Theoretical Models That Explain Health Behavior Change

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Abstract
For health sciences, it's important to understand the factors that influence health-related behaviors. This information is key to creating personalized and effective interventions. Caregivers of people with disabilities often have a hard time taking care of themselves because of the emotional, social, and cultural challenges that come with their role. Interventions for this group must be based on theory to understand the cognitive, emotional, and social processes involved in behavior change. This essay looks at five important models: the Theory of Reasoned Action, the Transtheoretical Model of Health Behavior, the Motivational Interviewing Model, the Theory of Self-Efficacy, and the Health Promotion Model proposed by Nola Pender. The goal is to combine these models in a way that can be used in the future to support interventions with informal caregivers. The analysis shows how each model helps us understand the caregiver context. The Theory of Reasoned Action shows how people's beliefs about what others think can influence their actions. It often makes people think that taking care of themselves is a selfish act, which can lead to more people neglecting themselves. The Transtheoretical Model is a way of thinking about change that is continuous and nonlinear. This means that it can be used to create programs that are designed to fit the specific stage of readiness of the caregiver. The Motivational Interviewing and Self-Efficacy Models emphasize that internal drives and the belief in one's ability (self-efficacy) are key factors in determining whether someone will take action and keep up a new behavior. Nola Pender's model combines these ideas, emphasizing the impact of past experiences, personal characteristics, and perceived advantages or challenges. The idea behind this is that changes in how informal caregivers act are affected by what they believe and what they think they can do, as well as by what other people expect of them and the world around them. Therefore, effective interventions must be personalized to address the caregiver's self-efficacy, cultural beliefs, and stage of change. This will facilitate a shift from feeling a moral obligation to caring for someone to sustainable self-care.
Keywords: Theory of Reasoned Action, Transtheoretical Model of Health Behavior, Theoretical models, behavior change, Theory of Self-Efficacy, Health Promotion Model, Motivational Interviewing Model.

1 INTRODUCTION

For the sciences and professions of human health, it is essential to understand the factors or determinants that influence health-related behaviors. This knowledge makes it possible to design personalized interventions that increase their effectiveness and relevance for diverse users and contexts (1).

Informal caregivers of people with disabilities constitute a particular group within the population targeted by interventions aimed at positive behavior change. However, the emotional, social, and cultural circumstances associated with their role, which they face in their daily lives, may hinder decision-making related to self-care and personal well-being. For this reason, it is essential that interventions directed toward this population be built on

theoretical frameworks that allow for an understanding of the cognitive, emotional, and social processes involved in behavior change (2).
This essay analyzes five fundamental theoretical models for understanding behavior change in health: the Theory of Reasoned Action, the Transtheoretical Model of Health Behavior, the Motivational Interviewing Model, the Theory of Self-Efficacy, and the Health Promotion Model proposed by Nola Pender. Based on this review, conceptual integration is proposed, aimed at supporting interventions with informal caregivers (3).

2 Theory of Reasoned Action

Proposed by Fishbein and Ajzen in 1975, this theory explains how people make decisions to adopt specific human behavior. This psychological model is mainly based on the relationship between beliefs-attitude-intention-behavior, highlighting attitude as an affective phenomenon, but determined by beliefs about the object. Consequently, the model is influenced by behavioral intention, which is preceded by the individual's attitude toward the behavior in relation to its consideration as favorable or unfavorable, which in turn is determined by beliefs and previous experiences. The other determining factor of intention is the subjective norm, understood as the individual's perception of the expectations that significant others, such as family members, health professionals, or friends, have regarding their behavior. This norm is constructed from two elements: on the one hand, normative beliefs, that is, what the individual thinks others expect from them; and on the other hand, the motivation to comply with these expectations, which reflects the extent to which the person wishes to act in accordance with the opinions or desires of those they consider relevant. Together, the subjective norm represents the perceived social influence on behavior (4,5) (Figure 1).

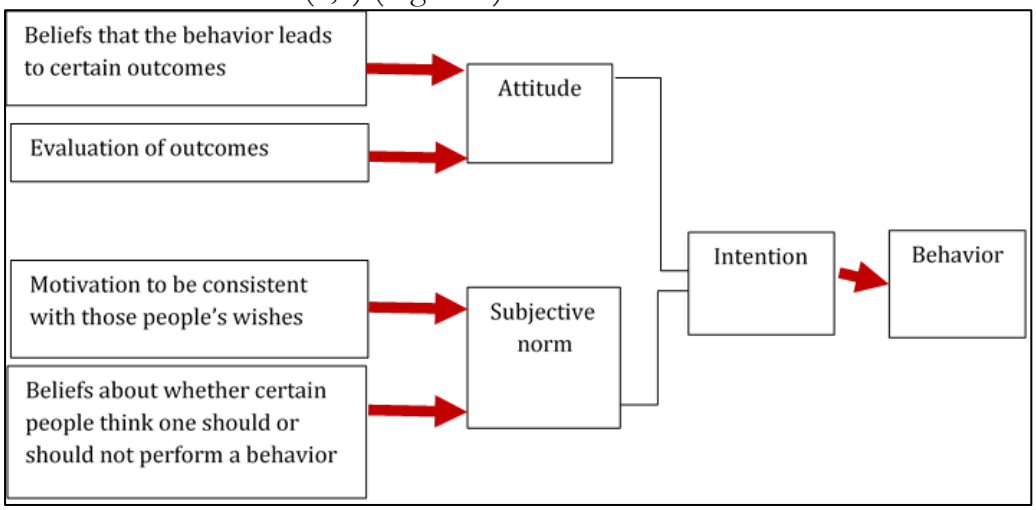


Figure 1. Adapted from Ajzen and Fishbein (4)

