



Effects of a Self-Report Workbook Intervention on Cancer Patients' Empowerment within the Context of Patient Education

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Abstract

Aim: The aim of this article is to describe the empowering outcomes of a patient education intervention using a self-report workbook with the focus on patients' self-perceived knowledge expectations and satisfaction with the patient education during the critical moments of cancer illness trajectory.

Design and methods: Newly diagnosed adult cancer patients were recruited to the randomized (50/50) controlled trial at a university hospital. All of the informants received oral and written patient education according to the standard practice of the hospital. In addition, patients in the intervention group were given the Cancer Patients' Knowledge Expectations workbook. The baseline data were collected during the cancer patients' first visit to the oncologic outpatient clinic, the second data set from patients coming to the outpatient clinic for the first cancer management visit, and the third data set from patients coming to the outpatient clinic for the final cancer management visit. The following instruments were used to measure the different aspects of empowerment: The Brief Illness Perception Questionnaire, the Functional Assessment of Cancer Therapy, and the Posttraumatic Growth Inventory Short Form. In addition, some background variables were assessed. The data were analyzed with descriptive statistics, chi-square test or Fisher's exact probability test and Wilcoxon signed-rank test.

Results: The informants in the intervention group (n = 32) experienced better self-confidence and self-efficacy in terms of information searching preferences (0.03), more contextual self-understanding in relation to the duration of illness trajectory (0.05), and positive emotional well-being (0.001) as compared with the informants in the control group (n = 83). Furthermore, their personal growth in terms of appreciation of life (0.04) and personal strength at the end of illness trajectory (0.01) was higher than in the control group.

Conclusions: The patient education intervention seems to have resulted in empowering outcomes in oncologic patients during their illness trajectory. The informants in the intervention group experienced better self-confidence and self-efficacy, more contextual self-understanding and positive emotional well-being as well as personal growth in terms of appreciation of life and personal strength at the end of illness trajectory.

Keywords

Patient education, Cancer, Empowerment

Introduction

Individually tailored nursing interventions are essential to sustain patients' involvement and active role in their own care process and day-to-day life. Personalized patient education is important in any health care-related situations, but especially in the case of chronic or life-threatening health problems, such as cancer. The complexity of the cancer illness trajectory presupposes continuous patient education in order to facilitate and support patients' empowerment. However, there is evi-

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dence of both discontinuity and disempowerment of patient education in oncologic context [1].

Empowerment can be defined both as a process and an outcome through which patients obtain the knowledge, skills, attitudes and self-awareness necessary to influence their own behavior and that of others in order to improve the quality of their lives and to make rational decisions about how to manage the illness [2], while also gaining sufficient control and resources to implement their decisions [3]. Empowerment is also defined as the process of recognizing, promoting and enhancing individuals' abilities to meet their own needs, solve their own problems and mobilize the necessary resources to feel in control, together with personal growth [4]. Patient empowerment has been a topic of discussion for about thirty years, but the exact outcomes of perceived empowerment have rarely been identified in empirical studies.

In order to support their active role and to mobilize the necessary resources during their illness trajectory, cancer patients should be encouraged to recognize their own knowledge expectations during the illness trajectory [5]. Patient education should then be based on the continuous assessment of a patient's knowledge expectations, appropriate response to those expectations in a particular situation, and ongoing assessment of the patient's comprehension, with all these phases implemented in collaboration with the patient. To provide for an empowering approach to cancer patient education, we developed a self-report workbook with the focus on self-perceived knowledge expectations and satisfaction with the patient education during the illness trajectory [6]. In this article, the focus is on the exploration of the empowering outcomes from the cancer patients' perspective after the application of the self-report workbook.

Background

Patient education

During their illness trajectory, cancer patients move between various points of care and interact with several different professionals and treatment teams. There is a risk of discontinuity of patient education and misinterpretations, given especially the fact that an estimated 20% to 70% of cancer patients suffer from a varying degree of cognitive impairment due to the distressing situation [7]. This is not systematically taken into consideration in the planning of patient education or the evaluation of patient comprehension after the education. Patient education should always begin with an assessment of individual patients' cognitive resources, i.e., the resources related to the acquisition and processing of information [8].

