 2016).

Increased longevity led to a shift in the leading causes of disease and death (He et al., 2016). WHO (2011) and de la Fuente et al. (2018) indicated that global research showed that every region in the world, regardless of wealth, shift in increased death and disabilities from noncommunicable diseases. Older adults are commonly affected by chronic noncommunicable diseases, such as heart disease, cancer, stroke, diabetes, and disabilities (WHO, 2011). The older adult population's leading killers are cardiovascular disease, lung disease, cancer, and stroke, and they vary by region (He et al., 2016). Also, older adults accounted for a growing number of infectious diseases (e.g., HIV/AIDS) in

developing countries (WHO, 2011). Chang et al. (2019) identified 92 diseases related to older adults' aged global burden in 2017. The 92 diseases included cardiovascular, chronic respiratory, communicable, maternal, neonatal and nutritional, diabetes and kidney, digestive diseases, injuries, neoplasms, neurological disorders, other non-communicable, sense organ and skin, and subcutaneous diseases. According to Jebb et al. (2020), different life priorities or health conditions relate to an individual's wellbeing as they age. Such findings showed limited variation among the regions and across the ages (Jebb et al., 2020).

The comparative health-related literature between the older adults in the United States and England provided representative population data and showed the differences between the two countries (Banks et al., 2016). The prevalence rate of all diagnosed diseases (e.g., hypertension, heart attack, stroke, diabetes, lung disease, and cancer) in individuals over the age of 50 was higher in the United States in comparison to England (Banks et al., 2016; Roger et al., 2016). In contrast, England reported higher rates of disabilities (e.g., severe) than the United States (Banks et al., 2016). Even though comorbidities increased with age, Americans experienced more comorbidities than the English (Banks et al., 2016). de la Fuente et al. (2018) examined the different patterns of health trajectories. The associated impact of sociodemographics and health determinants (e.g., chronic conditions) played equal roles in English and American health trajectories. The findings suggested that the lower sociodemographic (e.g., education and health wealth) in the high presence of determinants of health, the worse health (e.g.,

multimorbidity) trajectory, and the highest mortality rates in both England and the United States populations (de la Fuente et al., 2018).

Cieza et al. (2015) conducted a comparative study to determine whether English individuals aged 50 to 80 were healthier than Americans. The findings revealed that English adults were healthier than United States adults for health status variables (e.g., lung function, pain, cognition, disability, depression, physical performance, and mobility) (Cieza et al., 2015). According to the National Institute on Aging, the United States and England showed health differences between non-Hispanic White individuals aged 55 to 64 (WHO, 2011). By examining the national health differences of chronic disease, pivotal information associated with mortality and wellbeing provided a better understanding of factors that drive policies and improvements in older adults' health and wellbeing (Roger et al., 2016).

Current Global Prevention and Mitigation Efforts of Adverse Health Outcomes Among Older Adults 65 Years and Older

Overall, the basis for the determinants of social needs for older adults involves the individuals' perception. Some individuals' perception consists of the older adult's ability to sustain close interpersonal relationships, socially engage, and maintain good health and wellbeing (Steptoe & Fancourt, 2020). Because the prevalence and impact of social factors (e.g., loneliness, social isolation, and social support) on wellbeing varies globally, each country faces its challenges with interventions associated with aging populations (Appau et al., 2020; Ong et al., 2016). Older adults' wellbeing is a global public health concern, and many local, regional, national, and international governments and

organizations have developed cross-country studies and implemented programs to address older adults' wellbeing. Examples of the cross-country studies' comparative data related to the national differences seen in the older adults' health and wellbeing include Unites Kingdom ELSA, the Unites States HRS Survey of Health, Ageing, and Retirement in Europe (SHARE; Roger et al., 2016), and Canadian Longitudinal Study of Aging (CLSA; Menec et al., 2020).

Globally, government health and social programs, policies, campaigns, and initiatives focused on alleviating the impact and incidence of loneliness, social isolation, and social relationships on older adults' wellbeing. WHO signifies the importance of understanding aging and the determinants of older people's wellbeing by dedicating one of the global health priorities to "aging well" for the betterment of developing future policies, support, and interventions (Appau et al., 2020; He et al., 2016). In the United States, Healthy People 2020 and 2030 initiatives' goals focus on older adults achieving health and wellbeing by improving their health and functions and addressing social isolation and loneliness (CDC, 2018; HHS, 2019; NASEM, 2020). The number three priority of the United Nations Sustainable Development Goal called countries to action to ensure that individuals of all ages (including older adults) have healthy lives and promote wellbeing (Emerson et al., 2020)

New Zealand's government is committed to promoting positive aging principles to prevent social isolation (Brooke & Jackson, 2020). Across the countries in the United Kingdom, the Campaign to End loneliness focused on ensuring national, regional, and local organizations prioritize older adults' loneliness as a public health concern (Age UK,

n.d.; Brooke, & Jackson, 2020). The WHO global strategy on aging and health emphasized the framework to intervene in the aging process over life to maintain functional older adults (“Guidance 7. Living Well,” n.d.). Campaigns and services to combat loneliness were implemented in the United Kingdom (Age UK, n.d.). Even during COVID-19, when challenges increased due to mandated social distancing, the United Kingdom developed social support and social networking initiative using social technologies (e.g., WhatsApp, Next-door, Facebook, and Twitter; Brooke, & Jackson, 2020).

Coupled with global programs, international and multi-countries established studies to understand age-related implications and consequences in a broader context (WHO, 2011). Through data exchange, countries provided learning experiences from other countries and helped facilitate appropriate and specific policies for the aging population (WHO, 2011). In the United States, the HRS collects "health, work, retirement, income and wealth, and family" data on older American adults over the age of 50 years old (WHO, 2011, p 24). China, England, India, Ireland, Japan, Korea, and Mexico established worldwide parallel studies (WHO, 2011). In Europe, 15 countries implemented the SHARE (WHO, 2011).

Wellbeing Among Older Adults in England and the United Kingdom

The United Kingdom's aging population of 65 years and older is estimated to be 12 million, 10% of its total population (Age UK, 2019). By 2030, 1 in 5 people will be 65 years and older across the four United Kingdom’s countries, England, Wales, Scotland and Northern Ireland (Age UK, 2019). In England, the projection is for the older adult

population to reach a quarter of the United Kingdom's total population by 2035 ("Guidance 7. Living Well," n.d.), which exceeds the healthy life expectancy at birth, which is 63.3 years for males and 63.9 years for females (Age UK, 2019). The United Kingdom's population is an aging, ethnically diversified population due to increasing immigration (Victor, Dobbs, Gilhooly, et al., 2020). According to ONS (2018a), the 2011 Census showed England and Wales' total population was 56.1 million with an ethnic breakdown of 86% White and 14% Black and Minority Ethnic (BME). The BME in England include three ethnic groups: Black (Black Caribbean (1.1%), Black African (1.8 %), Black Other (.5%); Asian (Indian (2.5%), Pakistani (2%), Bangladeshi (.8 %), Chinese (.7%), and Asian other (1.5%); and Mixed (Mixed White/Asian (.6 %), Mixed White/Black African (.3%), Mixed White/Black Caribbean (.8% and Mixed other (0.5%; Brooke, & Jackson, 2020; ONS, 2018a).

Over 1.4 million older people in England regularly feel lonely (Age UK, n.d.). The prevalence of older adults experiencing loneliness is between 6 and 13% (Age UK, 2019). Depression is also commonly associated with loneliness and social isolation in the older population ("Guidance 7. Living Well," n.d.). Alleviating loneliness and social isolation needs to involve preventative mitigations that address the delay or avoidance of support needs and should be flexible to support the older adults' diverse communities and groups (Fakoya et al., 2020).

According to the 2015 United Kingdom's national report, a significant variation seen in the wellbeing across the United Kingdom's ethnic groups associated with mental health is one of many factors that can influence an individual's wellbeing (Dorsett et al.,

2015). Research showed that BME ethnic groups in the United Kingdom reported lower wellbeing than the White non-ethnic groups; the difference implies possibly negative implications on health outcomes, life expectancies, and possible health inequalities (Stevenson & Rao, 2014). Also, findings showed a variation between the BME groups (Stevenson & Rao, 2014). The BME groups' generations (e.g., first, second, and third) responded with mixed results regarding wellbeing (Stevenson & Rao, 2014). Mixed research findings implied that ethnic density, individuals living in areas of the same ethnicity, provides potential benefits for health improvement and allows for social interactions (Dorsett et al., 2015).

Tang et al. (2019) described a race paradox in happiness or racial disparities associated with social relationships or networks' effects on older adults. Previous research showed loneliness prevalence might be higher in some ethnic groups (e.g., the Black Caribbean, Black African, Pakistani, Bangladeshi, and Chinese) in England and Wales because of cultural, vulnerability, and measurement factors that compromise social norms (Victor, Dobbs, Gilhooly, et al., 2020). However, Victor, Dobbs, Gilhooly, et al. (2020) inferred that ethnicity may not be responsible for the higher prevalence but possibly the vulnerability factors such as social networks and a sense of belonging (Victor, Dobbs, Gilhooly, et al., 2020). In contrast, findings suggested that the prevalence of loneliness of Turkish older adults living in Germany was associated with their health and socioeconomic status instead of ethnicity (Fokkema & Naderi, 2013; Victor, Dobbs, Gilhooly, et al., 2020). Conway et al. (2013) explained an ethnic difference in social

networks between Caucasian and African American older adults, possibly due to the support of non-biologically related individuals (Bruggencate et al. et al., 2018).

Wellbeing and Older Adults Gaps in the Literature

Numerous empirical evidence have shown wellbeing's effects on health (Appau et al., 2020; Martín-María et al., 2020; Steptoe & Fancourt, 2020). The impact of wellbeing is essential throughout life (Stevenson & Rao, 2014). High levels of wellbeing associated with older adults have their social needs satisfied. Social needs that are not satisfied lead to loneliness, social isolation, and an impact on older adults' wellbeing. There are extensive independent studies on the impact or predictive risk for loneliness and social isolation on older adults (NASEM, 2020; Victor & Pikhartova, 2020). Despite the use of intervention studies that attempt to address social skills, support, and interactions, variations exist in determining the success of alleviating or reducing loneliness and social isolation in older adults. A lack of knowledge on the interrelationship between the two was one of many reasons for the variety (Ong et al., 2016). Loneliness led to social isolation and contrariwise, and in some instances, they occurred together (Age UK, 2019). The few researchers that examined loneliness and social isolation together investigated the efforts on mortality (Newall & Menec, 2019; Steptoe, Shankar, Demakakos, et al., 2013) and considered the impact of the variables individually or against each other as possible independent processes (Bu et al., 2020; Ong et al., 2016; Steptoe, Breeze, Banks, et al., 2013). Previous researchers recommended the need to expand knowledge by examining loneliness and social isolation together to determine

whether there are relationships of direct, indirect, and moderating effects (NASEM, 2020; Newall & Menec, 2019).

Because the population in European countries, like England, is growing older and more diverse, Bécares et al. (2020) and Victor, Dobbs, Gilhooly, et al. (2020) suggested a need to include ethnicity in research. The success of intervention implementation that focuses on meeting social needs and addressing loneliness and social isolation lacked successful evaluations (Bruggencate et al., 2018). According to Victor, Dobbs, Gilhooly, et al. (2020), few research studies reported the prevalence of wellbeing influencing factors such as loneliness by ethnic group of older adults or in comparison within the ethnic groups or the native-born groups or groups within the country. Cudjoe et al. (2020) suggested a correlation between social isolation and racial differences among Whites, Blacks, and Hispanics. Studying the different aspects of wellbeing is important because it is known that culture, traditions, and preferences play an essential role in different ethnicities and may be different among ethnic groups within and across the country (Dorsett et al., 2015). Understanding the relationship of ethnicity as an influencing factor on loneliness, social isolation, social support, and wellbeing among older adults is relevant for the development of policies and targeted specific social needs for preventative strategies (Bécares et al., 2020; Cudjoe et al.., 2020; Dorsett et al., 2015; Victor et al., 2020).

Review of Secondary Data Analysis Studies

Previous researchers utilized secondary data from the international and multi-countries longitudinal studies (e.g., ELSA, CLSA, HRS, and NHATS; Cudjoe et al.,

2020; Menec et al., 2020; Smith et al., 2019). The authors selected these sharable secondary datasets because the original research collected various data outputs that examined the social, economic, biological, and psychological health, income and wealth, family, work, and retirement-related to a representative sampling of men and women aged 50 years and older living in the respective countries (Cheng & Phillips, 2014; Rafnsson et al., 2020; WHO, 2011). The broad list of variables included in the dataset allowed researchers to examine topics related to aging and loneliness, social isolation, social support, or wellbeing. The results of a Google Scholar search rendered that the ELSA secondary data appeared in publication over 1,825,400, respectively, associated with loneliness (7, 400), social isolation (201,000), social support (1, 500,000), and wellbeing (117,000).

