Self management

Influences of health literacy, judgment skills, and empowerment on asthma self-management practices

Ana Maria Moreno Londoño *, Peter J. Schulz

Institute of Communication and Health, University of Lugano, Lugano, Switzerland

ABSTRACT

Asthma self-management has been recognized as an essential factor for the improvement of asthma outcomes and patients' quality of life (WHO, 2013). Likewise, empowerment and health literacy have been noted as important elements for the management of chronic diseases.
Objective: To study the influence of health literacy and empowerment on asthma self-management.
Methods: This cross-sectional study used a self-reported questionnaire assessing health literacy, judgment skills, empowerment, and asthma self-management; 236 patients were recruited from medical offices in Switzerland and Italy.
Results: Judgment skills ($B = 2.28$, $p < 0.001$) and empowerment ($B = 0.19$, $p < 0.05$) have a significant and positive influence on several asthma self-management practices such as use of medicines, timely medical consultation, and asthma triggers control whereas health literacy ($B = -0.15$, $p < 0.175$) appeared to have a negative effect on self-management practices. However, this was not significant.
Conclusions: These findings suggest that empowered patients with adequate judgment skills carry out key self-management tasks more appropriately, which in turn will potentially result in better asthma control.
Practice implications: This study recommends that both empowerment and judgment skills should be addressed in patient education as they serve as essential motivators to engage patients in these behaviors.

1. Introduction

To date, there are 235 million people worldwide suffering from asthma [1]. The prevalence of this chronic condition has been increasing due to the transition of societies to more westernized lifestyles [2]. Although, asthma is a rather treatable condition that allows individuals to have normal lives, a great deal of asthma morbidity and mortality still happen. Some of the reasons for this are: lack of information about the health condition [3], over-confidence in short-term treatments, and sub-optimal self-management [4]. Regarding the latter, appropriate asthma self-management practices have been highlighted as the most cost-effective way for reducing morbidity and mortality [2,5]. These practices include: monitoring symptoms, controlling allergens, adhering to treatment, and adjusting medicines when necessary.

In spite of the importance of these practices for asthma control and improvement of patients' quality of life, they are not always carried out in the most effective and proper way by patients, who rather consider them as a challenge to follow as they require a great deal of attention and responsiveness.

The Health Empowerment Model (HEM) [6] proposed to explore the influence of health literacy (HL) and psychological empowerment (PE) on patients' ability to get involved effectively and responsively in their own health care. Health literacy (HL) is "the capacity of individuals to obtain, process, and understand basic health information and services needed to make appropriate health decisions" [7], and psychological empowerment is understood as the intrinsic motivation that allows individuals to take an active role in their own healthcare, putting into practice the knowledge and skills provided by HL. This model states that having adequate HL and PE result in patients' eagerness to learn about their health condition, participate in the decision-making processes, and engage effectively in activities that lead to attaining good health.

* Corresponding author at: Institute of Communication and Health, University of Lugano, Via Giuseppe Buffi 13, CH-6904 Lugano, Switzerland.
Tel.: +41 58 666 44 85; fax: +41 58 666 46 47.
E-mail addresses: anamorenol@gmail.com (A.M.M. Londoño), peter.schulz@usi.ch (P.J. Schulz).

In the HEM, health literacy is conceptualized as a multilevel concept [6], built up from the basic *functional skills* (e.g. reading, writing), to more advanced abilities known as *judgment skills* (JS). These refer to individuals' abilities to deal with a health condition by appraising health information, recognizing their own competencies, identifying barriers, and filling in informational gaps by asking questions [8]. *Psychological empowerment* is composed of four elements known as: *meaning*, *competence* (also known as self-efficacy), *self-determination*, and *impact* (also known as locus of control) [9]. Together, they refer to patients' perceptions of their abilities to care about their health condition, have autonomy, and being capable of carrying out tasks regarding their health condition.

Thus, HL provides the skills to use health information effectively and PE provides the motivation to use these skills.

Earlier studies have recognized HL as facilitator in asthma self-management, as patients are better equipped with knowledge and skills to carry out these practices [10–12]. These studies have found that, when asthma patients have appropriate HL skills, asthma symptoms are better controlled [13,14], medication adherence is higher, inhaler use technique is more adequate, and asthma-related knowledge is better [11,12,15]. Nevertheless, these findings are generally attached to the measurement of functional health literacy focusing only on patients' reading, writing, and numeracy skills [13]. Therefore, the present study proposes to explore the influence of some of the HEM components including psychological empowerment and judgment skills, along with critical literacy as proposed by Nutbeam [16] on patients' asthma self-management practices.

