



Medication information

A drug education tool developed for older adults changes knowledge, beliefs and risk perceptions about inappropriate benzodiazepine prescriptions in the elderly

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ABSTRACT

Objective: To develop and test an educational tool for older adults that increases risk perception about benzodiazepines through knowledge acquisition and change in beliefs.

Methods: A written educational tool was mailed to 144 benzodiazepine consumers aged ≥ 65 years recruited from community pharmacies. Knowledge and beliefs about inappropriate prescriptions were queried prior to and 1-week after the intervention. Primary outcome was a change in risk perception. Explanatory variables were a change in knowledge and beliefs about medications. Self-efficacy for tapering and intent to discuss discontinuation were also measured.

Results: Post-intervention, 65 (45.1%) participants perceived increased risk. Increased risk perceptions were explained by better knowledge acquisition (mean change score 0.9, 95% CI (0.5, 1.3)), and a change in beliefs (BMQ differential mean change score -5.03 , 95% CI $(-6.4, -3.6)$), suggesting elicitation of cognitive dissonance. Self-efficacy for tapering, (mean change score 31.2, 95% CI (17.9, 44.6)), and intent to discuss discontinuation of benzodiazepine with a doctor (83.1% vs 44.3%, $p < 0.001$) were higher among participants who perceived increased risk.

Conclusion: Risk perception surrounding inappropriate prescriptions can be altered through direct delivery of an educational tool to aging consumers.

Practice implications: Patients should be targeted directly with information to catalyze discontinuation of inappropriate prescriptions.

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1. Background

Medication safety in the elderly population represents a unique challenge. Older adults are at increased risk of drug side effects, drug-drug interactions and adverse events due to age-related changes and associated disease [1,2]. The 2012 updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults lists all drugs-to-avoid in the elderly to reduce the risk of drug-related adverse events [3,4]. All benzodiazepine sedative-hypnotic drugs used for the treatment of anxiety and insomnia feature on this list due to an excessive risk of delirium, falls, fractures and motor vehicle accident [5].

With every update to the Beers criteria, significant efforts are made to inform and educate relevant parties to try and implement

safer prescribing practices. We sought to develop an educational intervention to inform consumers directly about the risk of benzodiazepine drugs. We chose benzodiazepine drugs because qualitative research suggests that chronic users develop a psychological dependence to benzodiazepines, attributing them qualities that extend beyond their ordinary capacity [6]. Most consumers deny or minimize side effects while expressing subtle reluctance to outright refusal for being left suffering without these medications [6]. For these reasons physicians often express reticence for insisting on benzodiazepine discontinuation for fear of upsetting the doctor-patient relationship or because they believe that the patient tolerates the medication with minimal side effects [7].

The objective of this study was to develop and test an educational tool targeted directly to older consumers on the risks associated with benzodiazepine use in the geriatric population. By applying constructivist learning theory to the development of the educational intervention, we aimed to evaluate the potential of this tool for increasing the patient's risk perception by eliciting cognitive dissonance through knowledge acquisition and belief alteration. We hypothesized that improvements in patient

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knowledge, beliefs and perceived medication risk would lead to greater motivation for initiating discussions about drug discontinuation with a doctor or pharmacist and greater self-efficacy for tapering benzodiazepine use.

2. Methods

A quasi-experimental study was conducted among a cohort of chronic benzodiazepine users aged 65 years and older in Montreal, Canada. Participants were randomized to immediately receive an educational intervention to reduce inappropriate prescriptions or to a six-month wait-list group. The current analysis presents interim results on short-term changes in risk perceptions about benzodiazepines due to the intervention. The study was approved by the Institut Universitaire de Gériatrie de Montréal Ethics Committee in Montreal, Quebec, Canada.

2.1. Participants

The study population included community-dwelling men and women aged 65 years and older, consuming at least five prescription medications including a benzodiazepine dispensed for at least three consecutive months. Exclusion criteria were a diagnosis of severe mental illness or dementia ascertained by the presence of an active prescription for any antipsychotic medication and/or a cholinesterase inhibitor or memantine. Participants unable to communicate in French and/or English or showing evidence of significant cognitive impairment (score under 21 [8] on the MOCA (Montreal Cognitive Assessment)) were also excluded.