Rafnsson et al. (2020) used the ELSA data to examine the relevance of social relationships and loneliness on cognitive functions associated with dementia among older aged citizens in England. The results showed consistent findings as previous studies that loneliness had a positive and independent relationship with dementia. In contrast, social isolation had no relationship in developing dementia (Rafnsson et al., 2020). The findings also demonstrated the independent association between certain aspects of social relationships and the development of dementia in older adults. In the Steptoe and Fancourt (2020) study, the researchers examined ELSA data for the bidirectional association between health, wellbeing, and behavioral, social, and economic factors. The findings consisted of previous studies showing that the sustainability of a meaningful life is related to close relationships, social engagement, good health, and other factors of

wellbeing. Also, findings showed that increased meaning is influenced by increased health, health, social behaviors, employment, and wellbeing (Steptoe & Fancourt, 2020).

Menec et al. (2020) examined social isolation and loneliness together in the CLSA data related to social support and physiological distress in 45–85 year old adults. The results showed similar prevalence rates of the dichotomized four groups (e.g., not socially isolated or lonely, socially isolated, lonely or socially isolated and lonely) from previous studies (Menec et al., 2020; Victor, Dobbs, Gilhooly, et al., 2020). Also, the findings presented an individual being socially isolated and lonely associated with health risk. However, being socially isolated and lonely consistently expressed more risk. Lonely was the second-highest associated with social support gaps and psychological distress (Menec et al., 2020). The findings presented risk profiles for each of the four groups that may help develop tailored interventions to meet each of the groups' needs (Menec et al., 2020).

Cudjoe et al. (2020) utilized the National Health and Aging Trends Study (NHATS) data to examine social isolation's role in older adults' health risks. The findings showed estimate prevalence (e.g., 1 in 4 older adults) of the correlations between social isolation and health (Cudjoe et al. et al., 2020). Also, the findings differed and implied that race was an influential factor in social isolation. The results provide new knowledge about the influence of sociodemographic factors (Cudjoe et al. et al., 2020).

Definitions

Ethnicity: An individual associated with a large group of people according to common race, nationality, tribal, religious, or cultural origin (Merriam-Webster, n.d.a.).

Gender: A trait (behavioral, culture, or psychological) associated with an individual's sex (Merriam-Webster, n.d.b.). For this study, gender is a binary trait (e.g., male and female; Bridges et al., 2015).

Loneliness: An individual's perceptive feelings or emotions that intimate or social needs not being met. An individual's dissatisfaction with the frequency and closeness of relationships distinct from objective social integration indicators is also relevant to functional decline and mortality risk (NASEM, 2020; Rafnsson et al., 2020). For this study, loneliness will be measured using the revised UCLA loneliness scale, assessing the lack of companionship, feeling left out, and isolation (Bu et al., 2020).

Older adults: An individual aged 65 years or older (He et al., 2016).

Race: A predisposing social demographic characteristic that describes a family, tribe, people, or nation categories based on society (Chase et al., 2020; Merriam-Webster, n.d.c.).

Social isolation: The perceptive adequacy of an individual's social relationship structure or lack of contact with different social network groups (Menec et al., 2020; NASEM, 2020). Social isolation is a significant risk factor for human mortality, morbidity, and wellbeing (NASEM, 2020). For this study, social isolation will be measured by individual's living status (e.g., living alone or not), frequency of social contact (e.g., children, relatives, and friends), and frequency of social engagement or membership with social organizations, community groups, volunteering or cultural activities (Bu et al., 2020).

Social network: The structure of the connections and relationships shared among human beings (NASEM, 2020).

Social relationship: The connections and intersections among human beings NASEM, 2020).

Social support: Social resources that an individual perceives that are available for use (NASEM, 2020). Different types of assistance or help social network members provide to older adults. The types of support include "instrumental or tangible support (e.g., help with activities of daily living), emotional/informational support (e.g., having somebody to talk to or confide in), positive interactions (e.g., having somebody to have a good time with), and affectionate support (e.g., having somebody who gives love or affection"; Menec et al., 2020, p. 3).

Wellbeing: Also referred to as subjective wellbeing, it is an individual's evaluation of their satisfaction of life and positive and negative mental and cognitive reflection of their experience (Appau et al., 2020; Emerson et al., 2020). Wellbeing includes the three aspects of the individual evaluating life satisfaction and happiness (hedonic), feeling of life experiences (experiential), and the meaning or purpose of life (eudaimonic; Newman et al., 2020).

Assumptions

The assumption was that the original researchers conducted the ELSA study and data collection in an ethical and scientifically rigorous manner. Another assumption was that the original researchers properly defined the variables and developed associated questions to generate the data (Cheng & Phillips, 2014). The assumption was that the

participants accurately and truthfully answered interview questions and the self-completion questionnaire during the original study's data collection procedure. Due to this population's vulnerability, the assumption was that each older adult's participation was voluntary and not due to any type or form of cohesion. The assumption was that the participants understood the importance and relevance of their perceptions and feelings about loneliness, social isolation, social relationships, and their wellbeing.

Scope and Delimitations

The study's scope included examining the correlations between age, gender, ethnicity, loneliness, social isolation, social support, and wellbeing of older adults 65 years old in England. The vitality of understanding the interrelations of social factors such as loneliness and social isolation together remains of global importance to determining the impacts and influences on the aging process and wellbeing outcomes and how best to develop interventions and policies to reduce and eliminate the risk. The ELSA study was designed to collect information on selected participants related to measuring the aging process variables for this study. The study was delimited to men and women aged 60 years or older living in England. The study delimited participants to answer questions about sociodemographic and social behaviors that included or lacked loneliness, social isolation, social support, and wellbeing. The study used non-random convenience sampling that limited the external validity of findings. Population demographic information is investigated not to make generalizations or inferences about the population or the subgroups within the population (Kriska et al., 2013). The study delimited other known factors such as disabilities, health conditions, and mental health

influenced by aging or that influence wellbeing. The study delimited economic status, caregiver status, or cultural language.

Significance, Summary, and Conclusions

This study's findings will advance the knowledge about the relationships between social demographics and social factors that may predict the risk of wellbeing among older adults aged 65 years and older living in England. The findings will contribute to the shared cross-counties' knowledge pool of information on the aging process, loneliness, social isolation, and wellbeing. The findings may provide expanded insights and understanding of the interrelationships of loneliness and social isolation together and their predictor effects on the wellbeing of older adults (NASEM, 2020). Additional knowledge of ethnicity may influence the types of social support factors that affect wellbeing. The study's findings may guide older adults' social needs to establish effective interventions, programs, and policies to reduce loneliness and social isolation in the older adult population.

The findings may assist medical professionals and policymakers in identifying individuals at risk of loneliness and social isolation (Menec et al., 2020). This study's data may contribute to the preventative medical practices and the designing of interventions that are tailored made for older adults and specific subgroups of the population to reduce loneliness and social isolation. The findings may help policymakers establish resources and policies to develop effective interventions and programs to combat loneliness and social isolation. Additional knowledge regarding ethnicity, loneliness, and social isolation may help policymakers understand the population's health disparities for ethnic programs.

The study findings have potential implications for positive social change in healthcare practice and policies related to reducing or eliminating loneliness and social isolation for older adults. Another potential example for social change is to promote healthcare professionals' understanding of the importance of knowing risk factors associated with loneliness and social isolation and the predictive impact on older adults' wellbeing. Another potential social change is utilizing healthcare clinical assessments as validated instruments to create more effective communication and connections with older adults to improve their health (Perissinotto et al., 2019). The application of the new interrelation information between loneliness and social isolation can lead to healthcare professionals proactively screening and identifying older adults at risk for loneliness and social isolation and the effects on their wellbeing.

In Section 1, the literature review framed the research topic and research gap(s) associated with sociodemographic, psychosocial factors, and wellbeing among older adults. The literature review helped establish the well-known information that loneliness and social isolation are social factors that, directly and indirectly, influence health and wellbeing risk in older adults. The lack of evidence of the current intervention's effectiveness to reduce loneliness and social isolation in older adults identified the knowledge gap associated with the interrelationship between loneliness and social isolation. Other factors, such as social support, have a role in the influence on health and wellbeing. Using the SEM, each risk factor was assessed for its important role in developing an efficient intervention to reduce loneliness and social isolation in older adults.

Section 2 described the research study design and methodology for this study. The section included the research design and rationale for use, methodology, threats to validity, ethical procedures, and summary.

Section 2: Research Design and Data Collection

Introduction

The purpose of the study was to examine the association between loneliness, social isolation, the combined model of loneliness, and social isolation and wellbeing among older adults, 65 years and older, in England. I used a quantitative correlation approach to analyze secondary data from the ELSA. The research variables included wellbeing as the dependent variable, and loneliness and social isolation as the independent variables. The covariate variables included age, gender, ethnicity, and social support. The research study was conducted to advance the knowledge of the interrelationships between social demographics, social factors, and the combined predictor effects on wellbeing among older adults 65 years and old living in England.

In this section, I will outline the research design and rationale for the quantitative cross-sectional study. I will describe the methodology used in ELSA to determine the population, sampling, and sampling procedures, data collection, instrumentation, and operationalization constructs, and the data analysis plans for this study. I also will provide the threats to validity, ethical procedures to gain access to the secondary data set, humane treatment, and an overall summary of the research study design and methodology.

Research Design and Rationale

The research questions were designed to examine the association between loneliness, social isolation, the combined model of loneliness, and social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social

support. Loneliness and social isolation were identified as the independent variables. The dependent variable was wellbeing. The covariate variables included age, gender, ethnicity, and social support. The research design was a correlation approach in which each of the research questions guided the analysis of the relationships between two variables, the independent variables and the dependent variable (see Pallant, 2011). Constraints associated with the use of the correlation approach did not appear to be time or resources. Instead, the constraints were associated with how the results could be interpreted. The observed correlation indicated a relationship but did not show that one variable caused the other variable or that another variable was not influential (see Pallant, 2011).

Methodology

Population

The target population was a representative sample of men and women aged 50 years and older living in private residences in England and who remained eligible for each wave's ELSA (see Bridges et al., 2015). A total of 36,908 participants were interviewed and asked to complete the self-completion questionnaire in the ELSA between 2012 and 2019. During the years of 2012 to 2019, there were a total of four waves and over 8,000 participants in each wave, specifically Wave 6 (10,061), Wave 7 (9,666), Wave 8 (8,445), and Wave 9 (8,736; NatCen Social Research , 2020). All participants provided written informed consent.

Sampling and Sampling Procedures

Study participants were selected based on the sampling procedures outlined in the original ELSA study. The initial ELSA dataset population was drawn from the Health Survey participants in England (HSE) because of the large sample size (NatCen Social Research , 2020). The HSE is a large annual cross-sectional health survey on the English population (Roger et al., 2016). The original HSE sample design included boost samples representing ethnic minorities, and later the practice was discarded due to funding constraints (NatCen Social Research, 2020). HSE samples were drawn in two stages to ensure equal chances of including every address on the small users' postcode address file in England (Taylor et al., 2007). The first stage consisted of selecting the postcode from the postcode address file. The second stage consisted of a systematic selection of a fixed number of addresses from each postcode sector.

ELSA participants were drawn from HSE samples (Stage 1) and recruited if they met the criteria from four additional stages (e.g., a household that responded to HSE, at least one age-eligible individual in the household, remained alive and gave permission to be recontacted in the future; Steptoe, Breeze, Banks, et al., 2013). ELSA samples were selected based on five stages. Stage 1 consisted of the HSE households issued for HSE. Stage 2 consisted of a householder who responded to HSE. Stage 3 consisted of evaluating HSE responding households for age-eligible individuals. The age-eligible criteria were that the individual was born between March 1, 1933, and February 29, 1958 (Bridges et al., 2015; Taylor et al., 2007). Stage 4 consisted of age-eligible individuals who remained alive. Stage 5 consisted of individuals who agreed to be future contacted

post HSE. Core members remained eligible for ELSA interviews over the waves if they did not die or move outside Great Britain (NatCen Social Research, 2020).

The first ELSA wave took place in 2002/2003 with 11,578 out of the HSE 23,132 responding household interviews with adults 50 years and older follow-up biennial (Steptoe, Breeze, Banks, et al., 2013). A refreshment of samples was conducted to fill in the gap of sample members who grew older or left and maintained the representation of 50 years and older individuals in the sample population (Steptoe, Breeze, Banks, et al., 2013). Additional samples were drawn from the HSE household aged 50+ who agreed to be recontacted or other HSE years with different age criteria. Each refreshed sample became a part of the cohort. The ELSA samples were refreshed in Waves 3, 4, 6, 7, and 9 (Banks et al., 2020; Bridges et al., 2015). For this study, I used a selected subset of the participants from Wave 9 who were aged 65 and older, and I focused on sampling participants who responded to the study's dependent and independent variables to answer the related research questions.