In light of the literature, the levels presented by this model—cognitive, affective, and behavioral—are closely related to the characteristics represented by caregivers. At the cognitive level, difficulties are described in understanding health-related topics, both those related to their own care and to the care of the people they look after. At the affective level, various emotions are involved, fluctuating between positive and negative, while the behavioral level results from the beliefs and reasoning carried out in relation to life purposes.
The Theory of Reasoned Action provides particularly useful explanatory elements for understanding the situation of informal caregivers, upon whom not only the objective burden of the role falls, but also a strong symbolic and socially constructed burden. In many cases, this burden arises both from external expectations—family, institutional, or

community—as well as from deeply rooted personal beliefs, associated with religious values, gender mandates, and cultural models of unconditional devotion (6). It is common, especially among women caregivers, to assume the role from a perspective of a vocation of sacrifice, where caregiving becomes a moral duty (7). Under this logic, the subjective norm and the attitude toward behavior are influenced by the belief that prioritizing self-care is a selfish or even petty act. This perception, far from promoting healthy practices, reinforces patterns of self-neglect that ultimately affect both the caregiver's health and the quality of care provided.

Based on these premises, intervening with caregivers begins with recognizing their beliefs, purposes, and understanding their various motivations, environment, and the people with whom they interact, all of which influence behavior. It could be interpreted that internal and external factors that may motivate the intention to make a behavioral change in this population should be reviewed.

Nola Pender, a pioneering nurse in the development of the Health Promotion Model, shares fundamental principles with the Theory of Reasoned Action, particularly regarding the role of beliefs, attitudes, and social influences in health-related decision-making. Both theories agree that behavior does not arise automatically but is preceded by cognitive processes that involve personal evaluations and social perceptions. However, Pender broadens this vision by more explicitly integrating personal factors such as the individual's biological, psychological, and sociocultural characteristics, as well as prior experiences that may act as facilitators or barriers to behavioral change.

Additionally, Pender's model recognizes the influence of social norms and interpersonal support—elements analogous to the subjective norm in the Theory of Reasoned Action—as key determinants of behavior (8). This conceptual framework highlights the importance of individualized assessment, considering not only objective environmental data, but also subjective beliefs, the level of self-efficacy, and readiness to change lifestyle habits. Taken together, both models emphasize that behavioral intention is shaped by both internal and external factors, which justifies the need to design interventions centered on the individual and their sociocultural context.

3 Transtheoretical Model of Health Behavior

It was consolidated during the 1990s by Prochaska and DiClemente (9), with contributions especially useful for the health sciences in the areas of health promotion and disease prevention, as it allows the identification of the stages an individual goes through in their change process and likewise facilitates for the educator the possibility of developing actions that support the process at each of those stages.

The model is based on the idea that change is voluntary and does not occur immediately or linearly, but rather progresses through stages, each with distinct characteristics and needs. This realistic approach makes it highly valuable for the design of health promotion programs and strategies. The theoretical constructs on which the model is based are represented by the stages and processes of change (Figure 2).

