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Informal Caregivers' Experiences of Caring for Older Adults Diagnosed with Urinary Tract Infections

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Abstract

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MS, Walden University, 2017

BS, Walden University, 2015

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Human & Social Services

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Abstract

Informal caregivers’ experiences of caring for older adults diagnosed with a urinary tract infection (UTI) is a prevalent issue that affects adults as they age. The purpose of this generic qualitative study was to understand informal caregivers’ experiences observing and reporting to doctors observable changes of behavior in older adults that were later linked to unconventional symptoms of potential UTIs. Attribution theory was used as the theoretical framework for this study. This qualitative study addressed the research question of informal caregivers’ experiences observing and reporting to doctors observed changes in older adults associated with unconventional UTI symptoms. Data were collected from six African American women over the age of 18 years old with experience as informal caregivers through semi-structured, audio-recorded phone and face-to-face interviews. The data were analyzed using Moustakas’s method to determine the themes. Findings revealed that the participants were people who cared and advocated for their patients. Findings also revealed key thematic response categories, such as key symptoms of UTIs observed and reported by caregivers and experiences communicating with medical professionals. This study serves as a call for more research to be conducted related to informal caregivers’ experience caring for older adults diagnosed with UTIs. This study’s implications for positive social change include the potential use by human services professionals, social workers, and advocates to advocate for educational seminars and awareness campaigns that educate informal caregivers on some of the atypical or unconventional symptoms of UTIs.

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Dedication

I want to dedicate this project to God; my mother; my husband, Lucan; and my sons, Lucan Jr. and Michael. You are the reason why I completed this study. You have been there for me through the frustrating times when I didn’t think that I could make it to the end. You were there to ask me if I needed anything during the late nights when I stayed up to get my work done. Through it all, you showed patience and love and gave me more encouragement than I ever could imagined. I dedicate this project to all the informal caregivers who participated in this project. You are unique in your work, and the world needs you. Thanks to my friend, Alison; my niece, Jody; my aunt, Laura Mae; and other family members and friends who gave me words of encouragement, prayed for me, and believed in me. I could not have done this without your support.

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I want to acknowledge my husband, Lucan, who has been with me throughout this journey. You willingly gave me all the time I needed to complete my studies, and I thank you for this. You did not waver in your support or give up on me. Instead, you showed patience and, at times, became worried about my health. I will always love you for believing I could even when I wanted to give up.

To my sons, Lucan Jr and Michael, thank you for all the help that you gave me. Whether it was explaining an article or helping me search for an article that I needed, thank you—or even shutting down the computer and telling me to sleep. Thank you for caring. You are my inspiration.

To my mommy, Mulvina, you have always been my cheerleader. I know you must be so proud of me, but I am prouder than you. You came to this United States with nothing more than a third-grade education, yet you could sponsor seven children to this country. You introduced us to the education system and told us that education was our ticket to success. You have been a champion for higher education because you see the benefits and importance of it to your children, grandchildren, and others. Thank you for instilling the values of education in me. Thanks to my sisters, Sheran, Marie, Kerron, and Marva, and my brothers, Courtney and Clayton. To my nieces, Jody and Vone, and my friends,. Alison Josiah, Tonia H, and Vanessa Barnes, thank you for your support and checking on me at unexpected times when I needed it the most.

To the participants who took the time out of their schedule to participate in this study, thank you. Thank you for trusting me with your stories. Sharing your experiences

for this project has strengthened my determination to continue advocating for this population and bring changes in their lives as a human service professional.

To my current committee chair, Dr. Tronda Douglas, thank you for your leadership, kindness, professionalism, and interest in my study. I hope Walden knows the value that you bring to this great institution. Thanks to my previous chairs, Dr. Garth den Heyer and Dr. Sandra Harris. You gave me what I needed to move forward on this journey, and I will always be grateful. To my committee member, Dr. Tina Jaeckle, thank you. You have shown excellent knowledge in my work and provided a helpful guide that I needed to succeed. To my URR, Dr. Richard Rogers, thank you for the positive feedback during the process. Thanks to my academic advisor, Dr. La Toya Johnson, for your tremendous dedication and guidance throughout this journey. I hope that other students have benefitted from you the way I have. I was blessed to have all of you guiding me during this tedious but marvelous and unforgettable journey.

Last, and more importantly, thank You, God, for giving me the strength, ambition, and will to fight and succeed on this doctoral journey. May I always remember where

You brought me from. I leave the rest of my professional journey in Your hands to guide where and whom You want me to serve with this education that You allowed me to gain from Walden University.

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Chapter 1: Introduction to the Study

Urinary tract infections (UTIs) in older adults in the United States is a widespread public health issue (Bardsley, 2017; Beahm et al., 2017; Bing-Johnson, 2016; Chu & Lowder, 2018; Cortes-Penfield et al., 2017; Gbinigie et al., 2018; Knowles et al., 2016; Schaeffer & Nicolle, 2016; Tang et al., 2019). UTI is the most common infection in older adults (Godbole et al., 2020; Rodriguez-Manas, 2020). A UTI is a growth of bacteria that leads to urosepsis requiring antimicrobial treatment, hospitalization, or additional care (Rodriguez-Manas, 2020). Studies have shown that caregivers are the ones who witness the first-hand symptoms of the older adults they care for, which can aid in timely treatment (Schultz, 2016). UTIs affect approximately 25% of all older adults in the United States (Cortes-Penfield et al., 2017). Infections in adults over 65 years old were responsible for 15.5% hospitalizations and approximately 6.2% of deaths were infectious disease-related (Cortes-Penfield et al., 2017). Studies have shown that bacteria in the urine, when collected appropriately, was found in about 7%–10% of men and 17%–20% of women 75 years and older (Bardsley, 2018; Nicolle et al., 2019). As men and women age, UTIs become more prevalent, and their risk of getting a UTI increases by 40%–50% after the age of 80-years-old (Nicolle et al., 2019; Tang et al., 2019).

It is not common among men under 60 years old without a catheter to get UTIs, but the incidences of UTIs increases as men get older (Schaeffer & Nicolle, 2016). As men age, the rate of hospitalization for UTIs increases because recurring infection is more common in older men (Schaeffer & Nicolle, 2016). Studies have also shown that UTIs in older men were less common than UTIs in older women (Schaeffer & Nicolle, 2016). One of the contributing factors of UTIs in older men is functional abnormalities of the urinary tract, which can impair the normal flow of the urine and lead to UTIs as the flow of urine is obstructed (Schaeffer & Nicolle, 2016).

The prevalence of UTIs has become a significant health concern for the health system and adults as they age (Cortes-Penfield et al., 2017; Tang et al., 2019 Wagenlehner et al., 2017). The need for care increases among older adults, and informal caregivers who have some social relationship with older adults are the ones who typically provide care for older adults as they age in place (Edward et al., 2020; Rosenwohl-Mack et al., 2018). As adults become more aged, UTIs lead to significant health concerns, such as constipation, frequent falls, lack of appetite, lethargy, change in behaviors, and severe sepsis (Beahm et al., 2017). Informal caregivers who provide care to older adults notice illness and behavioral modifications (Knowles et al., 2016). Several researchers have suggested a need for research that examines informal caregivers’ experiences with noting observable changes in older adults’ behavior that could be caused by atypical or unconventional UTIs symptoms (Cortes-Penfield et al., 2017; Gbinigie et al., 2018; Schaeffer & Nicolle, 2016).

I conducted this study from varied geographical areas of the United States because it was essential that the data collected were broad to maximize the findings. Information from this study adds to the body of literature for human services professionals, medical care professionals, and informal caregivers to help identify and report behavioral changes and care for older adults experiencing unconventional UTI symptoms.

In this chapter, I present the background, problem statement, the purpose of the study, research question, theoretical framework, nature of the study, definitions, and terms, assumptions, scope and delimitation, limitations, and significance of the study. This chapter concludes with a summary and transition into the literature review in Chapter 2.

Background

The National Institute of Health (NIH; 2021) defined a UTI as an infection of the urinary tract, which consists of the urethra, bladder, ureters, and kidneys. Incidents of UTIs among older adults in the United States are responsible for over 7 million office visits, 1 million emergency room visits, and over 100,000 hospitalizations (Cortes-Penfield et al., 2017; Grimmer et al., 2015). Thorpe et al. (2018) indicated that it cost more than $2.2 billion per year to treat noninstitutionalized U.S. adults for antibiotic-resistant infections such as UTIs.

Findings from several researchers linked UTIs with typical symptoms, such as painful urination, frequent urination, and fever; however, recognizing specific UTI symptoms in older adults is challenging due to cognitive impairments that may interfere with older adults’ ability to communicate their experiences of their symptoms (Bing-Johnson & Tomessen, 2017). Some of the unconventional symptoms of UTIs in older adults include, but are not limited to, confusion, dizziness, frequent falls, lower abdominal pain, back pain, constipation, and socio-demographic and physiological changes (Beahm et al., 2017; Bing-Johnson & Tomessen, 2017; Maria et al., 2019). For older adults with UTIs, physiological changes include dementia, delirium, blunted fever response, new-onset bladder incontinence, abdominal pain, muscles aches, and functional disability (Rodriguez-Manas, 2020). Older adults, especially those dependent on the care of others with consistent physiological changes, are at significant risk for developing urosepsis and other diseases (Rodriguez-Manas, 2020). Conditions, such as hypertension, and osteoporosis, among other ailments, constitute the physiological changes in the different organs of older adults that experience UTIs (Rodriguez-Manas, 2020).

Globally, the number of older adults is increasing (Global Aging, 2015). Statistics showed that in 2012, the world's population was 7 billion, and 562 million of that number were adults over the age of 65 (Global Aging, 2020). Researchers have estimated that by the year 2030, the number of older adults will reach about 1.6 billion, which equates to 12.6% of the world's population (He et al., 2016; Roberts et al., 2018). He et al. (2016) estimated that by the year 2050, adults aged 65 years and over will make up about 21.4% of the population in the United States. As adults become older, UTIs are a significant health concern that increases in prevalence (Cortes-Penfield et al., 2017; Tang et al., 2019).

Many older adults in the United States are aging in place, which refers to remaining in their homes and communities instead of living in retirement or assisted living communities (Beard et al., 2016). Informal caregivers frequently fill the gap in older adults' residential and professional home care (Groenou & Boer, 2016; Livingston, 2018; Stepler, 2015). Informal caregivers are a vital source of long-term care to older adults in the United States (Cecchini, 2018), and this has placed them in a position to be the first to observe changes in their patients. According to the Family Caregiving

Alliance (FCA; 2019), informal/unpaid caregivers include spouses, partners, family members, friends, and neighbors. Statistics have shown that there are approximately 40.4 million informal caregivers in the United States who provide care for adults 65 years and older (FCA, 2019; Stepler, 2016). This caregiving role includes assisting adults with daily living tasks and performing some functions that nurses typically perform, such as administering injections and assisting with wound care (Hopps et al., 2017; Stepler, 2015). As adults age, the need for care increases, and informal caregivers who have some relationship with them are the ones who typically provide the care that they need as they age in place (van Groenou & De Boer, 2016).

Researchers developed the informal care model to address the different arguments of persons who take up the role of caregiver when they are challenged with someone who needs care (van Groenou & De Boer, 2016). In their research study, van Groenou and De Boer (2016) addressed the increased need for care among community-dwelling persons where more people may take on the role of informal caregiving in the years to come, hoping to contribute to the development of a wide range of varied care networks around older adults dependent on care. While these researchers attempted to look at how caregivers provided care through the informal care model, they did not focus on working with older adults with UTIs.

Problem Statement

UTIs among older adults are bacterial disturbances of the upper and lower urinary tract, which are problematic due to the adverse outcomes for individuals and the financial costs associated with treatment (Bardsley, 2017). UTIs are the most common infection in older adults (Bardsley, 2017; Rodriquez-Manas, 2020). UTIs also account for about 25% of all infections in the more aging adult population (Chu & Lowder, 2018; Cortes-Penfield et al., 2017). UTIs have been linked to an increase in functional disabilities, changes in mental status, urinary and fecal incontinence, prostate disease in men, and estrogen deficiency in older women (Balogun & Philbrick, 2014; Bardsley, 2017; Tang et al., 2019).

UTIs can decrease the daily quality of life (QOL) in older adults by adversely affecting their social and personal relationships and their physical and psychological health (Schaeffer & Nicolle, 2016; Wagenlehner et al., 2017). QOL relates to a person's social functioning, vitality, and emotional well-being (Ellis & Verma, 2015: Wagenlehner; 2017). UTIs, when left untreated, can cause the body to become septic, and in the United States, sepsis is the 10th leading cause of death in patients over the age of 65 (Gbinigie et al., 2018).

Informal caregivers are often instrumental in observing and reporting to doctors the symptoms of potential UTIs among older adults (Balogun & Philbrick, 2014; Bing-Johnson & Tonnessen, 2017; Gbinigie et al., 2018; Mody & Juthani-Mehta, 2014). Among the 15 articles I found in the literature on informal caregivers' experiences with UTIs among older adults, five were quantitative, nine were qualitative, and one was mixed methods. In those articles, researchers primarily focused on UTIs in older adults (both men and women) who were hospitalized and received care from a nurse or medical practitioner. Some also addressed the social and economic burdens of UTIs, diagnosing and treating UTIs, the increased number of UTIs, and the epidemiology of UTI

(Bardsley, 2017; Beahm et al., 2017; Bing-Johnson, 2017; Chu & Lowder, 2018; Cortes-Penfield et al., 2017; Gbinigie et al., 2018; Knowles et al., 2016; Medina & Costillo-Pino, 2019; Roderiquez-Mana, 2020, Rosenwohl et al., 2018; Schaeffer & Nicolle, 2016; Simmering et al., 2017; Tang et al., 2019; Wagenlehner et al., 2017; Zeng et al., 2020). However, I did not find any research that specifically addressed informal caregivers' experiences observing observable changes in older adults related to unconventional symptoms of UTIs. I conducted this study to address the gap in the literature regarding informal caregivers' experiences observing and reporting to doctors observable changes in older adults that were unconventional symptoms of potential UTIs.

Purpose of Study

The purpose of this generic qualitative study was to understand informal caregivers' experiences in observing and reporting to doctors observable changes of behavior in older adults that were later linked to unconventional symptoms of potential UTIs. Participants were informal caregivers that included spouses, significant others, children, and anyone closely related to the patient and caring for the patient. Researchers have suggested a need for further research that examines informal caregivers' experiences with noting observable changes in the behavior of older adults that could be atypical or unconventional symptoms of UTIs (Cortes-Penfield et al., 2017; Gbinigie et al., 2018; Schaeffer & Nicolle, 2016). Abnormal symptoms, such as increased confusion, agitation, new and increased falls, urinary incontinence, cognitive impairment, malaise, tiredness, or generalized weakness, can present challenges in making the correct diagnosis or treatment of UTIs in older persons (Beahm et al., 2017; Zeng et al., 2020).

Significance

Participants in this study included female informal caregivers in the United States from various ethnic and socio-economic backgrounds who were at least 18 years old. Findings from this study may contribute to the awareness of atypical or unconventional symptoms of UTIs in older adults. Human services professionals and social workers could potentially use the information from this study to advocate for educational seminars and awareness campaigns that educate informal caregivers of some of the atypical or unconventional symptoms of UTIs. Data from the awareness campaign and educational workshops could help informal caregivers develop an awareness of observable changes in older adults related to symptoms associated with UTIs.

Findings from this study could contribute to social changes by providing information that could be used to improve the QOL for older adults. Providing information about observable changes in behavior related to UTIs to informal caregivers and other health care professionals could lead to earlier diagnosis and subsequent treatment of those diagnosed with UTIs. Timely treatment of UTIs could decrease the amount of pain, sepsis, and suffering experienced by delayed treatment (Symptoms and Causes, 2021). Early detection and treatment could further contribute to social changes by decreasing the number of deaths among older adults caused by undiagnosed and delayed treatment in a patient.

Nature of the Study

In this study, I used a generic qualitative research approach. A qualitative approach was first developed in 1925 by the psychologist, Paul Felix Lazarsfeld,who was instrumental in identifying the critical integral areas of qualitative research through advocacy work (Bailey, 2014). Lazarsfeld made significant impacts on social science, including (a) developing a research institute that was devoted to factual research that provided a research site for students and (b) making changes to techniques as it relates to collecting data and analysis (Fleck, 2015). A generic qualitative inquiry is aimed to discover and understand the perspectives and views of the people involved in a phenomenon of interest (Kahlke, 2014). Additionally, generic qualitative research is conducted to examine people's personal opinions, attitudes, beliefs, and experiences (Kahlke, 2018; Percy et al., 2015). Generic qualitative research can be used when the research problem necessitates a qualitative or mixed method (Kahkle, 2018; Percy et al., 2015).

I conducted this study to gain an in-depth understanding of the participants' experiences of the phenomenon of interest. The generic qualitative approach was suitable for this study because it allowed me to investigate informal caregivers' experiences of observing and reporting to doctors observable changes in older adults that may have been associated with unconventional symptoms of UTIs. The sample for this study consisted of six participants who had experience caring for older adults who have exhibited unconventional UTI symptoms. I used the purposive sampling strategy to recruit participants. Purposive sampling is used in qualitative research to identify and recruit participants who have information related to the phenomenon of interest, are willing to participate in the study, and meet the stated inclusion criteria (Etikan et al., 2016; Palinkas, 2015). I would have used the snowball sampling method to recruit participants if it became necessary for this study. Snowball sampling is a strategy where the researchers use current participants to recruit other participants and is used when there is difficulty locating participants (Etikan et al., 2016).

Research Question

The following main question guided this study:

What are informal caregivers' experiences observing and reporting to doctors observed changes in older adults associated with unconventional UTI symptoms?