Recruitment, Participation, and Data Collection

The participants from ELSA's Waves 6, 7, 8, and 9 were recruited and drawn from the original HSE years (2009, 2010, 2011, 2012, 2013, 2014, and 2015) and refreshed participants from other HSE years (Bridges et al., 2015). The recruitment approach (e.g., direct or indirect) of HSE participants was based on their previous consent and permission to be recontacted later (Taylor et al., 2007). The direct letter approach was used for participants who responded to HSE and did not refuse to be recontacted (Taylor et al., 2007). The indirect approach was contact made with another member while

interviewing a core member who did respond to HSE but refused to recontact or another member of the household that was eligible for the ELSA who agreed to be recontacted or new partners (Taylor et al., 2007).

The selected ELSA participants met the household criteria that responded to HSE, had at least one age-eligible individual in the household, remained alive, and gave permission to be recontacted in the future. The total sample sizes of the ELSA Wave 9 were 8,736 participants (NatCen Social Research , 2020). The response rate for ELSA Wave 9 was 79.5% (Banks et al., 2020).

Data collection was conducted for cross-sectional analysis for a particular wave and longitudinal analysis for more than one wave to observe a change during Waves 3 to 9 (NatCen Social Research , 2020). The type of data collection method used included individual and household computer-assisted personal interview (CAPI) questionnaires and self-completion questionnaires for each wave (NatCen Social Research , 2020). Each participant who completed the interview was asked to complete a self-completion questionnaire. The data were deidentified. The anonymized archived data were available from the UK Data Service (UKDS). UKDS houses the largest United Kingdom databases and provides access to the major United Kingdom government-sponsored surveys and studies' databases (e.g., cross-national, longitudinal, United Kingdom census) to meet the bona fide researcher's data needs, students, and teachers.

The ELSA data includes self-reported data that were available for public use. I completed the appropriate UKDS registration steps to gain access to the ELSA dataset. I received access to the ELSA based on license conditions.

Instrumentation and Operationalization of Constructs

Instrumentation

The ELSA dataset was appropriate for this study because the ELSA is a national multidisciplinary panel study that collects an array of measures (e.g., demographics, health, wellbeing, and social networks) on representative samples of people aged 50 years or older living in England (Roger et al., 2016; Schrempft et al., 2019). ELSA development is aligned with the United States HRS and the SHARE. Measurements of the variables are guided by and compared to the HRS and the HSE (Taylor et al., 2007).

The ELSA study used survey instrumentations, CAPI, and paper self-completion questionnaires to collect each variable biannually. The ELSA study used a technique called feeding forward data that allows for responses made at earlier interviews to aid recall and improve consistency of the responses across the waves. The CAPI questionnaire was created in 2001 and was administrated in the field in 2002 as the core ELSA questionnaire during each wave (Taylor et al., 2007). Paper self-completion questionaries were also given to the participants who completed the interviews. The topic of the questionnaires included a wide range of information that may have differed depending upon the wave. The ELSA questionnaire designs were tested in two pilots (August and November 2011). The pilots tested the questionnaires and the fieldwork approach.

Operationalization

The operational construct consisted of the dependent and independent variables related to the research questions. The dependent variable was wellbeing, and the

independent variables were loneliness and social isolation. The covariate variables were age, gender, ethnicity, and social support. The variables were measured using quantitative methods and similar scale indexes used in other studies.

Dependent Variable. The wellbeing outcome was measured in the ELSA study as a categorical variable by examining three scale indexes: quality of life (global measure), life satisfaction (positive affect), and depressive symptoms (negative affect). The indexes were used appropriately because of the multidimensional aspect of wellbeing. Wellbeing included feelings associated with positive (e.g., happiness) and negative (e.g., anxiety) experiences referred to as hedonic or affective wellbeing; life satisfaction referred to as evaluative wellbeing; and meaningfulness referred to as eudemonic wellbeing (Benson et al., 2019; Emerson et al., 2020; ONS, 2018b; Steptoe & Fancourt, 2020). The three measurements were similar to the psychological wellbeing indexes used in other studies (see Jackson, Firth, Firth, et al., 2019; Jackson, Hackett, Pardhan, et al., 2019).

I computed and analyzed the three wellbeing measurements.

1. Quality of life (QOL), also known as the experienced eudaimonic wellbeing, was measured as an ordinal variable using the CASP-19 Likert scale design. The CASP-19 consisted of a 19-item questionnaire covering the five domains quality of life, control, autonomy, self-realization, and pleasure coded SCQOLA–SCQOLS. An example of the control domain questions coded as SCQOLB asked, “How often feels what happens to them is out of their control?” An example of the autonomy domain questions coded as SCQOLH

asked, “How often feels their health stops them doing what they want to do?” The self-realization domain questions coded as SCQOLR asked, “How often feels that life is full of opportunities?” An example of the pleasure domain questions coded as SCQOLM asked, “How often enjoys being in the company of others?” Participants scored their responses to each of the statements using the scale of 1= *often*, 2 = *sometimes*, 3 = *not often*, and 4 = *never*. The responses were recoded to align with the original scale index and specified items were reverse-scored. QOL total scores were determined, ranged 0 to 57. For this study, I analyzed the dichotomized score that used the median whereas the higher score above the median indicated higher QOL (see Grabovac et al., 2019; Hyde et al., 2003; Jackson, Firth, Firth, et al., 2019; Jackson, Hackett, Pardhan, et al., 2019; Poole et al., 2020).

2. Life satisfaction, also known as evaluative wellbeing, was measured as an ordinal variable using the Satisfaction with Life Scale (SWLS). The SWLS design included asking the participants to rate their agreement to five statements about their life using the scale 1 = *strongly disagree*, 2 = *agree*, 3 = *slightly agree*, 4 = *neither agree or disagree*, 5 = *slightly disagree*, 6 = *disagree*, and 7 = *strongly disagree*. Statement 1, coded as SCLIFEA, asked, “How much agrees with the statement: in most ways my life is close to my ideal.” Statement 2, coded as SCLIFEB, asked, “How much agrees with the statement: the conditions of my life are excellent.” Statement 3, coded as SCLIFEC, asked, “How much agrees with the statement: I am satisfied with

my life." Statement 4, coded as SCLIFED, asked, "How much agrees with the statement: so far I have got the important things I want in life." Statement 5, coded as SCLIFEE, asked, "How much agrees with the statement: if I could live my life again, I would change almost nothing." Participants' responses were summed to produce a total score (range 5–35). For this study, I analyzed the dichotomized score with higher scores indicating life satisfaction and lower scores as dissatisfaction (see Grabovac et al., 2019; Hackett, Pardhan, 2019; Hyde et al., 2003; Jackson, Firth, Firth, et al., 2019; Jackson, Hackett, Pardhan, et al., 2019).

3. Depressive symptoms were measured as a categorical variable with the Center for Epidemiological Studies Depression Scale (CESD). The CESD consisted of a validated eight-item scale used to ask older adults about feelings of depression. Item 1 was coded as PSCEDA and asked the question, "Whether felt depressed much of the time during the past week?" Item 2 was coded PSCEDB and asked the question, "Whether felt everything they did during the past week was an effort?" Item 3 was coded as PSCEDC and asked the question, "Whether felt their sleep was restless during the past week?' Item 4 was coded PSCEDD and asked the question, "Whether was happy much of the time during the past week?" Item 5 was coded PSCEDE and asked the question, "Whether felt lonely much of the time during the past week?" Item 6 was coded PSCEDF and asked the question, "Whether enjoyed life much of the time during past week?" Item 7 was coded PSCEDG and asked the

question, “Whether felt sad much of the time during past week?” Item 8 was coded PSCEDH and asked the questions, “Whether could not get going much of the time during past week?” Participants scored the eight items using a binary response of 1 = Yes, or 2 = No. Positively worded items such as PSCEDD and PSCEDF scores were reversed. The total score ranged from 0–8. For this study, I analyzed the dichotomized scores whereas the higher score indicated a greater number of depressive symptoms (see; Grabovac et al., 2019; Jackson, Firth, Firth, et al., 2019; Jackson, Hackett, Pardhan, et al., 2019; Vanhoutte & Nazroo, 2014; Zivin et al., 2010).

Independent Variables. The independent variables include loneliness and social isolation.

Loneliness. Loneliness was measured in the ELSA study as a categorical variable using the 3-item Revised UCLA Loneliness Scale. The variables were coded as Scfeela, Scfeelb, and Scfeelc. The question associated with SCFEELA was “How often do you feel you lack companionship?” The question associated with SCFEELB “How often feels left out?” The question associated with SCFEELC was “How often feels isolated from others?” The response options for each question were 1 = hardly ever, 2 = Some of the time, and 3 = Often. The total score ranged from 3 to 9 (see Bu et al., 2020; Schrempft et al., 2019; Shankar et al., 2011; Tymoszuk et al., 2020; Victor & Pikhartova, 2020). For this study, I dichotomized the scores as lonely (6–9) and not lonely (3–5) and analyzed them. The higher scores indicate the higher the level of loneliness

Social Isolation. Social isolation was measured in the ELSA study as a categorical variable using an index that looked at the individual's living status (e.g., living alone or not), frequency of social contact (e.g., children, relatives, and friends), and frequency of social engagement or membership with social organizations, community groups, volunteering, or cultural activities (Bu et al., 2020). One point was scored for the participant if they met the criteria of (a) living alone, (b) having less than monthly contacts with each of their children, family, other family members, and (c) did not belong to social clubs or organizations. The total score ranged from 0 to 5. The higher score indicated a greater degree of social isolation (Bu et al., 2020; Jackson, Firth, Firth, et al., 2019; Schrempft et al., 2019; Steptoe, Shankar, Demakakos, et al., 2013). For this study, I created a dichotomized score for socially isolated (high score of ≥ 2) and not socially isolated (low score equaling <2).

Covariates Variables. The covariate variables included age, gender, ethnicity, and social support.

Age. Age was measured in the ELSA as a categorical scale variable by asking the participants what their age was between 50 to 99. The variable was coded as DHAGE and DIAGE. The question associated with this variable asked, "What is your age?" Also, there were six response types for this categorical variable, 1 = Under 16, 2 = 16 to 29, 3 = 30 to 49, 4 = 50 to 69, 5 = 70 to 89, and 6 = 90 or over. For this study, age was analyzed as a scale variable and as recoded as multiple categorical age groups.

Ethnicity. Ethnicity was measured in ELSA as a categorical variable by asking a follow-up question about their ethnic group. During the previous interviews, participants

indicated either they were White or non-White for the ethnic group coded FQETHN (1 = White and 2 =non-White). For this study, ethnicity was recoded and analyzed.

Gender. Gender was measured in the ELSA study by asking what your sex is and coded as DHSEX* categorical variable. The asking a follow-up question filter of DHSEX* includes 1 = male and 2 = female. For this study, gender was recoded and analyzed.

Social support. Social support was measured in the ELSA study as a categorical variable for positive and negative experiences for each relationship (e.g., partner, children, other family members, and friends). Six items on the health and lifestyle self-completed questionnaire were used. Three items measured the positive, and three items measured the negative experiences on a 4-point scale of 1 = A lot, 2 = Some, 3 = A little, and 4 = Not at all. Codes were reversed and the three items for positive and negative support experiences were summed (Khondoker et al., 2017; Stafford et al., 2019). The higher score value indicated more of the positive or negative experiences. For this study, the summed score was analyzed.

1. Positive experience:

- Question 1 for the positive experiences consisted of four questions. SC CPRTA asked, “How much their spouse/partner understands the way they feel about things?” SCCHDA asked, “How much respondent's children understand the way they feel about things?” SCFAMA asked, “How much respondents’ family members understand the way they feel about things?” SSCFRDA asked, “How much respondent's friends understand the way they feel about things?”

- Question 2 for the positive experience consisted of four questions. SSCPRTB and asked, “How much respondent can rely on their spouse/partner if they have a serious problem?” SCCHDB and asked, “How much respondent can rely on their children if they have a problem?” SCFAMB and asked, “How much respondent can rely on other family members if they have a serious problem?” SCFRDB and asked, “How much respondent can rely on their friends if they have a serious problem?”
- Question 3 of the positive experience consisted of four questions. SSCPRTC and asked, “How much can open up to their spouse/partner if they need to talk about their worries?” SCCHDC and asked, “How much respondent can open up to their children if they need to talk about their worries?” SCFAMC and asked, “How much respondent can open up to other family members if they need to talk about their worries?” SCFRDC and asked, “How much respondent can open up to their friends if they need to talk about their worries?”

2. Negative experiences

- Question 1 for the negative experiences consisted of four questions. SCPRTD asked, “How much their spouse/partner criticizes the respondent?” SCCHDD and asked, “How much their children criticize the respondent?” SCFAMD asked, “How much other family members criticize the respondent?” SCFRDD asked, “How much their friends criticize the respondent?”
- Question 2 for the negative experiences consisted of four questions. SCPRTE and asked, “How much their spouse/partner lets the respondent down?” SCCHDE and asked, “How much their children let the respondent down?” SCFAME and

asked, “How much other family members let the respondent down?” SCFRDE and asked, “How much their friends let the respondent down?”

