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The Situation-Specific Theory of Heart Failure Self-Care Updated: Analysis and Evaluation for Use in Coronary Disease

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Abstract

The Situation-Specific Theory of Self-Care in Heart Failure Updated proposes and explains how situational (person, problem, and environment) and process factors influence self-care actions. The updating of the Theory provides us with a framework to propose process factors as mediators in the influence of self-care. At present, an analysis and evaluation of the Theory for its use in coronary diseases has not been carried out. Objective: to analyze and evaluate the Theory of the Specific Situation of Self-Care in Heart Failure Updated, for its use in research on other coronary disease. Method: The theoretical analysis was carried out according to the analysis strategy proposed by Walker and Avant, which consist of: identifying the origins of the theory, examining the meaning of the theory, logical consistency, utility, transferability, and parsimony. Original indexed studies using the Updated Theory were analyzed. Conclusion: The Theory presents concepts that are simple in their definitions and easy to be explored and measured. The theoretical structure allows hypothesizing that process factors can be tested as mediators or moderators between situational factors and self-care actions. The focus of the theory facilitates its use in creating mid-range and situation-specific theories in other chronic diseases. The theory provides a framework to explore new phenomena related to the decision-making process in self-care and the perception of symptoms in patients with coronary heart disease (such as, acute myocardial infarction, coronary syndrome and others), through the use of qualitative, quantitative correlational and mixed research.

Keywords: Nursing theory, self-care, nursing research, coronary diseases, theory analysis

1. Introduction

The morbidity and mortality of cardiovascular diseases (CVD) lead as the main health problem in adults in the world (Leslie, McCowan, & Pell, 2019). The World Health Organization (2018) reported that, in 2016, 17.9 million deaths due to CVD occurred in people aged 30 to 70 years; ischemic heart disease and cerebrovascular disease were the deadliest with 15.2 million.

The American Heart Association indicate that more than 50% of patients with coronary heart disease need outpatient cardiac rehabilitation as a secondary prevention measure after hospital discharge (Thomas et al., 2018). However, the rates of acceptance and adherence to the cardiac rehabilitation program are much lower than expected (S. González, Rodríguez, & J. González, 2019). Frederix et al. (2019) referred that only a third part of patients attending to the cardiac rehabilitation program. This problem reflects a poor self-care in the control of the disease by the patient. The rate of referral to a cardiac rehabilitation program by country ranges between 5% in Mexico and 90% in Lituana (Ragupathi et al., 2017).

In recent years, people with heart disease have been the most vulnerable to the SARS-CoV-2 virus, this virus causes direct injury to the myocardium (Zheng, Ma, Zhang, & Xie, 2020). Of the patients with severe symptoms due to COVID -19, 44% had arrhythmias and 25% had ischemic disease (Wang et al., 2020). This makes the need for intervention strategies that promote self-care in coronary disease more evident.

Non-compliance with prescribed pharmacological and non-pharmacological treatment in coronary heart disease reflects poor self-care that leads to cardiac complications, disability and hospitalization with possible death (Gandapur et al., 2016). This situation can be prevented by strengthening primary and secondary prevention programs emphasizing self-care. It is important to highlight that people with ischemic heart disease, coronary syndrome and heart failure present specific characteristics of the situation (of the person, of the problem, of the environment) that are frequently

considered as factors that influence self-care actions.

Different studies have examined interventions to improve and evaluate adherence to pharmacological treatment and healthy behaviors (stop smoking, healthy diet, physical exercise and other) as well as promoting knowledge about coronary diseases in people with an average age of 59 years, from a self-management perspective only (Brørs, Pettersen & Hansen, 2019; Pfaeffli et al., 2015; Johnston et al., 2016 & Hung et al., 2018).

However, it is necessary to address studies on self-care in heart disease with an emphasis on the self-care process that involves different types of self-care actions (self-care actions that maintain the stability of physical health, such as behaviors that promote and prevent disease; monitoring actions, such as surveillance and control actions; and management actions, which are response actions when abnormal signs and symptoms appear), and their influencing factors in each type of self-care action, in order to identify aspects that promote new specific strategies that help patients take care of themselves and to prevent dire cardiac complications.

