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Review Article

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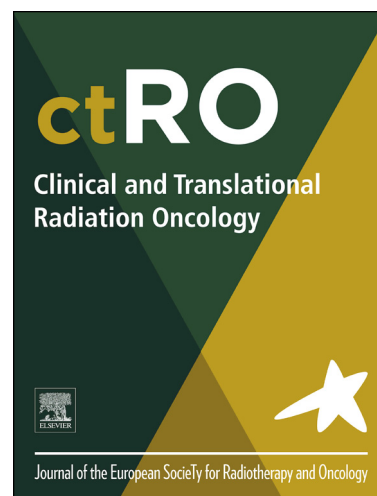
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FORECAST - a cloud-based personalized intelligent virtual coaching platform for the well-being of cancer patients

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Abstract

Well-being of cancer patients and survivors is a challenge worldwide, considering the often chronic nature of the disease. Today, a large number of initiatives, products and services are available that aim to provide strategies to face the challenge of well-being in cancer patients; nevertheless the proposed solutions are often non-sustainable, costly, unavailable to those in need, and less well-received by patients. These challenges were considered in designing FORECAST, a cloud-based personalized intelligent virtual coaching platform for improving the well-being of cancer patients. Personalized coaching for cancer patients focuses on physical, mental, and emotional concerns, which FORECAST is able to identify. Cancer patients can benefit from coaching that addresses their emotional problems, helps them focus on their goals, and supports them in coping with their disease-related stressors. Personalized coaching in FORECAST offers support, encouragement, motivation, confidence, and hope and is a valuable tool for the wellbeing of a patient.

Key words: cancer coaching, personalized medicine, cloud eHealth platforms

I. Introduction

With improved cancer treatments and the possibility of increasing survival rates, there is a growing need for addressing the Quality of Life (QoL) of cancer patients and survivors. Taking offset in the World Health Organization definition of health [1], health-related quality-of-life (HRQoL) is a multidimensional construct defined as physical, mental, and social functioning and well-being [2]. A large and growing body of research shows that HRQoL of cancer patients and survivors is challenged by a number of disease- and treatment-related side- and late effects. This applies to the most prevalent cancers such as breast [3] prostate [4], and lung cancer [5] as well as other common malignant diseases [6]-[9]. In addition to being associated with reduced well-being, a growing body of longitudinal research evidence suggests that HRQoL may a significant prognostic predictor, with lower levels of HRQoL associated with poorer survival, both for cancer in general [10] and for specific cancers such as breast [11], prostate [12], and head and neck cancer [13].

The most frequently reported physical complaints include cancer-related fatigue [14][15], sleep disturbances [16][17], and pain [18][19]. The major emotional and mental health issues in adapting to cancer diagnosis, treatment and follow-up include cancer-related distress [20] related to excessive fear of cancer recurrence [21][22] and depressive symptoms [23], together with cancer- and cancer treatment-related cognitive impairment [24][25], both subjectively [26] and objectively assessed [27][28]. Cancer diagnosis and treatment also pose challenges to the social well-being, not only of the cancer patient, but also his or her partner, and couples can be viewed to react as a unit, rather than individuals while coping with cancer. Depending on the dyadic coping style and the communicative skills of the couple, facing cancer may improve or disrupt the relationship [29][30]. Sexual problems are frequent and may affect marital adjustment to cancer and marital quality many years after completed treatment [31][32]. With increased survival rates, returning to work (RTW) after completing treatment is important for both economy and rehabilitation. However, RTW varies considerably by cancer type and treatment, work type, as well as physical, psychological, and social factors [33].

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