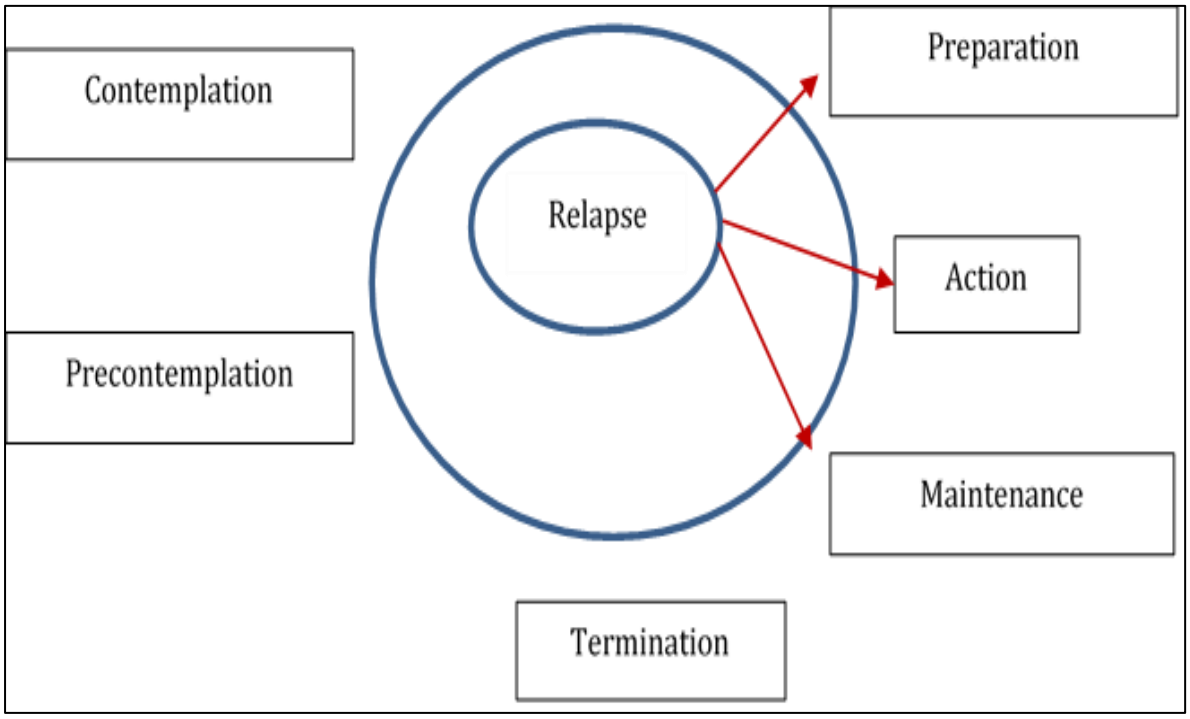


Figure 2. Representation of the stages of change in the transtheoretical model (10)

The precontemplation stage is characterized by the fact that people have no intention of changing a risky behavior or a health-related problem within a six-month period. This may be associated with lack of awareness, previous unsuccessful attempts, failures, or discouragement. The next stage is contemplation, in which the individual begins to recognize that a problem exists and seriously considers change, although no concrete decision has yet been made. Ambivalence is common: there is an intention to change, but no commitment to act.

Preparation is the stage in which the individual has already decided and begins to act in favor of adjusting behaviors. At this point, they show a defined awareness, and there is great potential to participate in action-focused programs.

Action is the stage that demonstrates objective, measurable changes within a time window of one to six months. Here, a higher level of self-efficacy is observed. This latter concept is conceptually supported in Nola Pender's model, where it is presented as the judgment of a person's ability to organize and execute a health-promoting behavior, proving to be a highly reliable predictor of progression in the stages of action and maintenance.

The maintenance stage is complex: individuals are expected to work actively on relapse prevention; self-confidence plays an important role in sustaining behavioral change.

Finally, the termination stage occurs when individuals experience no temptation whatsoever regarding the specific behavior they have successfully changed.

This model holds that the processes of change involve strategies and techniques that people use to modify their behavior (10). The conception of change as a continuous process and not as an isolated event establishes an important conceptual convergence with Nola Pender's Health Promotion Model. In both approaches, behavior is understood as the result of multiple interactions between cognitive, emotional, personal, and contextual factors. In particular, Pender highlights the role of situational influences, defined as the individual's perceptions and cognitions about their environment, which may either facilitate or hinder the adoption of healthy behaviors (8).

In this sense, considering the theoretical frameworks presented, the model relates to the Motivational Interviewing Model, defined as a drive or impulse experienced by an individual that gives rise to a specific behavior. Hence the importance of identifying an

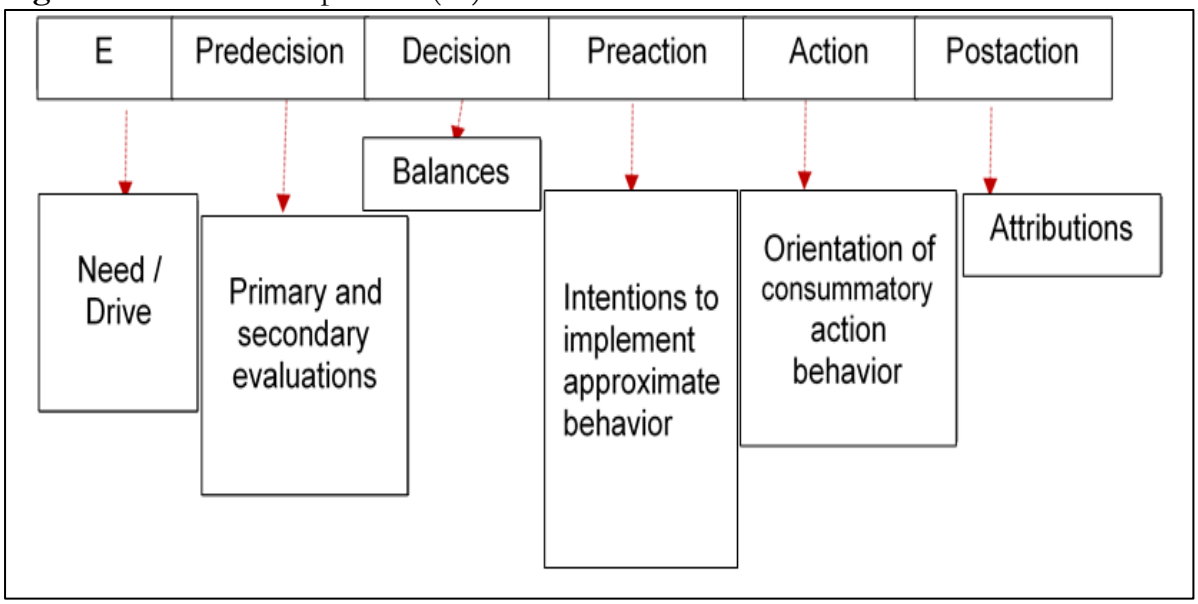
action plan designed according to the stages outlined by the model, beginning with assessment and ending with evaluation and support in the face of relapses that may arise during behavioral changes.