- Question 3 for the negative experiences consisted of four questions.

SCPRTF asked, “How much their spouse/partner gets on the respondent's nerves?” SCCHDF asked, “How much their children get on the respondent's nerves?” SCFAMF asked, “How much other family members get on the nerves of the respondent?” SCFRDF asked, “How much their friends get on the respondent's nerves?”

Data Analysis Plan

The data analysis plan included data cleaning, data preparation, and descriptive and inferential statistical analysis. I analyzed the secondary data from the ELSA using the Statistical Package for Social Science (SPSS) software version 27.

Data Cleaning and Preparation

I acquired the ELSA datasets from the United States Data Service. The data were reviewed and screened. The screening process included checking for errors and mistakes to ensure the ELSA dataset is error-free (See Pallant, 2011). The next step involved inspecting the data for missing data and exploring the variables (See Pallant, 2011). I selected the cases that met the study criteria, recoded variable scores (e.g., to dichotomize variables), and computing total scores, and included variables weights. The listwise process to remove missing values was automatically performed by SPSS.

Research Questions and Hypotheses

The research questions for this study were as follows:

RQ1: What is the association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

H_01: There is no association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A1: There is an association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

RQ2: What is the association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

H_02: There is no association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A2: There is an association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support

RQ3: What is the relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

H_03: There is no relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A3: There is a relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

Statistical Analysis Plan

Descriptive Statistical Analysis

Descriptive data were generated for all of the variables. The variables included the dependent variable wellbeing, independent categorical variables loneliness, social isolation, and covariates variables age, gender, ethnicity, and social support using the descriptive statistical analysis (DSA). Frequency tables were run on each variable to identify the number of occurrences, the variability percentage, and each categorical variable's value (See Pallant, 2011).

Inferential Statistical Analysis

The use of inferential statistical analysis (ISA) generated data for one dependent and two independent categorical variables using the binary logistic regression analysis (See Pallant, 2011; UCLA Institute for Digital Research and Education, n.d.). The binary logistic regression was an appropriate test because it allows for the analysis of the relationship between the independent variable and the dependent variable that is binary as outlined in RQ1 (loneliness and wellbeing) and RQ2 (social isolation and wellbeing) when accounting for age, gender, ethnicity, and social support. Each variable has multiple categories (e.g., two or more; see Pallant, 2011). According to Pallant (2011), it is necessary to conduct a follow-up analysis to explore the independent variables' predictive ability. The binary logistic regression method was appropriate because it allows for the predictor analysis of multiple variables (one categorical dependent variable and one or more categorical independent variables). RQ3 outlined the method using

wellbeing and the combined model of loneliness and social isolation when accounting for age, gender, ethnicity, and social support.

Table 2 consists of the data analysis matrix, an illustration of information that links the research questions and the hypotheses to the data source, identifies the type of data that will need to be collected and analyzed, and describes the types of analysis procedures used.

Table 2

Data Analysis Matrix for the Sociodemographic and Psychosocial Factors and Wellbeing among Adults 65 and Older Study

Study objective or research questions	Concept	Data source	Level of measurement	Analysis Procedures
I: What is the association between loneliness and wellbeing among older adults?	Association between age and wellbeing	ELSA Survey data Wave 6, 7, 8, & 9	Loneliness = Nominal Wellbeing = Ordinal	DSA: Frequencies, percentage table ISA: Binary logistic regression
II. What is the association between social isolation and wellbeing among older adults?	Association between social isolation and wellbeing	ELSA Survey data Wave 6, 7, 8, & 9	Social isolation = Nominal Wellbeing = Binary	DSA: Frequencies, percentage table ISA: Binary logistic regression
III. What is the predictor effect of a combined model of loneliness and social isolation on older adults' wellbeing?	Predicator effect of the combined model of loneliness, and social isolation on wellbeing	ELSA Survey data Wave 6, 7, 8, & 9	Combined model = Nominal Wellbeing = Binary	DSA: Frequencies, percentage table ISA: Binary logistic regression

Table 3 outlines the binary logistic regression modeling to determine if the presence or absence of loneliness and social isolation is related to wellbeing when accounting for age, gender, ethnicity, and social support.

Table 3

Binary Logistic Regression Models

		Regression models		
Variables	Codes	Model 1	Model 2	Model 3
DV	0 = low wellbeing 1 = high wellbeing	Wellbeing	Wellbeing	Wellbeing
IV #1 Loneliness	0 = not lonely 1= lonely	Loneliness		Loneliness
Covariate variables Age Gender Ethnicity Social support	0 = M 1 = F 0 = nonWhite 1 = White	Age, gender, ethnicity, and social support	Age, gender, ethnicity, and social support	Age, gender, ethnicity, and social support
IV #2 Social isolation	0 = no social isolation 1 = social isolation		Social isolation	Social isolation with loneliness social isolation

Threats to Validity

The validity, along with reliability, influences the quality of data (Pallant, 2011). Association (correlation) and predict outcome (multiple regression) techniques are used to assess the validity of the data (Pallant, 2011). Some threats of validity are associated with the adequacy of the measures of the variables sampled. According to Steptoe, Breeze, Banks, et al. (2013), the level of detail on health outcomes and the psychosocial

processes are not great in comparion to variables in hypothesis-driven studies. Another threat to validity is the relationship between measures and measurable criteria. An example of this threat is seen in the few ethnic minority participants to establish representative sampling. A third threat is the testing criteria against the theoretical hypotheses construct.

Ethical Procedures

Appropriated permissions to use the public anonymized archived ELSA data set as secondary data was obtained by requesting and registering with the UK Data Service (UKDS; see Roger et al., 2016). The ELSA study received ethical approval for each wave and associated materials (Steptoe, Breeze, Banks, et al., 2013). The ELSA wave studies were granted ethical approval by the NHS Research Ethics Committees under the National Research and Ethics Services (NRES; NatCen Social Research, 2020) and by the University College London Research Ethics Committee (Roger et al., 2016).

The ELSA participants received separate written informed consent forms for their participation in the study and permission to link their data to administrative data sources during the recruitment stage. The written informed consent form and permission were approved by the NRES (Roger et al., 2016). Participants who joined in subsequent waves received written consent forms to reaffirm their agreement (Roger et al., 2016). Verbal consent was captured for participants' recruitment conducted by telephone (Roger et al., 2016). There were no ethical concerns with recruitment letters, as described in the secondary data set materials. There was an ethical concern regarding the responding sample's potential bias due to participants' non-responsiveness and refusal to be re-

contacted. Another ethical concern related to approaching individuals who refused re-contact lived in the same household with core members that agreed to HSE re-contact. Also, an ethical concern with contacting individuals deselected was if all of the household participants refused to be re-contacted in the future (Taylor et al., 2007).

For this study, the use of secondary data analysis did not involve any foreseeable ethical concerns because of the participants' lack of risk. Using the NHS REC decision tool, it was determined that this study did not require an NHS REC review or any other regulatory approvals and/or types of ethics review (Health Research Authority). Appropriate documentation associated with the ELSA survey and this doctoral study were approved by Walden University Institutional Review Board under IRB approval number 12-18-20-0760195 use ELSA secondary data.

Summary

In this section, the research study design was outlined regarding the rationale for examining the association between age, gender, ethnicity, loneliness, social isolation, social support, and wellbeing among older adults, 65 years and older in England was provided. The data analysis plan was based on a quantitative correlational approach and described the necessary steps to implement. Data cleaning and data preparation were performed, and descriptive and inferential statistical analysis were ran. The descriptive statistical analysis was identified as correlation analysis, and the inferential statistical analysis was identified as binary logistic regression. SPSS software version 27 was used to analyze the ELSA secondary data. The population, sampling, and sampling procedures for data collection and the instrumentation and operationalization data analysis were

described. The threats to validity, ethical procedures to gain access to the secondary data set and humane treatment, and the overall summary of the research study's design and methodology were described. Section 3 presents the study’s results and findings. The section included includes the data collection of the secondary data set, results of the analysis, and a summary.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of the quantitative correlation study was to examine the association between loneliness, social isolation, the combined model of loneliness, and social isolation and wellbeing among older adults 65 years and older in England. I used three research questions to guide the correlation research approach. I conducted descriptive and interferential statistical analyses using SPSS to answer the research questions. Each research question and the associated null and alternative hypotheses are listed below.

RQ1: What is the association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

$H_0$1: There is no association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A1: There is an association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

RQ2: What is the association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

$H_0$2: There is no association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A2: There is an association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

RQ3: What is the relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

$H_0$3: There is no relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A3: There is a relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

In this section, I will summarize my research study activities (e.g., data collection for the secondary dataset, data analysis, results, and interpretation of the findings) to answer the research questions and accept or reject the hypotheses. I will focus on how the data included in the ELSA secondary dataset were collected and analyzed for this study, identify discrepancies performed outside of my research plan outlined in Section 2, and present the descriptive and interferential statistical analysis results generated during this research analysis.

Data Collection of Secondary Data Set

Data Collection

The ELSA data were used as the secondary dataset for this study. The ELSA data collection began in years 2002/3 for Wave 1 with participant group, Cohort 1, and spanned to collecting data in years 2018/9 for the latest participant group Cohort 9, Wave 9. The participant groups were comprised of a representative of national 50 years and

older men and women who lived in private residential accommodations in England who participate in the HSE. The data collection process occurs every 2 years by resurveying participants from previous cohorts and newly added participants during the refreshment years. The ELSA study focused on collecting data to better understanding older individuals' social and economic conditions, health and wellbeing, and how the information changes over time (2002–2019). The ELSA data included multidimensional characteristics such as health trajectories, physical, mental health, social networks, social support, and predictors of wellbeing. Each wave's individual response rates (2002–2019) varied from 74 to 90.7% (Banks et al., 2020). I used the 2018/19 data from the ELSA in this study. The individual response rate for Wave 9 (2018/19) was 79.5% (Banks et al., 2020).

In Section 2, I proposed to analyze a target sample size for each of the four wave years (2012–2019), Waves 6 to 9. However, I chose to use the data collected in 2018–2019 to conduct the cross-sectional analysis. My goal was to examine data at a snapshot of time in England, specifically when the United Kingdom's government prioritized its focus on tackling loneliness (including social isolation) and not on analyzing or comparing multiple wave data changing over time (see HM Government, 2018). Because the United Kingdom leads the way in government strategy for tackling loneliness and Wave 9 data were collected during the implementation stage of the United Kingdom's strategic plan (HM Government, 2018; Prohaska et al., 2020), I focused on data from 2018–2019. In 2018, the United Kingdom developed and implemented a cross-government national strategy to combat loneliness (including social isolation; HM

Government, 2018). Wave 9 (2018–2019) data were collected during the implementation of the United Kingdom's strategy, funding, and the launch of numerous organization campaigns (HM Government, 2018). The assessment of Wave 9 data can expand knowledge of government-led intervention initiatives for loneliness and social isolation and its impact. England along with other countries (including the United States) are a part of the international collaboration of sister longitudinal studies. Study participants usually participate in cohorts over multiple years. Wave 9 was comprised of older adults from five existing ELSA cohorts (e.g., 1, 3, 4, 6, 7; Banks et al., 2020).

I conducted additional steps to recode variables' scores ranges, compute total scores, create dichotomized scores, and check for errors and missing values (Grabovac et al., 2019). The Wave 9 cross-sectional self-completion weights were included to adjust for differential nonresponse (NatCen Social Research, 2020). Participants 65 years and older were case selected to meet the study participant age criteria and resulted in a baseline sample size reduction to n = 3,043 (34% of the total participants of Wave 9). A variable for the combined loneliness and social isolation model was created to examine the interactions between loneliness and social isolation.

Demographic Characteristics of the Sample

The baseline demographic information included age, gender, ethnicity, and social support. These factors were also identified as the covariate variables in the study. Basic univariate analyses were conducted for each weighted variable, the dependent variable wellbeing, the independent variables loneliness and social isolation, and covariate

variables age, gender, ethnicity, and social support to generate the frequencies and missing values of the 3,043 sample cases.

Covariate Variables: Age, Gender, Ethnicity, and Social Support

The demographic information for the study participants is presented in Table 4. The age of the older adults ranged from 65 to 90+ years with a mean age of 74.33 (*SD* = 6.71). Participants in the 70 to 79 age group made up almost half of the sample group (46.5 %). A little more than half of the older adult participants were females (53.8%), and males were 46.2%. The majority of the older adults were of white ethnicity (96.6%), with non-White ethnicities at 3.5%. More than 50% of older adults' responses for social support data (social support POS [50%] and social support NEG [51.7 %]) were missing. Of the social support responses received, older adults indicated receiving positive social support (45.2%) and negative social support (41.2%).