Leading nursing care, proposing research studies for the benefit of patients with coronary heart disease based on theoretical frameworks that support the planning of interventions for self-care, is of the utmost importance. For this, it is essential to systematically analyze theoretical frameworks of the specific self-care situation (closer to the reality of the patient), which guides and explains the phenomenon of self-care and its influencing factors in an empirical research proposal.

From the foregoing, the need arises to analyze and evaluate the theoretical structure of the Situation Specific Theory of Self-Care in Heart Failure Updated by Riegel, Dickson and Faulkner (2016) to support its use in research to explore, describe, predict and give further explanation of the influence of various specific factors in self-care actions.

This article aims to analyze the theoretical structure of the Situation-Specific Theory of Self-Care in Heart Failure Updated and inquire into its logical structure and meaning; to evaluate if there is empirical evidence to support it, in order to propose intervention alternatives, aimed at preventing cardiac complications in adults with coronary disease (myocardial infarction, coronary syndrome, among others), as part of nursing care in this population.

2. Method

The theoretical analysis of the Theory was carried out according to the analysis strategy by Walker and Avant (2019). The Theory is fragmented into its components, each component and the relationship between them are examined. A review of original studies that used the Theory was carried out, in order to evaluate if the theory under analysis presents the necessary elements for its applicability in a research proposal in coronary disease, and to know in what type of research its use is pertinent. In the theoretical analysis strategy, the following steps were followed: 1) identify the origins of the theory, 2) examine its meaning, 3) examine its logical consistency, 4) its usefulness, 5) its generality or transferability, and 6) parsimony.

2.1 Identify the Origins of the Theory

The Situation-Specific Theory of Self-Care in Heart Failure Revised and Updated by Riegel et al. (2016) is the updated description of the original theory of the same name (Riegel & Dickson, 2008). The update stems from the successful use of the original theory and the Mid-Range Theory of Self-Care in Chronic Diseases that emerged of the original Situation Specific theory of Self-Care of Heart Failure (Riegel, Jaarsma, & Strömberg, 2012).

The theory is of inductive origin, since it is the result of reviews of qualitative studies. It implies three contributions that differ from the original theory. First, the inclusion of a new concept called symptom perception. Second, it differentiates autonomous self-care behaviors from consultative self-care behaviors. And third, establishes a close and comprehensive link between the elements and factors of the decision-making process with each self-care process (maintenance, perception of symptoms and management) (Im & Meleis, 2021; Riegel et al., 2016).

The theory is based on the Naturalistic Decision Making (NDM) theory, which indicates that the decisions that are made daily in real contexts and are influenced by the interaction between the elements of the NDM, called in the specific situation theory: situational factors of person, problem and environment; and by process factors such as knowledge, experience, skills and values (Riegel et al., 2016; Im & Meleis, 2021).

2.2 Examine the Meaning of the Theory

The Theory of Specific Situation of Self-Care for Heart Failure Updated is a nursing theory whose focus is the patient's self-care behavior (Im & Meleis, 2021). It is based on the fact that, although the disease conditions are similar, decision-making about self-care actions may differ depending on how it affects personal, environmental and problem factors of. This theory has the potential to approach a phenomenon in a unique way and in a particular context; allows exploring and explaining how people make decisions in real environments that are meaningful to them (Riegel & Dickson, 2008).

Riegel et al. (2016) redefined self-care as "the naturalistic decision-making process (in real settings) that influences daily actions that maintain physiological stability, facilitate the perception of symptoms, and direct symptom management when they occur." From there they extracted the three main concepts of the self-care process: maintenance of self-care—they are behaviors of adherence to treatment and healthy behaviors; symptom perception—which involves being attentive to the body, monitoring signs, and recognizing symptoms; and self-care management—referring to the response to symptoms when they occur. Each process includes autonomous and consultative elements; that is, self-care behaviors performed by patients independently and in consultation with caregivers or health providers.

