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Understanding Frailty in Older Adults: Examining Attributes, Antecedents, and Consequences

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ABSTRACT

Background: Frailty has been debated in the literature for three decades, necessitating a comprehensive understanding to guide future research. This study conducts a concept analysis using Walker and Avant's (2011) framework, examining the attributes, antecedents, consequences, and empirical referents of frailty based on a literature review. ***Aims:*** This study aims to elucidate the multidimensional nature of frailty, encompassing physical, psychological, and social aspects of older adults' perceptions in later life. The analysis contributes to the conceptual definition of frailty and informs future research. ***Methods:*** A concept analysis approach following Walker and Avant's (2011) guidelines was utilized. A thorough literature review was conducted, synthesizing the findings in a matrix. The analysis focused on identifying the attributes, antecedents, consequences, and empirical referents of frailty. ***Results:*** Frailty is a multidimensional concept encompassing physical vulnerability, cognitive decline, emotional distress, social isolation, and functional impairment. Antecedents include age-related changes, chronic illnesses, and psychosocial factors. Consequences involve increased healthcare utilization, decreased quality of life, and higher mortality rates. Empirical referents include standardized assessment tools, clinical diagnoses, and self-report measures. ***Conclusion:*** Frailty should be understood holistically, addressing physical, psychological, and social dimensions in older adults' lives. This understanding is vital for developing comprehensive interventions and policies to enhance their well-being. The findings establish a foundation for further research on the conceptual definition of frailty and its implications for clinical practice and public health. ***Implications for Nursing:*** This conceptual analysis has implications for researchers, healthcare professionals, and policymakers. Recognizing the broader dimensions of frailty enables the development of interventions addressing the complex needs of older adults. Refining assessment tools can capture the multidimensional aspects of frailty accurately. A holistic approach to frailty management should be adopted, guiding the development of targeted interventions to improve older adults' overall well-being.

Keywords: Frailty, Older adults, Attributes, Antecedents, Consequences.

What does this paper add?

1. Frailty is a multidimensional concept encompassing physical vulnerability, cognitive decline, emotional distress, social isolation, and functional impairment.
2. The antecedents of frailty include age-related changes, chronic illnesses, and psychosocial factors.

The consequences of frailty involve increased healthcare utilization, decreased quality of life, and higher mortality rates.

3. The empirical referents of frailty include standardized assessment tools, clinical diagnoses, and self-report measures.
4. This understanding of frailty is vital for developing comprehensive interventions and policies to enhance older adults' well-being.

Introduction

Frailty, as a concept, has gained significant attention in the literature over the past three decades. Its multidimensional nature, encompassing physical, psychological, and social aspects of older adults' experiences, has led to ongoing conceptual debates and challenges (Clegg et al., 2016). A concept analysis is essential to advance understanding and pave the way for further research (McEwen & Wills, 2019).

In addition, frailty is a complex and multifaceted concept that holds significant importance in the context of aging populations (Tocchi, 2015; Waldon, 2018). This concept analysis aims to thoroughly examine frailty by utilizing the framework proposed by Walker and Avant's textbook on concept analysis (2011). The analysis explores the various dimensions of frailty, shedding light on its underlying attributes, antecedents, consequences, and empirical referents. By systematically reviewing existing literature and synthesizing the findings, this analysis offers valuable insights that can benefit researchers, healthcare professionals, and policymakers to gain a holistic understanding of frailty.

Frailty encompasses cognitive decline, emotional distress, social isolation, and functional impairment, impacting older adults' daily living and overall well-being. Identifying factors contributing to frailty, such as age-related changes, chronic illnesses, and psychosocial factors, is crucial for understanding its origins and progression (Clegg et al., 2013; Fougere et al., 2019; Ke, 2013). Additionally, comprehending the consequences of frailty, including increased healthcare utilization, diminished quality of life, and heightened mortality rates, further emphasizes the significance of addressing this concept in research and practice (Andrade et al., 2012; Waldon, 2018; Oliveira et al., 2020).