Theoretical Framework

I used Heider's (1958) attribution theory as the theoretical framework for this study. Heider developed attribution theory through work in social psychology and the psychology of interpersonal relationships. Heider introduced the theoretical framework that became necessary in research that coined a paradigm of social psychology (Malle, 2011). Heider (1976) indicated that attribution is a part of a human' understanding of their environment and that as one becomes aware of their environment, attribution takes place. Heider (1958) also stated that attributions are everyday occurrences that determine people's understanding of their surroundings and reactions. Heider (1958) viewed attribution as the result of an assessment of cause and effect based upon patterns of circumstances assumed to have contributed to others' behavior.

In the theory, Heider (1958) provided a clear description of how people perceive, analyze, and respond to others, stating that people use two different attributions (i.e., internal and external attributions) based upon others' observed behaviors. Internal attribution refers to the belief that behavior is caused by personality, disposition, ideas, and other internal factors (Jones 1972, as cited in Wallace, 2019). Internal factors are the criterion motivated by a person's nature, attitude, and personality, while external factors are driven by a situational component, such as luck and task difficulty (Pishghadam & Abbasnejad, 2017).

The principles of attribution theory were relevant to the current study because the principles could explain why informal caregivers may not attribute sudden observable changes of behavior in older adults to UTIs. If the informal caregivers are not aware of the atypical changes in behavior that could be linked to UTIs, the caregivers will not make that connection; thus, the UTIs may go undiagnosed and untreated for an extended period. Further explanation of the attribution theory is provided in Chapter 2.

Definition of Terms

In this study, I used several terms referring to UTIs, informal caregivers, and older adults. The following definitions and operational terms are presented below for the reader's clarity.

Aging-in-place: An adult choosing to live safely in their home or community as they age (Grimmer et al., 2015).

Aging/older adults: The loss of physiological consistency, which can result in decreased physical, medical, and social functioning, and subsequently lead to death (Lopez-Otin, 2013). Older adults are adults over the age of 65 years old.

Attribution: Sound judgment that is made to determine the reasoning for a specific result (Weiner, 2008).

Bacteria: The most common agent that causes UTI in people (Bardsley, 2017; Tang et al., 2019).

Health care providers: Primary care providers offer services for patients with UTIs, and they are composed of the most significant proportion of antibiotic prescribers in the United States (Grigoryan et al., 2019).

Informal caregivers: Spouses, children, neighbors, friends, or even individuals who are not related who do not have formal training but still provide care (van Groenou & De Boer, 2016).

Observation: The careful evaluation performed by the person observing another's behavior in the specific or chosen environment (Heider, 1958).

Prevalence: Number of incidences that occurred (Vigneau et al., 2018). In this study, prevalence refers to incidences of UTIs.

QOL: When a person validates a specific satisfaction of their life based on a variety of factors, such as one's health, wealth, and material possessions (Ellis & Verma, 2000).

Sample: The subset of a population that is selected for a study (Kerr, 2010).

Subjects: Persons who volunteer to participate in a research study (People are research participants, 1999).

UTI: A bacterial infection found in the lower and upper urinary tract. In older adults, the symptoms include acute pain and dysuria (Beahm et al., 2017).

Assumptions

In this study, I made some assumptions. Several assumptions ran parallel with the generic qualitative inquiry methodology, which was used to discover and understand the perspectives and views of the people involved in a phenomenon of interest (see Kahlke, 2014). First, I assumed that this generic qualitative study would rely on the participants' descriptions of their experiences and perspectives on observing and reporting to doctors observable changes of behavior in older adults. A second assumption was that about 12–15 volunteers were needed for the study. A qualitative sample must be large enough to support claims while ensuring that the sample size is not too large that the data becomes repetitive to ensure that all the critical areas of the survey are uncovered (Mason, 2012). Third, I also assumed that the participants would find it easy to share their experiences, be open and honest during the interview, and provide appropriate and unbiased answers. Additionally, I assumed that the participants would be assured by the confidentiality of their identity and provide honest responses, which were vital to the study's validity.

Scope, Limitations, and Delimitations

Studies have shown that all research has limitations, and the goal of presenting these limitations is to provide readers with information that is beneficial to them (Ross & Zaidi, 2019). In this study, I examined informal caregivers' experiences of observing and reporting to doctors observable changes of behavior in older adults that were later linked to unconventional symptoms of UTIs. Potential limitations of this study may have resulted from my role as the data collection instrument and my interpretation of data collected. A limitation can occur if the researcher allows their first impression of participants to be influenced by anyone's unfavorable or favorable characteristics (Ross & Zaidi, 2019). Limitations may have also included limited time to conduct interviews, sincerity, and accuracy of participant responses. As Ross and Zaidi (2019) indicated, participants in some cases can cause bias in a study by choosing to provide good answers to questions rather than providing real responses to questions being asked.

Findings from this study are not transferrable to all informal caregivers because data were collected from a limited number of participants who volunteered to participate in this study. Thus, the experiences of the participants in this study might not reflect all informal caregivers' experiences. My criteria for participation may have also limited this study. Participants had to be 18 years or older and informal caregivers residing in the southern region of the United States, specifically Georgia.

Summary

In this study, I examined the experiences of informal caregivers observing and reporting to doctors observable behavior changes in older adults that were unconventional symptoms of potential UTIs. UTIs cause approximately 15.5% of hospitalizations among older adults, and about 6.2% of deaths are attributed to infectious diseases (Cortes-Penfield, 2018). The increase in age and a person's anatomical makeup are some of the risk factors for UTIs, which can contribute to the rise of urinary incontinence, urinary retention, hospitalization, and possible urinary catheterization (Cortes-Penfield, 2018; Rodriquez-Mahas, 2020).

In Chapter 2, I will present a review of the relevant literature on the topic of informal caregivers' experiences of observing and reporting to doctors observable changes of behavior in older adults that were unconventional symptoms of potential UTIs. Chapter 2 will include an introduction of the chapter, a discussion of the literature search strategy, an explanation of the theoretical framework, a synthesis of literature relevant to the current study, and a summary.

Chapter 2: Literature Review

The purpose of this generic qualitative study was to identify and report informal caregiver experiences with observable changes among older adults with UTIs who were not residing in long-term care facilities. Zeng et al. (2018) stated that over 40% of older adults experienced UTIs. The main issue of UTIs for older adults is the physiological and physical effects, such as sepsis, that could lead to death (Gbinigie et al., 2018). According to the NIH (2021), about 40%–60% of women will have developed one incident of UTI in their lifetime. UTIs among older adults are a significant health concern that warrants further research (Cortes-Penfield et al., 2017; Tang et al., 2019).

Informal caregivers are often the first to notice an illness or behavioral changes in older persons whom they provide care for (Knowles et al., 2016). Informal caregivers are individuals (e.g., spouses, children, neighbors) who care for their loved ones and do not always see themselves as carers (Knowles et al., 2016). Informal caregivers are vital to supporting and maintaining older adults' health and wellness (Tang et al.,2018). Research has shown that UTI is the leading cause of consistent emergency room visits among older adults that could be handled by informal caregivers in the community if observed early (Gbinigie et al., 2018; Walsh et al., 2021). UTIs lead to physiological effects, such as weak association and baseline impairment

, that may affect individuals' ability to communicate their symptoms and frailty (Beahm et al., 2017; Kostakopoulos et al., 2021).

In this review, I summarize the literature related to informal caregivers' experiences in observing and reporting to doctors observable changes in behavior in older adults with unconventional symptoms of potential UTIs. The search strategy section contains a description of the literature search method used to locate the pertinent literature related to the topic of interest. In the theoretical framework section, I discuss Heider’s (1958) attribution theory. This literature review also contains sections addressing aging, informal caregivers, UTIs, symptoms of UTIs, the prevalence of UTIs, the economic impact of UTIs, and the negative impact of UTIs on older adults.

Literature Search Strategy

To obtain peer-reviewed literature for this review, I searched several online databases: ProQuest, Academic Search Complete, PubMed SAGE, EBSCO, Coindex, Psych INFO, and Science Direct. Google Scholar and the FCA website were also searched. I also used the Walden University Library to access several academic databases and journals to locate relevant, peer-reviewed literature for this study. Keywords used in the search included: *UTIs, informal caregivers, perspective, observation, caregiver, aging, symptoms, aging-in-place, older adults, asymptomatic bacteriuria, prevalence, symptoms, urinary tract infection*, *attribution*, and *quality of life*. Using these terms and other combined terms yielded many articles related to older adults, UTIs, and informal caregivers providing care for older adults.

I used Walden University’s Library to search extensively for articles published from 2016 to the present on my topic of informal caregivers and UTIs. However, to provide a comprehensive review, I also used some journal articles dating back to 1958 due to their historical relevance to the topic discussed. The reference lists of articles and books review also provided more resources for this review. To narrow down my literature search, I used studies that included formal and informal caregivers and topics on caring for older adults with UTIs. These articles included quantitative and qualitative studies published in peer-reviewed journals. Some studies were conducted outside the United States, but the information was relevant to the research and met the inclusion criteria. The extant literature on the research topic of informal caregivers' experiences of caring for older adults diagnosed with UTIs was minimal.

Theoretical Framework

Attribution Theory

I used Heider's (1958) attribution theory as the theoretical framework for this study. Heider developed attribution theory through work in social psychology and the psychology of interpersonal relationships. Heider introduced the theoretical framework that became the research concept of social psychology. Attribution is used in many contexts with different meanings. Heider (1976) indicated that attribution is a part of human understanding of their environment and that as one becomes aware of their environment, the process of attribution takes place. Heider (1958) also stated that attributions are everyday occurrences that determine people's understandings of their surroundings and reactions. Heider viewed attribution as the result of an assessment of cause and effect based upon patterns of circumstances assumed to have contributed to others' behavior.

Heider (1958) provided a clear description of how people perceived, analyzed, and responded to others, stating that people used two different attributions (i.e., internal and external attribution) based upon others' observed behaviors. Internal attribution referred to the belief that behavior is caused by personality, disposition, ideas, and other internal factors (Jones 1972, as cited in Wallace, 2019). Internal factors are the criterion motivated by a person’s nature, attitude, and personality, while external factors are driven by situational components, such as luck and task difficulty (Pishghadam & Abbasnejad, 2017).

Moreover, Heider (1958) believed that people are active participants in observation, and as such, they consciously state biases as to why they do the things they do. People are innately curious and believe that there are cause and effect for everything that happens. Heider thought that the simple attribution process's foundation is based upon interpersonal relationships. Part of Heider’s theory was that before people can assign causality to any event, they must assess the contributing factors. To this end, Heider presented seven antecedent concepts to explain how a person may describe what they observe about another person. In the following bulleted list are four of these concepts as well as an explanation of how the concept relates to the current study:

- Consciousness: A self-awareness of a person's behavior, social environment, and outcomes. The informal caregiver’s experience in providing care for the patient allowed them to become conscious of the patient’s change in behavior, and thus developed a cause for concern for the person observed.
- Observation: A thorough examination performed by an observer of another person’s behavior in a particular environment where people are active participants. Caregivers’ causal attributions play an essential role in

identifying triggers of UTIs because they observed changes in their patients' behavior (Heider, 1958; Weiner, 2018).

- Effort: The observer's attempt to make an individualized change or improve a situation. Therefore, the informal caregiver could conduct a periodical assessment based on changes observed in the patients over some time. At the end of the observation, the informal caregiver will have sufficient data to communicate to the doctor.
- Emotions or feelings: The observed individual's sentiments are based on the experimental influences, resulting in a positive or negative outcome. In this study, the informal caregiver's emotions toward the observed change in the patient's behavior can negatively or positively influence the situation's result based upon the doctor's information (Bavel et al., 2020). Emotions can be negative or positive, and the interpretation of the outcome of the behavior of the person involved would influence the circumstances under which the event was taking place. In this instance, the patient is experiencing unconventional symptoms attributed to UTIs.

I chose Heider's (1958) attribution theory as the theoretical framework for this study because the theory's premise can be used to explain informal caregivers' experiences of noting and reporting observable changes in behavior that may be linked to unconventional symptoms of UTIs. Observable behavior or the outcome of a behavior is related to the judgments of absolute attributions, and the fundamental premise of attribution is to attribute causes to others' behavior (Heider, 1958). The caregiver can observe the change of behavior in the patient because they are familiar with the patient's day-to-day behavior. When there is an adverse change in behavior, the caregiver attributes the shift to a cause.

Applied Research of Attribution Theory

In this research study, I applied attribution theory to explain the causal reasoning of informal caregivers' experiences of observable behavior changes in older adults that might be unconventional signs of UTIs. In this study, how the caregivers attributed the changes they observed in their patients was also examined. Researchers have used the attribution theory to examine informal caregivers' experiences toward patients who were cared for with various diseases, including COVID-19, mental illness, Alzheimer's disease, and cancer as well as used attribution theory to study learning (Dunning & Pownall, 2020; Kadhel et al., 2016; Klimova et al., 2019; Sagayadevan et al., 2019). Due to the limited literature on informal caregivers' experiences in caring for older adults with UTIs, it was necessary to research other chronic illnesses that provided similar situations of informal caregivers providing care for patients. In this subsection, I provide some examples of how attribution theory was applied in previous studies.

Sagayadevan et al. (2019) used the attribution theory to conduct a study on informal caregivers of patients with early psychosis, depressive disorders, anxiety disorders, chronic schizophrenia, and dementia to examine the caregivers' causal attributions of their relatives' mental illness and its association with the stigma perceived in a multiethnic Asian sample. The researchers used the Attribution and Stigma Scale from the World Health Organization's Family Interview Schedule to collect data for the study. The researchers found out that caregivers from different ethnic backgrounds had different opinions regarding mental illness and the stigmas against family members diagnosed with mental illness. Sagayadevan et al. concluded that future research should explore the relationship between caregivers' causal attributions and the use of health services. Future research could make a crucial step towards circumventing dropout participants and reducing the treatment gap for mental health patients.

Dunning and Pownall (2019) conducted an online survey study with 114 persons regarding the likelihood of contracting COVID-19. Using Heider's attribution theory, the researchers explored the dispositional and situational attribution of self-reported COVID-19 risk. During the study, the observed participants were not in agreement with their responses. Some respondents attributed their chances to be low and focused more on dispositional attributions, attributing their risks to factors, such as age and personal hygiene. Other respondents considered to be high risk made more situational attributions, attributing the COVID-19 risk to factors, such as decisions that governments made and other people's cleanliness. Attribution theory dictates that people are motivated to attribute meaningful causes to action and behavior (Kelley, 1971). Use of attribution theory enabled the researchers to explore risk attributions in the ongoing COVID-19 pandemic. In their study, the researchers demonstrated the risk perception ascribed to different sources that can be external or internal, finding that the participating groups were less likely to engage in positive behavior increased compliance.

Kadel et al. (2018) conducted a study on the islands of the French West Indies to assess breast cancer survivors' views related to their survival of breast cancer. The researchers collected data using open- and closed-ended questionnaires on patients' opinions about women's risk factors, their general health, and the sources from which the women received their information. The researchers concluded that most patients attributed their illness to noncontrollable factors, such as environmental pollution, radiation from cell phones, breast trauma, age, menopause, obesity, stress and tiredness, coffee, and exposure to the sun. The authors also showed that it was good to consider the patient's opinion as valuable for survivors' psychological support, suggesting that it may be necessary to record how the patient attributes causality life-changing events such as breast cancer.

Attribution theory can be used to explain how one (i.e., a social perceiver) perceives or forms impressions about the events in peoples' lives (McLeod, 2012). If an informal caregiver missed the opportunity to observe changes in an older adult's behavior, then the caregiver may not make the connection to UTIs. Thus, the health care provider may not become aware of the changes in the patient, and thereby resulting in a UTI incident that may go undiagnosed and untreated for an extended period.

Review of the Literature

In this section of the literature review, I present literature that addressed aging, informal caregivers, UTIs, the symptoms of UTIs, the prevalence of UTIs, the economic and individual impact of UTIs, and adverse outcomes of UTIs in older adults. As adults become older, UTIs become a significant health concern that increase in prevalence (Cortes-Penfield et al., 2017; Tang et al., 2019). UTIs are bacterial disturbances of the upper and lower urinary tract that are problematic due to the adverse outcomes for individuals and the financial costs associated with treatment (Bardsley, 2017; Cortes-Penfield et al., 2017). Older adults sometimes need to receive care from informal caregivers in the absence or presence of UTIs. Informal caregivers are family members who provide unpaid help to family members who need their service due to their inability to function independently (Hopps et al., 2017; Maria dos et al., 2016). Informal caregivers are expected to take on or compensate for government cutbacks on residential and professional home care (Groenou & De Boer, 2016). Furthermore, UTIs are among the most common conditions among older adults (Singh & Kaur, 2018). UTIs are challenging to treat in older adults due to several risk factors. These risk factors include urinary retention; age; postvoid residual urine; comorbidities, such as stroke; dementia; and the inability to express their needs (Singh & Kaur, 2018). The population growth of older adults will continue to increase in the coming years as people get older (He, et al., 2016).

Aging Adults

Globally, the number of aging adults has increased (He et al., 2016). Statistics revealed that in 2012, the world's population was 7 billion, and 562 million of that number were adults over the age of 65 years old (He et al., 2016). Researchers have estimated that by the year 2030, the number of older adults will reach about 1.6 billion, which will amount to about 12.6% of the world's population (He et al., 2016; Roberts et al., 2018). He et al. (2016) estimated that by 2050, adults aged 65 years and over would make up about 21.4% of the U.S. population. Aging comprises chronological, biological, and physiological declines across time (Hodgson et al., 2020). For example, natural drops consist of the gradual accumulation of harmful natural changes that may accompany a progressive loss of function (Cole et al., 2019). It is vital to understand the aging process because aging is advanced, complex, and sometimes affects an individual’s ability to counter the considerable toll it takes on their body (Hodgson et al., 2020).

