Addictive Behaviors 88 (2019) 163–168

Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh

Exploring individual and contextual factors contributing to tobacco cessation intervention implementation

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HIGHLIGHTS

- KABO questionnaire (Q) identifies barriers and facilitators in performing smoking cessation interventions.
- KABO_Q is composed of seven domains that explained 69.7% of the variance.
- KABO_Q is a valid tool to monitor individual and organizational factors affecting smoking cessation interventions.

ARTICLE INFO

Keywords:
Smoking cessation
Implementation
Instrument development, psychometrics
Hospitals
Health care services

ABSTRACT

Background: Previous research suggests that smoking cessation interventions are poorly implemented. This study reports the development and testing of a questionnaire including knowledge, attitude, behavioral, and organizational (KABO) factors affecting the implementation of smoking cessation practices in hospitals by health care providers and organizations.

Methods: An initial pool of 44 items was developed to assess the individual knowledge, attitudes, and beliefs of health professionals towards smoking cessation practices according to the 5 A's intervention model, as well as organizational barriers and opportunities for its implementation. Items were measured in a scale from 0 = "Not at all/Never" to 10 = "Completely/Always". Data were collected from health workers (n = 702) in Catalonia. The validity of the instrument was measured by: (a) analyzing the items, (b) assessing the internal structure, (c) estimating the internal consistency, and (d) analyzing the relationship between this tool and the 5 A's intervention model.

Results: Seven domains were extracted: individual skills, positive organizational support, attitudes and beliefs, individual commitment, organizational resources, beliefs about patient desire/readiness to quit, and organizational endorsement. These domains explained 69.7% of the variance, and allowed for the development of a refined 26-item version of the questionnaire. Both the seven domains and the total scale showed adequate internal consistency.

Conclusions: Psychometric testing indicates that the KABO questionnaire is a reliable and valid instrument for assessing the main barriers and facilitators to smoking cessation intervention implementation. Individual factors better explained the implementation of smoking cessation interventions in hospitals, and the seven identified domains can be used for further investigations into how the implementation of evidence-based practices impacts smoking cessation performance.

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https://doi.org/10.1016/j.addbeh.2018.08.003
Received 30 December 2017; Received in revised form 1 August 2018; Accepted 3 August 2018
Available online 06 August 2018

1. Introduction

Smokers are frequent hospital users, and hospitalization may represent an appropriate teachable moment for quitting (Duffy, Scholten, & Karvonen-Gutierrez, 2010; McBride & Ostroff, 2003). Between 60% and 70% of patients who smoke make an attempt to quit while they are hospitalized (Zack, 2002). Hospitalization therefore provides a unique opportunity to identify and engage smokers, initiate cessation treatments, and facilitate appropriate follow-up and support after discharge (Rigotti, Clair, Munafo, & Stead, 2012).

Several international health care organizations have adopted the 5 A's smoking intervention model proposed by evidence-based guidelines (AHRQ, 2012; Fiore & Baker, 2011). This model is based on the following five steps: (1) *Ask* all patients if they smoke, (2) *Advise* all tobacco users to quit, (3) *Assess* smokers' willingness to attempt to quit, (4) *Assist* smokers' efforts with treatment and referrals, and (5) *Arrange follow-up* contacts to support cessation efforts (AHRQ, 2012; Fiore & Baker, 2011). However, previous studies have identified deficiencies in implementing smoking cessation interventions in hospital settings as part of routine practice (Freund et al., 2008; Martinez et al., 2009; Ravara, Calheiros, Aguiar, & Taborda-Barata, 2012).

Previous findings in health care services and implementation research have provided some insight into the most frequent barriers to the provision of smoking cessation interventions, including: [i] individual and psychological factors such as smoking by the health care provider, low motivation and confidence in providing the intervention, and lack of knowledge and training to provide such intervention (Applegate, Sheffer, Crews, Payne, & Smith, 2008; Leitlein, Smit, de Vries, & Hoving, 2012; Martinez, 2009; Sarna et al., 2009; Sarna, Wewers, Brown, Lillington, & Brecht, 2001; Smit, de Vries, & Hoving, 2013); [ii] cognitive factors such as preconceived ideas about the intervention or viewing smoking cessation interventions as time-consuming, ineffective, or intrusive to patient privacy (Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008; Hall & Marteau, 2007; Vogt, Hall, & Marteau, 2005); [iii] organizational barriers such as an absence of protocols, records, educational materials for patients, or pharmacological aids (Eby, Laschober, & Muilenburg, 2014; Freund et al., 2009; Leitlein et al., 2012; Smith, Sellick, & Spadoni, 2012) and; [iv] organizational support such as social support from supervisors and/or coworkers (Choi & Kim, 2016; Laschober, Muilenburg, & Eby, 2015; Segaar, Bolman, Willemsen, & Vries, 2006). These factors have never been studied together to determine how they interact in the implementation of the 5 A's model or how they contribute to the performance of each component in the model (Fiore & Baker, 2011). Additionally, there is no validated questionnaire that includes the main facilitators and barriers to the implementation of smoking cessation practices in hospitals.

