

Eclectic model for the construction of healthy behaviors: food and exercise

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Abstract

The theoretical models that explain health behaviors are diverse, however, there is not an eclectic model that explains how healthy lifestyles for exercise and nutrition are acquired from the cognitive point of view. It is here that the interaction of The Human Information Processing Theory (PHI) and The Connectionist Theory and Semantic Facilitation lead to self-description and healthy behaviors represented by self-care. The way in which knowledge is acquired that guides health behaviors, part of a sensory base under the main postulate of empiricism, all the stimuli that come from the external environment through the senses are processed in the brain giving meaning through a symbolic interaction that favors reacting accordingly. The purpose of this article is to present a proposal of a theoretical model of symbolic interaction as the basis of the semantic network that people use for their health care, as well as to understand how, from the cognitive point of view, self-description of a person is essential to perform or not self-care actions for health.

Key-words: Semantic network. Symbolic interactionism. Health. Self-care. Empiricism.

Introduction

The cognitive mechanism that connects experiences and memories is known as symbolic interaction or semantic network.¹ It can be used as a tool for health professionals to carry out better interventions in disease prevention. It can theoretically help to develop cognitive self-care skills.² Healthcare learning is regularly transmitted from one person to another, who as members of a specific cultural circle, show similar habits and experiences reflected from one generation to the next, which means, they are inherited socially.³

This premise continues to describe, on one hand, how it is that the person, despite having self-care skills for health, does not adequately put them into practice.⁴ On the other hand, there are people with healthy lifestyles, who they reflect on how they describe themselves (self-schemas) to carry out specific health care such as healthy eating and exercise.

Cognitive tools can be a fundamental part of the service provided by health professionals to understand why human behavior has different responses. In this way being able to offer interventions to give better results.⁵

The purpose of this paper is to present a proposal of a theoretical model for the construction of healthy behaviors in diet and exercise through symbolic interaction as the basis of the semantic network that people use to take care of their health. As well as understanding how is that from the cognitive point of view, the self-description of a person is essential to carry out or not self-care actions for health including good nutrition

and exercise. The following is a brief description of The Theory of Human Information Processing (HIP), connectionist theory and semantic facilitation to explain the self-schemas for proper exercise and self-care actions.

Human Information Processing Theory (HIP)

According to Fiske and Taylor,⁶ the HIP theory shows how the phenomena appears in the environment is sufficient to produce a meaning that can be stored, associated and organized in the memory system to such a level that when activated it can produce a meaning. The theory of HIP starts from empiricism explaining how knowledge is acquired through the senses (sensory memory).⁷ Knowledge is acquired by what is repeatedly observed, heard, touched, smelled and tasted to build sensory memory to short and long term memory.⁸

The HIP theory postulates that all kinds of concepts are definable by lists of attributes or properties of the objects and constitute the basis of a meaning.^{6,9} Information in long-term memory is believed to be stored in the form of conceptual networks elaborating meanings from observed events.¹⁰ These representations are known as semantic networks where it is emphasized the formation of a meaning is a subject to a constructive process. It uses partial or complete information of the event that is meant. For example: if the semantic network for a fruit is listed as follows: yellow color, elongated and curved shape, non-consumable and smooth peel; one would immediately think of a banana. Since that information has entered the

senses numerous times and memory has retained it. However, if we add to this descriptive information that it has a seed and its flavor is very sweet, the concept would go from a banana to a mango. This response is conditioned by what has previously been stored in memory through the senses. Regardless, the HIP theory shows information processing very serially and does not fully explain the executive or neurophysiological functions in how the brain performs. To complement the explanations of how life styles are acquired from a cognitive point of view, a complementary theory is presented below.