Most older adults in the United States are aging in place, meaning they remain in their respective homes and communities instead of living in retirement or assisted living communities (Beard et al., 2016; Grimmer et al., 2015). Aging in place is used to define older adults having the freedom to live safely in their homes or communities by choice (Grimmer et al., 2015). Findings from several studies have revealed that older adults prefer to live independently in their homes and communities where they can retain their autonomy (Grimmer et al., 2015; Rosenwohl-Mack et al., 2018). Also, older adults enjoy having control of their lifestyle choices (Grimmer et al., 2015; Rosenwohl-Mack et al., 2018). Aging in place is supported by most people (95%) age 50 and older (Rosenwohl-Mack et al., 2018). It is essential to support older adults' decisions to live safely and independently in their communities because it can help maximize their QOL. It can also minimize unneeded hospitalizations or be placed in a residential care facility (Grimmer et al., 2015) where they do not care to reside.

Informal Caregivers

As older adults age, it is essential to note that there will be socio-demographic changes such as longer life expectancy, chronic diseases, and non-communicable diseases (Maria et al., 2019). In the end, these changes may lead to an increased dependency on the services of informal caregivers (Maria et al., 2019). With the increasing number of older adults in the United States, there are increased challenges and demands for health care, social services, and informal caregivers who can provide services for them (Bauer & Sousa-Poza, 2015; Beard & Bloom, 2015). Informal caregivers frequently fill the gap in professional home care for older adults (DeSilver, 2013).

The informal caregiver could be a spouse, child, sibling, family member, friend, or neighbor (FCA, 2019). A caregiver attends to the needs of the person who is dependent upon someone else for care. The patient's condition consists of assisting with activities of daily living, financial management, or activities designed to foster the social, spiritual, and emotional wellbeing of the person (Hopps et al., 2017). They had a close and personal relationship with the patient, which increased the informal caregiver's burden. Approximately 42.1 million adults are considered caregivers in the United States (FC, 2019; Hopps et al., 2017). However, informal caregivers were more likely to exhibit signs and symptoms of depression and anxiety. They incurred long-term health issues such as heart disease, cancer, arthritis, or diabetes (Hopps et al., 2017) as time progressed with their loved ones. Support for the caregiver is essential for their wellbeing while attending to the care of the patient. Help could be in the form of support groups, one-on-one or family counseling, respite care, as well as direct services, such as food or meal preparation and housekeeping (Knowles, 2016; Tang et al., 2018).

Role of the Caregiver

Statistics has shown that approximately 40.4 million informal caregivers in the United States provide care for adults 65 years and older (FCA, 2019; Stepler, 2015). Research has also showed that the role of caregiving includes assisting adults with daily living tasks, assisting with household chores, providing transportation to doctors' appointments, engaging in social companionship, running errands, providing emotional guidance, and planning for professional care (Hopps et al., 2017; Stepler, 2015; van Groenou & De Boer, 2016).

Informal caregiving ranges from assisting with daily activities, to providing direct care, to helping recipients of care navigate the complicated health care and social services systems. Other duties and tasks informal caregivers fill in the absence of professional caregivers include performing medication administration, injection, wound care, and other services (DeSilver, 2013; Groenou & Boer, 2016; Stepler, 2015). Due to the different health care system levels that older adults must face, the experiences of informal caregivers caring for older adults can provide valuable information for the healthcare providers and policymakers (Lilleheie et al., 2020).

Economic Value of Informal Caregiving

The provision of caregiving services by informal caregivers has increased immensely in the last 10 years. Studies have shown that in 2015, there were about 17.7 million U.S. persons who were informal caregivers. However, in 2017 and 2018, approximately 40.4 million informal caregivers provided unpaid care to older adults in the United States (Edwards et al., 2020; FCA, 2019; Unpaid Eldercare in the United States, 2019).

The economic value placed on informal caregivers' services over the years is invaluable (FCA, 2019). According to Hopps et al. (2017), the economic value of informal caregiving services annually amounts to about $522 billion. This figure is a notable increase compared to the estimated monetary value of informal caregivers' services in 2013- which was $470 billion (Hopps et al., 2017). This amount exceeds the value of paid home care and Medicaid spending together (FCA, 2019). Medicaid is the United States' most significant health insurance source covering about 77 million people in 2017 (Sommers & Grabowski, 2017). The total medical national cost of providing long-term care spending in 2017 was $364.9 billion (Upadhyay & Weiner, 2019, September).

Training Informal Caregivers

Schulz and Eden (2016) noted that informal caregivers seldom received adequate training to carry out their role as caregivers. The quality of their work output is dependent upon the information they receive from the health care professional. Informal caregivers can benefit from education and skills to increase their knowledge, their skills to provide care, and to provide additional services that will help them to better support and assist older adults for whom they provide care (Aksoydan et al., 2019; Maria Dos Anjos Coelho Rodrigues Dixie et al., 2019). The outcome of this training can help the caregiver, among other things, to ultimately deliver better quality of care to the older adult (Maria Dos Anjos Coelho Rodrigues Dixie et al., 2019).

Moreira et al. (2018) conducted a quasi-experimental study and examined older adults' caregivers' knowledge, care, and attitude after receiving caregiving training. Based on the analysis of 82 participant caregivers trained in the program, the authors found that educational interventions led to improved knowledge about providing care to older adults with a diagnosis. For this study, the researchers conducted a quasi-experimental qualitative survey. The study's purpose was to identify whether the before and after training given as an intervention related to providing care in feeding, bathing, hygiene, mobility, and transportation. The researchers concluded that the educational intervention was effective for older adults' caregivers’ performance (Moreira et al., 2018).

Coelho et al. (2019) conducted a cross-sectional study that included 143 participants (informal caregivers). A quantitative structured interview was completed using a questionnaire. The study's primary purpose was to understand better, informal caregivers' needs and competencies caring for persons dependent on various self-care domains. Researchers concluded that informal carers are essential to the care network and need support on providing needed care for the dependent person. Therefore, informal caregivers must be provided with patient instructional information to be 'capacitated' on caring for the dependent persons upon discharge from the hospital. Maria dos Anjos Coelho et al. (2019) concluded that informal caregivers' needs and competencies must be acknowledged and addressed to be made capable of looking after their patients before the release of a dependent person.

Klimova et al. (2019) searched peer-reviewed articles from databases Web of Science, Scopus, and PubMed, where the researchers evaluated the findings of the studies selected. The study's purpose was to consider the benefits of e-learning as informal support for caregivers for people with dementia. Moreover, Klimova et al. (2019) wanted to see the limitations and benefits of providing the appropriate care for the targeted population. The study results showed that e-learning educational programs helped caregivers gained more confidence about dementia care, and enhanced their feelings of empathy, understanding, and concerns.

Experts have estimated that in 2030 in the U.S, the number of caregivers aged 25 and older will reach about 21.5 million. They will take care of the sick and provide care for at least 20 hours per week (National Alliance for Caregiving & American Association of Retired Persons, 2015). Research has shown that informal caregivers play a crucial role in providing care for older persons. Moreover, caregiving can help them have confidence in their ability to render care (Aksoydan et al., 2019; Berthelsen & Kristensson, 2015). Training caregivers can improve patients' quality of life while reducing the costs of care (Berthelsen & Kristensson, 2015).

Researchers have indicated that informal caregivers' active involvement in their older family members' care and treatment, can improve the patient's treatment and wellbeing (Aksoydan et al., 2019; Berthelsen & Kristensson, 2015). Suppose there is a lack of instructions to provide informal caregivers? In that case, it can affect care to the patient, leading to unnecessary hospitalization, which may present other additional health risks such as infection (Milligan, 2015). Studies have shown that training in communication and memory strategies for family caregivers of people with dementia, showed significant improvement in procedures related to better communication with their patients (Liddle et al., 2012).

Communicating with Doctors

Communicating with doctors and other formal caregiving providers takes proper coordination between both parties. Research has indicated an increase in outsourcing care-related tasks to patients and their informal caregivers (Plothner et al., 2019; Weinberg et al., 2007). Highly effective communication to doctors is vital to proper coordination between formal and informal care providers related to patient care (Plothner et al., 2019; Weinberg et al., 2007). Good clinician-patient communication is essential to the quality of health care the patient experiences-better health outcomes, the critical quality of life, and safer care. Essentially, effective communication between physicians and patients can yield central clinical function (Cohen et al., 2017). However, family caregivers' role in caring for their loved ones includes but is not limited to assisting with making medical appointments for their clients, speaking to their health care providers, and ordering their medications. Society depends on family members' services (informal caregivers) to provide the bulk of care for older adults who need their services due to any limitations that might involve their physical, mental, or cognitive functions (Schulz & Eden, 2016).

Urinary Tract Infection

Urinary tract infections are bacterial disturbances of the upper and lower urinary tracts (Balogun & Phillbrick 2014; Gbinigie et al., 2018; Tang et al., 2016). A UTI mainly refers to the kidneys and the tubes that lead from the kidney into the urinary bladder – these tubes are called the ureters (Gbinigie et al., 2018). A lower UTI pertains to the inflammation of the bladder and the urethra (the tube that extends from the bladder, enabling urine to exit the body (NIH, 2021). Non-communicable diseases such as UTIs are chronic conditions that some older adults experienced as they age (Beard & Bloom, 2015; Grimmer et al., 2015; Zambrana et al., 2019).

Symptoms of UTI

UTI's encompass several symptoms, which include infection of the kidney (Bing-Johnson, 2016; Cotes-Penfield et al., 2017). The urinary tract infection definition has three components. The first component requires the patient to have clinical symptoms that suggest an infection of the urinary tract (Cortes-Penfield et al., 2017). The accepted clinical symptoms in older adults for UTIs include dysuria only, fever, new or continuous urgency to urinate, or urinary incontinence (Cortes-Penfield et al., 2017).

Dysuria is a powerful predictor and the most helpful clinical finding in identifying the presence of UTI in older adults (Bing-Johnson, 2016; Cortes-Penfield et al., 2017). The second component requires laboratory evidence to confirm dysuria and bacteriuria (Cortes-Penfield et al., 2017). Pyuria is inflammation in the urinary tract determined by a positive leukocyte esterase on urine dipstick (Cortes-Penfield et al., 2017; Nelson & Good, 2015). Third, diagnosis is completed after a search is done for other causes that may explain its symptoms. The third criterion aims to avoid any delays in providing therapy that is due to an irrational diagnosis. Overall, these diagnoses are essential to note, as diagnosing UTIs in older adults can be complicated (Cortes-Penfield et al., 2017).

Diagnosing UTIs

Diagnosing UTIs in older adults can be difficult. Older adults may not exhibit the typical signs and symptoms associated with UTIs (Bardsley, 2017). Older adults' inability to communicate a comprehensive health history and their difficulty obtaining uncontaminated 'clean catch' urine specimens can also complicate diagnosing UTIs

(Bardsley, 2017). To diagnose UTI in older adults, it is usually necessary to have genitourinary symptoms and urinary tract inflammation (Rowe & Juthani-Mehta, 2014). When a urine culture analysis is completed and the result shows a positive pathogen, the results may conclude that it is symptomless UTIs (Rowe & Juthani-Mehta, 2014).

Despite the general agreement on UTI guidelines, there is no universally accepted definition of symptomatic UTI in older adults (Rowe & Juthani-Mehta, 2014). However, in the absence of good signs indicating possible UTI, symptomless bacteriuria might be suspected. Symptomless bacteriuria requires that bacteria be present in the urine in specific quantities with or without pyuria (Cortes-Penfield et al., 2017; Rowe & Juthani-Mehta, 2014). Despite the availability of guidelines to assist practitioners with diagnosing UTI, it is still challenging for practitioners to observe UTIs in older adults (Rowe & Juthani-Mehta, 2014).

Risk Factors of UTIs

Several factors predispose older adults to infections. Some of these factors included an increase in age, several medical conditions that require hospitalization, and the need for invasive procedures such as urinary catheterization (Bardsley, 2017; Cortes-Penfield et al., 2017; Rowe & Juthani-Mehta, 2014). Other factors that predisposed older adults to infections included increased urinary incontinence, increased urinary retention, long-term medical institutionalization, and anatomic abnormalities of the urinary tract (Bardsley, 2017; Cortes-Penfield et al., 2017; Rowe & Juthani-Mehta, 2014). The retention of urine and high postvoid residual urine contribute to UTIs in older adults (Rowe & Juthani-Mehta, 20014). Research indicates that one of the prevalent factors for

UTIs among community-dwelling older adults is having a UTI history (Rowe & Juthani-Mehta, 2014). The time at which a diagnosis is made depends on the method of assessment used and the level of data on UTIs among the health professionals involved in the case (Bing-Jonsson & Tønnessen, 2016).

Prevalence of Urinary Tract Infections

UTI's account for about 25% of all older adults' conditions (Cortes-Penfield et al., 2017). According to the Centers for Disease Control and Prevention (2018), UTIs are common infections in older adults that account for about 20%-35% of conditions in long-term care facilities. It is the second most popular infection in older adults and the most common cause of hospitalizations (Rowe & Juthani-Mehta, 2014). Annually, UTIs result in about 7 million office visits, 100,000 hospitalizations, and about 1 million emergency room visits in the U S (Bardsley, 2017; Cortes-Penfield et al., 2017; Rowe & Juthani-Mehta, 2014). In adults 65 years and older, UTIs cause 15.5% of hospitalization, and about 6.2% of deaths are related to the disease yearly (Cortes-Penfield et al., 2018).

UTIs are among the most common diseases that affect older adults (Bardsley, 20147, Cortes-Penfield et al., 2017; Lim et al., 2015). Typical and traditional symptoms associated with UTIs may include urgency to urinate, nocturia, abnormal vital signs, and can limit older adults' diagnostic value (Gbinigie et al., 2018). However, other unconventional characteristics, such as the inability to perform day-to-day activities, could better predict UTIs (Gbinigie et al., 2017). When there are doubts about whether presenting symptoms may be related to a UTI, it might be necessary for the patient to see a physician for an assessment (Beahm et al., 2017). Osakwe et al. (2018) shared that

UTIs are the third leading cause of hospitalization in the elderly and that UTIs may lead to sepsis-a "severe infection" (Osakwe et al., 2018).

Moreover, UTIs are the second most missed infection in older adults by healthcare providers when initially seen (Gbinigie et al., 2018). UTIs in older adults sometimes are presented as atypical. They can lead to uncertainty in diagnosing, one of the many reasons for not making an early diagnosis at the earliest opportunity (Gbinigie et al., 2018). UTI's are a burden that has a personal and societal impact. The societal limitations of UTIs include the clinical burden and economic burden of the illness. In contrast, the disease's burden has social and psychological effects that negatively affect QoL. Regular occurrences of UTIs are associated with depression and anxiety (Medina & Castillo-Pino, 2019).

UTI is prevalent among the aging male population, affecting their physical and social functions (Suen et al., 2017). Some of the complicated symptoms that older men experience includes incomplete emptying of the bladder, storage, and voiding, increasing with age (Suen et al., 2017). UTIs increases with age, and in older men, it is the most common bacteria in the urine. Bacteria in the urine found in about 10% of community-dwelling older men (80 years and above) and about 15 to 40% of male residents in long-term care facilities (Schaeffer & Nicolle, 2017; Sue et al., 2017). Schaeffer and Nicolle's (2016) shared increased incidences of UTIs among older men (80 years and older). The incidences of UTI amongst older men are about half of the incidences that occur among older women.

UTI's rate among men in the community who are 80 years and older is higher than younger men (Schaffer & Nicolle, 2016). Besides, UTIs are related to increased functional disability, dementia, urinary and fecal incontinence, prostate disease in men, and estrogen deficiency in older women (Balogun & Philbrick, 2014; Tang et al., 2016). Schaffer and Nicolle (2016) reiterated that UTI incidences are more common in older women (30%) than men over 85 years. Despite the current literature on UTIs, it is challenging to accurately measure the incidences of UTIs in older adults because the criteria used for diagnosing UTIs are inconsistent across the study of epidemiology (Schaeffer & Nicolle, 2016).

Economic Impact of UTIs

Annually, UTIs cost about $2.6 billion in the United States (Bardsley, 2017; Cortes-Penfield et al., 2017; Simmering et al., 2017). Research has shown that in 2011, about 400,000 UTI hospitalization occurred in the U.S, with a suggested cost of $2.8 billion (Simmering et al., 2017). The average individual hospitalization cost with a primary UTI diagnosis in 2011 was $6,424 (Simmering et al., 2017).

Urinary tract infection can affect the economic burden of taking sick leave, including direct and indirect absences. This UTI can negatively affect the patient's wellbeing or QoL (Medina & Castillo-Pino, 2019). UTIs can also affect the patient economically, including the costs cost of their office or hospital visits, prescription for medication, medical and non-medical related expenses, and sick days leave. (Medina & Castillo-Pino, 2019). Women are more prone to be diagnosed with UTIs due to their physiological and reproductive makeup (Singh & Kaur, 2018). Diagnosing and treating older adults for UTIs is more complicated because of the lack of clear clinical history or the absence of specific or typical signs and symptoms (Sing & Kaur, 2018; Zeng et al., 2020).

Negative Impact of UTIs in older adults

UTI contributes to increased functional disabilities, mental status changes, urinary, and fecal incontinence, prostate disease in men, and estrogen deficiency in older women (Balogun & Philbrick, 2014; Tang et al., 2016). UTI's can decrease the daily QoL in older adults by adversely affecting their social and personal relationships and their physical and psychological health (Renard et al., 2014; Schaeffer & Nicolle, 2016; Wagenlehner et al., 2018). Furthermore, recurring UTIs can cause functional handicaps in older adults and provoke incontinence, leading to the rapid deterioration of the persons' health or confusion (Renard et al., 2015).