Table 4

Frequency and Percentage Summaries of Covariate Variables – Sociodemographic (Age, Gender, Ethnicity) and Social Support

Variables	Frequency	Percentage
Age	3,043	100
Age groups		
2 Age 65 -69	875	28.8
3 Age 70 -79	1,414	46.5
4 Age 80 -89	714	23.5
5 Age 90 +	40	1.3
Gender		
0 Male	1,405	46.2
1 Female	1,638	53.8
Ethnicity		
0 White	2,939	96.6

Variables	Frequency	Percentage
1 Non-White	105	3.4
Social support POS	1,522	5
Missing	1,521	50
Social support NEG	1,469	48.3
Missing	1,574	51.7

Dependent Variable: Wellbeing

The dependent variable was the wellbeing of older adults. Wellbeing was comprised of three measurements, QOL, SWLS, and CESD. Table 5 displays the descriptive statistics for each measurement of wellbeing by mean (std), frequency, and percentage using the 3,043 sample cases.

QOL was measured using the quality-of-life scale (CASP -19), a 19-item Likert scale that I dichotomized into scoring 0 = *low QOL* (0–43) and *high QOL* (44–57). Older adults identified almost equally with low QOL (*n* = 1,491, 49%) and high QOL (*n* = 1,247, 49%). Ten percent of the older adults' (304) QOL responses were missing and were excluded from the study analysis for not meeting the study response criteria.

SWLS was measured using the satisfaction with life scale, a 5-item Likert scale. I used a dichotomized score of 0 = *dissatisfaction* (19 and below) and 1 = *satisfaction* (26 and above). More participants identified as being satisfied with life (*n* = 1,779, 58.5%), and 398 (13.1%) identified as being dissatisfied with life. A total of 865 (28.4%) SWLS responses were missing and were excluded from the study analysis for not meeting the study response criteria.

CESD was measured using an 8-item Center of Epidemiologic Studies Depression scale. Using a dichotomized score of 0 = *low depression* (0–3) and 1 = *high depression* (4-8), most older adults identified with low depression (*n* = 2,678, 88%), and 338 (11.1%) identified with high depression. Less than 1% (*n* = 26, .9%) of the older adult participants' CESD responses were missing and were excluded from the study analysis for not meeting the study response criteria.

Table 5

Frequency and Percentage Summary of Dependent Variable, Wellbeing Quality of Life, Life Satisfaction, and Depression

Wellbeing variables	Mean (*SD*)	Frequency	Percent (%)
QOL	.46 (*SD* =.*49*)		
0 Low QOL (0–43)		1,491	49
1 High QOL (44–57)		1,247	41
Missing		304	10
SWLS			
0 Dissatisfied (5–19)	.82 (*SD* =.39)	398	13.1
1 Satisfied (26–35)		1,779	58.5
Missing		865	28.4
CESD			
0 Low depression (0–3)	.11 (*SD* = .32)	2,678	88
1 High depression (4–8)		338	11.1
Missing		26	.9

Independent Variables – Loneliness and Social Isolation

Loneliness was one of the two independent variables examined in this study. Older adults' level of loneliness was measured using the 3-item UCLA scale and a dichotomized score. Table 6 presents the descriptive statistics for loneliness using 3,043 sample cases. The majority of the older adults identified with being not lonely (*n* = 2,393,

78.6%), and only 536 (17.6%) identified with being lonely. One hundred and fourteen older adults (3.8%) loneliness responses were missing and excluded from the study analysis for not meeting the study response criteria.

Social isolation was the other independent variable examined in this study. Older adults' level of social isolation was measured using a social isolation index and scored using a dichotomized scoring. Table 6 displays the descriptive statistics for social isolation using 3,043 sample cases. Three hundred and sixty-nine (12.1%) older adults identified as not socially isolated and 1,209 (39.7 %) as socially isolated. Almost half of the participants' social isolation responses (*n* = 1,466, 48.2%) were missing and excluded in the study for not meeting the criteria.

Table 6

Frequency and Percentage Summary of Independent Variables, Loneliness and Social Isolation

Variables	Frequency	Percent (%)
Loneliness		
0 Not lonely (3–5)	2,393	7836
1 Lonely (6–9)	536	17.6
Missing	114	3.8
Social isolation		
0 Not socially isolated (0–2)	369	12.1
1 Social isolated (3–5)	1,209	39.7
Missing	1,466	48.2

Combined Model of Loneliness and Social Isolation

The interactions of loneliness and social isolation were examined in the combined model. Participants were placed into the four groupings, Not Lonely/ No Socially

Isolated, Not Lonely/ Socially Isolated, Lonely/No Socially Isolated, or Lonely/ Socially Isolated (Menec et al., 2020; Newall & Menec, 2019). Table 7 illustrates the percentage for each group. The majority of the older adults identified as being not lonely/socially isolated (*n* = 1,028, 65.1%). Older adults identified the least as lonely/ not socially isolated (*n* = 51, 3.3%). Twenty percent (*n* = 314) of the participants identified as not lonely/ no socially isolated and 11.4 % (*n* = 178) identified as lonely/socially isolated.

Table 7

Group Distribution of the Combined Model of Loneliness and Social Isolation

Groups	*N*	Percentage (%)
Not lonely/ no social isolation	314	20.7
Not lonely/ social isolation	1,014	65.1
Lonely/no social isolation	51	3.3
Lonely/ social isolation	178	11.4
Missing	1,486	48.8

When groups were further dichotomized into groups of interactions, a total of 178 (11.4%) participants were identified as exhibiting a combined model of lonely/socially isolated, and the majority of participants identified as exhibiting a combined model that was lonely/ not socially isolated, not lonely/ not socially isolated and not lonely/socially, isolated (*n* = 2,447, 80.4%). Table 8 displays the frequency and percentage of the combined model of loneliness and social isolation interactions.

Table 8

Frequency and Percentage Summary of the interactions of the Combined Model of Loneliness and Social Isolation

Groups	Frequency	Percentage (%)
No lonely/no socially isolated interactions*	2,447	80.4
Lonely/ socially isolated interactions	178	5.9
Missing	418	13.7

*This group includes individuals who were no lonely/no socially isolated, lonely/no socially isolated, and no lonely/ socially isolated.

Results

A binary logistic regression analysis [$\text{logit}(p) = b_o + b_1X_1 + b_2X_2 .. + b_kX_k$] was conducted to determine the associations between the dependent and the multiple variables in each of the three research questions. The multiple variables consisted of two independent variables, loneliness, and social isolation. The dependent variable wellbeing used three dichotomized measurements, quality of life (0= *low* QOL [0–43], 1 = *high* QOL [44–57]), life satisfaction (0 = dissatisfied 1[9 and below], 1 = satisfied [26 and above]), and depression (0= *low* depression [0-3], 1 = *high* depression [4-8]). Each of the independent variables was dichotomized, loneliness consisted of 0 = no lonely (3–5) and 1 = lonely (6–9) and social isolation consisted of 0 = not socially isolated (0–2) and 1 = socially isolated (3–5). The binary logistic regression analyses met the six statistical assumptions.

Statistical Assumptions

This binary logistic regression analysis was used to predict the probability of a dichotomous dependent variable, well-being outcomes from multiple variables. Each of the data responses came from different older adult participants and are independent of each other. No observation of intercorrelations between each of the variables confirmed any multicollinearities (VIF < 15). No extreme outliers were observed. There was a linear relationship between each of the variables. The sample size was larger than 10 for each variable making it sufficient to provide valid responses. The analysis approach provided a feature to control the covariate variables, age, gender, ethnicity, and social support, from an unexplained variation of the wellbeing outcome. I used the statistical significance ($\alpha < .05$) to determine the relationship between each independent variable, loneliness, social isolation, and the combined model of loneliness and social isolation and wellbeing and to assess to reject or fail to reject the null hypotheses. The binary logistic regression analysis confirmed that the model was a good fit for the data. Also, the binary logistic regression analysis used the odds ratio to indicate the effects of loneliness, social isolation, and the combined model of loneliness and social isolation predictors on the wellbeing outcome within the 95% CI.

Research Question 1

What is the association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

> H_01: There is no association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A1: There is an association between loneliness and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

The binary logistic regression analysis was performed to test the hypothesis of whether there was an association between loneliness and wellbeing outcomes among older adults. Model 1 consisted of evaluating the dichotomized loneliness independent variable used with each of the three dichotomized wellbeing measurements, quality of life, life satisfaction, and depression. While controlling the covariate variables age, gender, ethnicity, and social support, the binary logistic regression analysis predicted that the probability of loneliness is significant in wellbeing outcomes of all three measurements and rejects the null hypotheses.

Results for Loneliness as a Predictor of Odds of Wellbeing - Quality of Life

A binary logistic regression analysis was conducted to investigate an association between loneliness and quality of life. The outcome of the interest was the quality of life outcome. The possible predictor variable was loneliness. The Hosmer-Lemeshow goodness-of-fit result was greater than the significance level (α) = .05 and was not significant indicating that the model is correctly specified. Additionally, the -2 log Likelihood = 1,512.85, and the *Nagelkerke* R^2 = .3. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and loneliness was significant (p <.001). Controlling for age, gender, gender, and social support, the predictor variable, loneliness in the logistic regression analysis, was found to significantly contribute to the model, B = -1.588, SE = .260, *Wald* (x^2) = 37.25, p< .001. Table 9 presents the binary logistic regression for loneliness and quality of life. For older adults who were lonely, the

odds of high quality of life were 79.6 times lessor than those who were not lonely (OR = .204, 95% CI [.123, .34]. Therefore, based on the results, the null hypothesis was rejected.

Results for Loneliness as a Predictor of Odds of Wellbeing - Life Satisfaction (SWLS)

A binary logistic regression analysis was conducted to investigate an association between loneliness and life satisfaction. The outcome of the interest was the life satisfaction outcome. The possible predictor variable was loneliness. The Hosmer-Lemeshow goodness-of-fit was greater than the significance level (α) = .05 and was not significant indicating the model is correctly specified. Additionally, the -2 log Likelihood = 643.99, and the *Nagelkerke* R^2 =.28. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and loneliness was significant (p <.001). Controlling for age, gender, gender, and social support, the predictor variable, loneliness in the logistic regression analysis, was found to contribute to the model, B = -1.71, SE = .25, *Wald* (x^2) = 46.50, p <.001. Table 9 presents the binary logistic regression for loneliness and life satisfaction. For older adults who were lonely, the odds of life satisfaction were 81.9 times lesser than those who were not lonely (OR = .18, 95% CI [.11, .29]). Therefore, based on the results, the null hypothesis was rejected.

Results for Loneliness as a Predictor of Odds of Wellbeing – Depression (CESD)

A binary logistic regression analysis was conducted to investigate an association between loneliness and depression. The outcome of the interest was the depression. The possible predictor variable was loneliness. The Hosmer-Lemeshow goodness-of-fit result

was greater than the significance level (α) = .05 and was not significant indicating that model is correctly specified. Additionally, the -2 log Likelihood = 596.53, and the *Nagelkerke* R^2 = .22. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and loneliness was significant ($p < .001$). Controlling for age, gender, gender, and social support, the predictor variable, loneliness in the logistic regression analysis, was found to significantly contribute to the model, $B = 1.85$, $SE = .25$, *Wald* (x^2) = 53.78, $p < .001$. Table 9 presents the binary logistic regression for the association between loneliness and depression. For older adults who were lonely, the odds of depression were 6.34 times greater than those who were not lonely (*OR* = 6.34, 95% CI: [3.87, 10.38]). Therefore, based on the results the null hypothesis was rejected.

Table 9

Loneliness as a Predictor of Odds of Wellbeing – Quality of Life, Life Satisfaction and Depression

Variables	*N*	*B*	*p*-value	Odds Ratio	95% C.I.
Quality of life	1341				
Age		- .105	<.001	.9	.88, .921
Gender		-.066	.605	.936	.729 1.202
Ethnicity		.083	.815	1.086	.544, 2.171
Social support		.119	<.001	1.127	1.098, 1.156
POS		-.078	<.001	.925	.889, .951
Social support NEG Loneliness		-1.588	<.001	.204	.123, .34
Life satisfaction	1119				
Age		- .068	<.001	.934	.903, .966
Gender		-.702	.001	.496	.326, .754
Ethnicity		.142	.819	1.153	.342, 3.891
Social support		.121	<.001	1.128	1.087, 1.171
POS		-.059	.006	.934	.904, .983
Social support NEG Loneliness		-1.712	<.001	.181	.110, .295
Depression	1409				
Age		.057	.002	1.059	1.021, 1.098
Gender		1.017	<.001	2.764	1.722, 4.437
Ethnicity		.324	.552	1.383	.476, 4.02
Social support		-.034	.084	.966	.930, 1.005
POS		.068	.002	1.071	1.026, 1.118
Social support NEG Loneliness		1.846	<.001	6.337	3.868, 10.379

Summary of Loneliness as a Predictor of Odds of Wellbeing

Loneliness was significant (p <.001) for all three wellbeing measurements, quality of life, life satisfaction, and depression. Therefore, based on the results, the null hypothesis was rejected, confirming an association between loneliness and wellbeing measurements, quality of life, life satisfaction, and depression. Table 10 presents a summary of the significance and hypothesis.