The attributes of frailty, as identified in this conceptual analysis, could encompass a range of physical, cognitive, and psychosocial factors. These attributes may include decreased physical strength and resilience, reduced cognitive functioning, increased vulnerability to adverse health outcomes, and diminished social engagement and support systems (Ke, 2013; Tocchi, 2015; Waldon, 2018; Oliveira et al., 2020). By defining and understanding these attributes, healthcare professionals can better recognize and assess frailty among older adults, leading to earlier interventions and improved care.

Furthermore, this analysis explores the antecedents of frailty and the factors or events contributing to its development. These antecedents may involve chronic health conditions, lifestyle factors, socioeconomic status, and environmental influences. Understanding these antecedents can help identify risk factors and potential points for intervention, ultimately aiding in preventing or delaying frailty onset (Gobbens et al., 2010; Andrade et al., 2012). The consequences of frailty are also examined, encompassing a broad spectrum of outcomes that older adults may experience. These consequences may include increased healthcare utilization, higher hospitalization rates, functional decline, decreased quality of life, and higher mortality rates. By recognizing the potential outcomes of frailty, healthcare professionals and policymakers can develop comprehensive interventions to address these specific challenges (De Witte et al., 2013; Gobbens et al., 2013; Gobbens et al., 2010a; Gobbens et al., 2010b; Romero-Ortuno et al., 2011).

This analysis incorporates empirical referents to ground the concept of frailty in empirical evidence. These referents are observable and measurable indicators that can be used to assess and quantify frailty in clinical settings. Examples of empirical referents may include specific frailty assessment tools, diagnostic criteria, and validated scales that capture different aspects of frailty. Additionally, the implications of this concept analysis are far-reaching. By providing a comprehensive understanding of frailty and its dimensions, this study can guide the development of effective interventions tailored to the unique needs of older adults. Healthcare professionals can use this knowledge to refine existing assessment tools and create new ones, enhancing the accuracy of frailty identification and allowing for more targeted interventions. Policymakers can incorporate a holistic approach to managing frailty in their healthcare

strategies, leading to better outcomes for older adults and improved overall well-being.

In conclusion, this conceptual analysis of frailty offers a deeper understanding of the concept, its attributes, antecedents, consequences, and empirical referents. By employing the framework of Walker and Avant's textbook, this analysis contributes valuable insights to the field of research on aging and frailty. Synthesis of existing literature provides a foundation for evidence-based strategies to address the complex needs of older adults and enhance their overall health and quality of life.

Thus, this paper present a conceptual analysis of frailty guided by what is postulated by Walker and Avant's (2011) textbook about concept analysis, including attributes, antecedents, consequences, and empirical referents of frailty. This analysis was elaborated based on the literature review posted from different databases.

Selecting Frailty As a Concept

The term 'frailty' has been linked to increased susceptibility to diseases in older adults and has been extensively addressed by healthcare providers to enhance the health status of elderly individuals. Frailty is defined either as a physiological aspect being affected, leading to a decreased resistance to stressors (Rochat et al., 2010; Bergman et al., 2007; Walston et al., 2006; Fried et al., 2001) or disturbances in one or more domains, such as physical, psychological, social, … etc. functions (Gobbens et al., 2013; De Witte et al., 2013; Gobbens et al., 2010a; Gobbens et al., 2010b; Romero-Ortuno et al., 2011; de Vries et al., 2011; Strawbridge et al., 1998). To clarify the concept of frailty, Gobbens et al.'s definition is adopted in this paper, wherein frailty is characterized as a loss of resources or functions in one or more health domains, resulting in reduced reserve capacity to cope with stressors (Gobbens et al., 2010a). These domains encompass physical, psychological, social, and environmental aspects, with the latter domain being further investigated by de Witte et al. (2013) through the comprehensive frailty assessment instrument.

Analysis Purpose

Fully understanding frailty as a concept, including its attributes and features, contributes significantly to creating an agreeable definition and developing a reliable instrument that predicts, prevents, and determines frailty in community-dwelling older adults. Thus, there is an urgent need to develop a new conceptual analysis considering the multidimensional model, including physical, psychological, social, and environmental variables (De Witte et al., 2013). In addition, the ability to screen and recognize frail older adults offers the chance to implement additional interventions and avoid frailty complications and adverse outcomes. Thus, conceptual analysis of frailty is helpful in this area, directing future studies toward a holistic approach to frailty.

