European Journal of Oncology Nursing 21 (2016) 17–23

Contents lists available at ScienceDirect

European Journal of Oncology Nursing

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

Determinants of participation in colorectal cancer screening among community-dwelling Chinese older people: Testing a comprehensive model using a descriptive correlational study

Doris Y.P. Leung*, Eliza M.L. Wong, Carmen W.H. Chan

The Nethersole School of Nursing, The Chinese University of Hong Kong, Esther Lee Building, Shatin, Hong Kong

ARTICLE INFO

Article history:
Received 29 May 2015
Received in revised form
18 November 2015
Accepted 24 November 2015

Keywords:
Chinese
Colorectal cancer screening
Health belief model
Extended parallel processing model
Oncology

ABSTRACT

Purpose: The prevalence of colorectal cancer (CRC) among older people is high. Screening for CRC presents a cost-effective secondary prevention and control strategy which results in a significant reduction in mortality. This study aims to describe the prevalence of CRC screening and examine its risk factors among Chinese community-dwelling older people guided by a comprehensive model combining Health Belief Model and Extended Parallel Processing Model.

Methods: A descriptive correlational study was conducted. A convenience sample of 240 community-dwelling adults aged ≥60 was recruited in May–July in 2012 in Hong Kong. Participants were asked to complete a questionnaire which collected information on demographic variables, CRC-related psychosocial variables and whether they had a CRC screening in the past 10 years.

Results: Among the participants, 25.4% reported having a CRC screening test. Results of logistic regression analyses indicated that participants with a higher level in cue to action, and lower perceived knowledge barriers and severity-fear were significantly associated with participation in CRC screening. But there were no significant associations between fatalism and cancer fear with screening.

Conclusions: The prevalence of CRC screening was low in Hong Kong Chinese community-dwelling elders. A number of modifiable factors associated with CRC screening were identified which provides specific targets for interventions. This study also adds to the knowledge regarding the associations between fatalism and fear with CRC screening behaviors among Chinese older people.

1. Introduction

Colorectal cancer (CRC) is a worldwide public health challenge (Center et al., 2009). CRC is highly treatable in its earlier stage. This means that screening for CRC represents a cost-effective prevention and control strategy, since the early detection and treatment of CRC in asymptomatic patients can result in a significant reduction in mortality (Pignone et al., 2002; Walsh and Terdiman, 2003). Despite the dramatic improvements in cancer prevention and control, the CRC-related medical problems are still challenging, especially in the elder sector in Hong Kong. The rising trend in incidence and mortality is mainly attributed to an increasing population aged ≥65 (Centre for Health Protection, 2015) but the screening rates among older people are suboptimal (<14%) (Leung et al., 2012a; Sung et al., 2008). Unlike the CRC screening program in the United States which is covered by insurance targeting adults at average risk, there is no guideline for CRC screening in Hong Kong and the screening is opportunistic in that patients have to pay for their own way for the test(s). Patients visiting the public hospital are referred for the screening tests only if they present with symptoms (Centre for Health Protection, 2015). CRC screening was rarely covered by insurance in Hong Kong when the study was conducted. It is therefore important for older people to participate in the screening for CRC prevention, and for healthcare professionals to understand the underlying mechanism involved in individual decision-making about CRC screening.

Numerous studies have been conducted to examine the barriers to and the facilitators of the participation in screening for CRC, and several systematic reviews of its demographic, social and environmental determinants have been produced (Beydoun and

* Corresponding author. The Nethersole School of Nursing, The Chinese University of Hong Kong, 8/F, Esther Lee Building, Shatin, Hong Kong.
E-mail addresses: dorisleung@cuhk.edu.hk (D.Y.P. Leung), elizawong@cuhk.edu.hk (E.M.L. Wong), whchan@cuhk.edu.hk (C.W.H. Chan).

http://dx.doi.org/10.1016/j.ejon.2015.11.004
1462-3889/

Beydoun, 2008; Blalock et al., 1987; Guessous et al., 2010; Kiviniemi et al., 2011; Subramanian et al., 2004; Vernon, 1997). The single systematic review of 83 studies focusing on older people revealed a number of demographics (educational level, race, ethnicity, gender, marital status and living status) and variables related to health-care systems (recommendation by physicians, having a usual source of care, and lack of health insurance) were important factors relating to the uptake of CRC screening tests (Guessous et al., 2010). While this review provided important information on screening among older people, many studies included in the review focused on health-care system related variables, with only a few utilizing current health behavior theories to guide the inquiry. Information regarding the determinants of CRC screening behavior in Chinese populations, however, is scarce. A few studies have been conducted in such populations but none of them has targeted older people and most have focused solely on demographic and health-related variables (Cai et al., 2009; Leung et al., 2012a, 2012b; Ma et al., 2012; So et al., 2012; Sung et al., 2008; Todd et al., 2011; Wang et al., 2006; Yip et al., 2006). Clearly, little is known about CRC screening participation rates and associated factors among Chinese older people.

