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Health Knowledge

Differential effects of health knowledge and health empowerment over patients' self-management and health outcomes: A cross-sectional evaluation

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ABSTRACT

Objective: The role of health knowledge and empowerment in explaining behavioral and health outcomes was treated in depth in the literature, but the combined effect of these constructs has been somehow neglected. This study presents an empirical, a priori, cross-sectional evaluation of the differential effects of health knowledge and empowerment on patients' self-management and health outcomes.
Methods: This study relies on a cross-sectional design involving a total of 209 Fibromyalgia patients. Structural Equation Modeling techniques were employed to analyze the model relationships.
Results: Knowledge and three empowerment dimensions were found to positively impact health outcomes. However, these relationships were not mediated by self-management. Self-management, operationalized in terms of physical exercise and drug intake, was found to be a strong predictor of health outcomes.
Conclusion: Despite the lack of support for the mediating role of self-management, a strong impact of knowledge and empowerment over health outcomes was observed. Theories of health literacy and empowerment may benefit from this result by integrating both dimensions in an overall model of behavioral and health outcomes change.
Practice implications: Results from this study suggest that health interventions targeted to chronic patients should focus simultaneously on knowledge and empowerment, rather than favoring one of these individual constructs.

1. Introduction

The literature on health behavior change and health literacy share the goal of defining and testing relevant predictors of behavioral and health outcomes. While the former body of research focuses on psychological constructs such as self-efficacy, attitudes, beliefs, subjective norms and others [1], the latter has a strong cognitive orientation and adopts concepts such as knowledge, literacy, and individual skills [2–6]. Building upon these two traditions, Schulz and Nakamoto [7–9] proposed a theoretical model that combines cognitive and psychological variables to explain patient's behaviors and health. This model involves the constructs of health knowledge, empowerment, behavior and health status. Specifically, it predicts that the combined effect of knowledge and empowerment can explain (significantly) more variance in the behavior than these constructs analyzed as standalone predictors [9]. The present investigation aims to test whether this combined effect of both knowledge and psychological empowerment on behavioral and health outcomes holds in a group of chronic patients. Without expanding too much on the theoretical description of each concept (for an exhaustive discussion, see [7–10]), a brief review of each construct implied by the model is proposed, followed by an empirical verification of the hypothesized relationships.

1.1. Health knowledge and health literacy

Building upon traditional and seminal research on health literacy and health knowledge [2,11], Schulz and Nakamoto [7–9] and Rubinelli et al. [12] introduced the idea of an integrative perspective on these constructs. Expanding on Nutbeam's three-tired definition [2] they argue that health literacy should be considered, beyond its functional components, as construct that captures the way a person judges different situation within the broader context of his experience and values. In this sense, they operationalize it as a combination of declarative and procedural

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knowledge, complemented by the individual level of judgment skills [9].

Beyond their theoretical rationale, health knowledge and health literacy have received a great deal of attention in the health communication literature because of their prominent impact on individual health and healthcare costs. Several systematic reviews of articles addressing the relationship between health literacy and health outcomes [13–15] support the idea that patients with low literacy have a poorer health status, including knowledge, intermediate disease markers, measures of morbidity, general health status, and use of health resources. Even more striking is the fact that low literate patients are generally 1.5–3 times more likely to experience negative health outcomes. At a more general level of analysis, Andrus and Roth's review of consequences of inadequate health literacy [16] showed its association with lack of knowledge, decreased comprehension, lack of understanding and use of preventive services, poorer self-reported health, poorer compliance rates, increased hospitalizations and increased health costs. Another outcome of health literacy that emerges is the inability of low literate patients to make an effective use of healthcare services [17], ultimately leading to a poorer ability to self-manage a health condition and to fewer adherences to treatment plans. Given these results from former research, health knowledge and health literacy – when conceptually defined as more than reading, writing, and numeracy skills – seem to play a major role in explaining people's behavior.