Table 10

Summary of Overall Data for Loneliness and Wellbeing

Variable loneliness	$P < .05$	Statistically significant	Hypothesis determination
Quality of life	<.001	Significant	Reject the $H_0$1
Life satisfaction	<.001	Significant	Reject the $H_0$1
Depression	<.001	Significant	Reject the $H_0$1

Research Question 2

What is the association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

H_02: There is no association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A2: There is an association between social isolation and wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

The binary logistic regression analysis was performed to test the hypothesis of whether there is an association between social isolation and wellbeing outcomes among older adults. Model 2 consisted of evaluating the dichotomized social isolation

independent variable used with each of the three dichotomized wellbeing measurements, quality of life, life satisfaction, and depression. While controlling the covariate variables age, gender, ethnicity, and social support, the binary logistic regression analysis predicts that the probability of social isolation is not significant in wellbeing outcomes of all three measurements and fails to reject the null hypotheses.

Results for Social Isolation as a Predictor of Odds of Wellbeing Quality of Life

A binary logistic regression analysis was conducted to investigate an association between social isolation and quality of life. The outcome of the interest was the quality-of-life outcome. The possible predictor variable was social isolation. The Hosmer-Lemeshow goodness-of-fit result was greater than the significance level (α) = .05 and was not significant indicating that the model is correctly specified. Additionally, the -2 log Likelihood = 1,196.24, and the *Nagelkerke* R^2 = .26. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and social isolation was significant (p >.001). However, the association between social isolation and quality of life while controlling age, gender, gender, and social support in the model constant, was found to not significantly contribute to the model, B = -.114, SE = .175, *Wald* (x^2) = .42, p = .52. Table 11 presents the binary logistic regression for social isolation and quality of life. For older adults who were socially isolated, the odds of higher quality of life were 10.8 lesser than those who were not socially isolated (*OR* = .892, *95% CI*: [.63, 1.26]) this was not statistically significant. Therefore, based on the results, the null hypothesis was not rejected.

Result for Social Isolation as a Predictor of Odds of Wellbeing - Life Satisfaction

A binary logistic regression analysis was conducted to investigate an association between social isolation and life satisfaction. The outcome of the interest was the life satisfaction outcome. The possible predictor variable was social isolation. The Hosmer-Lemeshow goodness-of-fit result was greater than the significance level (α) = .05 and was not significant indicating that the model is correctly specified. Additionally, the -2 log Likelihood = 507.7, and the *Nagelkerke* R^2 = .25. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and social isolation was significant (p >.001). However, the association between social isolation and life satisfaction while controlling age, gender, gender, and social support in the model constant, was found to not significantly contribute to the model, *B* = .19, *SE* = .29, *Wald* (x^2) = .42, *p* =.52. Table 11 presents the binary logistic regression for social isolation and life satisfaction. For older adults who were socially isolated, the odds of being satisfied with life were 20.5 times greater than those who were not socially isolated (*OR* =1.21, *95% CI*: [.68, 2.13]), but this was not statistically significant. Therefore, based on the results, the null hypothesis was not rejected.

Results for Overall Social Isolation as a Predictor of Odds of Wellbeing - Depression

A binary logistic regression analysis was conducted to investigate an association between social isolation and depression. The outcome of the interest was depression. The possible predictor variable was social isolation. The Hosmer-Lemeshow goodness-of-fit result was greater than the significance level (α) = .05 and was not significant indicating that the model is correctly specified. Additionally, the -2 log Likelihood = 4, 35.86 and

the *Nagelkerke* R^2 = .16. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and social isolation was significant (p >.001). However, the association between social isolation and depression while controlling age, gender, gender, and social support in the model constant, was found to not significantly contribute to the model, *B* = .19, *SE* = .35, *Wald* (x^2) = .28, *p*= .6. Table 11 presents the binary logistic regression for social isolation and depression. For older adults who were socially isolated, the odds of higher depression were 20.4 times greater than those who were not socially isolated (OR = 1.204, 95% CI: [.6, .2.41]) this was not statistically significant. Therefore, based on the results, the null hypothesis was not rejected.

Table 11

Social Isolation as a Predictor of Odds of Wellbeing – Quality of Life, Life Satisfaction and Depression

Variables	*N*	*B*	*p*-value	Odds ratio	95% C.I.
Quality of life	1,034				
Age		-.102	<.001	.903	.88, .926
Gender		-.23	.108	.795	.6, 1.052
Ethnicity		.344	.466	1.411	.559, 3.56
Social support		.13	<.001	1.138	1.106, 1.171
POS		-.101	<.001	.904	.875, .934
Social support NEG		-.114	.516	.892	.633, 1.258
Social isolation					
Life satisfaction	864				
Age		- .092	<.001	.912	.878, .947
Gender		-.859	<.001	.424	.266, .675
Ethnicity		.388	.680	1.474	.233, 9.3119
Social support		.153	<.001	1.166	1.116, 1.217
POS		-.1	<.001	.905	.862, .949
Social support NEG		.187	.519	1.205	.684, 2.126
Social isolation					

Depression	1,078				
Age		.066	.003	1.069	1.023, 1.116
Gender		1.317	<.001	3.733	2.126, 6.556
Ethnicity		.715	.329	2.044	.486, 8.59
Social support		-.084	<.001	.920	.879, .962
POS		.112	<.001	1.118	1.063, 1.175
Social support		.186	.599	1.204	.604, .2.407
NEG					
Social isolation					

Summary of Social Isolation as a Predictor of Odds of Wellbeing

Social isolation was not significant (p <.52) for all three wellbeing outcomes quality of life, life satisfaction, and depression. Therefore, based on the results, the null hypothesis was not rejected, confirming no associations between social isolation and wellbeing measurements, quality of life, life satisfaction, and depression. Overall data are presented in Table 12.

Table 12

Summary of Overall Data for Social Isolation and Wellbeing

Variable social isolation	$P < .05$	Statistically significant	Hypothesis determination
Quality of life	.516	Not significant	Fail to reject the $H_0$1
Life satisfaction	.519	Not significant	Fail to reject the $H_0$1
Depression	.599	Not significant	Fail to reject the $H_0$1

Research Question 3

What is the relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support?

$H_0$3: There is no relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

H_A3: There is a relationship between a combined model of loneliness and social isolation on wellbeing among older adults when accounting for age, gender, ethnicity, and social support.

The binary logistic regression analysis was performed to test the hypothesis of whether the combined model of loneliness and social isolation are predictors of the wellbeing outcomes among older adults. Model 3 consisted of evaluating the dichotomized loneliness, social isolation, and the combined model independent variables used with each of the three dichotomized wellbeing measurements, quality of life, life satisfaction, and depression. While controlling the covariate variables age, gender, ethnicity, social support, loneliness, and social isolation, the binary logistic regression analysis predicts that the probability of the combined model of loneliness and social isolation is not significant in wellbeing outcomes of all three measurements and to fail to reject the null hypotheses.

Results for Combined Model of Loneliness and Social Isolation as a Predictor of Odds of Wellbeing - Quality of Life

A binary logistic regression analysis was conducted to investigate an association between the combined model of loneliness, social isolation, and quality of life. The outcome of the interest was the quality-of-life outcome. The possible predictor variable was the combined model of loneliness and social isolation. The Hosmer-Lemeshow

goodness-of-fit result was greater than the significance level (ɑ) = .05 and was not significant indicating that model is correctly specified. Additionally, the -2 log Likelihood = 1,169.25, and the *Nagelkerke* R^2 = .286. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and the combined model for loneliness and social isolation was significant (p >.001). However, the association between the combined model for loneliness, social isolation, and quality of life while controlling age, gender, gender, and social support in the model constant, was found to not significantly contribute to the model, *B* = -.448, *SE* = .73, *Wald* (x^2) = .38, *p* = .54. Table 13 presents the binary logistic regression for the combined model of loneliness and social isolation and quality of life. For older adults who were lonely and socially isolated, the odds of higher quality of life were .64 times lesser than those who were not lonely and socially isolated (*OR* = .64, *95% CI:* (.15, 2.66]) this was not statistically significant. Therefore, based on the results, the null hypothesis was not rejected.

Also noted in this model, there was a change in the significance level for loneliness changes, which significantly contributed to the model. However, there was no change in the significance level for social isolation, which was found to not significantly contribute to the model. Both loneliness and social isolation were found not to contribute to the model when the combined model for loneliness and social isolation is present.

Results for Combined Model for Loneliness and Social Isolation as a Predictor of Odds of Wellbeing - Life Satisfaction

A binary logistic regression analysis was conducted to investigate an association between the combined model of loneliness, social isolation, and life satisfaction. The

outcome of the interest was the life satisfaction outcome. The possible predictor variable was the combined model of loneliness and social isolation. The Hosmer-Lemeshow goodness-of-fit result was greater than the significance level (α) = .05 and was not significant indicating that model is correctly specified. Additionally, the -2 log Likelihood = 476.46, and the *Nagelkerke* R^2 squared = .3. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and the combined model for loneliness and social isolation was significant (p >.001). However, the association between the combined model for loneliness, social isolation, and life satisfaction while controlling age, gender, gender, and social support in the model constant, was found to not significantly contribute to the model, B = -.07, SE = .77, *Wald* (x^2) = .01, p = .47. Table 13 presents the binary logistic regression for the combined model for loneliness and social isolation and life satisfaction. For older adults who were lonely and socially isolated, the odds of being satisfied with life were .93 times lesser than those who are not lonely and not socially isolated (*OR* = .93, *95% CI*: [.2, 4.22]) this was not statistically significant. Therefore, based on the results, the null hypothesis was not rejected.

Also noted in this model, there were no changes to loneliness or social isolation independently. Loneliness remained to be a significant contributor to the model, and social isolation remained to be not a significant contributor to the model.

Result for Combined Model of Loneliness and Social Isolation as a Predictor of Odds of Wellbeing - Depression

A binary logistic regression analysis was conducted to investigate an association between the combined model of loneliness, social isolation, and depression. The outcome

of the interest was the depression outcome. The possible predictor variable was the combined model for loneliness and social isolation. The Hosmer-Lemeshow goodness-of-fit result was greater than the significance level (α) = .05 and was not significant indicating that model is correctly specified. Additionally, the -2 log Likelihood = 409.35, and the *Nagelkerke* R^2 = .22. The resulting model containing age, gender, ethnicity, social support POS, social support NEG, and the combined model for loneliness and social isolation was significant (p >.001). However, the association between the combined model for loneliness, social isolation, and depression while controlling age, gender, gender, and social support in the model constant, was found to not significantly contribute to the model, B = -.65, SE = .78, *Wald* (x^2) = .7, p = .4. Table 13 presents the binary logistic regression for a combined model for loneliness, social isolation, and depression. For older adults who were lonely and socially isolated, the odds of higher depression were .52 times lesser than those who were not lonely and socially isolated (*OR* = .52, *95% CI*: [.11, 2.41]), which were not statistically significant. Therefore, based on the results, the null hypothesis was not rejected.

Also noted in this model, there were no changes to loneliness or social isolation independently. Loneliness was found to significantly contribute to the model, and social isolation was found to not significantly contribute to the model.

Table 13

Combined Model of Loneliness and Social Isolation as a Predictor of Odds of Wellbeing – Quality of Life, Life Satisfaction and Depression

Variables	n	B	p-value	Odds ratio	95% C.I.
Quality of life	1029				
Age		- .103	<.001	.902	.879, .926
Gender		-.166	.253	.847	.637, 1.126
Ethnicity		.721	.163	2.056	.747, 5.663
Social support POS		.118	<.001	1.125	1.093, 1.159
Social support NEG		-.085	<.001	.919	.888, .951
Loneliness		-.969	.133	.379	.107, 1.344
Social isolation		-.072	.693	.931	.652, 1.328
Interaction Loneliness/SI		-.448	.539	.639	.153, 2.663
Life Satisfaction	859				
Age		- .102	<.001	.903	.868, .939
Gender		-.729	.003	.483	.297, .785
Ethnicity		.73	.473	2.076	.283, 15.227
Social support POS		.123	<.001	1.131	1.08, 1.183
Social support NEG		-.07	.008	.932	.885, .982
Loneliness		-1.697	.016	.183	.046, .732
Social isolation		.239	.47	1.27	.664, 2.426
Interaction Loneliness/SI		-.075	.923	.928	.204, 4.218
Depression	1070				
Age		.065	.004	1.067	1.021, 1.116
Gender		1.206	<.001	3.339	1.872, 5.956
Ethnicity		.68	.37	1.974	.446, 8.732
Social support POS		-.054	.03	.948	.903, .995
Social support NEG		.072	.008	1.075	1.019, 1.134
Loneliness		2.116	.004	8.297	1.997, 34.583
Social isolation		.263	.557	1.301	.541, 3.129
Interaction Loneliness/SI		-.654	.404	.52	.112, 2.414

Summary of Combined Model of Loneliness and Social Isolation as a Predictor of Odds of Wellbeing

The combined model of loneliness and social isolation was not significant (p >.05) for all three measurements of the wellbeing scales, quality of life, life satisfaction, and depression. The not significant findings resulted fail to reject the null hypothesis for wellbeing, quality of life, life satisfaction, and depression. The null hypothesis confirmed the combined model of loneliness and social isolation is not a predictor of wellbeing quality of life, wellbeing life satisfaction, and wellbeing depression when controlling for age, gender, ethnicity, social support, loneliness, and social isolation. Overall data is presented in Table 14. Also noted in this model, the independent significance of loneliness associated with wellbeing quality of life changed from significant to not significant.

