Patient Education and Counseling 94 (2014) 10–19

Contents lists available at ScienceDirect

Patient Education and Counseling

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

Review

Educational benefits of Internet and computer-based programmes for prostate cancer patients: A systematic review

Anne Salonen [a,*], Anne M. Ryhänen [b,1], Helena Leino-Kilpi [c,2]

[a] Helsinki University Central Hospital, Helsinki, Finland
[b] University of Turku, Department of Nursing Science, Turku Social and Health Services, Turku City Hospital, Turku, Finland
[c] University of Turku and Hospital District of Southwest Finland, Department of Nursing Science, Turku, Finland

ARTICLE INFO

Article history:
Received 27 April 2012
Received in revised form 16 August 2013
Accepted 17 August 2013

Keywords:
Patient education
Prostate cancer
Internet and computer-based education
Benefit

ABSTRACT

Objective: This study aims to review systematically the available literature on Internet and computer-based patient education programmes, assess the quality of these studies and analyze the benefit of these programmes for prostate cancer patients.
Methods: Complete databases were searched. Studies were included if they concerned patient education of prostate cancer patients, were qualitative or quantitative and examined Internet or interactive CD-ROM use.
Results: Eighteen studies met the inclusion criteria. The majority of the studies reported a significant increase in the knowledge of the disease, satisfaction with treatment options and support for men. The benefit of the programmes was that the patients felt more empowered and obtained a heightened sense of control over their disease.
Conclusion: The Internet or computer-based programmes had a positive impact on prostate cancer patient education. Most papers reported that the programmes were beneficial, but few presented data from studies with rigorous research methodologies to support these claims.
Practice implications: Internet and computer-based programmes can be useful tools in prostate cancer patient education. In order to improve the benefits of the programmes, more Internet and computer-based programmes need to be developed and studied.

Contents

* Corresponding author at: Helsinki University Central Hospital, Fin-PL, 340, 00029 Helsinki, Finland. Tel.: +358 40 7289650/+358 50 427 1550.
E-mail addresses: anne.salonen@wmail.fi, anne.salonen@hus.fi (A. Salonen), anne.ryhanen@turku.fi (A.M. Ryhänen), helena.leino-kilpi@utu.fi (H. Leino-Kilpi).
[1] Tel.: +358 50 3045768/+358 2 266 2001.
[2] Tel.: +358 2 333 8404.

0738-3991/$ – see front matter.
http://dx.doi.org/10.1016/j.pec.2013.08.022

1. Introduction

Worldwide, an estimated 913,000 men were diagnosed with prostate cancer in 2008, with more than two-thirds of the cases diagnosed in developed countries. The highest rates are found in Australia/New Zealand, Western and Northern Europe and North America, largely because the practice of prostate-specific antigen (PSA) testing and subsequent biopsy has become widespread in those regions [1]. Prostate cancer is the most commonly diagnosed cancer among men in the USA and the second most common cause of cancer death among men. Prostate cancer incidence rates increase in men until age 70, after which they decline. About 240,890 new cases of prostate cancer will be diagnosed in the USA in 2011 [2]. In 2008, around 338,000 men were diagnosed with prostate cancer in Europe (EU-27). The lowest European rates are in southern and Eastern Europe, the highest in northern and Western Europe [1]. Prostate cancer is the leading cancer among men in Finland. In 2009 the number of prostate cases was 4604, the percentage distribution was 31.1%, and incidence per 100,000 was 89.7 [3].

Today, patients expect and demand fast, accurate information about their illnesses, symptoms, medication and treatment options. Patients often turn to online services or the Internet to make more informed decisions about their healthcare [4], and people are increasingly relying on the Internet as a source of cancer information [5,6]. In 2009, 82% of Finnish people accessed the Internet daily [7], and in the USA (2009), 51% of adults aged 18–64 had used the Internet to look up health information during the previous 12 months [2].