Research shows that if older adults are suspected of having UTIs, and if treatment for UTIs is delayed, it can become severe (Tanzi, 2019). When a delay in treatment for UTIs in older adults occurs, they can experience bloodstream infections or hospitalization (Tanzi, 2019). UTI's can cause sepsis, and if florid urosepsis is discovered in a comorbid patient, it can also cause death (Sebih & Leslie, 2020). Sepsis is life-threatening and can affect the organs by forcing them to misfunction (Rower & Mckoy, 2017). Research shows that sepsis is the body's response to infection, leading to septic shock (Joy & Mckoy, 2017).

Sepsis is significantly burdensome to society, and it unequally affects older adults who are 65 years and older (Rowe & Mckoy, 2017). The increased incidences of sepsis can also affect the health care system negatively as the aging population increases. Studies show that over 60% of sepsis diagnoses are found in adults over 65—incidences of sepsis increase as people age (Rowe & Mckoy, 2017). Moreover, UTIs are associated with risk factors such as urine retention and postvoid residual urine (Sing & Kaur, 2018). Studies show that older adults with UTIs get frailer than those with non-oncologic diagnoses (Tang et al., 2019).

Simmering et al. (2017) describe the limitation on outpatient therapies for UTIs and antimicrobial resistance. The study's purpose was to report the varying incidences of hospitalization for UTIs among men and women of different age groups (Simmering et al., 2017). The study explored the years 1998-2011 reports on UTIs and found that UTIs' incidences were increased by 58%, and the increased rate was higher among women and older adults (Simmering et al., 2017). For example, the growth rate increase of UTIs in older women ages 80 to 89 years was 23.1% (Simmering et al., 2017). The study concluded that hospitalization for UTIs is increasing, although the severity appears to be decreasing (Simmering et al., 2017). This decrease is an indication that patients who were treated previously as an outpatient may be admitted to the hospital as resistance to antimicrobial treatment has increased (Simmering, 2017). Hospitalization for the increase of UTIs in men 50- to 59-year-old was 9.8%, and supplement for women 50- to 59-year-old women was 19.2%. (Simmering, 2017).

Summary

This chapter has provided an overview and discussion of the related literature, and theoretical basis for the study. as it relates to informal caregivers experience caring for older adults diagnosed with UTIS. Informal caregivers have significantly played a vital role in the care of older adults with various chronic illnesses. The literature research showed that 41.3 million people provide unpaid care for the older adults in the United States. The U.S. Bureau of Labor Statistics (2019) stated about 26.1 % of this number spend about 2.8 hours per week giving care for this population.

The topics in this chapter included the introduction, literature search strategy, theoretical framework, applied research of attribution theory, review of the literature, aging adults' informal caregivers, the role of the caregiver, economic value of informal caregiving, training informal caregivers, UTI, the prevalence of UTI, economic impact of UTI, the negative impact of UTIs in older adults, and the summary. The introduction to this chapter described the purpose of the study and the literature review strategy. In Chapter 3, I will explain the study research method, design, rationale, researchers' role, questions, study context, sampling, sampling criteria, data collection, data procedures, participation recruitment strategy, and issue of trustworthiness.

Chapter 3: Research Method

The purpose of this generic qualitative research was to identify and report informal caregivers' experiences in observing and reporting to doctors observable changes of behavior in older adults that were unconventional symptoms of potential UTIs. The participants in this study were six African American women informal caregivers. This study's findings may contribute to the awareness of atypical or uncommon symptoms of UTIs in older adults. In this chapter, I discuss the research problem, my role as the researcher, the research design, the population, sample size, and the recruitment of participants. In the chapter's final sections, the methodology, instrumentations, data collection and analysis processes, and ethical considerations are described.

Research Design and Rationale

In this study, I explored informal caregivers' experiences in observing and reporting to doctors observable behavior changes in older adults that were unconventional symptoms of UTIs. Qualitative research is a method used to collect, analyze, and interpret data collected that are related to the "social world, the concepts and the behaviors of people" that fall in that social world (Anderson, 2010).

Generic qualitative research is used to investigate people's reports of their personal opinions, attitudes, beliefs, or reflections on their experiences or involvement (Percy et al., 2015). Researchers believe that generic qualitative studies can call on the strengths of other methodologists who are already established and still maintain their approach (Kahlke, 2014). Generic qualitative research is flexible and attractive to researchers whose studies do not focus on a specific known methodology (Kahlke, 2014). Using a qualitative method allows researchers to continue applying interpersonal and subjective skills to explore the research process (Alase, 2017, p.1). Using a qualitative research method allows for several participants who have experienced similar events to tell their stories (Alase, 2017). Kahlke (2014) shared that generic qualitative inquiry is used to discover and understand the perspectives and views of the people involved in a fascinating phenomenon. Percy et al. (2015) also shared that generic qualitative research seeks information from samples of people regarding real-world events and processes and their experiences with them. Williams et al. (2020) stated that qualitative research plays an essential role within evidence-based health care research, contributing to, among other things, policy development on patient safety, prescribing medicines, and understanding illnesses that are persistent.

At the beginning of this study, I considered using grounded theory as the design approach but chose not to and, instead, opting for a generic qualitative design because grounded theory did not support the study. Researchers use grounded theory, which originated with Glaser and Strauss, to generate small theories as they become evident from the data they gathered and analyzed (Howard-Payne, 2016). Grounded theory focuses on constructing theory from data and researchers using it aim to generate the theory grounded in the data (Chun Tai et al., 2019). I did not believe that grounded theory was appropriate for this study because it is not widely used and sometimes leaves researchers confused when applied. The primary use of grounded theory is to ground a theory in how the phenomenon is happening or has happened; there is no theory in grounded theory because the researcher forms the theory through their views (Chun Tai et al., 2019; Howard-Payne, 2016).

Using a quantitative research design was not appropriate for this study because the use of the quantitative approach in social science, aims to predict and control social phenomena (Bilgin, Y. (2017a; Goertzen, 2017; Park & Mark, 2016). With the quantitative method, researchers use hypothesis testing to obtain their research goals. Moreover, quantitative research emphasizes trends across data sets or study groups but not the motives behind observed behaviors. The quantitative method focuses on highlighting numerical data and variables that can be measured. Quantitative research designs are also used to identify and isolate specific variables within context (Goertzen, 2017; Park & Mark, 2016).

Research Question

The following main question guided this study:

What are informal caregivers' experiences of observing and reporting to doctors observable changes in older adults that may be associated with unconventional UTI symptoms?

Role of the Researcher

As the sole researcher who conducted this generic qualitative study, I served as the primary instrument for collecting data. This meant that I was the only one who could and did collect data from the participants. Additional interviewers can affect the research conversation's quality and even the study's findings (Herriott & Firestone, 1983, as cited in Pezalla et al., 2012). As the researcher, I reviewed relevant literature on the topic, recruited and screened potential participants, and conducted interviews with the participants. As the principal researcher, I separated my professional affiliation from the participants because I have had personal experience working with older adults in long-term care for a long time in Georgia, specifically in Fulton County; however, I am not currently employed or working with older adults diagnosed with UTIs.

This study included interviewing informal caregivers who were providing care for older adults with UTIs. I did not have any personal connection with any participants that were interviewed for this study. Additionally, I did not entertain any voluntary participation in the survey from previous coworkers. The aim of interviewing participants with whom I did not have a previous relationship with was to prevent any adverse effects on the study and uphold the study's integrity.

Researcher Bias

I conducted interviews with informal caregivers who cared for older adults diagnosed with UTIs. As the researcher, I maintained a watchful eye on my biases related to this study. Bias is any influence that provides a distortion in the study results (Polit & Beck, 2014, as cited in Galdas, 2017). Moreover, in research, bias can happen when the investigation takes place, creating mistakes and errors, which can cause flaws in the data and a negative effect on the data analysis (Pannucci & Wilkins, 2010).

It was easy to bring my previous knowledge and preconceived ideas on caring for older adults with UTIs into this study because I had previously worked with older adults with dementia and UTIs for a long time. However, to minimize my personal biases on the study’s outcome, I used bracketing throughout the research to mitigate my preferences and make a concerted effort to avoid any personal preconceptions that may have impacted the analysis. Tuford and Newman (2018) shared that bracketing is the method used in qualitative research to mitigate preconceived ideas on the research process. I developed the interview questions to ensure that they were related to the main research question. The questions were intended to arrest the attention of the participants and allow me to gather their experiences in rich detail. Furthermore, I approached the interviews in a neutral manner without expecting answers to any of the participants' questions. Using this step helped uphold ethical standards during the process of data collection.

Another technique that I used to help manage my biases in this research study was journaling. Journaling can help to promote constructive and valuable participation and aims to collect data that will enhance and confirm the data collected during interviews while seeking to clarify any responses to questions that were not adequately pursued (Hayman et al., 2012). Journaling enables the researcher to make their experiences, opinions, thoughts, and feelings known and visible. Moreover, journaling can help develop carefully strategic ways to address any research study challenges (Meyers & Willis, 2018; Ortlipp, 2008).

Methodology

Participant Selection Logic

Recruitment Strategy

Before I could recruit participants, I received approval from the Walden University Institutional Review Board (IRB) to conduct the study. The approval number was 05-03-22-0401339 which was to last for one year. Meaning, expiration was 05-02-

2023. The population targeted for this study was informal caregivers who cared for older adults diagnosed with UTIs. I conducted semistructured, in-depth interviews with each participant for about 30 to 45 minutes. The interview questions were developed carefully and included limited demographic questions on age, gender, ethnicity, status, caregiving experiences, and history. I added extra time to an interview if an interviewee required it. The interviews were audio recorded and included open-ended questions.

Criteria for Selection

The participants in this study were required to meet specific inclusion criteria:

- Being a current informal caregiver who provides care for older adults who have been diagnosed with UTI.
- Being over the age of 18 years old.
- Individuals with previous experiences caring for older adults diagnosed with UTIs as paid caregivers were also considered for participation in the study.

Sample Size

Several strategies can be used when a researcher is contemplating or trying to recruit participants for a study. Purposive sampling is used in qualitative research to identify and recruit participants about the experiences or phenomena of interest (Etikan et al., 2016). In purposive sampling, the researcher recruits individuals who know the phenomenon of interest, are willing to participate in the study, and meet the stated inclusion criteria (Etikan et al., 2016; Palinkas et al., 2015). Purposive sampling was an appropriate technique to recruit participants for this study who could share their lived experiences of the phenomena of interest. Another method used to recruit participants for qualitative research is snowball sampling. Snowball sampling is a strategy where participants of a research study are used to recruit other participants (Etikan et al., 2016; Naderifar et al., 2017). When combined, purposive sampling and snowball techniques can recruit appropriate participants for the study (Patton, 2014).

There is no recommended sample size for a qualitative study, and it is still an argument amongst researchers. No specific number is given or required for a research study (Boddy, 2016; Mason, 2015). In a qualitative study, the sample size is chosen based upon need or the researcher’s choice (Boddy, 2016; Elo et al., 2014). Samples for a qualitative study are generally small, but the number must be large enough to ensure that most or all the data are collected (Mason, 2015). The number of participants I estimated to take part in this study was dependent on participants availability and not knowing at what number saturation would be reached.

Saturation

Saturation is determined when additional interviews do not provide new information to the data already gathered on the research subject (Elo et al., 2014; Nusbaum et al., 2017). The recruitment of participants stops once data saturation is reached (Elo et al., 2014; Nusbaum et al., 2017). Fusch and Ness (2015) shared that interviewing is one method for a researcher to reach data saturation in a study. When thinking about sample size in qualitative research, the researcher must think about the concept of saturation, which varies and depends on the design in the study because designs used in qualitative studies are not universal (Dworkin, 2012; Fusch & Ness, 2015). The amount of information available depends on each participant. I reached saturation in this study when no new themes emerged from the participants' responses.

Instrumentation

A qualitative interview is a valuable data-collection tool used to gather pertinent information on the research problem that will reflect the perceptions and experiences of the participant (Mcgrath et al., 2018). To begin, I explained the consent form's content to each participant, and the interview followed. The instrumentation for data collection included a digital audio recorder in each interview session. Aside from the digital recording, I took observational notes during the interviews. As stated earlier, a generic qualitative study is used to identify "people's reports of their subjective opinions, attitudes, beliefs, or reflections on their experiences" (Percy et al., 2015, p. 78). Using this method allows for the discovery or elaboration of information that may be important to the participant but was never previously considered pertinent by the researcher (Gill et al., 2008). The interview guide consisted of various open-ended questions. Each participant was asked the same questions and were allowed to talk about their experiences caring for older adults with UTIs in private. I decided on the number of questions used in the interviews based on the guidance of my chair as I sought guidance on how to properly formulate the questions.

Procedures for Recruitment

Before the interviews occurred, I informed participants about the study details and assured them of ethical principles, such as anonymity and confidentiality (see Gill, 2008). Doing so allowed the participants to know what to expect from the interview and likely increased their honesty, a fundamental aspect of the informed consent process (see Gill, 2008). Researchers used semi-structured interviews for the primary purpose of collecting sufficient data to answer research questions or to test a hypothesis (Muthanna, 2019). Data for this study were gathered by face-to-face and phone interviews with the participants selected. I recruited the participants through emails and other appropriate mediums approved by Walden University's Research Quality Management team. The interviews were conducted based upon the choice and preference of location of participants for their convenience. Based upon the site selected for the interviews, I ensured the participants' safety and comfort. I was the only researcher who conducted all the interviews in this study. I was mindful of the amount of time used to complete the interviews to prevent participants' mental distraction and fear of withdrawing from the discussion while it was in progress.

Purposeful sampling was an appropriate measure for recruiting participants for this study because the interviews' focus was on the participants' experiences. This sampling strategy allowed me to choose the participants, thus setting the criteria for inclusion. Purposeful sampling is popularly used in qualitative research to identify and select information related to the phenomenon of interest (Palinkas et al., 2013).

All potential participants chosen for the study were provided with consent forms to be completed before their interview took place. I provided each participant with my contact information, including my email, phone number, Skype information, and any other pertinent medium through which contact could be made with me if they had any questions after the interview. I obtained all relevant contact information from the participants in case follow-up was necessary for clarification after the interviews. The participants were notified that I would not contact them once there were no more need for data collection. Although the participants voluntarily took part in the study, I decided not to offer any incentives to participate in this study.

Data Collection and Analysis

Once I received approval from Walden University’s IRB, I ensured that each participant received an informed consent form and had them complete and return it. I also conducted an eligibility interview with each interested participant and thanked them for their interest in participating in the study. The informed consent form contained descriptions of the study’s purpose, the data collection process, and the participant’s role. Use of the informed consent also ensured that the participants understood how data w

ere gathered, including informing them that their interviews would be audio recorded. All participants were required to read their informed consent forms and reiterate their interest in participating in the study by emailing or cell phone texting the phrase, “I consent,” to me within 10 days of receiving the informed consent form. I sent out a reminder to all the interested parties who were slow to respond.

I called all participants to arrange interview dates, times, and meeting places to conduct interviews. If a face-to-face interview was not possible with a participant, I recorded telephone call or complete a skype meeting to conduct the interview. Before performing the interviews, I provided each participant with a copy of their signed consent for their records. The informed consent included the participants' right to withdraw from the study at any time if they became uncomfortable or disinterested.

Data Collection

The data collection was completed from a sample population of informal caregivers who cared for older adults diagnosed with UTIs. This selected population was relevant to the study due to their experiences working with older adults with UTI's a significant period. Data were collected using the telephone, and conducting one-on-one, face-to-face in-depth interview sessions.

The plan was to conduct interviews with participants in a familiar setting where the participants will feel comfortable. A digital recorder was used to record the data as the primary device for the recording, and I did observational notetaking. However, due to the COVID-19 pandemic, I also made other preparations to collect data. I obtained data through electronic mediums such as telephone interviews.

NVivo is a qualitative data analysis computer software used to handle small and large volumes of qualitative data. After collecting data, I used the NVivo software to organize and analyze the data. Using the NVivo software allowed me to classify, sort, and arrange the information. The NVivo software also examine the relationships in the data collected (Bergin, 2011; QSR International, 2008).

Data Analysis

After all the interviews are completed, the data collected were transcribed and sorted into categories. One of the essential tasks in conducting research is combining, processing, and analyzing the data obtained for evidence of pattern from the study (Codd et al., 2011). I reviewed the data to gain an in-depth understanding of the data collected. Following the data review, I also coded the data. Elliott (2018) reiterated that coding is a process in qualitative research; and it is one of the fundamental aspects of the analytical process and how researchers break down their data collected to make something new (Elliott, 2018). Coding is organizing and sorting qualitative data, and it is the second step in data analysis (Stucky, 2015). After transcription, I ensured that all participants received the transcribed data to review for confirmation accuracy through mail or email.

Issues of Trustworthiness

Trustworthiness refers to the notion of confidence in data, interpretation, and the methods used to ensure the quality of the study (Pilot & Beck, 2014). To establish trustworthiness in my study, I (a) established trust with the participants, (b) ensured that notes were taken correctly), (c) clarified with the participants the procedures that (d) explained my role and relationship with the participants, (e) transcribed all interviews word-for-word (verbatim). Trustworthiness is vital to the confidence that the reader/s may have in the study's findings (Conelly, 2016).

Moreover, Cope (2014) reminded readers that qualitative research's trustworthiness (truth value) and transparency in conducting any study are crucial to the findings' usefulness and integrity. The criteria for reliability in qualitative research include credibility, dependability, confirmability, and transferability (Conelly, 2016).

The researcher must be able to show trustworthiness through validity:

- ***Credibility***-truth of the date and interpretation of the data by the researcher.
- ***Dependability***-consistency of the data and the ability to be replicated.
- ***Transferability***- findings may be applied to other findings.

- ***Authenticity***-The researcher's ability to express the participants' feelings and emotions when performing a qualitative study (Cope, 2014).

Establishing Credibility

Credibility is about the truth of the data collected or the participant's views and the researcher's interpretation and representation (Polit & Beck, 2012). Credibility is enhanced when the researcher describes his experience and verifies his research findings with participants (Cope, 2014). According to Sandelowski (1986), a qualitative study could be credible if the human experiences shared are acknowledged by others who share the same experience.