4 Motivational Interviewing Model

The motivational process is based on a sequence of phases that occur throughout life. It begins with an impulse and an evaluation of what drives the desire to make decisions, optimizing all the fluctuating variables in order to make decisions that are demonstrated in concrete actions, which are later evaluated in terms of whether they were successful or not. This last phase is important, as it allows for reflection on whether the achievement was the result of personal motivation or the influence of other variables.

In the motivational process, the motivational cycle itself encompasses the processing of information responsible for choosing a goal, through the operation of cognitive processes that affect the underlying variables in the phases of pre-decision, decision, and post-action (11) (See figure 3).

Figure 3. Motivational process (10)



Based on these premises, studies have shown that the adoption of healthy lifestyles depends on people's motivation (12). In fact, when planning interventions aimed at informal caregivers, factors such as time, number of sessions, quality of materials, didactics, and "motivation" have been incorporated (13,14).

On the other hand, the psychological dimension of health promotion and prevention presents stages that allow for integration with the concepts outlined in the described models, including Nola Pender's.

It is worth identifying the stages presented, as they show a step-by-step process that caregivers may face when taking part in an intervention aimed at promoting healthy lifestyles (See figure 4).

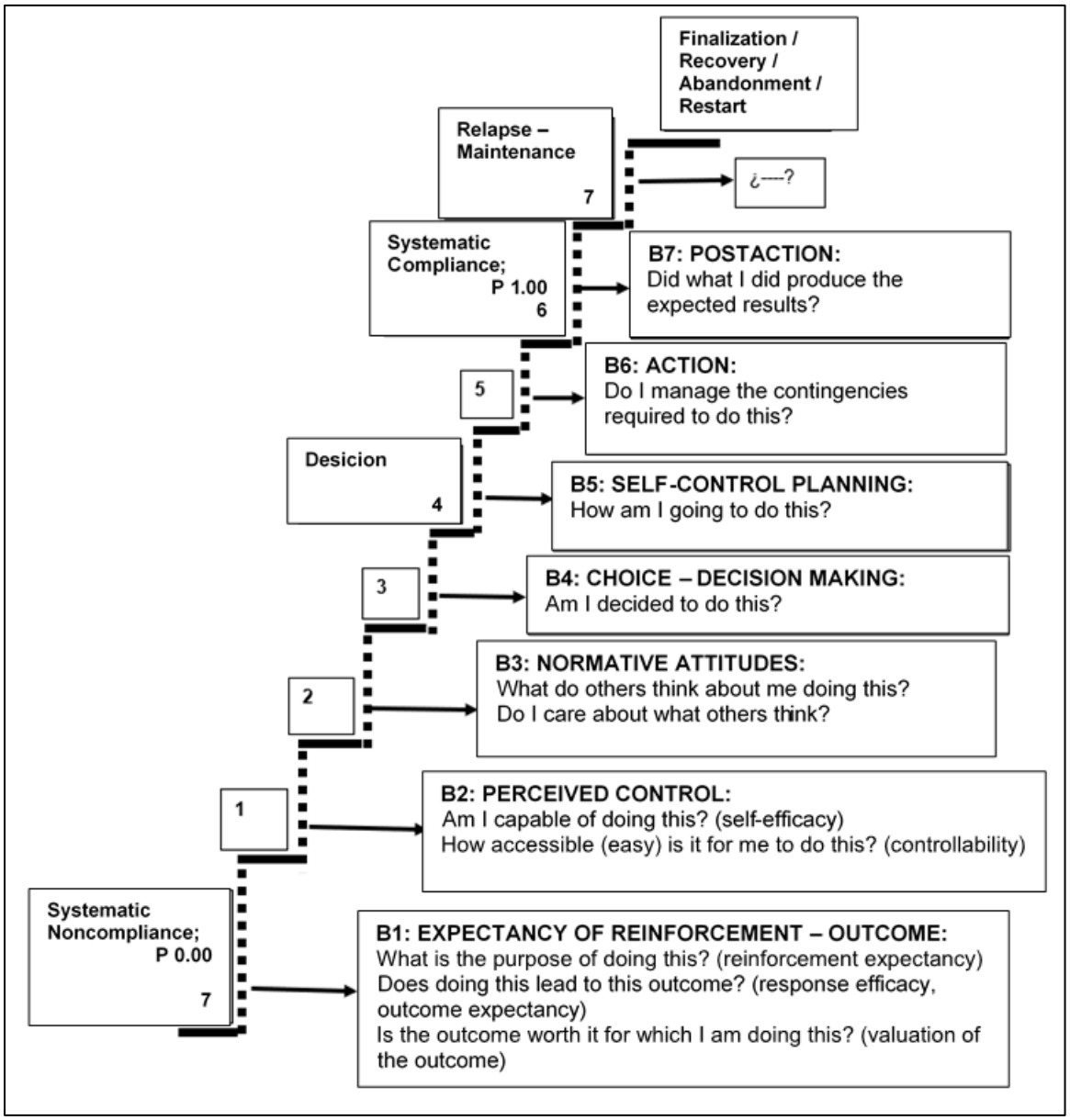


Figura 4. Psychological dimension of health promotion and prevention (11)

The conceptual similarity between these two models is represented in:
B1. Reinforcement expectations are linked to previous related behavior, since there is a likelihood of committing to health-promoting behaviors, asking oneself questions such as: What would be the benefit of doing this?
B2. Perceived controllability, linked to the concept of perceived benefits of action, defined as the anticipated positive outcomes that could result from the behavior.
B3. Normative attitudes, related to the concept of interpersonal influences, since they include knowledge about the behaviors, beliefs, or attitudes of others. This includes others' expectations, social support, and modeling through learning.
B4. Choice or decision-making.
B5. Self-control planning, linked to the concept of commitment to an action plan, where an intention and a planned strategy already exist, leading to the development of a health behavior.
B6. Action with health-promoting behavior, projected as the target or outcome of the action directed toward positive health results.
For these reasons, the motivational process for informal caregivers constitutes a fundamental aspect of decision-making, thus enabling lifestyle changes.

5 Self-Efficacy Model and Health Behaviors

Proposed in 1977 by Bandura (15) in 1977, it has been adapted by psychology and nursing theory. Expectations of self-efficacy, or perceived self-efficiency, refer to a person's beliefs about possessing the capabilities to carry out the necessary actions that will allow them to achieve desired results.

This same concept is described in Nola Pender's model, where it is presented as the starting point of personal capacity to organize and execute a health-promoting behavior (16).