The authors state that self-care actions are influenced by the interaction of particular or situational factors (person, problem, and environment) and the decision-making process (experience, knowledge, skills, and values). The authors, in the graphical representation of the theory, place process factors between situational factors and self-care actions. Next, the concepts of the theory are described.

2.2.1 Situational Factors

They characterize a specific situation. These present sub concepts:

Person Factors, they are individual characteristics such as age, gender, ethnicity, cultural identity, level of acculturation, socioeconomic status, health literacy, social norms, and others.

Problem Factors, are the additional physical difficulties that alter the health and well-being of the person, including: a) comorbidities, refers to associated diseases, with the administration of multiple medications for the various symptoms presented in the patient with heart failure. b) physical functioning, refers to the ability to perform activities of daily living, meet basic needs and maintain health and well-being, and c) mild cognitive impairment, manifested in subtle deficits in memory, attention and ability; Difficulty recognizing and responding to symptoms.

Environment Factors, defined as the medium that surrounds and the environment in which the patient lives, as well as the emotional and tangible support of others for self-care. Since the authors do not define them, it can be thought that they are variables that the evidence has shown affect self-care.

2.2.2 Process Factors

The authors refer to factors such as knowledge, experience, skill, and values that interact with situational factors for self-care decision making. They describe knowledge as relevant information learned that the person is able to remember. It involves the cognitive, perceptual, learning, communication, and reasoning processes, which are evidenced by the ability to interpret and explain meanings. Experience is based on knowledge and skill about a given subject, it is a result of repeated exposure to the phenomenon. The ability is to use knowledge effectively, and it is required to make a decision and act in a successful self-care behavior. Values are actions or behaviors compatible with one's own values. Personal values are derived from cultural values, either in agreement or disagreement with cultural norms. Decision making regarding self-care in real settings varies between individuals and situations influenced by sociocultural factors.

2.2.3 Propositions of the Theory

Propositions are statements that describe the relationship between the concepts of a theory, and can be tested empirically. The Theory presents eight propositions. Next, it will be determined what type of relationship each proposition presents according to the types of relationships presented by Walker and Avant (2019).

a) Specific self-care maintenance behaviors are influenced by particular factors. This proposition presents an effect relationship, because they indicate the influence of particular factors on the maintenance of self-care.
b) The set of physical and emotional symptoms influence self-care in unique and important ways. The proposition presents a causal relationship.
c) Self-care decisions can be conscious or unconscious. At first glance, this proposition does not present any type of relationship, it only denotes being descriptive; it is a proposition that allows to be explored qualitatively, to later establish associations and be tested.
d) Comorbid conditions alter the abilities to differentiate the cause of the symptoms and the self-efficacy of self-care in patients with heart failure.
e) The proposition presents an association relationship, which can be positive or negative.
f) Self-care self-efficacy mediates and/or moderates the relationship between self-care predictors: self-care maintenance, symptom perception, self-care management, and/or results. The proposition presents an indirect effect relationship.
g) Moderate to high levels of self-management in heart failure are required to improve outcomes. The proposition presents a linear relationship. This is justified in that the relationship assumes a change in one variable and quickly produces an arithmetic change in another variable.

h) As self-care self-efficacy increases, autonomous self-care behaviors increase. The proposition presents a linear relationship.
i) The maintenance self-care domain precedes the symptom perception domain, which in turn precedes self-care management. The type of relationship of concepts in this proposition according to the empirical evidence shown in the test of the psychometric properties of the Heart Failure Self-Care Scale Updated, show a relationship only of association (Riegel et al., 2019).

2.3 Examination of Logical Consistency

In the structure of the theory, the links between situational factors (person, problem and environment) that influence the decision-making process factors (knowledge, ability, experience and values) are observed, which in turn influence self-care actions. The relationship of the concepts of the theory is one of unidirectional cause and effect. However, the authors refer that this process can be unidirectional in reverse, according to the evidence that self-care can affect the characteristics of the person, the problem and the environment (Riegel et al., 2016).