1.1. Conceptual framework

The study was guided by the theoretical model (Champion et al., 2004), which combines two theoretical models, namely, the Health Belief Model (HBM) (Becker, 1974) and Witte's Extended Parallel Processing Model (EPPM) (Witte, 1992) for cancer research. The HBM postulates that the likelihood of CRC screening as a health action is affected positively by threat beliefs of CRC (susceptibility of developing CRC and severity of CRC), benefits of CRC screening, cues to action and self-efficacy to perform screening and negatively by barriers to CRC screening, and knowledge affects perceived barriers negatively and benefits positively. On the other hand, the EPPM states that threat appraisals (susceptibility and severity), benefits, fatalism and self-efficacy determine whether people feel fear which in turn motivates them to consider whether there is a need to undergo CRC screening. In addition, cognitive function was added as a factor based on our previous findings and it would be associated negatively with CRC screening (Leung et al., 2012a, 2012b).

The present study had two aims. The first aim was to describe the proportion of the use of CRC screening by community-dwelling older people. The second aim was to examine the determinants of participation in CRC screening based on the theoretical model. In particular, we hypothesized that the likelihood of CRC screening participation increases with increases in knowledge regarding CRC and screening, susceptibility of developing CRC, severity of CRC, benefits of CRC screening, cues to action, and self-efficacy and decreases in barriers to CRC screening, cancer fear, fatalism and cognitive function. This study hopes to generate important and unique information that will enhance the planning, promotion and delivery of CRC screening services for older Chinese adults, with the goal of detecting or preventing problems before they become symptomatic.

2. Methods

2.1. Participants and procedure

A cross-sectional survey was conducted in May–July in 2012 in Hong Kong. A convenience sample of community-dwelling adults was recruited in centres for the elderly from three non-governmental organizations (NGOs), in which older persons usually have their day time social activities. Eligible participants were those who (a) were aged $\geq$ 60, (b) were able to communicate either in Mandarin or Cantonese, (c) had no history of cancer, (d) were not currently diagnosed with a mental disease, (e) had no severe cognitive impairment, and (f) did not suffer from any hearing or visual impairment. Trained student helpers administered the survey instrument to consenting participants. We planned to recruit 250 participants for accurate inference in confirmation factor analysis in scale validation (Leung et al., 2014a). A total of 251 older adults completed the questionnaires. However, we did not obtain the number of subjects approached that the response rate was not available. Eleven participants with missing responses in the survey were excluded, resulting in a final sample of 240 (95.6%) for analysis. Such a sample size (>200) was sufficient to provide accurate inference in logistic regression with 18 independent variables by using the ten cases per variable rule of thumb (Hosmer and Lemeshow, 2005). A detailed account of the data collection procedure of the current study has been reported elsewhere (Leung et al., 2014a,b). The age group of $\geq$60 was chosen because most companies in Hong Kong follow the example of the civil service and set the retirement age at 60, and the United Nations has also agreed on the age of 60 as the cutoff for the older population (WHO, 2015). The study was approved by the Survey and Behavioural Research Ethics Committee of the Chinese University of Hong Kong and from the participating organizations.

2.2. Measures

2.2.1. CRC screening

CRC screening: Participants were asked to indicate whether they had undergone any type of CRC screening in the past 10 years, with the variable coded as 1 = yes and 0 = no.

2.2.2. Knowledge regarding CRC and screening

Knowledge regarding CRC and screening was measured by the CRC Knowledge Scale developed by Green and Kelly (2004). Participants responded to 15 true/false items to assess three types of knowledge on about CRC warning signs and symptoms, about the risk factors of CRC, and about their awareness of the availability of screening modalities. The knowledge score was created by counting the number of correct answers to the 15 items.

2.2.3. Susceptibility, severity, benefits and barriers to CRC and CRC screening

Susceptibility, severity, benefits and barriers to CRC and CRC screening were assessed by the Chinese version of the 35-item CRC Perceptions and Screening instrument (CRCPS) (Green and Kelly, 2004; Leung et al., 2014b). The CRCPS measures six psychosocial constructs, namely, susceptibility, benefits, severity-fear, severity-life impact, psychological barriers and knowledge barriers. Susceptibility to CRC measures participants' assessment of the likelihood of their developing CRC in the near future. Benefits of CRC testing assess agreement with the view that CRC screening could result in the early detection and treatment of the cancer and decrease the chances of dying therefrom. Severity-fear measures the severity relating to mental status and negative effects to their current personal and family lives while severity-life impact measures the severity relating to the negative effects to their future lives. Psychological barriers assess participants' perceived negative psychological consequences of screening tests while knowledge barriers measures their access difficulties in terms of financial resources, time, and environmental factors. All the 35 items were rated on a five-point Likert scale (strongly disagree to strongly disagree). Higher scores indicate a greater perceived susceptibility, severity, benefits and barriers to CRC and its screening. Cronbach's alpha values of these six subscales in the current study ranged from