A study analyzing the concept of self-efficacy explains that nursing professionals play an important role in promoting health-promoting behaviors, including a healthy diet and exercise (16), dimensions that are part of the lifestyle measurement instrument proposed by Nola Pender, the author of the model.

7 Health Promotion Model Proposed by Nola Pender

The author Nola Pender was born in Lansing, Michigan, on August 16, 1941, and developed an interest in the field of health when she observed, in a health institution, the way nurses performed while caring for a relative (17).

Her doctoral work focused on evolutionary changes involved in the process of immediate memory coding in children. From there, an interest in the field of human health arose, becoming the starting point for the development of the Health Promotion Model.

Thanks to her professional training, she has contributed research focused on health promotion, specifically aimed at helping people adopt healthy lifestyles (17).

In her early research, more than 40 studies were conducted that demonstrated the model's potential for promoting lifestyles, exercise, nutrition, hearing protection use, and prevention of exposure to environmental smoke.

One of the first investigations carried out by the author together with other researchers compared health-promoting behaviors in older adults with those of young and middle-aged adults. This was a descriptive and correlational study within the target population (18).

Since 2004, she has published various articles on physical exercise, behavioral change, and relaxation practices as aspects of health promotion that influence people's health.

For her distinguished career, she has received many awards and honorary recognitions related to caregiving.

The Health Promotion Model indicates that the individual characteristics and experiences of each person influence their future actions. The set of variables that affect knowledge and specific behavior carry significant motivational meaning, and these variables can be modified through nursing interventions. Health-promoting behavior is the desired behavioral outcome and represents the ultimate goal of the Health Promotion Model. These behaviors are expected to lead to improved health, functional capacity, and quality of life at all stages of life. However, the achievement of these final behaviors may also be affected by competing immediate demands and preferences, which could interfere with planned health promotion actions (19).

8 THEORETICAL FOUNDATIONS

Pender's foundations lay in nursing, human development, experimental psychology, and education. The bases of the model are integrated with other theories: Albert Bandura's Social Learning Theory, which presents cognitive processes in behavior change. One of its main constructs is self-efficacy, which became the central concept of the proposed model.

Additionally, it drew support from the Expectancy-Value Model of human motivation described by Feather, and presented in some of the previous sections.
Finally, it is important to consider the construct of Becker's Health Belief Model, which isolates behavior related to disease prevention, and instead emphasizes describing the individual characteristics that influence health behaviors, without using fear or threat as a source of motivation for behavior (20) (See figure 5).