The authors present the theoretical structure represented in Figure 1. This structure makes it possible to predict a correlation between the different situational factors, between the different process factors, and between the different self-care actions. Situational factors are presented in the left column. In the center, between situational factors and self-care actions, are process factors.

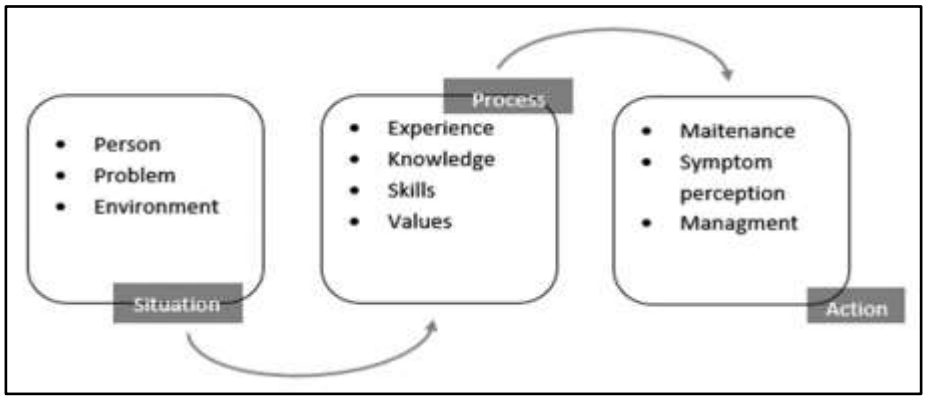

Figure 1. Connection between situational factors, process factors and self-care actions

* Typical direction between situational, process factors and self-care actions by Riegel et al. (2016).

From the above, an example of a hypothetical relationship model is proposed to be empirically contrasted in research studies on coronary diseases (such as, acute myocardial infarction, coronary syndrome and others. It is proposed that the process factor would act as a mediator and/or moderator of the effect or influence of the situational factors of person and problem in self-care actions. The hypothetical model represented in Figure 2 is: the process factor (knowledge about coronary disease) mediates the effect of the person's situational factors (age, female social norms and schooling), problem (comorbidity) on self-care actions for coronary heart disease.

knowledge about coronary diseases, defined as the information that the patient with coronary disease has about the disease, risk factors, prevention and symptoms (Koohi & Khalili, 2020).

Age, defined as the number of years since birth. Feminine social norms, defined as the rules and standards that guide and restrict the behavior of women, they are the social expectations about femininity in the public or private life of women (Mahalik et al., 2005). And schooling, defined as the years of formal studies.

Comorbidity in coronary heart disease refers to associated diseases such as hypertension, diabetes or hypercholesterolemia, which implies the intake of multiple medications for the various symptoms that the patient may present, which in turn can affect their self-care (Riegel et al., 2017).

Self-care actions, defined as a decision-making process in real settings that involves self-care maintenance actions for physiological stability (adherence to treatment and healthy behaviors); perception symptoms (being aware of physiological changes in the body); and self-care management, that direct the response to signs and symptoms of coronary disease (Riegel et al., 2016).

The hypotheses would be: a) knowledge about coronary heart disease mediates the effect of female social norms on self-care actions; b) knowledge about coronary heart disease mediates the effect of age on self-care actions; and c) Knowledge about coronary heart disease mediates the effect of schooling on self-care actions.

As can be seen, the theoretical structure of the Theory of Specific Situation of Self-Care for Heart Failure Updated is a platform for exploring the effect of situational factors (person, problem, and environment) on self-care actions (maintenance, symptom perception, and management), as well as testing the mediating effect of process factors between situational factors and self-care actions. Because of the theoretical structure and components of the theory, its use is not limited to heart failure disease, but can also be used in other coronary diseases.