Connectionist Theory and Semantic Facilitation

Eduardo L. Thorndike's connectionist theory (CT) postulates, unlike the serial HIP model, information is processed in parallel through neural networks in the brain, since what is processed is not a symbol. However, patterns of activation that are equivalent to the microstructure of a symbol.^{10,11}

The principle of processing remains the same, the phenomena of the environment is processed through semantic networks. Furthermore, in CT allows to assess the semantic distance between concepts, which, assess the similarity between them for the construction of meanings that let it infer certain health behaviors. Likewise, the semantic network in CT allows working with images and sounds, not only with concepts. CT can be part of the reasoning to understand how symbolic representations form part of subsequent mental processes begin to be created from childhood and that may be determining factors in the health behaviors of a mature adult who is conditioned by long-term memory. This reasoning can largely explain how people acquire healthy or unhealthy lifestyles. The environment in which we live nowadays fosters certain customs such as sedentary lifestyle, inadequate nutrition, alcoholism and drug addiction. Children and adolescents living in these environment with some of these kind of lifestyles, plus the influence of the extra-family environment, acquire a series of meanings that they classify and recognize for the operationalization of their behaviors (semantic facilitation).¹²

However, these lifestyles can be discriminated and health behavior is not always altered, otherwise, as children and adolescents develop, the process of forming these mental representations is frequently subject to cognitive memory errors.¹⁰ In adult life, the generation of diseases such as diabetes, hypertension, obesity, cancer, alcoholism can be happened.

The explanation of how the proximity or distance interaction of each of the concepts is carried out to form a meaning is as follows: the information is automatically processed through the neural network, the more experience we have had with the stimuli from the environment, the greater and faster will be the coding response, the semantic distance between them is shorter and they can be related automatically.¹³ Perhaps this is one of the ways that it can be explained the action and the self-care deficit for the health that people adopt in their lifestyles.

For example: in an obese-genetic environment,¹⁴ a person who intends to improve their self-care actions,¹⁵ but who cannot accomplish them, due to there is not a contextual stimuli that allows them to interact with an environment that can help the person. If the person wants to run, there is not track. If the person wants to ride a bicycle, there is not a bike trail. If the

patience wants to buy healthy food at the store, there is only junk food. If the person wants to go the gym, it is very expensive to afford. If the patience wants to improve his diet, salads are more expensive than fast food. Despite that, all of this is reinforced by the information and the social media, mainly from television and social networks. The message is to eat hypercaloric foods with excessive portion sizes. Although, this explanation is viable, there is a lack of research in this regard that supports the theory of self-care, it does not seem sufficient to point out that the semantic facilitation of individuals explains lifestyles. Rather than, the stimuli accumulate during the development and growth of the individual, it is possible to think about the generation of patterns that are automatically facilitated in the neural network. Perhaps, this is the way in which the self-description is formed, this means, the development of the specific self-scheme for exercise and food.

Auto-schemes for exercise and proper nutrition

The self-schema is defined as the self-definition that influences the intention or non-intention of people to engage a behavior based on past experiences.¹⁶ If there are considered the theories of HIP and CT, to build the self-outline, environmental stimuli are processed, using learning and memory. The internal cognitive structures that select and organize information over time to develop self-care skills. Knowing one's self-schema provides information that can be used to infer or anticipate the type of behavior that dominates or has preference. The auto-schema, more than a mere repository of semantic information, serves as a processing function that allows to operate a certain health behavior. Thus, the auto-schema can be a guide to explain part of the thought patterns or mental structures that individuals use to deal with environmental events.¹⁷ Therefore, self-schemas can be linked to behaviors such as exercise and eating.

Regarding exercise schemes, Kendzierski D. and Sheffield A.,¹⁸ has identified three groups:

1. Schematics for exercise (who practice or intend to practice exercise),
2. Non-schematic for exercise (those who have no intention or do not exercise, but consider it important) and
3. Aeschematic (those who have no scheme regarding exercise).

According to Markus,¹⁹ exercise schematics have stronger and more efficient intentions to engage exercise behaviors than non-schematics. According to the literature, it has been clearly determined that according to the type of scheme for exercise, the size of the effect is consistent with its practice. The populations studied involve both sexes, adolescents, adults and older adults, the minority has been carried out with groups suffering from chronic disease or obesity. Evidence seems to suggest that semantic networks may be involved in the results of these investigations.

