Medication information

Medication information seeking behavior of patients who use multiple medicines: How does it affect adherence?

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A B S T R A C T

Objective: This article explores medication information seeking behavior (MISB). We aimed to develop a scale for measuring MISB and use it to explore the relationships between MISB, adherence and factors, which drive information seeking.
Methods: Patients ($N = 910$) using multiple medicines completed questionnaires. Exploratory and confirmatory factor analyses were performed. Correlations and multivariate analyses were used to investigate the relationships between variables.
Results: Respondents sought medication information mainly from health professionals and written medicines information. The medication information seeking behavior scale (MISB) had acceptable reliability and validity. Information seeking was most intense among respondents who had recent changes in their medicine regimen and worries about their medicines. Those who sought medication information from autonomous sources were more likely to be non-adherent than those who never did (OR = 2.00 [1.48, 2.70]). Seeking information from health professionals had no influence on adherence.
Conclusion: Health practitioners should carefully attend to patients' questions about medicines information. When patients mention that they are worried about their medicines and have sought medication information from television, magazines, brochures or family and friends, this could be a sign that they tend towards non-adherent behavior.
Practice implications: The MISB scale could be used to learn more about patients' use of medication information.

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1. Introduction

Patients have a key role in improving medication safety [1]. The dangers of not providing patients with adequate information about medication treatments are well-known [2]. Central to developing strategies aimed at improving medication safety is an understanding of patients' medication information seeking behavior (MISB). Anker et al. proposed a framework of health information seeking behavior (HISB) [3]. They identified gaps in understanding of: predisposing factors driving behavior; characteristics of behavior; and outcomes related to information searching. In particular, the links between (HISB) and health-related outcomes has largely been under-researched [3].

Of particular importance to medication safety is whether patients' MISB assists them to overcome medication non-adherence [4]. Little is known about the relationship between tendency to seek medication information and adherence. An internet survey of consumers demonstrated that seeking medication information via the internet was associated with non-adherence [5] but 75% of respondents were under 55 years, hence likely not to be taking multiple medicines [6].

A common feature of both HISB [7] and intentional non-adherence [8] is that both behaviors are closely associated with negative affective response to risk. Within many models of information seeking, anxieties, worries and/or concerns are central to "motivating" patients to seek information. These models include: the Comprehensive Model of Information Seeking (CMIS) [9], the Risk Information Processing Model (RIPM) [10], the Theory of Motivated Information Management (TMIM) [11], and the Planned Risk Information Model (PRISM) [12]. Closely related to affective responses to health risks are uncertainties [13]. Brasher (2001) suggests that information seeking is a coping strategy, which is invoked to manage uncertainty. Lambert and Loiselle [14]

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argue that individuals' HISB is "initiated" by any event, experience or message that creates perceived knowledge gaps and uncertainty. Given that chronic disease management commonly involves flux, patients are likely to experience uncertainty and *medication-related worry* at many stages of their medication management.

Certain risk factors are associated with an increased likelihood of experiencing medication-related problems [15,16]. Several of these factors have been associated with morbidity and unplanned hospitalisation. Three of these factors: a recent change in medication regimen [17,18]; being recently discharged from hospital [19]; and having multiple regular prescribers [20] were of interest in this study. These risk factors could conceptually increase patients' uncertainties and medication-related worries by creating conditions of information insufficiency or presenting the patient with increased exposure to various medication information sources. The latter could also provide greater possibility of receiving conflicting information.

Furthermore, demographic factors may influence MISB. Lenz [21] suggests that age, socio-economic status, and education influence patients' HISB. The effect of age is highly relevant to the present study. Patients at risk of medication misadventure are often older, have multiple morbidities and take multiple medicines [6]. With increasing age, the internet becomes less frequently used as an information source [22].

A literature search failed to provide a suitable measure for MISB to investigate potential relationships described above. Using Anker et al.'s framework [3], this exploratory study aimed to: characterize the breadth and frequency of medication information resources used by persons who take multiple medicines; determine which demographic and medication risk factors are predictive of MISB; and determine whether MISB is associated with adherence.