Conceptual analysis of frailty guides future research towards a holistic understanding of the concept, promoting a common and comprehensive definition and emphasizing interconnected domains. This approach encourages evidence-based interventions and policies to address the complex needs of older adults experiencing frailty, ultimately improving their well-being and quality of life.

Methods

Walker and Avant (2011) proposed a comprehensive method for concept analysis. This method consists of several structured steps that guide researchers in analyzing and clarifying the meaning of a concept. Walker and Avant's structured approach to concept analysis involves several systematic steps. Firstly, the concept of interest is identified and clearly defined. This entails a comprehensive literature reviews to gather existing knowledge about the concept and its various definitions and interpretations. Next, the concept's attributes are identified through an in-depth literature examination. Attributes are the characteristics or qualities consistently associated with the concept and essential for its understanding.

After identifying the attributes, the concept's antecedents and consequences are explored. Antecedents are the factors or events that precede the occurrence of the concept, while consequences refer to the outcomes or effects that result from the concept. The fourth step involves defining the empirical referents of the concept. These referents are observable and measurable indicators that can be used to assess or measure the concept in real-world situations.

Once all the steps are completed, a comprehensive synthesis of the findings is carried out, allowing for a holistic understanding of the concept. The analysis

provides a clear and structured framework that informs researchers, healthcare professionals, and policymakers about the concept's multifaceted nature and its implications for research and practice.

Walker and Avant's method of concept analysis offers several key strengths for researchers. Firstly, it provides a structured and clear framework, ensuring a systematic approach to examining complex concepts. The method facilitates a comprehensive analysis by exploring attributes, antecedents, consequences, and empirical referents, leading to a deeper understanding of the concept. This structure enhances the study's credibility by promoting consistency and rigor throughout the analysis process. Moreover, the method's versatility allows its application to various fields, extending its usefulness beyond healthcare. Additionally, the systematic examination of attributes and antecedents aids in clarifying concept definitions, reducing ambiguity, and fostering better communication among researchers and practitioners (Walker & Avant, 2011).

Despite its strengths, Walker and Avant's method has some limitations. Notably, it can be time-consuming due to its systematic nature, requiring significant effort and resources. Moreover, the potential for subjectivity in identifying attributes and antecedents may introduce bias into the analysis. Additionally, the method may not fully account for the contextual nature of concepts, overlooking the influence of cultural, social, and historical factors. The rigid sequence of steps proposed by the method might not always fit certain concepts that require a more flexible approach. Lastly, emergent properties in complex concepts may not be adequately addressed within the framework, limiting its ability to capture novel aspects of the concept (Walker & Avant, 2011).

Once the attributes are identified, researchers proceed to identify antecedents and consequences of the concept. Antecedents are the events or conditions that must be present for the concept to occur, while consequences are the outcomes or effects that result from the concept. Understanding these antecedents and consequences further enhances understanding of the concept and its contextual implications. The method also includes analyzing empirical referents, observable indicators, or measurements that can be used to determine the presence or absence of the concept. These referents provide concrete evidence for the concept and aid in its operationalization.

Throughout the process, researchers engage in concept synthesis, which involves organizing and integrating the information gathered from the various steps. This synthesis helps develop a clear and comprehensive understanding of the concept, its essential attributes, and its contextual nuances.

Then, the final step in the method involves validating the concept analysis through expert consultation and evaluation. Experts provide feedback and assess the analysis accuracy, clarity, and comprehensiveness, ensuring its rigor and credibility.

The number of articles included is 15. The databases searched were CINAHL (Cumulative Index to Nursing and Allied Health Literature) and Research Gate, which were searched to find the most relevant and up-to-date studies between 2006 and 2021. Search terms used were frailty, antecedence, attributes, consequences, and older adults were used as a search strategy. Moreover, the ancestry approach involved using the bibliographies from the reviewed articles. The inclusion criteria were articles in English; that clearly defined frailty; a clear relationship between frailty and outcomes; a clear relationship between frailty and antecedence; a clear relationship between frailty and attributes. The exclusion criteria were articles not in English, those that did not have a clear definition of frailty, those that did not have a well-established relationship between frailty and antecedence, attributes or consequences.