Triangulation could be used to enhance the credibility of a qualitative study. Triangulation is a qualitative research approach to test the validity of the various information from different sources (Carter et al., 2014). Triangulation is a qualitative research strategy used to test the various information gathered from other sources (Carter et al., 2014). Carter et al. (2014) stated that triangulation involves collecting data from multiple people, including individuals, groups, families, and communities, to gain various perspectives, and validation of data. In this study, I gathered data through interviews with different individuals who agreed to participate in the study.

Peer Debriefing: A qualified peer researcher uses peer debriefing to review and assess transcripts and the themes of a given study's findings (Janesick, 2015). Peer debriefing lends support to the credibility of the data in qualitative research and provides a means to establish the trustworthiness of the findings (Lincoln & Guba, 1985). Peer debriefing also confirms that the results and the study's interpretations are worthy, honest, and believable (Spall, 1998).

Establishing Transferability

Transferability is the ability to apply knowledge to practice (Korstjens & Moser, 2017). As a researcher, I prepared a complete description of the contributors who participated in the research process. Other responsibilities as a researcher were to enable the readers to assess whether my findings were transferable to their settings. A revolution implies that the reader makes the transferability judgment and not the researcher (Korstjens & Moser, 2017). The researcher could apply the findings of a qualitative study to other settings or groups. In that case, the investigation has met the criterion if other individuals who were not a part of the study could benefit from the study (Cope, 2014). Transferability provides the readers with evidence that the research study's findings could apply to other contexts, situations, times, and populations (Cope, 2014).

Establishing Dependability

Dependability is achieved through concurring with the decisions made at each stage of the study (Korstjens & Moser, 2018). Dependability involves the participants evaluating the study's findings, interpretations, recommendations and finding support by the data received from participants who participated in the survey (Korstjens & Moser, 2018). Another method to establish dependability was to utilize the audit trail. This is a method that enhances dependability ensuring that the data collected is accurately recorded and stored safely. It includes interview and observation notes; audio tape of the interviews, documents and records collected, informed consent, and any other pertinent and related information (Leung, 2015)

Member checking is a method used to explore the credibility of research (Birt et al., 2016). The participants were allowed to review and verify their stories for accuracy (Harper & Cole, 2012). Some benefits or advantages of member checking include verifying the findings' entirety- a measurable tool for the findings' accuracy (Birt et al., 2016). Member checking is integral to qualitative research's quality process (Harper & Cole, 2012). As a researcher, I ensured my research study's accuracy by restating or summarizing the information and questioning the participant to ensure accuracy (Harper & Cole, 2012).

Triangulation

Triangulation is multiple data sources or other data analysis approaches (Salkind, 2010). Triangulation can increase the credibility and validity of research findings (Noble & Heale, 2019). Triangulation can improve research by allowing different datasets to explain the other areas of the phenomenon of interest (Noble & Heale, 2019). By combining theories, methods, or observers in the research study, triangulation can help ensure that biases are overcome (Noble & Heale, 2019). Also, triangulation is usually associated with examining data from interviews, focus groups, or other sources (Salkind, 2010).

Establishing Confirmability

Confirmability is the method of neutrality within a research paper (Korstjens & Moser, 2018). Researchers confirm that confirmability requires the researcher to be able to demonstrate how they arrive at their conclusions and interpretations, and that the researcher should be able to demonstrate that the data collected is a representation of the participation of the participants and not the biases or the viewpoints of the researcher (Cope, 2014; Ryan et al., 2007). Confirmability is established when credibility, transferability, and dependability are reached (Ryan et al., 2007). To achieve confirmability, the researcher must demonstrate that the research results are linked to the conclusions in a way that can be followed and replicated (Moon et al., 2016).

As a researcher, I was responsible for providing a complete set of notes related to decisions made, reflective thoughts, sampling, collecting data, and managing data collection- among other things (Korstjens & Moser, 2018). As such, I maintained a journal continuously throughout the research. To establish confirmability in this study, I used reflexive journaling and transcript review.

Reflexive Journaling

Journaling in qualitative research is the process of participants sharing thoughts, ideas, and feelings through writing and other appropriate mediums (Hayman et al., 2012). Furthermore, journaling is an acceptable method to collect qualitative data in research to record the participants' experiences, and advance productive conversation (Hayman et al., 2012). The use of journaling was vital for me as a researcher because it allowed me to 'maintain a transparent record of the research path until completion of the study (Korstjens & Moser, 2018). Besides, by maintaining an acceptable journal record, other researchers can review it to conclude the same research (Cope, 2014).

Transcript Review: I used two techniques for this study to enhance the research's confirmability. The first was the interviewee transcript review. A transcript review is a process where the interviewees are provided with a verbatim transcript of their interviews (Hagens et al., 2009). Verbatim is a faithful reproduction of the aural record- an indisputable recording of the interview (Poland, 1995). The interview transcript is done to verify the accuracy, the opportunity to correct any errors and inaccuracies, and provide clarification (Hagens et al., 2009). Using these techniques can help provide essential and valuable information on understanding the data gathered.

Ethical Procedures

I obtained approval from the Walden University's Institutional Review Board (IRB) to conduct my research study. All participants who volunteered to participate in the survey were 18 years and over. I also maintained the participants' confidentiality by assuring them that their names would not be used when the interview was audio recorded. The use of a pseudonym would identify all participants. Unique aliases marked audio recordings for confidentiality. Participants participating in the study did not bring or pose any problems with their line of work or personal lives.

When the respondent knows that confidentiality is essential, it is easier for future or further discussion if needed (Kaiser, 2009). I took steps to maintain strict confidentiality during the collection of data. Specific steps were followed to secure all data collected, whether hard paper copies or electronic. Data privacy was ensured using password protection and sealed envelopes to secure paper data in a secure place. The participants were required to refrain from using the names of sites, persons, or other sources that could be a means of identifying participants.

At the end of the study, I retained the research paper and electronic data from the approval date. The data collected is securely held for five or more to, at the most, seven years. I will destroy all data collected electronically and via paper data at time of expiration. I will also delete any audio recordings obtained while gathering data.

Summary

In Chapter 3, I described the research methodology used for this generic qualitative study. Next, details of the generic qualitative approach and rationale were outlined. This generic qualitative inquiry used an attribution theory practice explored by Heider (1958). This generic qualitative research method allowed the researcher to identify and report the in-depth review of informal caregiver experiences among older adults with UTIs. Chapter 3 also addressed the research design, rationale, research question, the role of the researcher, researcher bias, methodology, participant selection logic, and instrumentation. In addition, Chapter 3 addressed the use of semi-structured interviews, the procedure for recruitment, issues of trustworthiness, credibility, transferability, dependability, confirmability, and ethical practices.

In this chapter, I sought to capture the lived experiences of informal caregivers' observing and reporting to doctors, observable behavior changes in older adults, unusual symptoms of potential UTIs. I chose this method because of the complexity of UTIs in older adults and the need to understand informal caregivers' experiences who provide care for this population. The study's participants were chosen based upon specific criteria such as informal caregivers' experiences caring for older adults with UTIs and their age eligibility. I used semi-structured interviews as the main instrument to collect data through open-and closed-ended questions. Chapter 4 will provide the final and specific details of the study related to the research question (s).

Chapter 4: Data Analysis

I conducted this study to develop an understanding of informal caregivers' experiences in observing and reporting to doctors the observable changes of behavior in older adult patients that were later linked to unconventional symptoms of potential UTIs. For this study, I employed a generic qualitative approach to address the following research question: What are informal caregivers' experiences of observing and reporting to doctors observable changes in older adults that may be associated with unconventional UTI symptoms?

Chapter 4 is organized into several sections that include reviewing the qualitative data analysis techniques used and presenting the findings according to the themes revealed in the analysis. In this chapter, I also discuss the setting, demographics, data collection, evidence of trustworthiness, results, and summary.

Setting

I carried out this research study in the state of Georgia. While recruiting participants, there was a growing number of issues regarding the COVID-19 pandemic because the country was still experiencing isolation due to the virus and people were concerned about face-to-face meetings. It was difficult to get responses from potential participants because there were some challenges with arranging the interviews due to the participants' work schedules as well as fear of participating and talking about what they do. Therefore, I conducted interviews as participants became available.

The participants selected their preference of interview style. Some participants selected an interview by telephone because of their personal time constraints and schedule availability. All telephone interviews were conducted in a private and confidential environment. Three interviews were done face-to-face, and three were audio-recorded phone interviews. Aside from COVID-19 concerns, there were no disturbances or conditions that could have potentially restricted collecting the data or the results of the research study.

Demographics

The sample included six African American women caregivers. All participants were caregivers of patients who had UTIs. Four participants administered care to family members, and two administered cares to a friend and neighbor. Five of the participants had more than 5 years of experience with caregiving, and one had 10 months of experience. Of the six patients cared for, three were African American and three were European American. Three of the patients had a catheter placement, and three did not have a catheter. As indicated in Table 1, two of the caregivers were students, one caregiver a social worker, another caregiver was a chaplain, and two were certified nursing assistants.

Table 1

Participant Demographics

Pseudonym	Age	Education	Role	Characteristics
Roses	45	Bachelor	Caregiver/student	Has a strong passion for the older population and would encourage others to do it.
Lilly	62	Certificate	Caregiver	Worked privately as well as personally caring for older adults diagnosed with urinary tract infections.
Jasmine	53	Master	Caregiver/student	Caring for elderly father, with the assistance of her sister. She could not imagine caring for her father by herself.

				Pursuing a master's degree in public health.
Green Plant	62	Certificate	Caregiver	Enjoys being a caregiver despite the everyday uncertainties that come with it. When she sees her patient smiles or express appreciation to her, it makes her fulfilled.
Tulip	57	Master	Caregiver/social worker	Caring for her mother was a complicated one. Her experiences as a nurse became helpful in caring for her mother. As an only girl she was expected to care for her mother as her male sibling did not think that it was something for them to do.
Peony	60	Bachelor	Caregiver chaplain	Cares for her elderly parents at home.

Data Collection

I posted recruitment flyers on church bulletin boards in Georgia. Participants who were interested contacted me through my Walden University email address. I prescreened each potential participant through email to ensure that they met the criteria inclusion (see Appendix C). If the person agreed to participate, I scheduled an interview at an agreed upon time and date and emailed them the consent form. A folder was maintained for each participant labeled by code name and contact information to safeguard their confidentiality. Face-to-face interviews were scheduled at a convenient time and in a private location as agreed upon by the study participants. I gave all the participants the informed consent form prior to the scheduled interview and asked them to return the consent form as a scanned document via email or texting. Before conducting interviews, I reviewed the consent form with the participant; informed them that they could withdraw at any time without any question, coercion, or judgment; and ensured them that each participant's anonymity would be maintained. After the interviews were completed, I thanked each participant for volunteering to participate in the study.

I completed the data process over a 6-month period. No participant that was scheduled for an interview withdrew from the study or did any participant experience any emotional distress from revisiting their work experience. Each of the interviews followed the same protocol and procedures with no significant deviation from the research topic. At the conclusion of the interviews, the study participants were asked to share the contents of the flyer with other people who could become possible study participants. The data collection process did not deviate from the plan presented in Chapter 3.

Data Analysis

To analyze the collected data, I followed the descriptive qualitative analysis process outlined by Braun and Clarke (2018). The process involved the specific phases of thematic analysis, which provided a clear data analysis design that allowed me to highlight the participants' voices while summarizing the data. The data comprised the six transcribed interviews, of which three were in person and three were via audio-recorded telephone call. Upon completion of the data analysis, I compiled a summary of the emergent themes, which is described in the Conclusions section of this chapter. For the qualitative thematic analysis, I incorporated Braun and Clarke's six steps of thematic analysis: (a) familiarization with the data, (b) generating initial codes, (c) searching for themes, (d) reviewing themes, (e) defining and naming themes, and (f) producing the report.

As noted earlier in the study, I conducted phone and in-person, one-on-one interviews with the six informal caregiver participants. The interviews were transcribed and uploaded into Nvivo qualitative analysis software, which provided me with an organized workspace in which to conduct the analysis. As the first phase in the analysis, I became familiar with the data by reading and re-reading the interview transcripts several times. For the second phase, I began to generate codes while reviewing the interview transcripts. This phase provided me with the opportunity to use a coding scheme for the coding process, allowing for searchability and summarization of the data. All relevant participant statements were coded into categories by me in this phase. After all interviews were coded, I reexamined the categories to identify any similarities, overlaps, repetition, or redundancy and allow for the creation of more condensed thematic data. From these categories, several key themes emerged that represented the key participant responses. The key categories that emerged from the participant responses to the interview questions were: (a) informal caregivers' experience, (b) key symptoms of UTIs observed and reported by caregivers, (c) observable behavioral and mental state changes in patients by caregivers, and (d) caregivers' experiences communicating with medical professionals.

Evidence of Trustworthiness

Trustworthiness refers to the notion of confidence in data, interpretation, and the methods that are used to ensure the quality of the study (Pilot & Beck, 2014). To establish trustworthiness, I established trust with the participants, ensured that my notes were taken correctly, clarified the procedures for the interviews with the participants, explained my role and relationship with the participants as the researcher, and transcribed all interviews word-for-word (verbatim). Trustworthiness is vital to the confidence that the readers may have in the study's findings (Conelly, 2016). Cope (2014) stated that in qualitative research, trustworthiness (i.e., the truth value) and transparency in conducting any study are crucial to the findings' usefulness and integrity. In qualitative research, trustworthiness is supported by the necessary supporting evidence of credibility, transferability, dependability, and confirmability (Conelly, 2016; Pilot & Beck, 2014; Symon et al., 2018).

Credibility

Credibility refers to the truth of the data collected or the participant's views and the researcher's interpretation and representation (Polit & Beck, 2012; Temple et al., 2017). Credibility is enhanced when the researcher describes their experience and verifies their research findings with participants (Cope, 2014). Sandelowski (1986) noted that a qualitative study could be credible if the human experiences shared are acknowledged by others who shared the same experience. In qualitative research, credibility has to do with the accuracy and correctness of an honest reflection of the phenomenon as described (Birt et al., 2016; Hammarberg et al., 2016). As such, it was important that I put aside my biases and analyze data from the lived experiences of the participants. In addition, I used member checking to broaden the quality of trust in the research by probing the participants' responses for additional explanations as needed. Member checking was employed to afford the participants the chance to comment on the final report and better analyze the data collected.

Transferability

Transferability refers to the ability to generalize the findings outside of the settings or conditions (Cope 2014; Morse, 2015). Transferability provides the readers with evidence that the research study findings could apply to other contexts, situations, times, and populations (Cope, 2014).To ensure and strengthen the transferability of the current study findings, I provided a description of the participants’ experiences to allow other investigators to have sufficient facts regarding the scope and purpose of the study. By doing so, other investigators will be able to create a comparative analysis. The data and findings of the study are presented in a detailed manner for the purpose of the readers to be emotionally connected to the study. During the interviews, I used a journal to capture the thoughts of the participants as I watched them and maintained the interview recordings and interview notes.

Dependability

Dependability is achieved through concurring with the decisions made at each stage of the study, the consistency and stability of the findings, and the interpretation, and recommendations of the study, (Korstjens & Moser, 2018; Noble & Smith, 2015). I increased the dependability of the current study by conducting an audit trail of the collected data that was sent to the participants for them to approve. I listened repeatedly to the participants’ responses on the audio-recording devices to gather the important points they made as well as cross validate their responses for accuracy in the transcription.

Confirmability

Confirmability refers to the ability to check the results of the study based on the participants’ experiences as opposed to the preferences of the researcher (Cope, 2014; Harper & Cole, 2012; Korstjens & Moser, 2018; Ryan et al., 2007). All the participants of the study responded to the same questions and reviewed their transcribed interviews to address the issue of confirmability. Additionally, I bracketed out any of my personal biases to reduce the probability of a flawed analysis as it relates to the lived experiences of the participants. Bracketing was achieved using reflexive journaling where I recorded my thoughts and reactions during the process of data collection. I established transparency by including a clear and precise description of the sampling techniques and presentation of the research process in the narrative of the study (see Cope, 2014; Liao & Hitchcock, 2018).

Results

All participants voluntarily provided a comprehensive description of their lived experience providing care to older adults diagnosed with UTIs. The participants did not experience any major discomfort during the interview sessions. Each participant expressed their enthusiasm, emotions, and passion as she advocated for her patient. From analysis, I identified six major themes as it relates to the participants' experiences as caregivers of patients diagnosed with UTIs: (a) advocacy, (b) reversed caregiving relationships, (c) close relationships and daily observations, (d) key symptoms observed and reported by caregiver's indicative of UTI, (e) behavioral or mental status changes observed and reported by caregiver's indicative of UTI, and (f) positive and responsive experiences with health care providers.

Theme 1: Advocacy

Related to the notion of providing care for older adults as an act of respect for that person's humanity, caregivers described the need to serve as an advocate for the patient. This perceived need stemmed from the acknowledgement and understanding that the older adult patient may not be able to communicate for themself. The caregiver accepted the responsibility of seeking help for her patient from any pertinent medical person as she tried to convey the observable changes in the patient.

Theme 2: Reversed Caregiving Relationship

A specific challenge in caregiving to a parent or grandparent is the difficult dynamic that arises when the caregiving relationship reverses direction (from parent caring for child to child caring for parent). In this scenario, the parent becomes resistant to receiving care from their children. The care also becomes difficult to administer because the patient argues and tries to establish who the parent is versus who is the child.

Theme 3: Close Relationships and Daily Observations

The close nature of the informal caregiving relationship and the long hours spent observing the patient allows for recognition of changes in behavior or health status more quickly by identifying uncharacteristic behaviors and symptoms of infection. The caregiver understands that their role enables them to be aware of changes that may indicate a problem, and therefore, they remain exceedingly attentive.

