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Original article

PATI: Patient accessed tailored information: A pilot study to evaluate the effect on preoperative breast cancer patients of information delivered via a mobile application☆

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ABSTRACT

Objectives: The information needs of cancer patients are highly variable. Literature suggests an improved ability to modulate personalised stress, increased patient involvement with decision making, greater satisfaction with treatment choices and reduced anxiety levels in cancer patients who have access to information. The aim of this project was to evaluate the effects of a mobile information application on anxiety levels of patients undergoing surgery for breast cancer.

Materials and methods: An application was developed for use with Apple iPad containing information on basic breast cancer biology, different treatments used and surgical techniques. Content and face validity studies were performed. A randomized control trial was designed, with a 1:2 allocation. Data collected include basic demographics and type of surgery. Questionnaires used included: the HADS, Mini-MAC, information technology familiarity and information satisfaction.

Results: A total of 39 women participated. 13 women had access to an iPad containing additional information and 26 women acted as controls. The mean age was 54 and technology familiarity was similar among both groups. Anxiety and depression scores at seven days were significantly lower in control patients without access to the additional information provided by the mobile application ($p = 0.022$ and 0.029 respectively).

Conclusion: Anxiety and depression in breast cancer patients is both multifactorial and significant, with anxiety levels directly correlating with reduced quality of life. Intuitively, information should improve anxiety levels, however, we have demonstrated that surgical patients with less information reported significantly lower anxiety. We advise the thorough testing and auditing of information initiatives before deployment.

Introduction

Breast cancer accounts for 32% of cancer diagnoses per year and is the commonest cancer in women [1]. Quinn et al. found that breast cancer searches accounted for the majority of cancer related searches on the internet [2]. Meeting the information needs of patients is a fundamental aspect of a physician's work, however the information needs of cancer patients are highly variable. Patient tailored information is an important, but at times overlooked aspect of the physician–patient interaction. Patients vary in the amount of information that can be processed at any one time [3]. Furthermore the individual information needs of patients differ widely and is dependent on several factors [4]. A previous systematic analysis [5] highlighted increased patient involvement in decision making, greater satisfaction with treatment choices,

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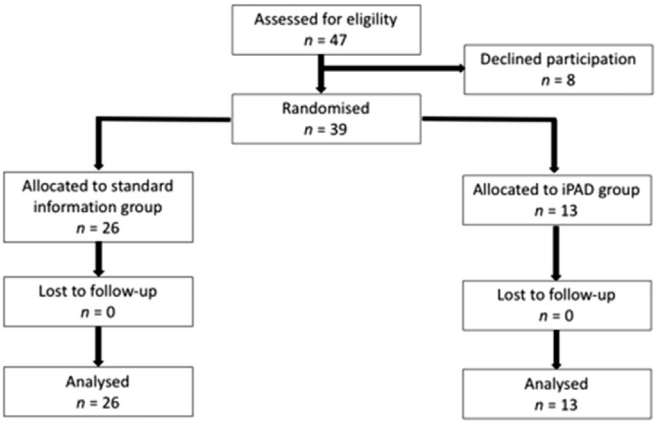

Fig. 1. Outline of trial recruitment.

improved ability to cope and reduced anxiety levels in patients with increased access to information. The amount of information exchanged at a physician–patient interaction is guided by information seeking behaviour among patients. Neary et al. discovered a positive effect among pre-operative patients with access to a website containing enhanced information [6]. Other groups have also examined ways in which the internet can be used to enhance the provision of information with overall positive results [7,8]. The digital divide, a prominent factor in online search behaviour, can be reduced when internet access is provided [9]. The aim of this study was to develop an application for use with Apple iPad, delivering breast cancer information to women undergoing surgical procedures for breast cancer. It was anticipated that having access to this additional information would lower anxiety and depression scores.