In summary, the method proposed by Walker and Avant (2011) offers a systematic approach to concept analysis, involving steps such as literature review, identification of attributes, antecedents and consequences, analysis of empirical referents, concept synthesis, and validation. By following this structured method, researchers can gain a deeper understanding of the concept under investigation and contribute to advancing knowledge in their respective fields.

Uses of Concept

Frailty is a multidimensional, dynamic, complicated construct **(**De Witte et al., 2013; Gobbens et al., 2010a; Romero-Ortuno et al., 2011) in which it is used to predict adverse outcomes, comorbidity, and disability (Gobbens et al., 2010a). The ability to screen and recognize frail older adults offers the chance to implement additional interventions and avoid frailty complications and adverse outcomes. By including

cases from diverse cultural contexts, we can explore how cultural factors may shape the concept's attributes, antecedents, and consequences. Different cultural perspectives and beliefs may influence the manifestation and significance of the concept, leading to distinct expressions and outcomes.

However, it is essential to acknowledge that including cases from multiple cultures can present cultural sensitivity and understanding challenges. We must ensure that our analysis considers cultural nuances and avoids generalizations. To address this, we approached the analysis with cultural competence and collaborate with experts from each cultural background to gain deeper insights into the concept's context-specific implications.

Model Case

John is a 67-year-old, single male, working as a FedEx driver and living with his girlfriend. Twelve months later, he experienced an accident leading to total hip replacement surgery, impacting his walking ability. As a result, he started relying on a crutch and had to quit his job. He has diabetes and cataracts in both eyes. He sold his large house and purchased a condo to live in and to be close to a pharmacy to obtain his medications. His girlfriend left him. He failed to make successful relationships with his neighbors. Later, he got a burn on his arms while trying to cook in his new small kitchen. He became depressed and refused to talk to anyone, watching TV all day. At 70 years of age, John died due to a sudden heart attack.

Contrary Case

Salem is a 75 - year - old male with a wife and three children and works as a gardener. He had a cerebrovascular stroke in the right side of his brain and has weakness in all his left side. With help from his family, he got a wheelchair to maintain his movement and assist him while doing self-care activities. Then, he got another job in the local public library, which in turn promoted his social activities. He makes active social relationships with people coming to the library. His house was modified with a wheelchair rim going along with stairs. He started receiving physiotherapeutic and occupational sessions to strengthen his muscles and coordination. One year later, he could use a crutch instead of a wheelchair. Finally, he was able to walk independently.

Related Case

Mary was born into a poor family, living in a mobile home. Her family was moving from one town to another. Her father was frequently gambling and lost his money every time. Her father returned every night and abused her mother. Mary grew up without attending school; her parents did not give her any attention. Mary was 20 years old when her father died in the bar. Her mother got married and left her. Mary started looking for a job, got what she needed in the post office, and found her boyfriend. Lastly, she married and bought a house after thirty years of living in a mobile home.

Discussion

Attributes

Following the proposed definition of frailty, the attributes of frailty are categorized into various domains. Firstly, physiological stressors which play a significant role in determining frailty. These stressors are often manifested by an individual's dependency on performing activities of daily living. When individuals become reliant on others for tasks such as bathing, dressing, or eating, this indicates a physiological decline in contributing to their frailty (Ke, 2013; Tocchi, 2015; Waldon, 2018; Oliveira et al., 2020).

Secondly, psychological stressors are crucial indicators of frailty. Depression and cognitive impairment are common psychological challenges experienced by frail individuals. The presence of depression, characterized by persistent feelings of sadness or hopelessness, can exacerbate frailty. Cognitive impairment, such as memory loss or difficulties with problem-solving, also contributes to an individual's vulnerability and frailty (Ke, 2013; Oliveira et al., 2020).

Furthermore, social stressors significantly impact frailty. Living alone and social isolation are two common social stressors associated with frailty. When individuals lack companionship and meaningful social connections, they face increased physical and mental deterioration risks. Living alone or experiencing social isolation diminishes the support network available to individuals, leading to a higher likelihood of frailty. (Waldon, 2018; Oliveira, et al., 2020). Lastly, environmental stressors play a role in determining frailty. Factors related to the physical environment, such as housing conditions, heating and cooling systems, and

the neighborhood's status, can impact an individual's well-being and vulnerability. Unsafe or inadequate housing conditions, poor temperature control, and residing in disadvantaged neighborhoods with limited access to healthcare and social services can contribute to the development or progression of frailty. (Gobbens et al., 2010; Andrade et al., 2012).