For the purposes of empowering patient education, the next step should be the exploration of the patient's

actual knowledge expectations in a certain situation, as opposite to assumed information needs. Patients' knowledge expectations entail the recognition that their knowledge is inadequate to satisfy a goal within the situation they find themselves in at a specific point of time [9]. Instead of just the provision of medical information at the beginning of the cancer management process [10], both the content and the method of patient education should be individually tailored according to each patient's knowledge expectations.

The following step of patient education should, naturally, be a response to the patient's knowledge expectations, and the coordination of educational interventions jointly with other experts in the interprofessional health care team. In the final step, i.e., the assessment of the comprehension after the patient education, it is vital to ensure that the cancer patients really understand the meaning of the education. In this comprehension assessment, both subjective information from the patients and objective knowledge of the professionals [11] could be used as means to confirm that both the health care provider and the patient share the same view about the goals that have been agreed.

Empowerment and outcomes of empowerment

The clinical outcomes of perceived empowerment have rarely been discussed from the patient perspective. In a study by Mok [12], cancer patients (n = 12) were found to experience empowerment as a transformation process in which they actively developed new perspectives, self-reliance, and acceptance of illness after the realization of a lack of control in the situation. As an outcome of empowerment, a sample of breast cancer patients (n = 12) were found to feel interconnectedness, confidence and hope in coping with cancer, support and affirmation, and a feeling of usefulness and collective efficacy [13]. In an interview study with 15 cancer patients, the participants were found to express empowered outcomes, such as redefining health, being confident, being actively involved, revitalizing the sense of self, and negotiating the goals of one's care plan [14]. These examples reveal that perceived empowerment is difficult to measure. One reason for this can be the fact that empowerment has been defined both as a process and an outcome, as an individual experience and as a collective experience. Furthermore, the concept of empowerment can be seen intertwined with some other concepts like patient activation, self-efficacy, self-determination and contextual self-understanding.

Patient activation refers to patients' knowledge, skills and confidence to manage their health and health care [15], as does also the concept of self-efficacy, which can be defined as a person's belief in his or her ability to com-

plete a future task or solve a future problem [16]. According to Chen, et al. [17], patient activation also needs to be personalized, i.e., specifically designed on the basis of the characteristics of individual persons [11]. Patient activation and empowerment are a cyclic process in which knowledge leads to self-efficacy and that, in turn, to self-determination abilities [18]. These lead to the acquisition of more information, and again, increased confidence, self-determination abilities and so on [17].

Self-determination can be defined as directing one's course of action in implementing informed choices. It is advanced when individuals develop personal knowledge, skills and beliefs that allow for greater control in education process [6,19]. Self-determination can be enhanced by mastery experiences, changes in physiological and emotional states and modeling coping strategies, but also through efforts to enhance physical status, reduce stress and negative emotional proclivities [20]. In other words, contextual self-understanding involves understanding oneself in relation to the opportunities present in the environment in which one is expected to function. It is a crucial factor of both informed choice and self-determination [19].

To conclude, in order to facilitate patient empowerment through patient education, the education process should be specifically designed on the basis of the cognitive resources and knowledge expectations of individual patients. The learning goals, contents and methods of timely patient education should be individually tailored to add the patient's skills, confidence, self-determination abilities and coping strategies in the situation and environment in which one is expected to function. Consequently, patient activation, confidence or self-efficacy, contextual self-understanding, self-determination in relation to informed consent and self-care activities, positive changes in physiological and emotional states as well as personal growth could serve as indicators of empowering patient education.

Aim

The aim of this article is to describe the empowering outcomes of a patient education intervention, i.e using a self-report workbook with the focus on patients' self-perceived knowledge expectations and satisfaction with the patient education during the critical moments of cancer patient education. The current study is the final part of a larger research project, the goal of which is to develop a model of empowering patient education praxis for adult cancer patients.

Material and Methods

The development of the Cancer Patients' Knowledge Expectations (CPKE) workbook (24 pages of size A5) is

based on four cross-sectional mixed-methods empirical studies reported in detail earlier. One of the data collection surveys was conducted in international collaboration so that the self-report workbook might contribute to the international nursing and health care knowledge base.