Theme 4: Key Symptoms Observed and Reported by Caregivers Indicative of UTI

Given the described inability of patients to express their own pain or health status changes, the caregivers’ observations as individuals who were close in relationship and everyday experiences with the patient were critical to providing timely appropriate care, particularly when it came to potential new UTIs. These observations included pain, discomfort, or burning sensation on voiding; behavioral and mental status changes;

changes in the color, consistency, and odor of the urine; fever; and incontinence. These symptoms were reported by the caregivers to the health care providers.

Theme 5: Behavioral or Mental Status Changes Observed and Reported by Caregivers Indicative of UTIs

The caregivers are in a position to easily recognize changes in patient behaviors that often clue them in to the potential UTI. These critical changes in behavior or mental status included confusion; agitation; aggression; lethargy and excessive sleepiness; loss of appetite; mood changes; and other unusual behaviors, such as refusal type behaviors.

Theme 6: Positive and Responsive Experiences with Healthcare Providers

The health care providers were perceived as responsive, receptive, and appreciative of the caregiver observations, reports, and communications. The health care providers welcomed and valued the information from the caregiver. The health care providers also responded satisfactorily to the caregivers' communications regarding the changes they observed in their patients.

Experiences of Informal Caregivers

Experiences of informal caregivers vary based on the age, health, and the type of medical issues associated with each patient. For example, the participants described their experiences as frustrating, stressful, overwhelming, and burdensome within their informal setting. Some of the participants described duties and responsibilities as aiding the patient with personal hygiene, getting dressed, and other basic care related to activities of daily living. Another aspect of their care was providing companionship to the older adult in need, which was outside of their vision to help their clients. For example, participant

Peony described her relationship with her patient/client, which at first was truly simply one of companionship that turned into a strong, trusting friendship. Peony stated:

> First, I started out with her with just being a companion. She just wanted someone to go to lunch with, shopping with, just needed a body because her husband was very ill. And she just needed another outlet. So, we came to have a very good relationship, rapport and so we had a very, very good relationship. We laugh and have good rapport. I love to garden so I went, and I started a little garden for her in pots so that she could have something to occupy her time and to stimulate her and you know she enjoyed that. And we can talk; I'm a Christian, so I can talk bible and she's also a Christian, but a different religion. So, you know we enjoyed just the companionship that we shared. It was a very, very good relationship. She trusted me a lot.

There was mention of the difficulties experienced and the frustrations associated with providing personal care among caregivers, particularly for preventative care that should be implemented in assisted living or other settings to account for the patients' or residents' inability to communicate their health needs. Rose stated: "Preventative care or preventative measures should be implemented because the residents are unable to express their feelings of pain or discomfort or even a change in their environment or bodies". And when the researcher asked how that made her feel as a caregiver, Roses responded "I feel frustrated."

The caregivers described doing this work out of respect for the dignity of the person and a professional philosophy that supports the idea that everyone deserves to be cared for. Green Plant described:

> They're human, just like we are, and I say it's like the cycle of life to me. They took care of us when we were babies, and you know, the cycle of becoming a child, teenager, and adult, then back to the baby. They took care of us, so it's our turn to take care of them, regardless of if they are related to us or parents or whatever, or they’re strangers. I feel like to be in this profession of being a caregiver, whether you are a nurse, doctor, or whatever, somebody must care about somebody enough to take care of them.

Related to respect for the person and the patients’ inability to communicate and express their needs or pain, caregivers described the need to serve as an advocate for the patient. Advocating for their patient is another key activity of informal caregivers. Jasmine noted:

> My priority is my patient. I care for my patient. It is the priority. And I fight for the welfare of my patient. Like if my patient is not doing well, if they [medical providers] are not doing the right things, I will push till they [patients] get the right care and if the family must call the hospice, I do the best for the patient. Cause I know one day we'll be like them. We always must do the best for our patients.

However, one unique frustration or challenge described was the difficult dynamic that exists when a child is providing care for their parent, and the caregiving relationship is reversed. The parent (older adult in need of care) often becomes resistant to receiving care from their child, for whom they feel they should provide care for. Tulip described this dynamic:

> Well, I think that with my experience it was very difficult because it was my mother. And sometimes when a child takes on the parental role, it becomes very difficult for the parent to accept and so she gave me a lot of stress in everything that I asked her to do. It was very difficult. I remember even times when she told me I'm your mother, you're not mine. But I'm the one that must care for you and you're making it hard on me.

The informal caregivers in this study universally described a focus on the patient, patient care, and observing the patient. The participants further described focus on the inclusiveness of many hours of care and observation, that allowed the caregivers the ability to recognize when the patient's behavior or health status was uncharacteristic or different from the norm. This experience would further allow them to observe the patient more intently and determine whether the patient maybe be struggling with a health concern like a UTI but lacked the ability to express their needs. Similar to the previous notion of advocacy, the caregiver understands that their role enabled them to be aware of changes that may indicate a problem, and therefore, they remain exceedingly attentive. Participant Peony described:

> Also, I think that as caregivers we have to be really attentive to our clients or patients whatever you call them because it is only then that when you develop that kind of relationship that you can catch things on time so that the situation will not

> worse because at the end of the day it is the patient who suffers if you are not attentive to them.

In this way, the participants described key symptoms they observed that clued them into the potential problem of a UTI and the need to advocate for them to get the care they need.

Key Symptoms Observed and Reported by Caregivers

The informal caregivers in this study described the patients' inability to express their own pain, concerns, feelings, or health status changes. As a result, the caregivers felt strongly that their observations as individuals who were close in relationship and in everyday experiences with the patient were critical to providing timely appropriate care, particularly when it came to potential new UTIs. These observations included pain, discomfort, or burning sensation on voiding; behavioral and mental status changes; changes in the color, consistency, and odor of the urine; fever; and incontinence UTIs also contributes to increased functional disabilities, mental status changes, urinary, and fecal incontinence, prostate disease in men, and estrogen deficiency in older women (Balogun & Philbrick, 2014; Tang et al., 2016). Critical to this study, these observations included behavioral and mental status changes in the patients detected by the caregiver because of the unique level of familiarity with the patients in their normal state

Behavioral and Mental Status Changes A key subcategory of the symptoms observed and reported was that of noted behavioral changes in the patients. These behavioral changes were described in some way by all six of the caregiver participants. The caregivers, who spent so much time with the patients easily recognized changes in their behavior that often clued them in to the potential for a UTIs. Other r changes were mentioned by only a single participant in this study (i.e., not noted commonly across the six participants). The commonly reported changes in behavior and mental status included confusion, agitation, aggression, lethargy, loss of appetite, mood changes, sleepiness, and other unusual behaviors.

These characteristics displayed the patients, were noted by two or more interview participants. Commonly noted changes in behaviors were more in length than other noted changes in behaviors. The other noted changes in behavior were short because it's more of a psychological behavior usually not the scope of practice for an informal caregiver. To understand these observed changes, this section will discuss and provide textual examples of the description offered by the participants in this study.

Confusion

The most noted symptom described by the participants as a sign of a UTI or something else "wrong" with the patient, was patient confusion. These observed changes in the patients were often described in the context of other symptoms such as lethargy, fever, or being disgruntled. Participant Peony described how the confusion was worrisome and was a signal to call the doctor, "Some confusion was going on. And then I said, no, let me call her doctor. And I called him and I told him that her behaviors were different and I am concerned." Similarly, participant Tulip described how the confusion led her to believe her patient may have a UTI. She described:

> So she started with some confusion, which is what led me to believe that she might have UTI and I started looking for it. It was the confusion, and she was very disgruntled, and so those were some of the things that really triggered me to say let's see what else is going on here. I need a urine analysis done, some blood work.

Agitation

Another common observation was agitation, which also was sometimes noted along with the confusion. This was an agitation that was noted to be distinctly different from the normal behavior of the patient. Participant Lily described, “I noticed that they get agitated, confused. They don’t behave the way they normally behave.” Further explaining this description of agitation and abnormal behavior, participant Jasmine compared it to when a baby cries because they cannot express what is wrong any other way. Jasmine said:

> When the patient has a UTI, they start behaving abnormally. They are agitated. Most of the time from the experience I have, and how I’ve seen them, it is like, I'll give you an example, it is like when your baby is crying and you try to find why the baby is crying. And from the experience I have most of the time- these elderly people are agitated. These behaviors signify that something is wrong, just like they do for a baby who cannot express their needs by him or herself.

Aggression

Sometimes the agitation would be reported along with aggression. Again, participants noted the likely cause was from discomfort that the patient was not able to communicate to the caregiver. Participant Roses described several of these symptoms at once, stating:

> There is a change of behavior. There’s a high level of discomfort that she is not able to explain. Okay, so she will get more agitated, more verbally abusive, exhausted. She would sleep more. … [She would become] combative and refusing perennial care and refusing to eat.

Similarly, participant Jasmine reported this type of aggression would sometimes escalate from refusal to do something to “even fighting and aggressiveness.”

Lethargy and Sleepiness

As noted above by participant Roses, the study participant caregivers commonly reported lethargy and sleepiness within these uncharacteristic behaviors that served as a warning that something was wrong. Often the participants reported that patients were “sleeping more.” Participant Peony reported these types of lethargic, unusual behaviors, describing:

> Confusion, fever, [and] lethargic behavior; she didn’t have the energy or motivation to get out of bed. For that entire day she slept in bed and that was not her. She would [normally] wake me up saying where are we going today?

Very similarly, participant Peony described this lack of energy and lack of motivation, stating, “Well, first I noticed that she had lack of energy, no motivation to go outside and she loved going outside. She just wanted to sleep and then you know, her symptoms were very rapid.”

Loss of Appetite

Another symptom described by the participants as often following lethargy and sleepiness was a loss of appetite. According to participant Peony, the patient lacked motivation to the point of not feeling like doing anything, even eating. Peony described, “I noticed that I was motivating her to get up. “Oh, I don’t feel like getting up.” She didn’t feel like eating.” Likewise, participant Lily described, “Sometimes they don’t have appetite to eat or drink. I’ll try to convince them, to help them, to explain to them that they need to eat or they need to drink. … [I] try to encourage them.” This lack of motivation or desire to eat or drink was reported as another symptom indicating a possible UTI.

Mood Change

Some other changes in patient behaviors observed by participant caregivers that caused them to become concerned enough to attribute the change in behavior to the possibility of a UTI included mood changes. According to participant Green Plant, “Sometimes her mood changed.” This participant described how the mood changes indicated something was wrong and initiated getting medical assistance.

> I just noticed about the mood swing and stuff and the way they act, and I can tell when something is wrong. And I'm like, something is wrong and I wonder if she has a UTI, because that causes them to act different and everything. I'll tell them [healthcare providers], I think she has a UTI and everything, and um, she will call the doctor and the nurse will come out and stuff and check on them [the patient] and so forth, and then they'll go from there.

Other Unusual Behaviors

The caregivers in this study described numerous other unusual behaviors that may signal to them a UTI or other problem, behaviors such as defiance and doing things they do not normally do. This was summed up well by Jasmine, who noted how the patient may start with a slight temperature, but then begin to show some unusual behaviors, which in turn clue her in to the possibility of a UTI.

> Sometimes some of them may start having the temperature or so, but some of them, since they cannot say what is wrong with them, they just keep moving,

> giving you hard time; you ask them to sit, and they want stand. … They do things they didn't used to do to give you hard time. Then find out it is UTI. Most of the time they find out it is UTI.

Once the caregivers begin to notice these unusual behaviors, based on the caregiver's everyday knowledge and experience with the patient, they often seek medical advice or care for the patient, which allows the patient to receive care more quickly.

Experiences Communicating to Medical Professionals

Regarding the caregiver communicating to the patient's medical providers, the caregiver participants in this study reported very positive experiences. The health care providers were perceived as responsive and appreciative of the caregiver reports and communications, welcoming the information from the caregiver and making the caregiver feel valued. Participants highlighted experiences that were positive and practitioners who were responsive and receptive to their observations. Participant Peony reported:

> They were receptive. They welcomed the fact that I am reaching out to them and they immediately told me that we have an appointment that we can fit you in that afternoon. So, the response from them was very satisfactory. The experience was positive and [we received an] immediate response from them.

Similarly, participant Lily described the same positive response, even stating that the health care professionals depended on her to report the status of the patient and any change.

> They always respond positively and order Home Health to come and take samples of urine for testing to confirm for what they’re suspecting. … They would depend on me to tell them what is going on with the patient. … They seem to understand and try to work with me.

Finally, the practitioners were described as understanding the signs and symptoms that the caregiver related to them. Participant Roses stated, “They are very clear. They understood what I was talking about as I related the signs and symptoms.”

Conclusion

This chapter outlined the data analysis process and findings resulting from a qualitative thematic analysis of the data obtained from six interviews with informal caregivers. The findings presented six themes that were revealed from the expressed perceptions and experiences of the participants. These themes included: advocacy, reversed caregiving relationship, close relationship and daily observation; key symptoms observed and reported by caregiver’s indicative of UTI, behavioral or mental status changes observed and reported by caregiver’s indicative of UTI, and positive and responsive experiences with healthcare providers. The caregiver participants in this study expressed a drive for doing this type of care stemming from a deep respect and dignity for the older adult persons and even humanity more generally. In Chapter 5, I discuss the interpretations of the findings as related to the theoretical framework and literature as outlined in Chapter 2. In Chapter 5, I will discuss the limitations of this study, recommendations for future research, the implications for social change, and, the conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this generic qualitative study was to identify and report informal caregivers’ experiences in observing and reporting to doctors, observable changes of behavior in older adults that were unconventional symptoms of potential UTIs. The six participants were female caregivers who provided care for patients, relatives, friends, or neighbors who were diagnosed with UTIs. I used Heider’s (1958) attribution theory as the theoretical framework of this study.

The participants were interviewed in person and via the phone after discussing their interests and completing a demographic checklist to gather pertinent information surrounding their background as informal caregivers. Scheduling appointments for interviews was difficult due to some participants who worked more than one job. I conducted audio-recorded interviews following the required interview protocols by asking semistructured questions after obtaining each participant’s informed consent. Each interview lasted about 40–60 minutes. Each participant received a heart-felt thank you at the completion of each interview with the knowledge that there might be a follow-up interview for confirmation of their responses.

Once all interviews were completed, I asked the participants to review the word-for-word transcript of their interview to ensure its accuracy. None of the participants opted to make any changes or additions to their transcripts. Each participant had the opportunity to stop participation at any time and withdraw herself from the study without judgement. All the participants responded to all 11 of the interview questions. After the data collection process was completed, I created and documented the emergent themes:

advocacy, reversed caregiving relationships, close relationships and daily observations, key symptoms observed and reported by caregiver’s indicative of UTI, behavioral or mental status changes observed and reported by caregiver’s indicative of UTI, and positive and responsive experiences with health care providers.

The participants’ experiences were unique to each one of them separately, but all of them relied on their work experiences to share their story. Each participant spoke about the positive and negative experiences of caregiving throughout the interview process. However, I also observed that all the participants loved being a caregiver and were advocates for their patients in their own rights.

Interpretation of the Findings

Responses from each participant validated and invalidated the findings based upon the literature. All the participants shared their experiences caring for older adults diagnosed with UTIs. Heider (1958) shared that attributions are daily occurrences that determine people’s understanding of their surroundings and their reactions to their surroundings. Heider’s model relates to my present the current study because each participant observed and described their experiences as they observed occurrences of change in their patients.

UTI is a noncommunicable infection that some older adults experience as they age (Beard & Bloom, 2015; Grimmer et al., 2015; Zambrana et al., 2019). Zeng et al. (2018) reported that more than 40% of older adults experienced UTIs. Gbinigie et al. (2018) noted that UTIs in older adults can affect them physiologically and physically. UTIs contribute to increased functional disabilities, mental status changes, urinary and fecal incontinence, prostate disease in men, and estrogen deficiency in older women (Balogun & Philbrick, 2014; Tang et al., 2016). UTIs can decrease the daily QOL in older adults by adversely affecting their social and personal relationships and their physical and psychological health (Renard et al., 2014; Schaeffer & Nicolle, 2016; Wagenlehner et al., 2018).

Each of the participants described her lived experience as having the ability to observe changes in their patients and reporting the observed changes to the patient's appropriate medical practitioner. For example, all participants contacted the patient's medical provider and described their experiences communicating with medical providers. All the communications were positive, although some practitioners were sometimes difficult to contact.

The informal caregivers in this study described the patients' inability to express their own pain, concerns, feelings, or health status changes. As a result, the caregivers felt strongly that their observations as individuals who were close in relationship and everyday experiences with the patient were critical to providing timely appropriate care, particularly when it came to potential new UTIs. These observations included pain, discomfort, or burning sensation on voiding; behavioral and mental status changes; changes in the color, consistency, and odor of the urine; fever; and incontinence. This type of response to the patients' care is an example of observation applied to their environment as it relates to the patient's change in behavior. Knoweles et al. (2016) validated that informal caregivers are often the first ones to notice illness or behavioral changes in older persons for whom they provide care. Informal caregivers are vital to the support and maintaining care for older adults' health and wellness (Tang et al., 2018). Each participant in the current study showed a strong sense of care for their patient despite their experience. Heider (1958) provided a clear description of how people perceive, analyze, and respond to others, sharing that before people can assign causality to any event, the contributing factors needs to be assessed.

Relationship of the Results to Attribution Theory

I used the theoretical framework of attribution theory as a lens through which to view caregivers noting and reporting observable changes in behavior and unconventional symptoms of UTIs. The fundamental premise of attribution is to attribute causes to the behavior of others (Heider, 1958). The literature is limited on informal caregivers' experiences providing care to older adults diagnosed with UTIs. However, studies have shown that by the year 2030, the worlds' population of older adults will be about 1.6 billion (He, Goodkind, & Kowal (2016).