Materials and methods

An application was developed for use with Apple iPad over a period of 6 months in partnership with the National Adult Literacy Agency (NALA). This application adhered to eMedical guidelines. Supported by multimedia graphics, scripts were drawn up with verbal information on basic breast cancer biology and the common operations performed for breast cancer. These scripts were reviewed by NALA to ensure general readability, taking into account that 17.9% of adults in Ireland are at or below level 1 on a 5 level

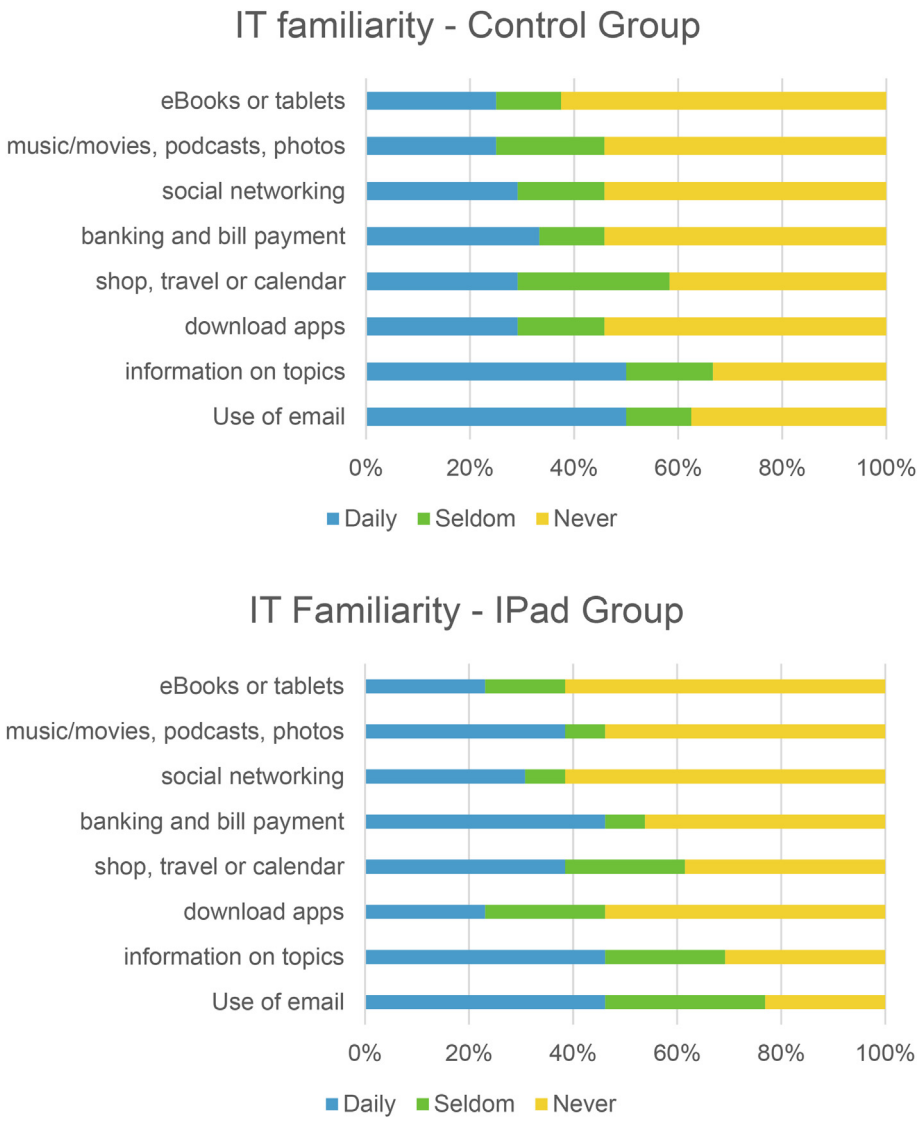

Fig. 2. Information Technology Familiarity Questionnaire Responses. No statistically significant difference was observed between the iPad and control groups.