2.1.1. Recruitment

Participants were recruited from community pharmacies in the greater Montreal area. Pharmacists identified eligible patients from their databases and invited them to enroll in the study through personalized mailed invitations, referring them to the study coordinator. A telephone follow up from the pharmacist (or delegate) aimed to ascertain interest in the study from eligible participants who had not spontaneously contacted the coordinator. An appointment was made with the study coordinator at participant's residence for those who provided permission to be contacted for the study. Signed consent was obtained from individuals who met study criteria after baseline cognitive and health status screening.

2.2. The educational intervention

2.2.1. Theory and development of the intervention

Social cognitive theory, which consists of health promotion through social cognitive means, guided the development of the intervention [9]. The specific learning model that was applied was constructivist learning. Constructivist learning theory aims to promote active learning through creation of knowledge that seeks to make sense out of the material presented. The goal of this approach is to create an environment where the learner can interact with academic material, fostering their own selecting, organizing and information integrating processes [10]. Such theories have already proven successful in other health promotion interventions such as in educational materials for smoking cessation [11].

A critical component of constructivist learning theory is elicitation of cognitive dissonance [12]. Cognitive dissonance occurs when a person's preconceived notions about the self and the world clash with new knowledge acquisition; the discrepancy that is evoked results in a state of tension known as cognitive dissonance [12]. Our educational intervention for reducing benzodiazepine use was developed to create cognitive dissonance

by soliciting an aversive motivational state in recipients by confronting two inconsistent cognitions on benzodiazepine use. The theory holds that as the experience of dissonance is unpleasant, the individual will be motivated to remove the pressure caused by this conflict by altering one of these perceptions to achieve consonance [12]. For instance, if an individual previously believed that benzodiazepines were safe, the threatening content of the tool challenges this belief by providing information that benzodiazepines incur several harmful risks, thus putting into question whether consumption should be continued [13,14]. We also incorporated social comparison theory into the content of the intervention to reassure participants about their newfound uncertainty regarding benzodiazepine use. Social comparison states that: "people evaluate their opinions and abilities by comparison respectively with the opinions and abilities of others" [15]. It thus consists of comparing oneself with others in order to evaluate or to enhance some aspects of the self [16]. Here, the evaluation of the ability or inability to do a specific action relies on the success of a proxy performer. The efficacy of this theory depends on whether the comparer assimilates or contrasts him/herself to others [17]. Comparability with a peer champion's narrative and previous agreement with the peer's views are important factors for the comparison to work [16]. A self-assessment component was also introduced, which aimed to promote insight about potential misinformation or beliefs held about benzodiazepine use by providing feedback on incorrect assumptions [18,19].

Textual content of the intervention was based on a systematic review of the evidence as well as guidelines concerning the use of benzodiazepines in the elderly. A geriatrician and graduate student drafted the initial content of the tool, which was then validated by a panel of colleagues with expertise in geriatric pharmacy and reviewed by a health librarian to ensure that the wording met standards for patient literacy at the Grade 6 level. The tool was developed in English, and backward and forward translated into French.

2.2.2. Components of the intervention

The cover page of the brochure states "You May Be At Risk" with a picture of a pillbox with several medications in it, followed by "You are currently taking (name of the patient's benzodiazepine)". The first page of the intervention is entitled "Test Your Knowledge" and consists of four true or false questions on the use of the benzodiazepines. The second page lists the correct answers. Elements of constructivist learning theory are incorporated into the answers to create cognitive dissonance and challenge the patient's beliefs for each incorrect answer. The third page incorporates self-assessment and education about potential inappropriate use, side effects, drug-drug interactions and information about physiologic changes that occur with age that affect drug metabolism. The fourth and fifth pages present evidence-based risks associated with benzodiazepine use in the elderly and suggestions for equally or more effective therapeutic substitutes. The sixth page describes a case scenario highlighting one woman's success at weaning herself off benzodiazepines. The last page outlines a simple 21-week tapering program. The reader is encouraged on four occasions and is warned in large, red lettering to "Please Consult your Doctor or Pharmacist Before Stopping Any Medication."

2.2.3. Acceptability of the intervention

The tool was field-tested with a convenience sample of older adults to determine the readability and comprehension of the information. Six focus-groups ($n=60$ adults) were conducted. Based on the focus group discussions, the wording, ordering of the material and visual presentation of the intervention was changed

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