Attribution is used in many contexts with different meanings. Heider (1976) indicated that attribution is a part of human understanding of their environment and that as one becomes aware of their environment, the process of attribution takes place. Heider (1958) also stated that attributions are everyday occurrences that determine people's understanding of their surroundings and reactions. Heider viewed attribution as the result of an assessment of cause and effect based upon patterns of circumstances assumed to have contributed to others' behavior. Heider provided a clear description of how people perceived, analyzed, and responded to others, stating that people used two different attributions (i.e., internal and external attributions) based upon others' observed behaviors. Internal attribution referred to the belief that behavior is caused by personality, disposition, ideas, and other internal factors (Wallace, 2019). Internal factors are the criterion motivated by a person's nature, attitude, and personality, while external factors are driven by situational components, such as luck and task difficulty (Pishghadam & Abbasnejad, 2017).

In this study, the caregivers observed changes in their patients and responded by following up with the patients' health care professionals. The caregivers analyzed the cause and effect and became proactive in the care of their patients. By providing pertinent information to health care professionals, the patient received pertinent medical attention and treatment. As noted in Chapter 2, four of the seven antecedents that Heider (1958) shared were consciousness, observation, effort, and emotions or feelings. These four antecedents were demonstrated by the participants of this study as they became aware of their patient's change in behavior. The caregivers were, in turn, able to make a thorough assessment of their patients.

Consciousness

Consciousness is the self-awareness of a person's behavior, social environment, and outcomes. The informal caregivers' experiences in providing care for the patient allowed them to become conscious of the patient's change in behavior, and thus, they developed a cause for concern for the person observed (Heider, 1958).

Observation

Observation is the thorough examination performed by the observer of another person's behavior in a particular environment where people were active participants.

Caregivers' causal attributions played an essential role in identifying triggers of UTIs as they observed changes in their patients' behavior (see Heider, 1958; Weiner, 2018).

Effort

Effort is the observer's attempt to make an individualized change or improvement of a situation (Heider, 1958). The informal caregivers conducted periodic assessments based on changes observed over some time. At the end of the observation, the informal caregiver had sufficient data and communicated what they observed to the medical professional.

Emotions or Feelings

The observed individual's sentiments are based on the experimental influences, resulting in a positive or negative outcome (Heider, 1958). In this study, the informal caregivers' emotions toward the observed changes in the patient's behavior negatively or positively influenced the situation's results based upon the doctor's information or feedback (see Bavel et al., 2020). In this instance, the patient was experiencing unconventional symptoms attributed to UTIs. The caregiver observed the change in behavior of the patient because the caregiver was familiar with the patient's day-to-day behavior. When there was an adverse change in behavior, the caregiver attributed the shift to a cause.

Previous studies had not been conducted on the topic of UTIs and the caregivers' experience. However, the literature did contain data regarding caregivers' experience caring for patients with other illnesses, such as cancer, COVID-19, and mental health (Dunning & Pownall, 2019; Kadhel et al., 2018; Sagayadevan et al., 2019). To address the gap in literature, the research question for this study was: What are informal caregivers' experiences of observing and reporting to doctors observable changes in older adults that may be associated with unconventional UTI symptoms?

All six participants in the current study answered all 11 interview questions. Overall, observation appears to function as a key component in helping the participants to provide and obtain care for their patients when changes in the patient occur. The positive effect of observation is that the caregiver can attribute the changes observed to mean that something is wrong with the patient that needs attention. The effects of UTIs in older adults can be negative (Gbinigie et al., 2018; Renard et al., 2014; Schaeffer & Nicolle, 2016; Wagenlehner et al., 2018). Studies further showed that UTIs can decrease the daily QOL in older adults by adversely affecting their social and personal relationships and their physical and psychological health (Renard et al., 2014; Schaeffer & Nicolle, 2016; Wagenlehner et al., 2018).

Themes of the Study

Informal caregivers' experiences of caring for older adults diagnosed with UTIs resulted in six common themes as shared by the participants: advocacy, reversed caregiving relationships, close relationships and daily observations, key symptoms observed and reported by caregiver's indicative of UTI, behavioral or mental status changes observed and reported by caregiver's indicative of UTI, and positive and responsive experiences with health care providers.

Limitations of the Study

There were several limitations that arose in this study that should be further investigated. The focus of this research was to identify and report informal caregivers' experiences in observing and reporting to doctors the observable changes of behavior in older adult patients that were later linked to unconventional symptoms of potential UTIs. The data collected are important to the phenomenon under study. Previous research showed that as adults become older, UTIs become a significant health concern that increases in prevalence (Cortes-Penfield et al., 2017; Tang et al., 2019). UTIs account for about 25% of all older adults' infectious disease in the United States (Cortes-Penfield et al., 2017).

One limitation in the study was that all the participants were African American females. This sample limits the generalizability of the study to the women who participated in the study, so the results are not generalizable to all women in the United States. The second limitation of this study was that there were no male participants; therefore, this study may not transfer across to all informal caregivers' experiences.

The third limitation was that the results only included African American women from northeastern region and the metro area of Atlanta, Georgia. Because of this limitation, the results from this study may not be transferred to women of other ethnic backgrounds who could have provided their own individual experiences with caring for older adults diagnosed with UTIs. The data may not represent the complete experiences of all informal caregivers in the United States because there were only six participants in the study. The fourth limitation was my issues recruiting possible participants due to the

COVID-19 pandemic occurring at the time of the study. My ability to gather data was challenged because some of the participants worked more than one job, which made it difficult to schedule appointments for interviews. The fifth limitation was that some participants were reluctant to meet face-to-face for fear of contracting the COVID-19 virus.

The sixth limitation was the difficult development of the interview questions. Conducting a qualitative interview requires an in-depth understanding of the skills needed to obtain meaningful answers from interviewees (Patton, 2015). To confront this difficultly, I followed McGrath et al.'s (2019) 12 tips for conducting qualitative research interviews. These steps included preparing oneself as an interviewer, constructing an interview guide, testing interview questions, talking less and listening more, being prepared to handle unanticipated emotions, transferring the interviews in a timely manner; checking the data, and initiating analysis early.

The final limitation was researcher bias. It was my intention to control my biases using bracketing, but it is possible that my bias may have influenced the collection of the data and its interpretation since I was once an informal caregiver. While I may have had the same or equal experiences as the participants in this study, my beliefs and/or experiences could have influenced the collection of the data and my interpretation of the findings.

Recommendations

In this study, I focused on informal caregivers’ experiences of caring for older adults diagnosed with UTIs. All six participants were African American female caregivers even though that was not my intention as the researcher. All but one of the participants were from the Metro Atlanta region of the state of Georgia and the one caregiver was from the Northeastern region of the United States. Based upon the narrowed geographical area from which the participants were chosen, transferability may not be possible. The size of the participants was small, and it is therefore suggested that a quantitative study be done to continue examining informal caregivers' experiences of observing and reporting to doctors’ observable changes in older adults that may be associated with unconventional urinary tract infection symptoms.

The perception of these six African American caregivers were obtained for this study. I was unable to locate any other research on the lived experiences of informal caregivers caring for older adults diagnosed with UTIs. The experiences were gathered to identify their perceptions and to share their lived experiences caring for older adults diagnosed with UTIs. By understanding the experiences of these female caregivers, it may help to bridge the gap between informal caregivers and medical providers. Amidst this group, there are various age groups (40s, 50s and 60s), it would be useful to follow up with other age groups on their experiences caring for older adults diagnosed with UTIs.

Another recommendation for future study would be to obtain data on the experiences of male and female caregivers of other ethnic backgrounds since this study was based upon the experiences of six African American female caregivers. Other recommendations concerning delimitations of geographical locations, would do well in qualitative research to capture the experiences of informal caregivers in various areas of the United States to help this phenomenon on caring for older adults diagnosed with UTIs. Although the results in this studyshow the experiences of six participants, indications are that further study needs to be done, to understanding this phenomenon.

Research shows that UTIs amongst older adults, UTIs in older adults in the United States is a widespread public health issue (Bardsley, 2017; Beahm et al., 2017; Bing-Johnson, 2016; Chu & Lowder, 2018; Cortes-Penfield et al., 2017; Gbinigie et al., 2018; Knowles et al., 2016; Schaeffer & Nicolle, 2016; Tang et al., 2019). UTI is counted as the most common infection in older adults (Godbole et al., 2020; Rodriguez-Manas, 2020). This research was an in-depth study that sought to identify and report the lived experiences of informal caregivers caring for older adults diagnosed with UTIs. Findings from this study may suggest that there are more caregivers who may be open to sharing their experiences with advocates, human services professionals, or healthcare providers. Future study should include exploring broader number of informal caregivers from different ethnic backgrounds as it relates to informal caregivers' experiences of observing and reporting to doctors’ observable changes in older adults that may be associated with unconventional UTIs symptoms.

Implications for Social Change

The results from this study have implications for positive social change. This study set out to understand and report informal caregivers' experiences in observing and reporting to doctors' observable changes of behavior in older adults that were later linked to unconventional symptoms of potential UTIs. Human services professionals, social workers, and advocates could potentially use the information from this study to advocate for educational seminars and awareness campaigns that educate informal caregivers of some of the atypical or unconventional symptoms of UTIs.

Findings from this study could contribute to the work of previous and current research to promote awareness of the experiences of informal caregivers caring for older adults diagnosed with urinary tract infection. The use of webinars, workshops, table talks, and face-to-face circles of sharing stories may be possible tools of engagement to help other informal caregivers to share their lived experience. The results of this study may provide a future voice, and a platform that will support informal caregivers who provide care for older adults diagnosed with UTIs in the United States.

Several common themes were identified in this study shared by the participants from their experiences such as (a) Advocacy, (b) Reversed Caregiving Relationship, (c) Close Relationships and Daily Observations, (d) Key Symptoms Observed and Reported by Caregivers Indicative of UTI, (e) Behavioral or Mental Status Changes Observed and Reported by Caregivers Indicative of UTI, and (f) Positive and Responsive Experiences with Healthcare Providers. These themes may correspond in future and continued research articles as it relates to informal caregivers’ experience caring for older adults diagnosed with UTIs.

Findings from this study could help advocates, human services professionals, health care providers, and policymakers to consider social change by providing information that could be used to improve the quality of life for older adults. Timely treatment of UTIs could decrease the amount of pain, sepsis, and suffering experienced by delayed treatment (Symptoms and Causes, 2021). Early detection and treatment could further contribute to social changes by decreasing the number of deaths among older adults caused by undiagnosed and delayed treatment in a patient. Additionally, policymakers, human services professionals, social workers, health care professionals, and advocates could consider how the experiences of informal caregivers caring for older adults diagnosed with UTIs as described in this study, will be used within their practice as interventions, and caregiver programs.

Conclusion

Several thematic conclusions can be drawn from the qualitative findings of this study. This generic qualitative study was to identify and report informal caregiver experiences in observing and reporting to doctors' observable changes of behavior in older adults that were later linked to unconventional symptoms of potential UTI. To understand this phenomenon, six women caregivers were interviewed about their experiences as caregivers for older adults diagnosed with UTIs. Each interview lasted between 40-60 minutes, and saturation was reached after interviewing six participants. All participants in this research study were African American women. I did experience some difficulty scheduling the interviews as some of the participants worked more than one job. Also, due to the COVID-19 pandemic, potential participants were hesitant to meet in person as they were concerned about the spreading of the virus. Despite this difficulty, I did not have the need to utilize snowball sampling as I was able to schedule interviews that were convenient for each participant.

The findings in this study revealed that the participants were people who cared and were willing to advocate for their patients. Findings also showed some key thematic response categories offered by the participants. These key thematic response categories were: (a) related to the experiences of informal caregivers, (b) key symptoms of UTI observed and reported by caregivers, (c) highlighting the behavioral and mental state changes in patients signaling potential UTI, and (d) experiences communicating with medical professionals. The caregiver participants in this study expressed a drive for doing this type of caregiving stemming from a deep respect and dignity for the older adult person and even humanity more in general. The research also showed that informal caregivers play an important role in caring for older adults who have a need for their service. We are indebted to them for their willingness to participate in this important study.

I presented in this chapter the findings of my current research, the interpretations of the findings as related to the theoretical framework and the literature as outlined in Chapter 2. This chapter included a review of limitations of the study, recommendations for future research, implications for social change, and the conclusion. This study showed informal caregivers' experience caring for older adults diagnosed with UTIs. The study further showed that informal caregivers are advocates for their patients, observed changes in their patients, and reported to doctors the observable changes of behavior in older adult patients that were later linked to unconventional symptoms of potential UTIs. As a society, we are indebted to the skills and experiences of informal caregivers who are willing to provide care for this population and in the process become their advocates.

References

Aksoydan, E., Aytar, A., Blazeviciene, A., Rozemarijn L. Van Bruchem - Visser, Vaskelyte, A., Mattace-Raso, F., . . . Kiziltan, G. (2019). Is training for informal caregivers and their older persons helpful? A systematic review. *Archives of Gerontology and Geriatrics, 83*, 66-74. https://doi.org/10.1016/j.archger.2019.02.006

Alase, A. (2017). The interpretative phenomenological analysis (IPA): A guide to a good qualitative research approach. *International Journal of Education and Literacy Studies, 5*(2), 9. https://doi.org/10.7575/aiac.ijels.v.5n.2p.9

Allen, M. (2017). *The Sage encyclopedia of communication research methods* (Vols. 1-4). SAGE Publications, Inc. https://doi.org/10.4135/9781483381411

Anderson, C. (2010). Presenting and evaluating qualitative research. *American Journal of Pharmaceutical Education, 74*(8), 141. https://doi.org/10.5688/aj7408141

Awuviry-Newton, K., Wales, K., Tavener, M., & Byles, J. (2020). Do factors across the World Health Organization’s International Classification of Functioning, Disability and Health Framework relate to caregiver availability for community-dwelling older adults in Ghana? *PLoS One*, *15*(5). https://doi.org/10.1371/journal.pone.0233541

Bailey, J. (2008). First steps in qualitative data analysis: *Transcribing. Family Practice, 25(2)*, 127-131. https://doi.org/10.1093/fampra/cmn003

Bailey, L. F. (2014). The origin and success of qualitative research. *International Journal of Market Research, 56*(2), 167-184. https://doi.org/10.2501/ijmr-2014-013

Balaban, N. Q., Helaine, S., Lewis, K., Ackermann, M., Aldridge, B., Andersson, D. I., Brynildsen, M. P., Bumann, D., Camilli, A., Collins, J. J., Dehio, C., Fortune, S., Ghigo, J.-M., Hardt, W.-D., Harms, A., Heinemann, M., Hung, D. T., Jenal, U., Levin, B. R., … Zinkernagel, A. (2019). Definitions and guidelines for research on antibiotic persistence. *Nature Reviews Microbiology*, *17*(7), 441–448. https://doi.org/10.1038/s41579-019-0196-3

Beahm, N. P., Nicolle, L. E., Bursey, A., Smyth, D. J., & Tsuyuki, R. T. (2017). The assessment and management of UTI's in adults: Guidelines for pharmacists. *Canadian Pharmacists Journal / Revue Des Pharmaciens Du Canada*, *150*(5), 298–305. https://doi.org/10.1177/1715163517723036

Bergin, M. (2011). NVivo 8 and consistency in data analysis: Reflecting on the use of a qualitative data analysis program. *Nurse Researcher*, *18*(3), 6–12. https://doi.org/10.7748/nr2011.04.18.3.6.c8457

Birth, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking. *Qualitative Health Research*, 1802-1811. https://doi.org/10.1177/1049732316654870

Bladder infection (urinary tract infection-UTI) in adults. (2021). https://www.niddk.nih.gov/health-information/urologic-diseases/bladder-infection-uti-in-adults

Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research: An International Journal*, *19*(4), 426-432. https://doi.org/10.1108/qmr-06-2016-0053

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology Nursing Forum*, *41*(5), 545–547. https://doi.org/10.1188/14.onf.545-547

Clarke, V., & Braun, V. (2018). Using thematic analysis in counselling and psychotherapy research: A critical reflection. *Counselling and Psychotherapy Research*, *18*(2), 107–110. https://doi.org/10.1002/capr.12165

Connelly, L. M. (2016). Trustworthiness in qualitative research201. *Medsure Nursing: Official Journal of the Academy of Medical-Surgical Nurses.*

Cooper, S., & Endacott, R. (2007). Generic qualitative research: A design for qualitative research in emergency care? *Emergency Medicine Journal*, *24*(12), 816–819. https://doi.org/10.1136/emj.2007.050641

Cope, D. G. (2013). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum*, *41*(1), 89–91. https://doi.org/10.1188/14.onf.89-91

Cope, M. (2020). Transcribing, coding, and analyzing qualitative data. *International Encyclopedia of Human Geography*, 357-362. https://doi.org/10.1016/b978-0-08-102295-5.10875-3

Cortes-Penfield, N. W., Trautner, B. W., & Jump, R. L. (2017). Urinary tract infection and asymptomatic bacteriuria in older adults. *Infectious Disease Clinics of North*

America, 31(4), 673-688. https://doi.org/10.1016/j.idc.2017.07.002

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Sage.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research.* Sage.