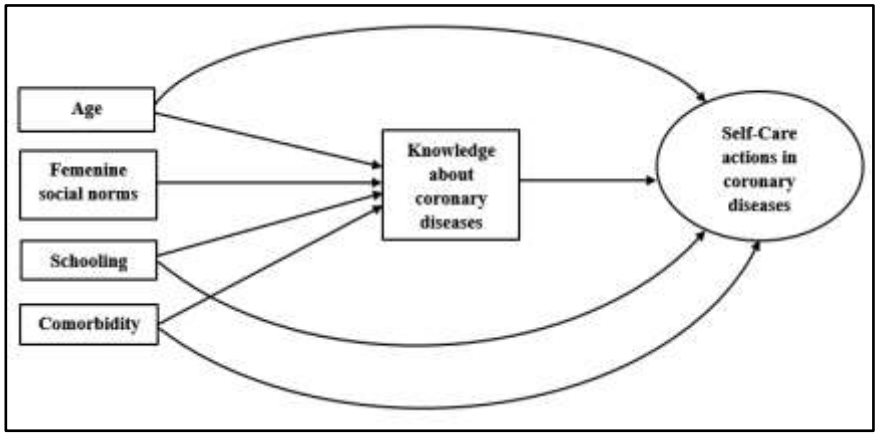

Figure 2. Hypothetical model of mediation between the person's situational factors and self-care actions

* Hypothetical model by Aranda & Gutiérrez (2022).

2.4 Utility

The Situation-Specific Theory of Self-Care of Heart Failure Updated, since its publication in 2016, has been used for various research purposes. Among them, identifying factors that influence self-care, creation of other theories, as well as testing the relationship between the self-care constructs of the theory in other contexts.

The theory has been cited 158 times since 2019. (Im & Meleis, 2021). This theory has served as a framework for the formulation or creation of new theoretical propositions, using qualitative and quantitative methodology. Herbert, Kastaun, Wilm and Barroso (2019) introduced a new situation-specific theory of barriers and facilitators for self-care in heart failure from a qualitative approach and from the concepts of the Situation-Specific Theory of Self-Care of Heart Failure Updated. The theoretical propositions they propose are: negative emotions, attitudes, cultural beliefs and ethical socialization influence the patient's self-efficacy. Uncertainty, incomplete knowledge, increased knowledge, past experiences, as well as a sense of control/commitment influence the concept of disease that the patient has about HF. And health professionals/health system, family, comorbidities and adverse effects of self-care influence both the patient's concept of disease regarding HF and the decision-making process.

Another study that used the theoretical framework was that of Meraz (2020), which aimed to understand different aspects to choose to take or not take medications in older adults with heart failure, the authors extracted five themes: a) I do not do this just because the doctor said so: b) Worry or uncertainty about a medication, c) Connecting the dots to make decisions specific to the situation and influenced by past experiences; d) Description of the personal value that guides medication decision-making; and e) I am not a non-adherent.

Luo, Lindell, Jurgens, Fan and Yu (2020) described how Chinese heart failure patients perceive their symptoms, and identified influencing factors. The study was based on the theoretical framework of the Theory of Specific Situation of Self-Care in Heart Failure, and used a correlational, descriptive design. Among their results were: the degree of perception of the symptoms of heart failure patients was affected by personal, psychological and physiological factors.

Santos et al. (2020) systematically reviewed the literature on symptom perception in heart failure and synthesized the definition, description, factors, and instruments that measure symptom perception. The synthesis of the definition was very similar to that described in Theory in Analysis; reported that the factors that facilitate the perception of symptoms are: previous hospitalization for heart failure, maintenance of self-care for heart failure, confidence in the perception of symptoms and social support. Barrier factors included: knowledge deficit and symptom clusters. They identified factors with inconsistent impact on symptom perception and include age, gender, education.

Riegel et al. (2019) tested the psychometric properties of the Heart Failure Self-Care Scale updated version 7.2 in three subscales: maintenance, symptom perception, and self-care management using factor analysis. The authors tested the structure of self-care actions and their harmony with the theoretical content of the Situation-Specific Theory of Self-Care of Heart Failure Updated.