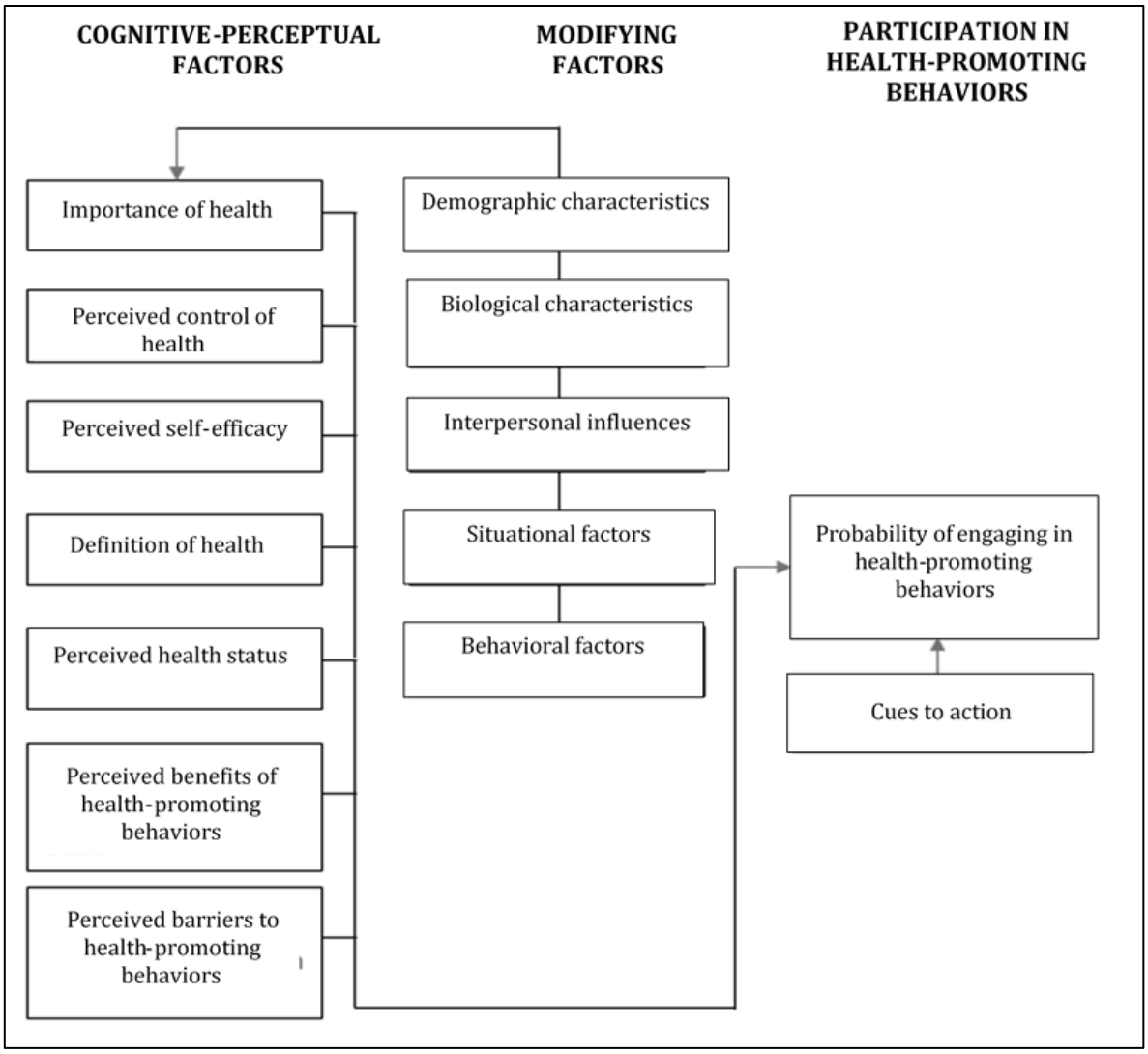


Figura 5. Becker's Health Belief Model (20)

Prior Related Behavior refers to the frequency of the same or similar behaviors in the past. This has both direct and indirect effects on the likelihood that the patient will adopt health-promoting behaviors. Personal factors are categorized as biological, psychological, and sociocultural. These factors are predictors of a given behavior and are modulated by the nature of the daily behavior being considered. Within personal biological factors are variables such as age, sex, body mass index, pubertal status, menopause, aerobic capacity, strength, agility, and balance.

Personal psychological factors include variables such as self-esteem, self-motivation, personal competence, perceived health status, and the definition of health. Some sociocultural factors are race, ethnicity, acculturation, education, and socioeconomic status. Cognitive and affective aspects of specific behaviors are considered of greater importance in relation to motivation; these variables can be modified through nursing interventions. Perceived benefits of action are anticipated positive outcomes of a health behavior. Perceived barriers to action are anticipated, imagined, or real blockages, as well as the personal costs of adopting a given behavior.

Perceived self-efficacy is the judgment of one's personal ability to organize and perform a health-promoting behavior. Perceived self-efficacy influences perceived barriers to action, such that higher efficacy determines a lower perception of barriers to carrying out the behavior.