Dworkin, S. L. (2012). Sample size policy for qualitative studies using in-depth interviews. *Archives of Sexual Behavior*, *41*(6), 1319–1320. https://doi.org/10.1007/s10508-012-0016-6

Elliott, V. (2018). Thinking about the coding process in qualitative data analysis. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2018.3560

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open.* https://doi.org/10.1177/2158244014522633

Etikan, I., Abubakar, Musa, S. & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1. https://doi.org/10.11648/j.ajtas.20160501.11

Fleck, C. (2015). Lazarsfeld, Paul Felix (1901–76). *International Encyclopedia of the Social & Behavioral Sciences*, 635-640. https://doi.org/10.1016/b978-0-08-097086-8.61075-9

Fusch, P., & Ness, L. (2015). Are we there yet? data saturation in qualitative research. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2015.2281

Galdas, P. (2017). Revisiting bias in qualitative research. *International Journal of Qualitative Methods*, *16*(1), 160940691774899. https://doi.org/10.1177/1609406917748992 Gbinigie, O. A., Ordóñez-Mena, J. M., Fanshawe, T. R., Plüddemann, A., & Heneghan, C. (2018, November). Diagnostic value of symptoms and signs for identifying urinary tract infection in older adult outpatients: Systematic review and meta-analysis. *Journal of Infection*, *77*(5), 379-390. https://doi.org/10.1016/j.jinf.2018.06.012

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal*, *204*(6), 291–295. https://doi.org/10.1038/bdj.2008.192

Global Aging. (2015). https://www.nia.nih.gov/research/dbsr/global-aging

Goertzen, M. J. (2017). *Applying quantitative methods to e-book collections.*https://www.alastore.ala.org/content/applying-quantitative-methods-e-book-collections

Groenou, M. I. B. V., & Boer, A. D. (2016). Providing informal care in a changing society. *European Journal of Ageing, 13*(3), 271–279. https://doi.org/10.1007/s10433-016-0370-7

Hagens, V., Dobrow, M. J., & Chafe, R. (2009). Interviewee transcript review: Assessing the impact on qualitative research. *BMC Medical Research Methodology*, *9*(1). https://doi.org/10.1186/1471-2288-9-47

Harper, M., & Cole, P. (2015). Member checking: Can benefits be gained similar to group therapy? *The Qualitative Report*. https://doi.org/10.46743/2160-

3715/2012.2139

Hayes, B. K., Heit, E., & Swendsen, H. (2010). Inductive reasoning. Wiley Interdisciplinary Reviews: *Cognitive Science, 1(2*), 278-292. https://www.deepdyve.com/lp/wiley/inductive-reasoning-VmaXnCKGgA

Hayman, B., Wilkes, L., & Jackson, D. (2012). Journaling: Identification of challenges and reflection on strategies. *Nurse Researcher*, *19*(3), 27–31. https://doi.org/10.7748/nr2012.04.19.3.27.c9056

He, W., Goodkind, D., & Kowal, P. (2019, September 24). *An aging world: 2015*. International Federation on Ageing. https://ifa.ngo/publication/demographics/aging-world-2015/

Head, G. (2018). Ethics in educational research: Review boards, ethical issues and researcher development. *European Educational Research Journal*, *19*(1), 72–83. https://doi.org/10.1177/1474904118796315

Hopps, M., Iadeluca, L., McDonald, M., & Makinson, G. T. (2017). The burden of family caregiving in the United States: work productivity, health care resource utilization, and mental health among employed adults. *Journal of Multidisciplinary Healthcare, 10*, 437–444. https://doi.org/10.2147/JMDH.S135372

Houghton, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case-study research. *Nurse Researcher*, *20*(4), 12–17. https://doi.org/10.7748/nr2013.03.20.4.12.e326

Howard-Payne, L. (2016). Glaser or Strauss? Considerations for selecting a grounded theory study. *South African Journal of Psychology*, *46*(1), 50–62. https://doi.org/10.1177/0081246315593071

Jacob, S., & Furgerson, S. (2015a). Writing interview protocols and conducting interviews: Tips for students new to the field of qualitative research. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2012.1718

Janesick, V. J. (2015). Peer debriefing. *The Blackwell Encyclopedia of Sociology*. https://doi.org/10.1002/9781405165518.wbeosp014.pub2

Kadhel, P., Schuster, C., Grossat, N., Janky, E., & Ghassani, A. (2016). Causal attribution of breast cancer by survivors in French West Indies. *Journal of Cancer Education*, *33*(2), 317–320. https://doi.org/10.1007/s13187-016-1096-0Kahlke, R. (2018). Reflection/commentary on a past article: “Generic qualitative approaches: Pitfalls and benefits of methodological mixology.” *International Journal of Qualitative Methods*, *17*(1), 160940691878819. https://doi.org/10.1177/1609406918788193

Kahlke, R. M. (2014a). Generic qualitative approaches: Pitfalls and benefits of Methodological Mixology. *International Journal of Qualitative Methods*, *13*(1), 37–52. https://doi.org/10.1177/160940691401300119

Kaiser K. (2009). Protecting respondent confidentiality in qualitative research. *Qualitative Health Research*, *19*(11), 1632–1641. https://doi.org/10.1177/1049732309350879

Kerebih, H., Ajaeb, M., & Hailesilassie, H. (2017). Common mental disorders among medical students in Jimma University, Southwest Ethiopia. *African Health Sciences*, *17*(3), 844. https://doi.org/10.4314/ahs.v17i3.27 Klimova, B., Valis, M., Kuca, K., & Masopust, J. (2019). E-learning as valuable caregivers' support for people with dementia – a systematic review. *BMC Health Services Research*, *19*(1). https://doi.org/10.1186/s12913-019-4641-9

Knowles, S., Combs, R., Kirk, S., Griffiths, M., Patel, N., & Sanders, C. (2015). Hidden caring, hidden carers? exploring the experience of carers for people with long-term conditions. *Health & Social Care in the Community*, *24*(2), 203–213. https://doi.org/10.1111/hsc.12207

Korstjens, I., & Moser, A. (2017). Series: Practical guidance to qualitative research. part 4: Trustworthiness and publishing. *European Journal of General Practice*, *24*(1), 120–124. https://doi.org/10.1080/13814788.2017.1375092 Kostakopoulos, N. A., Karakousis, N. D., & Moschotzopoulos, D. (2021). Frailty associated urinary tract infections (FaUTIs). *Journal of Frailty, Sarcopenia and Falls*, *06*(01), 9–13. https://doi.org/10.22540/jfsf-06-009

Liao, H., & Hitchcock, J. (2018). Reported credibility techniques in higher education evaluation studies that use qualitative methods: A research synthesis. *Evaluation and Program Planning*, *68*, 157–165. https://doi.org/10.1016/j.evalprogplan.2018.03.005

Liddle, J., Smith-Conway, E. R., Baker, R., Angwin, A. J., Gallois, C., Copland, D. A., . . . Chenery, H. J. (2012). Memory and communication support strategies in dementia: Effect of a training program for informal caregivers. *International*

Psychogeriatrics, 24(12), 1927-1942. https://doi:10.1017/s1041610212001366

Malle, B. F. (2011). Attribution theories: How people make sense of behavior. *Theories in social psychology*, *23*, 72-95.

Mason, M. (2010). *View of sample size and saturation in Phd studies using qualitative interviews: Forum qualitative sozialforschung / forum: Qualitative social research*. View of Sample Size and Saturation in PhD Studies Using Qualitative Interviews | Forum Qualitative Sozialforschung / Forum: Qualitative Social Research. Retrieved April 28, 2023, from https://www.qualitative-research.net/index.php/fqs/article/view/1428/3027

Martinko, M. J., & Mackey, J. D. (2019). Attribution theory: An introduction to the special issue. *Journal of Organizational Behavior, 40*(5), 523–527. https://doi.org/10.1002/job.2397

Mayo Foundation for Medical Education and Research. (2021). *Symptoms and causes*. Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/urinary-tract-infection/symptoms-causes/syc-20353447?p=1

McGrath, C., Palmgren, P. J., & Liljedahl, M. (2018). Twelve tips for conducting qualitative research interviews. *Medical Teacher, 41*(9), 1002–1006. https://doi.org/10.1080/0142159x.2018.1497149

Medina, M., & Castillo-Pino, E. (2019). An introduction to the epidemiology and burden of urinary tract infections. *Therapeutic Advances in Urology*, *11*, 175628721983217. https://doi.org/10.1177/1756287219832172

Meyer, K., & Willis, R. (2018). Looking back to move forward: The value of reflexive journaling for novice researchers. *Journal of Gerontological Social Work*, *62*(5), 578–585. https://doi.org/10.1080/01634372.2018.1559906

Morse, J. M. (2015). Critical analysis of strategies for determining rigor in qualitative inquiry. *Qualitative Health Research*, *25*(9), 1212–1222. https://doi.org/10.1177/1049732315588501

Muthanna, A. (2019). Critical qualitative inquiry and methodological awareness: The effectiveness of face-to-face interviews in changing/enhancing participants' beliefs and practices. *International Journal of Research Studies in Education*, *8*(2). https://doi.org/10.5861/ijrse.2019.3027

Naderifar, M., Goli, H., & Ghaljaie, F. (2017). Snowball sampling: A purposeful method of sampling in qualitative research. *Strides in Development of Medical Education*, *14*(3). https://doi.org/10.5812/sdme.67670

Noble, H., & Heale, R. (2019). Triangulation in research, with examples. *Evidence Based Nursing*, *22*(3), 67–68. https://doi.org/10.1136/ebnurs-2019-103145

Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence Based Nursing*, *18*(2), 34–35. https://doi.org/10.1136/eb-2015-102054

Noble, H., & Smith, J. (2015a). Issues of validity and reliability in qualitative research. *Evidence Based Nursing*, *18*(2), 34–35. https://doi.org/10.1136/eb-2015-102054

Nusbaum, L., Douglas, B., Damus, K., Paasche-Orlow, M., & Estrella-Luna, N. (2017). Communicating risks and benefits in informed consent for research: A qualitative study. *Global Qualitative Nursing Research*, *4*, 233339361773201. https://doi.org/10.1177/2333393617732017

Ortlipp, M. (2015). Keeping and using reflective journals in the qualitative research process. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2008.1579

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2013). Purposeful sampling for qualitative data collection and analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research*, *42*(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y Pannucci, C. J., & Wilkins, E. G. (2010). Identifying and avoiding bias in research. *Plastic and Reconstructive Surgery*, *126*(2), 619–625. https://doi.org/10.1097/prs.0b013e3181de24bc

Park, J., & Park, M. (2016). Qualitative versus Quantitative research methods: Discovery or justification? *Journal of Marketing Thought*, *3(1)*, 1–7. https://doi.org/10.15577/jmt.2016.03.01.1

Patton, M. Q. (2015). *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. SAGE Publications, Inc.

Pezalla, A. E., Pettigrew, J., & Miller-Day, M. (2012). Researching the researcher-as-instrument: An exercise in interviewer self-reflexivity. *Qualitative Research: QR*, *12*(2), 165–185. https://doi.org/10.1177/1487941111422107

Percy, W., Kostere, K., & Kostere, S. (2015). Generic qualitative research in psychology. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2015.2097

Plöthner, M., Schmidt, K., de Jong, L., Zeidler, J., & Damm, K. (2019). Needs and preferences of informal caregivers regarding outpatient care for the elderly: A systematic literature review. *BMC Geriatrics*, *19*(1).

https://doi.org/10.1186/s12877-019-1068-4

Poland, B. D. (1995). transcription quality as an aspect of rigor in qualitative research. *Qualitative Inquiry, 1*(3), 290–310. https://doi.org/10.1177/107780049500100302

QSR International. (2008). NVivo 8 getting started, 1-47. Victoria, Australia. http://www.qsrinternational.com

Rowe, T. A., & McKoy, J. M. (2017). Sepsis in older adults. *Infectious Disease Clinics of North America, 31*(4), 731–742. https://doi.org/10.1016/j.idc.2017.07.010

Rodriguez-Mañas, L. (2020). Urinary tract infections in the elderly: A review of disease characteristics and current treatment options. *Drugs in Context*, *9*, 1–8. https://doi.org/10.7573/dic.2020-4-13

Rodriguez-Mañas, L. (2020). Urinary tract infections in the elderly: A review of disease characteristics and current treatment options. *Drugs in Context*, *9*, 1–8. https://doi.org/10.7573/dic.2020-4-13

Ryan, F., Coughlan, M., & Cronin, P. (2007). Step-by-step guide to critiquing research. part 2: Qualitative research. *British Journal of Nursing*, *16*(12), 738–744. https://doi.org/10.12968/bjon.2007.16.12.23726

Sandelowski, M. (1986). The problem of rigor in qualitative research. *Advances in Nursing Science, 8*(3), 27–37. https://doi.org/10.1097/00012272-198604000-00005

Schaeffer, A. J., & Nicolle, L. E. (2016). UTI's in older men. *The New England Journal of Medicine, 374*(6), 562-571. http://dx.doi./10.1056/NEJMcp1503950Simmering, J. E., Tang, F., Cavanaugh, J. E., Polgreen, L. A., & Polgreen, P. M. (2017). The increase in hospitalizations for urinary tract infections and the associated costs in the United States, 1998–2011. *Open Forum Infectious Diseases*, *4*(1). https://doi.org/10.1093/ofid/ofw281

Spall, S. (1998). Peer debriefing in Qualitative Research: Emerging Operational Models. *Qualitative Inquiry*, *4*(2), 280–292. https://doi.org/10.1177/107780049800400208

Stuckey, H. (2015a). The second step in data analysis: Coding qualitative research data. *Journal of Social Health and Diabetes*, *03*(01), 007–010. https://doi.org/10.4103/2321-0656.140875

Tang, M., Quanstrom, K., Jin, C., & Suskind, A. M. (2019a). Recurrent urinary tract infections are associated with frailty in older adults. *Urology*, *123*, 24–27. https://doi.org/10.1016/j.urology.2018.09.025

Tang, C., Chen, Y., Cheng, K., Ngo, V., & Mattison, J. E. (2017). Awareness and handoffs in home care: Coordination among informal caregivers. *Behaviour & Information Technology*, *37*(1), 66–86. https://doi.org/10.1080/0144929x.2017.1405073

Temple, J., Miller, M. M., Banford Witting, A., & Kim, A. B. (2017). “We walk on eggshells”: A phenomenological inquiry of wives’ experiences of living with active-duty Marine husbands with PTSD. *Journal of Family Social Work, 20*(2), 162-181. https://doi.org/10.1080/10522158.2017.127957

Thorpe, K. E., Joski, P., & Johnston, K. J. (2018a). Antibiotic-resistant infection treatment costs have doubled since 2002, now exceeding $2 billion annually. *Health Affairs*, *37*(4), 662–669. https://doi.org/10.1377/hlthaff.2017.1153

Tufford, L., & Newman, P. (2010). Bracketing in qualitative research. *Qualitative Social Work*, *11*(1), 80–96. https://doi.org/10.1177/1473325010368316

Wagenlehner, F., Wullt, B., Ballarini, S., Zingg, D., & Naber, K. G. (2017). Social and economic burden of recurrent urinary tract infections and quality of life: A patient web-based study (GESPRIT). *Expert Review of Pharmacoeconomics & Outcomes Research*, *18*(1), 107–117. https://doi.org/10.1080/14737167.2017.1359543

Weinberg, D. B., Lusenhop, R. W., Gittell, J. H., & Kautz, C. M. (2007). Coordination between formal providers and informal caregivers. *Health Care Management Review*, *32*(2), 140–149. https://doi.org/10.1097/01.hmr.0000267790.24933.4c

Weiner, B. (1986). Principles for a theory of motivation. *An Attributional Theory of Motivation and Emotion*, 1–17. https://doi.org/10.1007/978-1-4612-4948-1_1

Williams, V., Boylan, A.-M., & Nunan, D. (2019). Critical appraisal of qualitative research: Necessity, partialities and the issue of Bias. *BMJ Evidence-Based Medicine*, *25*(1), 9–11. https://doi.org/10.1136/bmjebm-2018-111132

Zeng, G., Zhu, W., Lam, W., & Bayramgil, A. (2020). Treatment of urinary tract infections in the old and fragile. *World Journal of Urology*, *38*(11), 2709–2720. https://doi.org/10.1007/s00345-020-03159-2

Appendix A: Demographic Check List

Special Identifier: _______________Race/Ethnicity___________________________

Participant's Name: ________________________________

Participant's Address: _____________________________________

City_____________________State______ Zip code___________

Participant's Age: ___________ Participant's Gender: Male_____ Female_____

Participant the Primary Caregiver? Yes____

Caregiver Status: Spouse/Significant Other __________ Adult Child _Grandchild

_________ Other family member (aunt, uncle, niece, nephew, cousin) _________

Marital Status: Single______ Married_______ Divorced______ Widowed______

Appendix B: Interview Protocols

Thank you for taking time out of your busy schedule to participate in this

Study. My name is Novelett Stennett, and I am a doctoral candidate at Walden University. This research is being completed to fill my degree requirements as it is a topic of great importance and one that I am passionate about. I am researching the experiences of informal caregivers caring for older adults diagnosed with UTIs. I will try to ensure that I do not to take up too much of your time. This interview will take approximately 30-45 minutes. If there is a question that you do not understand, please do not hesitate to let me know. If any of the questions make you uncomfortable for any reason, let me know, and I will stop the questions. I will end the session at any time at your request. Before we start, do you have any questions for me? Ok, let’s begin.

Appendix C: Interview Questions

Participant Name: ______________________

Unique Identifier: ______________________

Interviewer Name: ___________________________Location: _____________

Semi Structured Interview Questions to address the RQ-What are informal caregivers' experiences in observing and reporting to doctors, observed changes in older adults that were associated with unconventional symptoms of UTIs?"

1. What is the relationship between you and your patient?

2. How long have you been a caregiver to the patient?

3. What is the age and gender of the patient you are caring for?

4. Does your patient have a catheter or has ever had a catheter? If so, how long?

5. Tell me about your experience as an informal caregiver to your patient.

6. What was your initial perception of older adults living with UTIs?

7. What are some of the changes in behavior you observed that caused you to become concerned enough to attribute the change in behavior to the possibility of UTI?

8. Were there any unusual behaviors that your patient displayed due to the UTI? (non-verbal behavior, etc.).

9.. What is the experience like when communicating your observations of your patient to medical professionals?

10. Please share any positive experiences when interacting with medical providers on behalf of your patient that you can recall. What about adverse experiences?

11. Is there any additional information you would like to share about your experiences in observing and reporting to doctors your observed changes associated with unconventional symptoms of UTIs?