Table 14

Summary of Overall Data for Combined Model for Loneliness and Social Isolation and Wellbeing

Variable Combined model of loneliness and social isolation	p<.05	Statistically Significant	Hypothesis determination
Quality of life	.539	Not significant	Fail to Reject the null
Life satisfaction	.923	Not significant	Fail to Reject the null
Depression	.404	Not significant	Fail to Reject the null

Summary

The study analysis included the use of three research questions to examine the predictive relationship of loneliness, social isolation, and the combined model of loneliness and social isolation on wellbeing outcomes, quality of life, life satisfaction, and depression. Descriptive and interferential analyses were conducted to test the hypotheses of this study.

The results from RQ1's binary logistical regression analysis indicated a significant association between loneliness and all three measurements of wellbeing, quality of life, life satisfaction, and depression in older adults. The results from RQ2's binary logistical regression analysis indicated no significant association between social isolation and the three measurements of wellbeing, quality of life, life satisfaction, and depression. The results from RQ3's binary logistical regression analysis indicated that the combined model of loneliness and social isolation did not have a significant predictive relationship on all three measurements of wellbeing, quality of life, life satisfaction, and depression.

In Section 4, the study findings are interpreted in the theoretical framework and compared to current knowledge and literature findings presented in Section 1. The section also describes the study's limitations and the use of the ELSA secondary data set, and identify recommendations for future studies, professional practice, and social change.

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

Introduction

The study's purpose was to examine the predictive relationship of loneliness, social isolation, the combined model of loneliness, and social isolation and wellbeing outcomes, QOL, life satisfaction, and depression among older adults. I used three research questions to guide the correlation research approach.

Question 1's findings from the binary logistical regression indicated a significant association between loneliness and wellbeing outcomes, QOL, life satisfaction, and depression. Loneliness was found to significantly contribute to the QOL model, B = -1.588, SE = .260, Wald (x2) = 37.25, $p < .001$. Loneliness was found to contribute to the life satisfaction model, B = -1.71, SE = .25, Wald (x2) = 46.50, $p <.001$. Loneliness was found to significantly contribute to the depression model, B = 1.85, SE = .25, Wald (x2) = 53.78, $p <.001$. Specifically, older adults who were lonely had the odds of high QOL 79.6 times lessor than, life satisfaction 81.9 times lesser than, and depression 6.34 times greater than those who were not lonely.

Question 2's findings from binary logistical regression indicated no significant association between social isolation and wellbeing quality of life, life satisfaction, and depression. Social isolation was found to not significantly contribute to the QOL model, B = -.114, SE = .175, Wald (x2) = .42, p = .52. Social isolation was found to not significantly contribute to the model, B = .19, SE = .29, Wald (x2) = .42, p = .52. Social isolation was found to not significantly contribute to the model, B = .19, SE = .35, Wald (x2) = .28, p = .6. Older adults who were socially isolated had the odds of higher QOL

were 10.8 lesser than, being satisfied with life were 20.5 times greater than, and higher depression were 20.4 times greater than those who were not socially isolated.

Question 3's findings from the binary logistical regression indicated no significant association between the combined model of loneliness and social isolation and wellbeing outcomes, QOL, life satisfaction, and depression. The combined model for loneliness and social isolation was found to not significantly contribute to the QOL model, B = -.448, SE = .73, Wald (x2) = .38, p = .54. The combined model for loneliness and social isolation was found to not significantly contribute to the life satisfaction model, B = -.07, SE = .77, Wald (x2) = .01, p = .47. The combined model for loneliness and social isolation was found to not significantly contribute to the depression model, B = -.65, SE = .78, Wald (x2) = .7, p = .4. Older adults who were lonely and socially isolated had the odds of higher quality of life were .64 times lesser than, being satisfied with life were .93 times lesser than, and higher depression were .52 times lesser than those who were not lonely and socially isolated.

In this section, I will present the interpretation of the findings, limitations of the study, future studies' recommendations, implications for professional practice and social change, and a conclusion.

Interpretation of the Findings

Loneliness was a significant predictor for all three measurements of wellbeing in older adults. The findings present a negative inversed association between loneliness and both, QOL and life satisfaction. Specifically, the odds of both higher QOL and being satisfied with life were lower for older adults who were lonely than those who were not.

There was also an association between loneliness and depression. Specifically, for older adults who were lonely, the odds of depression were greater than those who were not lonely. Social isolation was not a significant predictor for all three measurements of wellbeing in older adults. The findings present an association between social isolation and QOL, life satisfaction, and depression. The combined model for loneliness and social isolation was found to not be a significant predictor for all three measurements for wellbeing in older adults. When controlling independent variables loneliness and social isolation in the same model with the combined model for loneliness and social isolation, loneliness was no longer significant for the quality of life whereas social isolation remained not significant in the model.

Findings and Literature

Loneliness and social isolation are known social risk factors to health and wellbeing in the older adult population (Smith et al., 2019; Steptoe, Shankar, Demakakos, et al., 2013). There has been an increase in health disease, pain, and mortalities (Blazer, 2020). The findings of this study are aligned with the literature in showing that many older adults are at risk of loneliness and social isolation and that a vast portion of the older adults who are lonely or socially isolated experience risk factors that impact their health and wellbeing (NASEM, 2020). Data from this study present 40.85% of the 3,043 older adults 65 years and older in Wave 9 identified either as being lonely, socially isolated, or both. My findings did not corroborate the literature that presents that one-third of the older adults in the population are at risk for loneliness (Fakoya et al., 2020; Santini et al., 2020). The findings in this study suggest about less than one-fourth of the

population identified as being lonely. These findings corroborated previous findings that there is no correlation between loneliness and social isolation (see Blazer, 2020). Similar to the other study evaluations, loneliness and social isolation data reveal that the associations and relationships differed among wellbeing outcomes (NASEM, 2020; Smith et al., 2019; Steptoe, Shankar, Demakakos, et al., 2013). This study's findings are consistent with previous findings in that loneliness had a statistically significant association and social isolation had no statistical association with health and wellbeing in older adults (see Valtorta et al., 2018). Previous literature showed that wellbeing measurements independently are negatively impacted in older adults as age increase (Zaninotto et al., 2009). The results are aligned with previous studies to reveal the importance of knowing the predictor effects of loneliness and social isolation on health outcomes.

The relationships of loneliness and the individual measurements of wellbeing have been previously examined. In this study, I found that loneliness was a significant predictor of all three measurements of wellbeing in older adults, which is in line with other studies. Hannaford et al. (2018), Cohen-Mansfield et al. (2016), and Musich et al. (2015) demonstrated that loneliness was a significant predictor of QOL, life satisfaction, and depression, where it negatively contributed to the QOL and life satisfaction and positively contributed to depression. Also, the data present a negative inverse association between loneliness and both QOL and life satisfaction. These findings confirm similar results that older adults' assessment of the quality of life is higher than other age groups (Bidzan-Bluma et al., 2020). Aligning with previous studies' findings, there was a

positive association between loneliness and depression (Lee et al., 2021). Specifically, for older adults who were lonely, the odds of depression were greater than those who were not lonely. Other studies reported a bi-directional positive relationship between loneliness and depression where older adults who experienced high levels of loneliness were also associated with depressive symptoms (Cohen-Mansfield et al., 2016).

The results from this study affirmed significant numbers of older adults experiencing social isolation. More than three-fourths of the older adult population from ELSA's Wave 9 (2018/19) identified with being socially isolated. The findings support the literature that more than half of the older adults in the population are at risk for social isolation, as presented by Fakoya et al. (2020) and Santini et al. (2020). However, social isolation was found not to be a significant predictor for all three measurements of wellbeing in older adults. Contrary to previous studies' findings that showed social isolation was a risk factor in decreasing QOL, reducing wellbeing, health decline, reducing life satisfaction, and increasing mortality, the findings presented a positive association between social isolation and QOL, life satisfaction, and depression (see Beridze et al., 2020; Courtin & Knapp, 2017; Lam & García-Román, 2019; Steptoe, Shankar, Demakakos, et al., 2013). These findings confirmed similar findings that suggest that social isolation is a risk factor for poor health outcomes and mortality (see Menec et al., 2020). In this study, older adults who identified as socially isolated had greater odds of lower QOL and higher depression than older adults who were not socially isolated. Older adults who identified as socially isolated had lesser odds of life satisfaction than older adults who were not socially isolated.

The evaluation of the combined model of loneliness and social isolation together extends the literature regarding older adults who identify as both lonely and socially isolated. These study findings are aligned with previous research findings in that 11.4% of older adults aged 65 and older were identified as lonely and socially isolated. The lack of knowledge of the interactions and results is due to the few research studies that have addressed the impact of loneliness and social isolation together (Menec et al., 2020; Newall & Menec, 2019). Many researchers have evaluated loneliness and social isolation in the same study to determine the differences of the variables in correlation or risk outcomes (Menec et al., 2020; Newall & Menec, 2019). Exploring the combined model of loneliness and social isolation explains the knowledge for the development of interventions. The interactions between loneliness and social isolation in the combined model were not significant predictors for all three measurements for wellbeing in older adults. These findings contradict the significant interaction presented in Beller and Wagner's (2018) study of social isolation and loneliness on mortality and affirmed the no significant interaction presented in Tanskanen and Anttila's (2016) and Steptoe et al.'s (2013) studies of social isolation and loneliness on mortality.

When controlling for the independent variable loneliness in the same model with the combined model of loneliness and social isolation interaction together, loneliness was no longer significant for the QOL whereas social isolation remained not significant in the model. These findings confirm similar findings that loneliness and social isolation show vastly different outcomes, as Perissinotto et al. (2019) presented.

Findings and Theoretical Framework

I used the SEM in this study to help me understand and interpret the findings. The SEM is a well-used model with applications in various health studies on diverse populations by local, national, and international organizations to address social inequalities in health (Maus & Satariano, 2018). The SEM posed the observation of the relationships and interrelations between multiple levels of social and physical environmental determinants on human health, development, and behaviors (Crosby et al., 2019; McLeroy et al., 1988). For this study, it was important to understand those relationships and interrelations of social, environmental factors that influence loneliness and social isolation's impact on older adults' wellbeing and if those impacts could aid in the development of interventions used to reduce the risk to older adults' wellbeing (see Maus & Satariano, 2018). Specifically, how each of the social and physical environmental factors influences older adults' thinking, feelings, and behaviors in the context of loneliness, social isolation, and wellbeing (Oishi, 2014).

The theoretical framework includes multiple levels of environmental determinants include micro, meso, exo, and macrosystems (e.g., individual, interpersonal, community, and policy levels) that can be used together to develop appropriate interventions to reduce or eliminate loneliness and social isolation (Blazer, 2020). Loneliness, a subjective measure, and social isolation, an objective measure, are seen as dimensions of social relationships; social relationships are shown to be predictors of wellbeing (Newall & Menec, 2019; Shankar et al., 2011). However, individuals who are not socially isolated can feel lonely, and individuals who do not feel lonely can be socially isolated.

Researchers argue that evaluation of both loneliness and social isolation together will help better understand the social situations and social needs of older adults (Menec et al., 2020; Newall & Menec, 2019). Previous studies' findings show adequate social relationships influence the impact of loneliness and the health and wellbeing of older adults (Holt-Lunstad et al., 2010; Newall & Menec, 2019). However, this same approach may not help influence the impact of social isolation.

This study's findings aligned with previous studies that more than 50% of the older adults' population in the ELSA' Wave 9 (2018/19), age 65 and older were at risk of social factors. Aligned with previous studies' findings, older adults identified as not being lonely/ not socially isolated, not lonely/socially isolated, lonely/ social isolated, and lonely/not socially isolated. The micro and meso systems viewed may influence objective and subjective measurements of social relationships. For example, because of the stigma associated with the terminology, lonely or loneliness, and gender-related issues, older adults may be less likely to admit true feelings (Cohen-Mansfield et al., 2016; Newall & Menec, 2019).