2. Methods

2.1. Overview

This study was part of a larger study investigating the views of recipients and eligible non-recipients regarding the Australian Home Medicines Review (HMR) program. Ethics approval was given by The University of Sydney Human Ethics Committee.

2.2. Patients

Pharmacists recruited respondents for this study. Eight hundred and ninety-eight pharmacists were contacted throughout Australia and 264 (29%) agreed to recruit respondents. In total, 4184 questionnaires were distributed to community pharmacists and pharmacists working in medication management services from November 2008 through May 2009.

Pharmacists were instructed to recruit 5 recipients and 5 eligible non-recipients of the HMR service. Pharmacists could choose to recruit more respondents if desired. Eligibility for the HMR program is premised on the patient using multiple medicines and being at risk of medication misadventure [23], so pharmacists were instructed to recruit non-recipients on that basis. A more detailed description of the tool provided for pharmacists to assist with defining eligibility and recruitment into the larger study is available [24]. In the present study, non-recipients were included only if they were taking more than 5 regular medicines or taking more than 12 doses daily.

Pharmacists distributed questionnaires with reply-paid envelopes to patients who completed and returned them directly to the research team. Follow-up calls were made to the pharmacist after five working days and again at four weeks after dispatching the study materials, in order to assure maximum questionnaire distribution by pharmacists.

2.3. Measures

2.3.1. Adherence

The MARS-5 scale was used to measure respondents' adherence behavior. MARS-5 consists of five questions regarding the frequency with which one undertakes non-adherent behavior. Possible responses were 1: "always" to 5: "never". Total scores range from 5 to 25 where a score of 25 indicates perfect adherence. The scale has been used in several studies regarding patient adherence [25–28].

2.3.2. Medication information seeking behavior (MISB)

In order to characterize the breadth and depth of respondents' MISB, the questionnaire design of Shieh et al. was followed [29]. However, for the sake of parsimony, respondents were provided with a single question: "How often do you seek information about medicines from each of the following?" The options available were guided by the study of Narhi and Helakorpi [30] and an Australian study [31]. Options available were; general practitioner, specialist medical practitioner, pharmacist, nurse, internet, magazines or books, family or friends, television, seminars or talks, Brochures or posters, and written medicines information (WMI) which was referred to in the questionnaire as "Leaflets that come with the medicines or printed by the pharmacy". In order to observe the same level of generality of the MARS-5 scale, this question was not conditioned (with an explicit time-period).

2.3.2.1. Socio-demographics.
The demographic information collected in the questionnaires included gender, age group, education and postcode. The postcode was used in combination with Australian census data to provide an index of socio-economic advantage [32]. The index is a continuum of advantage (high values) to disadvantage (low values), which takes into account factors relating to a person's access to materials and social resources.

2.3.3. Medication risk factors

The three medication risk factors: having a change in medication regimen within the past three months; hospitalisation within the past month; and having multiple regular prescribers, were recorded as either "yes", "no", or "not sure".

2.3.4. Medication-related worry

McCaul & Goetz [33] identified two dimensions of worry in relation to health behavior – intensity and frequency. They suggest that there is no consensus about which is most influential in modifying behavior. In order to observe the same level of generality as our measures of information seeking and adherence, we defined medication-related worry as the frequency with which a person worries about health problems resulting from taking medicines. It was measured with a single 5-point semantic differential scale with available responses ranging from 1: "never" to 5: "always".

2.4. Data analysis

PASW version 18.0.03 (SPSS Inc., 2009, Chicago,IL, www.spss.com) was used for all analyses except confirmatory factor analysis (CFA) which was performed with EQS 6.1 build 97 (Multivariate Software Inc.) (www.mvsoft.com).

2.4.1. Medication information seeking behavior (MISB) scale development

Given the large number of responses (*n* = 910), the data file was split into two groups, to explore then confirm MISB factor structure. Exploratory factor analysis (EFA) with oblique rotation was performed on sample A data (respondents who had