Antecedents and Outcomes

The number of diagram presented at the end of this paper illustrates several relational statements related to frailty. According to Rochat et al. (2010), comorbidity, disability, and living alone serve as predictors of frailty, leading to increased healthcare utilization (Rochat et al., 2010), nursing home admission, hospitalization (Hastings et al., 2008), and death (Theou et al., 2012; Sternberg et al., 2011; Martin & Brighton, 2008; Hastings et al., 2008). Interestingly, disability is considered both an antecedent and an outcome of frailty in the literature, as it is associated with needing help with daily activities, fractures, and hospitalization (Sternberg et al., 2011; Martin & Brighton, 2008).

Numerous common risk factors have been identified in the literature related to frailty, such as age, chronic conditions, cognitive impairment, social isolation, lack of social support, and limited social engagement (Gobbens et al., 2013; De Witte et al., 2013; Gobbens et al., 2010a; Gobbens et al., 2010b; Romero-Ortuno et al., 2011). Other factors associated with frailty include being female, older, African American, having a low education level and income, comorbidity, and disability (Fried & Tangen, 2001). Additionally, psychological and social domains play crucial roles in frailty, with physical inactivity, depression, and social isolation increasing the risk of frailty in individuals (Strawbridge et al., 1998).

Furthermore, weakness has been identified as a direct predictor of frailty, with risk factors like being female and African American predisposing individuals to frailty and its complications, including physical inactivity, social disengagement, clinical frailty, and death (Xue, 2011). The literature also highlights the importance of environmental factors in influencing frailty, with factors such as clean water, adequate food, shelter, heating and cooling systems, relief from labor, and access to antibiotics contributing to resilience against frailty. Efforts to create an 'aging-friendly' community aim to improve the social and living environment through legalizations, initiatives, and behavior modifications (Ferrucci et al., 2010) (see Figure 1).

Empirical Referents

Measuring frailty requires using validated tools that capture the various domains associated with this concept. One commonly used approach is the frailty index, which involves summating different items across different domains (Rockwood et al., 2007). However, it is crucial to validate such tools as the frailty index in the target population to ensure that they accurately measure the dimensions of frailty.

Regarding physical stressors, the assessment can include the need for assistance with activities of daily living, as suggested by Nasser and Doumit (2009). This indicator helps identify individuals who experience difficulties in performing essential tasks independently. Further, psychological stressors, such as depression and cognitive impairment, can be assessed using specific instruments. The Geriatric Depression Scale (GDS) developed by Sheikh and Yesavage (1986) is widely utilized to screen for depressive symptoms among older adults. Additionally, the Montreal Cognitive Assessment (MoCA) by Freitas et al. (2013) is an effective tool for detecting cognitive impairments.

In addition, social and environmental stressors play a significant role in frailty assessment. The Comprehensive Frailty Assessment Instrument (CFAI), as proposed by de Witte et al. (2013), encompasses aspects like living alone and housing conditions. This instrument provides valuable insights into the social and environmental factors contributing to an individual's frailty. Thus, by considering these empirical referents in assessing frailty, researchers and healthcare professionals can understand the multidimensional aspects of frailty. Validated measurement tools allow for accurate identification and evaluation of frailty in older adults, facilitating targeted interventions and support to enhance their well-being.

Limitations

The Walker and Avant (2011) concept analysis framework is widely used for analyzing and understanding concepts in various fields, including healthcare. However, it is important to recognize that there are limitations to using this framework specifically for the concept analysis of frailty. Some potential

limitations of using the Walker and Avant (2011) framework for frailty concept analysis include subjectivity, which involves subjective interpretation and judgment as researchers apply their understanding and perspectives to analyze the concept. This subjectivity can introduce bias and limit the objectivity of the analysis. In addition, there is a lack of consensus, since frailty is a complex and multidimensional concept that lacks a universally agreed-upon definition and operationalization. Researchers and disciplines may have different perspectives on the concept, leading to variations in the concept analysis process. Furthermore, frailty is influenced by various contextual factors, including cultural, social, and environmental factors. The Walker and Avant framework may not adequately capture the contextual nuances and variations of frailty across different populations and settings.