The shortage of professional staff and a challenging economic climate are forcing healthcare organizations to seek more efficient options for providing education [8]. To meet the increasing demand for online services, healthcare organizations have started to offer services to patients on their Web pages [4]. Computer-based patient education is an effective strategy for presenting information and improving knowledge outcomes and giving patients options about the health issue that concerns them [9,10]. Another approach is to install a CD-ROM-based programme, the benefit of these programmes being that the information is easy to validate. The provider and patient can read through the contents and be assured that it is in line with practice [6]. Patients with a chronic disease or life-threatening illness are often the ones who are the most avid information seekers; they feel lost [8]. Cancer patients' support needs most often deal with somatic, psychological, emotional and social complaints [40]. In addition to psychosocial problems, spiritual support may become important during the illness or crises. Many African Americans and Hispanic cancer patients reported that religion is an important issue; 47% reported that their spiritual needs were supported by religious communities to a small extent or not at all [39]. Multimedia computer or web-based programmes offer a promising, practical alternative for improving patients' education and support them in conducting their own health checks [11,12]. Computer-based learning interventions support "just-in time" learning when the patient is ready or has time to access the computer [9]. The Comprehensive Health Enhancement Support System (CHESS) has positively affected cancer patients' sense of competence in dealing with cancer and health care information. The results show that the effects tend to be strongest early in the patient's illness; CHESS may thus provide the greatest benefits while patients are in the midst of early struggles with their illness and treatments, but may produce little residual advantage over Internet use [41].

The benefits of computer or Internet-based education have been shown in a number of studies indicating that the education has had a positive impact on clinical outcomes, skill development and self-care management in orthopaedic patients [13], patients with COPD [14], coronary artery disease [10,12] and colon or breast cancer [15,16]. Whilst there have been some literature reviews, to our knowledge no systematic review has been conducted focusing specifically on interventions prostate cancer patients' education with Internet or computer-based programmes. The participants in the studies have been for example breast and lung patients [17–19]. In this review the concept of benefit is seen as wider than effect. The aim of our review was to evaluate the benefits of the published studies on the best available evidence for how prostate cancer patients use the Internet or computer-based programmes for cancer-related information and emotional or spiritual support. The purpose of this review is to describe the advantages and disadvantages of the Internet or computerized interventions.

The following research questions were addressed:

(1) What kinds of Internet or computer-based patient educational programmes have been developed for prostate cancer patients?
(2) What are the benefits of Internet or computer-based programmes for prostate cancer patients?
(3) What is the quality of the review studies?

2. Methods

A systematic review was conducted in accordance with a predefined research protocol describing the following process: search strategy, selection, data extraction and quality assessment. The inclusion criteria were the following: (1) the study design was quantitative or qualitative, (2) the participants were prostate cancer patients, (3) the publication language was English, (4) studies examining the use of computer/Internet/websites with CD-ROMs when the programmes were interactive, and (5) the outcome was reported either qualitatively or quantitatively. The exclusion criteria were: (1) studies examining dissemination of prostate cancer risks and screening information, (2) studies examining the information resources in prostate cancer treatment, (3) descriptive studies that did not report outcomes, and (4) review studies or theoretical articles.

For the present study the following international electronic health databases were searched: Ovid Medline (1948–2011), Ovid Nursing (1948–2011), Cochrane (1991–2011), Cinahl (1996–2011) and PsycINFO (1997–2011). The articles related to computers were searched using the MESH terms "internet" AND "computer" OR "www" OR "web" AND "computer-based patient education". The other keywords used were "patient education" AND prostate cancer or neoplasm. The reference lists in the selected articles were searched by hand to identify other relevant studies.

2.1. Selection

A total 193 articles were found. All references identified in the literature search were studied by title and abstract for agreement with all of the inclusion criteria. The first reviewer (AS) examined all references. After rescreening duplicates were removed and 116 articles were excluded for not meeting inclusion criteria with Internet or computer use. The studies were then screened again and 29 articles were excluded because they studied PSA-screening, were just presenting a programme or were not scientific articles. Full text copies of most of the potentially relevant studies were retrieved and checked formally for eligibility. In total 18 studies met the selection criteria. Differences were discussed until agreement. Fig. 1 illustrates the procedure of literature search and selection.

2.2. Data extraction and quality assessment

Data were extracted independently from each article by two reviewers (AS/AR). Interventions and population characteristics,