Activity-related affect describes the subjective positive or negative feelings experienced before, during, or after a behavior, based on the stimulus properties of the behavior itself. Activity-related affect influences perceived self-efficacy, which implies that the more positive the subjective feeling, the greater the sense of efficacy. In turn, the increase in the feeling of efficacy can generate greater positive affect.

These influences are cognitive aspects related to the behaviors, beliefs, or attitudes of others. Interpersonal influences include norms (expectations of significant others), social support (instrumental and emotional encouragement), and modeling (vicarious learning through the observation of others practicing a specific behavior). The main sources of these interpersonal influences are family, peers/friends, and healthcare professionals.

Situational influences are personal perceptions and cognitive aspects related to a given situation or context, which can facilitate or hinder a behavior. They include perceptions of available options, required characteristics, and aesthetic features of the environment in which a specific health-promoting behavior is intended to be carried out. Situational influences can condition health behavior either directly or indirectly.

The following are the immediate antecedents of behavior or its outcomes. A behavior is initiated through a commitment to action, unless there is an unavoidable competing demand or an irresistible competing preference.

Commitment to a plan of action describes the concept of intention and the identification of a planned strategy, which leads to the implementation of a health behavior. Competing demands are alternative behaviors over which individuals have little control, due to environmental contingencies such as work or caregiving responsibilities. Competing preferences are alternative behaviors over which individuals have relatively high control, such as choosing between ice cream or an apple for a snack.

Health-promoting behavior is the outcome or consequence of an action aimed at achieving a positive effect on health, such as optimal well-being, personal satisfaction, or a productive life. Examples of health-promoting behaviors include consuming a healthy diet, engaging in regular exercise, stress management, achieving adequate rest and spiritual growth, and developing positive relationships (18) (See figure 6).

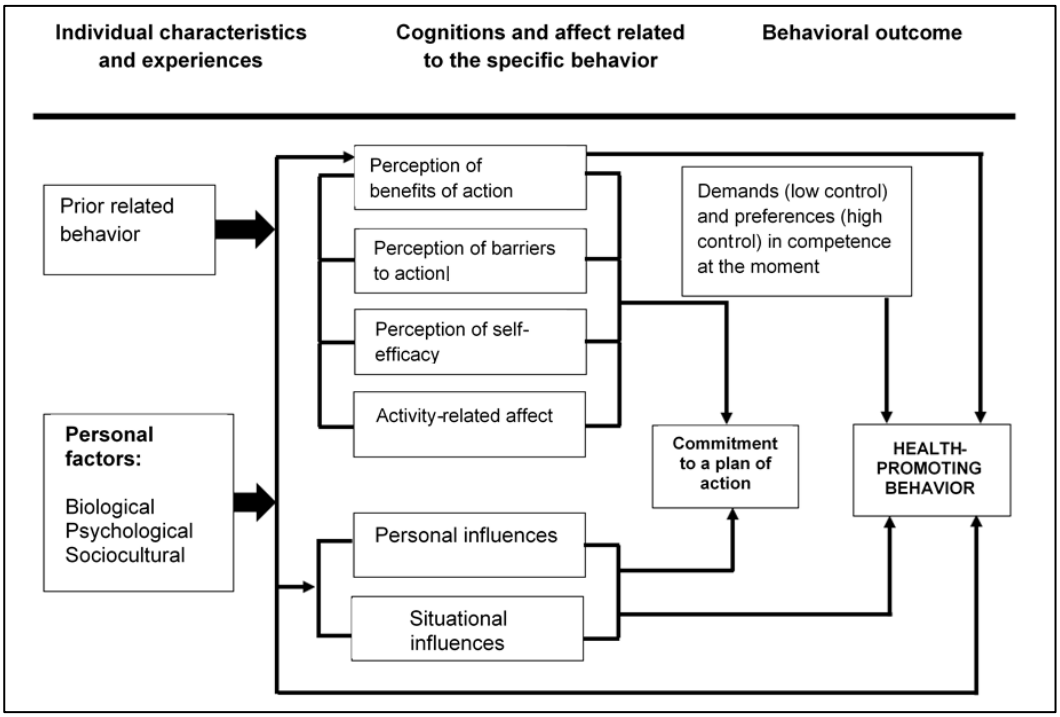


Figure 6. Pender's Health Promotion Model (18)

Considering the analysis carried out, the operationalization of the concepts of Nola Pender's Model is proposed, as well as their articulation with the characteristics of informal caregivers (See figure 7).