Moreover, the Walker and Avant framework primarily focuses on identifying and analyzing concept attributes, antecedents, and consequences. However, frailty is a multifaceted concept encompassing physical, psychological, social, and environmental dimensions. The framework may not fully capture the complexity and interrelationships among these dimensions. Also, the framework does not explicitly include empirical referents, which are concrete measurements or indicators of the concept. Frailty assessment often relies on validated measurement tools, and the absence of empirical referents in the framework may limit its applicability to frailty concept analysis.

Additionally, this paper acknowledges the absence of expert consultation in the concept analysis due to time and resource constraints. Despite this limitation, the researchers compensated by rigorously following the Walker and Avant method, conducting a systematic review of existing literature, and internally validating the analysis within the research team. While expert input would have been valuable, the paper plans to consider it in future research to enhance the credibility and depth of the concept analysis. The researchers emphasize their commitment to a structured approach and aim to refine their understanding of the concept in future endeavors.

Recommendations and Implications

Further exploration of the conceptual clarity of frailty is needed. As frailty is a complex and multidimensional concept, future research can explore the identification and clarification of its defining attributes, antecedents, and consequences. This can help establish a more universally accepted and comprehensive understanding of frailty across different populations and settings. In addition, future research should investigate how these contextual factors shape the experience and manifestation of frailty in different populations and cultural contexts. Understanding these contextual variations can contribute to developing more culturally sensitive and contextually appropriate measures and interventions for frailty.

Moreover, future research is needed to investigate the effectiveness of interventions targeting frailty. This can include exploring the impact of exercise programs, nutrition interventions, social support interventions, and comprehensive geriatric assessments on frailty outcomes. Understanding the effectiveness of different interventions can guide evidence-based practices for frailty prevention, management, and improved quality of life. Also, using other quantitative statistical methods, such as “factor analysis,” will help capture this concept’s complexity. By addressing these recommendations, future research on frailty can advance our understanding of this complex concept and contribute to developing targeted interventions, improved assessment tools, and evidence-based practices for frailty prevention and management.

Conclusion

In conclusion, the ability to screen and recognize frail older adults can facilitate implementing interventions to avoid frailty complications and adverse outcomes. The attributes of frailty encompass physiological, psychological, social, and environmental stressors. Risk factors such as age, chronic conditions, cognitive impairment, and social factors have been identified in the literature as contributing to frailty. Addressing frailty requires using validated tools that capture the various domains associated with this concept. By employing such tools, researchers and healthcare professionals can accurately assess frailty and develop targeted interventions to improve the well-being of older adults.

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Statement of Ethics

An ethics statement is not applicable, because this study is based exclusively on published literature.

Conflict of Interest

The authors have no conflict of interest to declare.

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Data Availability

All data generated or analyzed during this study can be obtained from the first author upon a reasonable request.

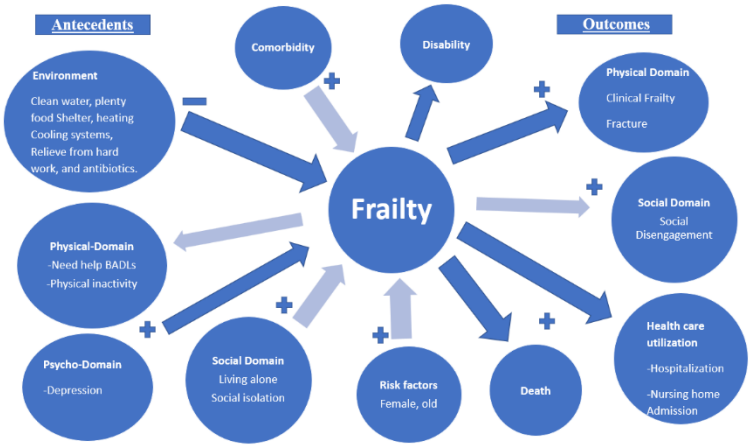

Figure 1. Antecedents and outcomes of frailty

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