The study findings indicate that older adults, aged 65 and older, self-identified as lonely or socially isolated, lived alone, and had less than monthly social contact. Newall and Menec (2019) suggested that older adults that identify as being lonely and social isolated exhibit characteristics such as living being over 65 years old, living alone, low social contact, poor health factors, and having low income were vulnerable to risk in their wellbeing and possible social relationship-based interventions may provide opportunities. For older adults who self-identified as socially isolated only, researchers raise the

question, is social isolation a choice? There is an increasing concern with this population because previous research shows that social isolation has a greater risk of health problems, and the vulnerability is linked to being disconnected and not being able to access services for help (Holt-Lunstad et al., 2010; Newall & Menec, 2019). For older adults who self-identify as lonely only, researchers raise the question of the subjectiveness of an individual's feelings of being disconnected and dissatisfied with one's social relationships (Newall & Menec, 2019). The results were not aligned with other studies that suggest that the majority of older adults are not lonely and not socially isolated. The findings suggest that only 20% of the older adults who responded in Wave 9, aged 65 and older cases were not lonely and not socially isolated. Researchers acknowledge that for this group, there is a need to provide proactive intervention to keep older adults that identify as not lonely and not isolated in the group through the aging process (Newall & Menec, 2019). These social factors gained policymakers and others community organizations' attention to determine how to address loneliness and social isolation. In the United Kingdom, the government acknowledges the community and policy role and has led a campaign named, the United Kingdom's Campaign to End Loneliness to engage in policy development and funding of community programs to tackle loneliness and social isolation (Menec et al., 2020; Newall & Menec, 2019). In Canada, the government offers funding for community projects to tackle social isolation (Menec et al., 2020). This study supports the concept that each level of SEM can influence loneliness and social isolation's impact on wellbeing.

Limitations of the Study

There were several limitations associated with this study. Similar to previous studies, using a cross-sectional study design limited the opportunity to establish causality of the relationships between loneliness, social isolation, and wellbeing. Changes or the direction of the association between loneliness, social isolation, and wellbeing over time were not evaluated because the study focused on a cross-sectional time frame of the longitudinal study. Another limitation of this study was that the dependent and independent variables were analyzed using dichotomized variables. There was a large number of missing data that resulted in the exclusion of data and may have limited the generating of the true prevalence of older adults who identified as socially isolated. The study controlled for the sociodemographic (e.g., age, gender, and ethnicity) and social factors (e.g., social support) and did not examine correlative effects on loneliness, social isolation, and wellbeing in older adults. Social support is known to influence loneliness and social isolation but was controlled and not assessed for loneliness and social isolation. Findings from previous studies indicate that ethnic and cultural differences may be influential as they related to loneliness, social isolation, and the older adults' study population's wellbeing; however, ethnicity was not examined due to the lack of ethnic or cultural diversity within the primary White ethnicity older adult study population. Lack of ethnic and cultural diversity in the study population limited the generalizability of older adults in England and comparison to other countries. The examination of the combined model of loneliness and social isolation together in the research study are few.

Four groups were identified; however, the analysis was not conducted on the individual groups. I did not examine whether older adults had a previous intervention.

Recommendations

Based on the findings and limitations of the study, I recommend that researchers conduct future studies that assess the change and directional association between loneliness, social isolation, and wellbeing over time. Future studies should replicate this study using different measurements of loneliness, social isolation, and wellbeing to confirm this study's findings. Researchers should build upon this research of the combined model of loneliness and social isolation's influence on wellbeing and other related health diseases among older adults. Another suggestion for future studies includes exploring how and why the combined model's interactions influenced the significance of loneliness in older adults when in the same model and did not appear to influence the significance of social isolation. Other factors such as age, ethnicity, and social support should be explored and not controlled to better understand the influential strength on loneliness, social isolation, and the combined model has on wellbeing.

Another area of interest is to explore older adults' interpretation of the meaning of loneliness, social isolation, and the differences. Changes in loneliness and social isolation should be examined to determine appropriate indicators for measuring changes in older adults' social connections, physical health, or mental health over time. Also, it is vital to understand what role stigma plays in how older adults respond to questions about being lonely or socially isolated. It is crucial to examine how many older adults have participated in intervention prevention to reduce their loneliness or social isolation and

how effective the intervention was by assessing if there is a change in how older adults identify themselves after participating in an intervention program.

Implications for Professional Practice and Social Change

Comparative research studies between England, the United States, and other countries focused on finding differences in the health status of countries. This study affirmed that the older adult populations in England experience social factors, loneliness, and social isolation associations with wellbeing. These findings are similar to comparative shared data on the association of loneliness, social isolation, health diseases, and wellbeing outcome studies conduct by other countries like the United States and Canada and will be useful in developing universal designed interventions across countries (Hawkley et al., 2020; Menec et al., 2020).

I captured representative data for each of the four main groups when assessing loneliness and social isolation together mentioned by Newall and Menec (2019) and Menec et al. (2020). This study's prevalence was not similar to other studies' findings that showed no lonely/not socially isolated individuals with the highest percentage, 47% and 74% (Menec et al., 2020; Smith & Victor, 2019). This study's prevalence rates for the four groups (e.g., not lonely/not socially isolated, not lonely/socially isolated, lonely/ not socially isolated, and lonely/socially isolated) were 20%, 65.1%, 3.3%, and 11.4%, respectively. The majority of older adults in this study identified as being not lonely/socially isolated, 65.1%. As Newall and Menec (2019) termed the older adults as "lifelong isolates or lone farmers" (p. 930), these individuals may live alone and are content with their social interactions. The next to the smallest number of older adults in

the study identified as being both lonely and socially isolated, 11.4%. This group is referred to as the "vulnerable group" (p. 929) because their social profile appears to include low social contacts and lacks connections with people and the community (Newall & Menec, 2019). Being socially isolated and being both lonely and socially isolated were not significantly influential to an older adult's wellbeing. The smallest number of older adults in the study identified as being lonely, 3.3%. Loneliness was found to significantly impact their wellbeing. The final group of older adults identified as not being lonely or socially isolated, 20%.

According to DiJulio et al. (2018), the public is aware of loneliness and social isolation concerns in their respective countries. However, many countries' views on loneliness and social isolation as public health problems compared to being an individual's problem differ. As mentioned, England, along with the other countries in the United Kingdom, views the concern as a public health problem that the government plays a major role in addressing or tackling loneliness and social isolation opposite to an individual problem, where the individual addresses the problem on their own. Also, many countries believe that individuals and communities have a major role in reducing loneliness and social isolation (DiJulio et al., 2018). The results of this study provide additional literature on the prevalence of loneliness and social isolation together in the English older adult community (2018–2019), and the risk association between the social factors and wellbeing outcomes among older adults. This study supports the need for positive social change in how loneliness and social isolation together among older adults are viewed as problems (e.g., individual and public health) and identifying the levels of

SEM that are major players in tackling and reducing loneliness and social isolation. Examining the different levels of the socio-ecological model that affects older adults will better inform public health professionals' designs of interventions for the older adults.

Professional Practice

The results from this study provided additional information about the prevalence of loneliness and social isolation together among older adults and the risk association between loneliness, social isolation, and wellbeing outcomes. From a public health professional perspective, it is important to assess the loneliness and social isolation problems among older adults within communities using the correct measurements like the grouping categories for loneliness and social isolation. I believe understanding the relationships between loneliness, social isolation, and other factors improve public health professionals' assessment practices in clinical and community-based settings. Newall and Menec (2019) pointed out that public health professionals should pay attention to older adults who identify with moderate levels of loneliness and social isolation because they are at potential risk. This group of individuals tends to respond to the survey questions, rarely to sometimes, and are more like to be depressed (Manemann et al., 2018).

Although the grouped categories have not been extensively used and warrant further exploring, the usefulness of this tool in both the clinical and community settings will aid in identifying the status of older adults and potential effects on wellbeing and other health outcomes. Public health and clinical professionals are in frontline positions to identify older adults at risk for loneliness and social isolation and can use tools like grouping categories to identify individuals who may be lonely, socially isolated, or both

as part of the health risk assessment (Blazer, 2020). The findings in this study present that loneliness has greater significance on wellbeing in comparison to older adults who were socially isolated and/or both lonely and socially isolated. Also, the grouping tool may be helpful in developing and prescribing effective personalized programs, treatments, and interventions to reduce or eliminate loneliness and social isolation in older adults.

Also, when performing the health risk assessment, public health professionals should use the right scale of questions like, “Are you lonely? Are you dissatisfied or disconnected from your relationships? Do you choose or prefer to be alone? How big or small your social network? Are the social network positive, negative influencers, or a source of conflict? Have you experienced any loss (e.g., relationship, death)?” Identifying potential barriers that inhibit older adults from seeking help, participating in social interaction, and identifying other factors that may interfere with older adults establishing social interactions are also essential. Public health professionals should also examine older adults’ social connections or lack of and determine the source (e.g., by choice). Public health professionals are important in the development of programs and campaigns that cater to providing communities with effective educational resources about loneliness and social isolation and teaching them how to reduce and prevent the effects on older adults’ wellbeing. Enhancing communication with older adults and creating a stigma-free environment to freely talk about loneliness and social isolation are essential. Public health professionals can cultivate discussions on loneliness and social isolation with individuals and community members about social behaviors and identify what social factors (e.g., social support) can be provided by the communities.

Positive Social Change

The results of the study adds more knowledge to the literature about older adults who identify with each of the four characterized groups of loneliness and social isolation, not lonely/ not socially isolated, not lonely/socially isolated, lonely/ socially isolated, and lonely/not socially isolated. Consequently, to the use of loneliness and social isolation terminology interchangeably, the literature suggests there is the need for public health professionals to avoid making assumptions that older adults who do not identify as lonely are not socially isolated, and older adults who identify as not being socially isolated do not identify as lonely (Perissinotto et al., 2019). There is a need to examine not just for loneliness or social isolation, but both to avoid overlooking older adults who may exhibit the other or both (Newall & Menec, 2019). Also, avoidance of thinking that one intervention approach is sufficient to treat both loneliness and social isolation. There is a positive social change opportunity connected to providing proper and timely identification of older adults at risk for loneliness and social isolation and broadening ideas for the development of targeted, tailored, and effective interventions.

As previously mentioned, public health professionals are the frontline evaluators in identifying older adults at risk for loneliness and social isolation (Blazer, 2020). Public health professionals can play a key role in screening, early identification, prevention promotion, and prescribing interventions by incorporating loneliness and social isolation index scales (e.g., three-item UCLA scale and social isolation index) to the health risk assessment. Considering both together will aid in understanding the social situation of older adults and provide clear direction for appropriately tailored interventions (Newall &

Menec, 2019). Possibly, the creation of an initiative similar to the Stopping Elderly Accident, Deaths, and Injuries created by the CDC for screening, identifying, and proving prevention for older adults who are at risk of falling may be a great approach (Johnston et al., 2019). Such an approach will give the public health professional, primary care providers, or other health professionals the opportunity to build an effective connection and rapport with older adults, provide education about loneliness and social isolation, ask older adults to participate in the screening, identifying when older adults are at risk, understanding contributing factors or barriers to social factors, and then making referrals to intervention services for loneliness and social isolation. The scale results should be incorporated into the electronic health records for future assessments and comparison for a decline in health or upward severity of loneliness and social isolation (Blazer, 2020; Perissinotto et al., 2019). By assessing for loneliness, public health professionals can construct a broader clinical picture of other conditions that are associated with loneliness, such as mental health, depression, and quality of life (Blazer, 2020). By assessing social isolation, public health professionals can identify critical unmet needs among older adults, such as lack of social support and connectivity. However, the assessment of loneliness and social isolation together, public health professionals will be able to analyze the effectiveness of the developed public health programs and campaigns and make adjustments, as needed. As seen in England, the United Kingdom's cross country strategy, policy, and government funding can help launch numerous public health community campaigns and programs to tackle loneliness and social isolation together.

Conclusion

The need for more research on the impact of loneliness and social isolation together on health and wellbeing remains. I sought to examine and expand the knowledge about the predictor effects of loneliness and social isolation separate and together on wellbeing among older adults, aged 65 and older in England. The association between loneliness and wellbeing was statistically significant, suggesting a predictor effect. In comparison, both social isolation and the combined model of loneliness and social isolation associations with wellbeing were not statistically significant. Also, the findings indicate a representation of older adults in all four characteristics groups of loneliness and social isolation. Further research is needed to focus on examining the effect of loneliness and social isolation together and wellbeing over time. The SEM was utilized to examine the relationships and interrelation multi-level environment determinants have on loneliness, social isolation, and older adults' wellbeing and how multi-level environment determinants may help develop tailored intervention approaches.

These findings from the English older adult population may be similar to the findings in other countries and may provide useful population health information to broaden the clinical picture of loneliness and social isolation separately and together. Other countries may need to take into account their differences or variances in ethnicity, social, economic, environmental, and healthcare factors when reviewing these findings.

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