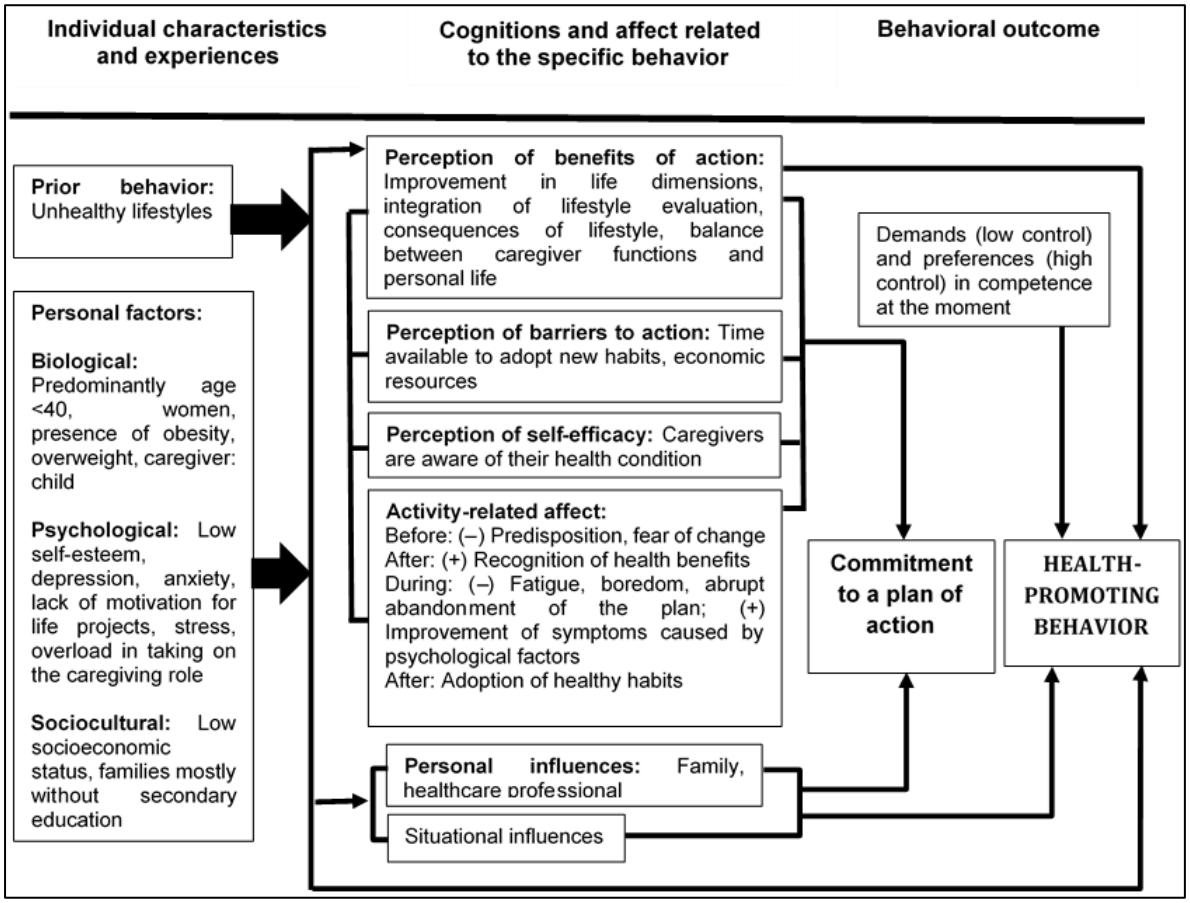


Figure 7. Operationalization of the health promotion model applied to the caregiver population

When reviewing the models presented, it can be observed that, as a whole, the concepts are interrelated. It is worth considering the importance of carrying out an assessment of individual characteristics, as well as biological, psychological, and sociocultural factors prior to behavioral changes, and subsequently continuing with action plans that respond to existing demands and needs.

9 CONCLUSIONS

The comparative analysis of theoretical models of health behavior change allows us to conclude that each offers a diversity of solid theoretical foundations to explain and understand lifestyles and self-care decisions within the challenging circumstances faced by informal caregivers of persons with disabilities. In this sense, each approach contributes to the construction of an eclectic framework, resulting from the combination of perspectives from social psychology, learning theory, and community nursing. This facilitates a comprehensive vision of the change process, recognizing that it is neither linear nor uniform, but rather dynamic, gradual, and deeply influenced by beliefs, emotions, social contexts, and individual perceptions.

Both the Theory of Reasoned Action and Nola Pender's Health Promotion Model highlight the importance of considering personal attitudes, social norms, self-efficacy, and commitment to action, while the Transtheoretical Model provides a valuable sequential structure for tailoring interventions to the specific motivational stage of each individual. These conceptual convergences support the need to design personalized educational interventions that not only inform but also mobilize intentions, strengthen skills, modify limiting beliefs, and activate caregivers' internal and external resources.

In the context of preparing an educational intervention, these models make it possible to identify which factors should be initially assessed, how to structure the training content, and which strategies to use according to the level of readiness for change. Furthermore, they guide health professionals on the importance of accompanying caregivers without judgment or pressure, recognizing that many of their resistance to self-care are mediated by cultural mandates, gender roles, religious beliefs, and past experiences.

Designing interventions based on these frameworks implies acknowledging that behavioral change requires time, continuous support, and a compassionate approach that validates caregivers' experiences while simultaneously promoting their empowerment.

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