The Self-Care Inventory was designed to reflect the self-care concepts of theory, and has been translated for use in

different languages such as Spanish, Chinese, Korean, Japanese, Persian, Polish, and Arabic, as recorded on the page https://self-care-measures.com/available-self-care-measures/self-care-of-heart-failure-index-2/ In research, the theory is used at the doctoral level with satisfactory empirical results for the benefit of patient care and nursing practice; at the teaching level, the theory has motivated the creation of undergraduate courses focused on self-care of chronic patients (Im & Meleis, 2021).

2.5 Generality or Transferability

Im and Meleis (2021) argue that the theories of the specific nursing situation, they are characterized by a low level of abstraction and arise in a context close to the patient, and therefore limited to generalize. However, when identifying the meaning of the focus of the theory like the patient's self-care behavior as a medium level of abstraction; and that, furthermore, from the original specific situation theory of Riegel and Dickson (2008), the Mid-Range Theory of Chronic Diseases of Riegel et al. (2012) was originated. It can be inferred that the Situation-Specific Theory of Self-Care in Heart Failure Updated is generalizable to mid-range theories. Therefore, it is proposed that the Theory can be useful in research on coronary diseases.

It is proposed that the situational factors and the process factors presented in the Theory be used in studies on coronary diseases such as acute myocardial infarction and other. Different studies show that factors such as obesity (comorbidity factor) and the knowledge factor about heart disease (process factor) influence self-care actions.

Sarre, Cabrera, Rodr ́guez and D ́az (2018) indicated that obesity is one of the main risk factors that contributes to the development of heart disease and its complications even in the absence of another risk factor. Obesity increases blood pressure, cholesterol levels, triglycerides, lowers HDL cholesterol and increases blood glucose. Jin, Neubeck, Koo, Ding and Gullick (2020) report that little knowledge about coronary heart disease is a barrier to proper management of the disease. Similarly, Tan, Hassali, Neoh and Saleem (2017) indicate that poor knowledge about the disease and the side effects of medication leads to inadequate adherence to treatment.

It is also proposed to test the mediating and/or moderating role of process factors between situational factors and self-care actions in coronary disease.

2.6 Parsimony

The theory is simple in its definitions and specific to the person, the problem and the real context. The concepts of the theory are simple to describe and explain a phenomenon, as well as easy to measure in an investigation. However, there is a lack of studies that explore, from a qualitative and mixed perspective, the decision-making process in real environments in self-care and the actions of self-care perception that includes actions of monitoring and listening to the body, in order to promote new knowledge related to self-care of patients with coronary disease.

3. Conclusions

The updated Heart Failure Self-Care Situation-Specific Theory establishes that comprehensive self-care comprises three interrelated self-care processes: maintenance, symptom perception, and management, which are influenced by process and situation-specific factors.

Based on the components, theoretical structure and logical consistency of the Theory, its use in coronary diseases such as acute myocardial infarction, coronary syndrome, among others, is proposed. The theory allows hypothesizing that process factors (such as knowledge) could mediate or moderate the influence of situational factors of the person (such as age, schooling, social norms, among others), problem (such as comorbidity) and environment (help from others) on self-care actions.

The theory offers a theoretical framework for the education and care of the ambulatory or hospitalized patient, typical of the nursing task, which would help support care such as education about the disease and treatment, healthy behaviors, rapid identification of symptoms, as well as what to do when a risk symptom appears, through different teaching-learning techniques or motivational interviews. It also offers a framework to support treatment monitoring strategies for the prevention of complications. The interaction between the nurses and the patient with a chronic heart disease is sustained over time and therefore requires theoretical frameworks of a specific situation applicable to the reality of the patient.

The theory provides an adequate framework to carry out qualitative, quantitative and mixed studies in different cardiac pathologies. Qualitative approach studies are necessary to identify and explore new phenomena related to decision-making in self-care, perception of symptoms, to know how different factors of person, problem or environment influence daily decision-making of self-care, and identify aspects that promote new strategies to help patients with heart disease take care of themselves. Mixed approach studies would help corroborate quantitative results with qualitative results or vice versa.

4. Limitations of the Study

The main limitation is that few articles were found regarding the updated theory, this could be due to the recent publication of the theory.

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The authors declare that there is no conflict of interest.

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