1.2. Empowerment

Health empowerment is defined as a construct that links individual strength and competencies, natural helping systems, and proactive behaviors to social policy and social change [18–20]. According to Perkins and Zimmerman [21] empowerment goes beyond self-esteem, self-efficacy, competency, locus of control and other traditional psychological constructs and can be considered a multilevel and multidimensional construct [22–24] closely linked to self-determination [25,26] and self-efficacy [27,28]. Moving from these considerations and favoring a psychological perspective, Thomas and Velthouse [29] proposed a cognitive model of empowerment, defined as increased intrinsic task motivation, where task motivation involves positively valued experiences that individuals derive directly from a task. In this respect, empowerment is the building block of the model proposed by Schulz and Nakamoto [7–9], where knowledge must be accompanied by a volitional component in order to better predict changes in individuals' behavior. Indeed, in the healthcare domain, powerlessness has been associated with ill health [30] while empowerment is considered a determinant of improved health status [31–33].

When it comes to its operationalization, several partial measures of empowerment have been added to health related surveys. A systematic review by Herbert and colleagues [34] found a total of fifty questionnaires measuring health-related empowerment. Unfortunately, only one proved a good evidence of validity and reliability, and only four provided moderate evidence on both criteria. The most valid and reliable instrument retrieved is the Parent Empowerment Survey [35]. The four moderately valid and reliable instruments are the Empowerment Questionnaire [36], the Family Empowerment Scale [37], the Family Empowerment Questionnaire [38], and the Psychological Empowerment Scale [39]. All these measurement instruments are designed for very specific settings and purposes (e.g. individuals with brain damage, parents with children affected by emotional or physical disabilities). General measures of psychological empowerment are described in Menon [40] and Spreitzer [41]. This latter is built on the theoretical model of Thomas and Velthouse [29] and was thus favored and used in this study. However, the need for purposely developed and validated measures to test empowerment in the domain of chronic conditions must be acknowledged and pursued in future research.

According to the chosen operationalization, four distinct dimensions compose empowerment: meaning, competence, self-determination, and impact.

- *Meaning* concerns the value of the task goal or purpose and involves the individual's intrinsic caring about a given task [29]. Meaningfulness is therefore related to the personal relevance a certain task assumes for the individual engaged into an action. A typical item measuring meaning would be "I feel that doing this (e.g. physical exercise for a chronic condition) is relevant to me".
- *Competence* refers to the degree to which a person can perform task activities skillfully when he or she tries [29]. This construct is close to self-efficacy or personal mastery as defined by Bandura [27,42] and by Conger and Kanungo [28]. An exemplar indicator for competence would be "I am able to do this (e.g. to perform a physical exercise)".
- *Self-determination* involves causal responsibility for a person's action [29]. It is the same as the locus of causality, or whether a person's behavior is perceived as self-determined. In this respect it reprises Deci and Ryan's [43] self-determination construct. An indicator of this dimension would be "I can independently choose between different (e.g. treatment) options".
- *Impact* refers to the degree to which behavior is seen as "making a difference" in terms of accomplishing the purpose of the task, that is, producing intended effects in one's task environment [29]. A typical item measuring the impact dimension would be "I can make a difference (e.g. in reducing my pain)".

1.3. Self-management and health outcomes

Both health knowledge and empowerment have been shown to have a great impact on the self-management of chronic conditions [17,44–49], which mediates their impact over health outcomes. However, health and behavioral outcomes are strongly condition dependent. This study focuses on a specific kind of chronic condition (Fibromyalgia syndrome, FMS) and the behavior under analysis is self-management. The behavior of FMS patients is particularly interesting because it involves the maintenance and the constant uptake of health-promoting actions, keeping a balance between the need to adhere to a treatment and the need to live the everyday life as normally as possible [44]. FMS is a syndrome of chronic widespread pain and tenderness in 11 or more of the 18 specific tender point sites [50]. Although the medical evidence is still lacking precise diagnostic criteria for FMS, there are three major symptoms that are usually associated with the syndrome: pain, sleep disorders and fatigue [51–53]. FMS is currently treated with both pharmacological and non-pharmacological interventions [54,55]. Drug intake and physical exercise are the two main indicators of self-management and treatment adherence for FMS [56], with the latter that should be favored (i.e. the more patients adhere to physical exercise, the less drugs will be assumed leading to a general reduction of side-effects).

1.4. A model of health knowledge and empowerment effects

According to Schulz and Nakamoto [8,9], health knowledge and empowerment should be simultaneously considered as predictors of behavioral and health outcomes. Building on this idea, an a priori model was defined and tested (see Fig. 1). As we shall explain in more details in the measurement section, two indicators of