This paper reports the development of an instrument to measure the implementation of the brief intervention for smoking cessation based on the 5 A's model, including the above factors. This paper also explores the reliability and validity of this instrument by: (a) carrying out an item analysis of the questionnaire, (b) assessing the internal structure of the questionnaire allowing for the identification of domains related to knowledge, skills, attitudes, and barriers to the implementation of smoking cessation practices, (c) estimating the internal consistency of the instrument using the Cronbach alpha coefficient, and (d) analyzing the relationship between this tool and self-reported performance of the 5 A's. This tool may be useful to hospital administrators, researchers, and others interested in changing practices related to smoking cessation.

2. Methods

2.1. Participants

The survey was available via a hyperlink and was a compulsory step for accessing the online training course organized by the Catalan Network for Smoke-free Hospitals (www.xchsf.cat). A total of 715 health care professionals completed the online survey between January 2014 and March 2016. The most complete set of answers was used for duplicated entries. Thirteen of the respondents left > 20% of the questionnaire blank. Therefore, 702 participants (702/715 = 98.2%) completed the survey and provided the data reported here. The mean age of the whole sample was 39.0 years (SD = 9.8) and ranged from 20 to 62 years. 80.6% of participants were women. Participants reported a mean professional experience within a clinical practice setting of 14.4 years (SD = 9.2). Participants mainly worked in acute hospitals (84.5%) and public institutions (79.6%). More than half the participants were nurses (53.6%), but the sample also included doctors (7.4%) and other health care staff positions (39.0%). 24.2% of participants reported being smokers at the time of assessment.

2.2. Procedure

The data was collected online before the start of the training program. All participants were directed to an informational webpage disclosing the aims of the study and contact information for the principal investigator in case they required further information.

2.3. Measures

The “Knowledge, Attitudes, Behaviors, and Organization (KABO) Questionnaire” is a self-administered instrument specifically designed to assess several factors relevant to smoking cessation implementation practices. An initial pool of 44 items was developed to assess those factors, the specific actions taken by health care professionals, and barriers and opportunities in their daily practice.

The questionnaire includes the dimensions developed by Sheffer to measure cognitive and behavioral factors such as: 1) motivation, 2) knowledge about tobacco cessation, 3) self-efficacy, 4) belief about the importance of providing tobacco use interventions, 5) effectiveness of interventions, 6) importance of barriers, and 7) preparedness (Sheffer, Barone, & Anders, 2009). It also includes questions designed to explore the clinical environment and organizational-level characteristics identified in the literature and suggested by a panel of experts (Freund et al., 2009; Leitlein et al., 2012; Sarna et al., 2009). We asked about their level of performance in each of the 5 A's (Ask, Advise, Assess, Assist, and Arrange) to assess implementation of the brief smoking cessation intervention. Each item was measured according to its level of implementation in an 11-point scale from 0 (“Not at all/Never”) to 10 (“Completely/Always”). The questionnaire was available on Google Drive during study period, and is available from the corresponding author upon request.

The content validity of the instrument was assessed based on the advice given by five smoking cessation experts who reviewed the items and agreed on their representativeness and clarity. The KABO questionnaire also included several questions about sociodemographics and smoking behavior. Some items of the questionnaire were inversely rated, such that higher scores on these items indicated lower levels of smoking cessation implementation practices, and 15 items were consequently recoded (7, 20–24, 26–31, 33–35).

2.4. Ethical approval

All participants gave their approval for participation in the study by completeing an electronic informed consent form. The study was approved by the Bellvitge Ethics Committee (Hospital Universitari de Bellvitge, PR040/15).

2.5. Data analysis

A descriptive analysis of all items was carried out to assess their