Critical literacy (CL) refers to more advanced cognitive skills that allow individuals to extract information, derive meaning from different forms of communication, and analyze and use this information [16]. It was included in order to measure two different levels of advanced health literacy skills.

Switzerland and Italy were chosen as setting for this study as both countries present similar rates of asthma prevalence, 6% in Switzerland [17] and 7% in Italy [18]. In Switzerland half the sufferers have insufficient asthma control partly due to inappropriate self-management practices [17]. The situation in Italy is expected to be similar.

This study hypothesizes:

H1. The higher the judgment skills of a patient, the better is his or her asthma self-management.

H2. The higher the patient's critical health literacy is the better is his or her asthma self-management.

H3. The more empowered a patient is the better is his or her asthma self-management.

2. Methods

A cross-sectional survey was conducted to test the hypotheses. The Italian-speaking region of Switzerland was selected as a setting because of convenience for the researchers based in this area. As asthma prevalence is similar in Italy, bordering cities close to Switzerland were included. The two populations share the language and many cultural aspects. However, they differ on the health care system. The Swiss health care system follows a private model where everybody is obliged to have a health insurance and pay for it, while in Italy the system is public and provides a full coverage for its citizens.

2.1. Recruitment of doctors

In Switzerland, the study included the four main hospitals in the Italian-speaking region, and several private offices. A total of 68 health care providers from this region were invited to participate in the recruitment of asthma patients. Twenty-seven of them accepted, including 11 pulmonologists, 4 allergists, 7 general practitioners, and 5 physiotherapists. All of them were found in online directories of practitioners, or by personal referral from other participant physicians. Different strategies were used to contact them. When possible personal appointments were preferred; otherwise other channels such as e-mail, formal letter, or phone calls were used. In Italy, the recruitment of doctors was done through referral from other participant doctors. In total, 16 doctors agreed to participate with the recruitment of patients, 7 pulmonologist and 4 general practitioners; the majority of them worked at the Milan policlinic, with exception of 3 working in hospitals in the vicinity. No remuneration was provided.

2.2. Recruitment of patients

The inclusion criteria for patients were: being diagnosed with asthma by a physician, and at least one of the following being currently engaged in asthma therapy; having had an asthma attack; or having experienced symptoms in the last year. Furthermore, participants had to be at least 18 years old, and fluent in Italian. A sample of 236 participants was included in the study.

Questionnaires were administered either by physicians during the medical consultation or by their assistants in the waiting room. The questionnaire was self-report, and the responses were anonymous. Patients received the questionnaire in paper-pencil format, together with a form to sign to give patient informed consent, information about the project, funding sources, and the ethics committee approval (i.e. Comitato Etico Cantonale FN132445.Rif.CE2453). The original questionnaire was drafted in English and translated into Italian.

2.3. Measures

All variables excluding socio-demographic items, asthma knowledge, and judgment skills, were measured by a 5-point Likert scale from Strongly Agree (5) to Strongly Disagree (1). Appendix I, shows all the items included in the questionnaire and the different scales used. All these scales were assembled into one questionnaire, and the majority of them have been validated and previously used in other studies. The following describes each of them:

Critical literacy scale [19]: This was composed by five items assessing participants' skills on obtaining, evaluating, and using health information, e.g. "I can understand and communicate the obtained information". Previous reliability analysis show a good internal consistency of the tool (Cronbach's $\alpha = 0.86$) and a good construct validity [19].

Judgment skills scale [20]: This is a scenario-based tool for the context of asthma self-management composed of 11 situations and four response options each (ordered randomly). The scenarios address the topics of exercise, doctor–patient communication, information seeking, asthma triggers control, symptoms recognition, and medicine usage, e.g. a person experiencing asthma symptoms for several days. Four response options are offered, and respondents are asked to choose the most appropriate action in the given situation. How adequate or inadequate each of the options is from a medical point of view is known from previous expert rating [20].

Asthma knowledge scale [21]: This was used as a control variable and is composed of twelve true-and-false items on asthma management and on asthma medication based on current guidelines, e.g. "you can become addicted to asthma medications if you use them all the time (false)". One item from the original version of