The schematic for exercise presents a percentage of body fat significantly thinner than the aeschematic group ($p = .001$) in a population with an average age of 19.6 ± 1.7 , thus presenting a lower risk of suffering health-compromising diseases such as cardiovascular and metabolic, to name a few of the most important.²⁰

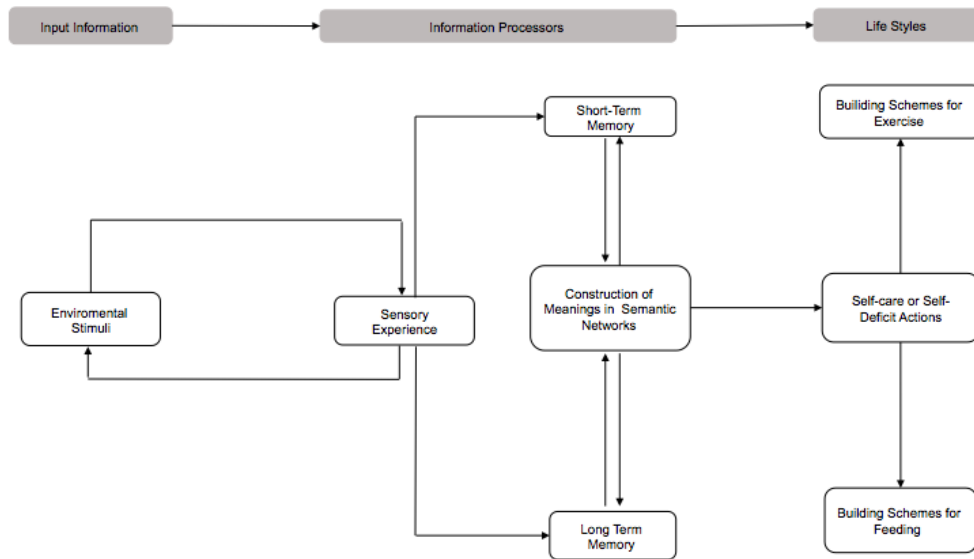
In another study, the exercise self-scheme was related to the attendance of a 24-week exercise program in women with

chronic-degenerative diseases ($r = .27, p = .04$), the exercise intervention helped the self-descriptions for the exercise will increase at the end of the program ($t = -4.48, p = .01$).¹⁷

The evidence of these results could help to improve the

explanation that environmental stimuli interact with lifestyles in a closer semantic network to develop self-care actions.

Figure 1. Construction of meanings for the development of self-care skills



Source: Author's Elaboration

Figure 1 shows a synthesis of the eclectic model proposed in this test. The model is built on three constructs: input information, information processes, and lifestyles. For the first construct, it refers to the stimuli of the environment that is processed within the sensory experience of individuals through repetition or repeated experience. The process information through the sensory experience where the Connectionist Theory to construct the different meanings that in the short or long term through memory provide the basis for a semantic network. As a result, they have healthy lifestyles or not, depending on the experience that the individual has had in their sensory and cognitive processing with the stimuli of the environment. This is one of the ways in which self-care actions and healthy lifestyles can be explained.

In order to explain the proposal of the eclectic model, it is necessary to carry out theoretical reasoning to show the relationship between the three constructs. The theoretical postulates would be as follows:

1) If the stimuli of the environment is processed with input information through the sensory stimuli that constructs the short and long-term meanings as a semantic network. Then, the actions are explained or the deficit of self-care for the conformation or not of schemes for exercise and good nutrition as lifestyles.

2) The construction of meanings processed through stimuli from the environment conditions the actions or the self-care deficit.

3) Repeated significant experiences that are processed as a semantic network explain lifestyles through the development of self-care actions.

4) The relationship between self-care and the formation of schemes for exercise and diet, explain lifestyles.

Final comments and conclusions

What was presented in this paper was only one of the possible theoretical explanations for why certain lifestyles such as exercise or good eating habits are adopted or not through an eclectic model. The findings in the literature seem to support the theory, everything that occurs in the environment directly affects cognitive self-care abilities. Therefore, adopting a healthy lifestyle requires symbolic interaction to form a behavioral reference pattern, this It is based on past experiences in the environment where the person grows and develops. The explanation in this eclectic model could be an excellent working tool for health professionals when carrying out interventions, specifically those that include the treatment of changes in habits such as exercise and proper nutrition, two simple lifestyles that are out of the question. proven to prevent and limit chronic diseases. However, in most cases, changing the self-schemas results in failure, because there is no maintenance of new lifestyles, so you must have a continuity of care to strengthen the construction of meanings that favors the Self-care, this represents an opportunity to build hypotheses that can be tested through research in cross-sectional or longitudinal designs.

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