The intervention study described in this article was a randomized controlled trial. Points of data collection were based on the critical moments of cancer patient education [8]: The baseline data (M1) were collected at the cancer management planning phase, i.e., during the cancer patients' first visit to an oncologic outpatient clinic. The second data set (M2) was collected from patients coming to the outpatient clinic for their first cancer management visit (chemotherapy, radiotherapy or hormonal therapy), and the third data set (M3) from patients coming to the outpatient clinic for the final cancer management visit.

Ethical considerations

The general principles of research ethics [21] were applied. Ethical approval was granted by the hospital ethical committee, and permission for data collection was obtained from the relevant organizations. For the purposes of informed consent, the informants were also asked to complete a background questionnaire and seal it, together with the instruments, in an envelope and return to the research assistant (CB). The data were collected, analyzed and reported so that the anonymity of the informants was guaranteed.

Development and validation of the CPKE workbook

In order to facilitate individually tailored, empowering patient education for oncologic patients, a workbook for the self-evaluation of knowledge expectations during the illness trajectory was developed and validated. The results of the three data sets [6] constituted the foundation for developing the preliminary structure and items for a self-report workbook to identify cancer patients' knowledge expectations. The self-report workbook contains 10 subscales according to the critical moments of cancer trajectory (for example, Subscale 3: "I am participating in my care planning"), and altogether 133 items of specific educational issues (for example, Item 3 in Subscale 3: "How do the different cancer management alternatives affect me...") with further specifying categories (for example, sub-items in Item 3: "... my physical functional capacity/my working capacity/my appearance, etc."). Adult cancer patients are encouraged to identify their knowledge expectations in relation to their current illness trajectory phase and report their knowledge expectations to health care personnel. While read-

ing the items (knowledge expectations) and rating them (using the alternatives 'I want to know about this item', 'I have received patient education about this item', 'I have understood this item and can use it in my life'), the patients actually can actively decide what they want to learn about and when, and feel self-efficacy in reciprocity of knowledge expectations and education responses. In other words, they are empowering themselves.

To validate the content of the workbook, a 5-page questionnaire was developed. It contained six demographic background questions based on our earlier research results, questions concerning the content of the workbook, and two questions concerning the perceived importance and clarity of the workbook items, as well as space reserved for comments. A guide to the administration, scoring and analysis was produced to assist in the standardized data analysis. The questionnaire was used for data collection in three organizations: two cancer clinics at two hospitals in Finland, and a local cancer organization. Respondents (n = 94) were recruited with the assistance of ward sisters and the secretary of the cancer organization. The questionnaire was given to the actual patients at cancer clinics and wards, or sent to former cancer patients who were active within the local cancer organization as support persons. For the purposes of this study, these persons were considered as experts in cancer patients' education due to their first hand experience of cancer [22]. Data were analyzed with statistical methods. The reliability and content validity of the workbook were found to be rather good; Cronbach's alphas for the subscales varied from 0.58 to 0.96 and the inter-rater mean for content validity index I-CVI from 0.76 to 0.94 [6].

This self-report workbook is intended to enable the patients to identify their knowledge expectations, regulate the dialogue with the professionals, and for their part, evaluate the outcomes of education together with health care providers during the entire illness trajectory, regardless of whether they are inpatients or outpatients. By doing so, the focus is shifted from provision of information to patient education and from illness to actual possibilities, self-efficacy, and active participation in decision-making and in self-care.

Patient education intervention with the CPKE workbook

Sample and data collection: Newly diagnosed cancer patients at the age of 18 to 75 years and with no primary metha station were recruited from a university hospital during the period from October 2016 to March 2017. The invitations to take part in the study were given by the research assistant (CB). The meaning was not to follow up any one patient's individual patient education and individual empowerment, but to measure the empower-

ing outcomes of a patient education intervention at the critical moments of cancer patient education. Therefore, the informants in the intervention group (n = 32) and in the control group (n = 83) were not exactly the same individuals over the course of the three measurements (M1, M2 and M3).

All of the informants received oral and written patient education according to the standard practice of the hospital. However, upon their informed consent to participate in the study, the patients in the intervention group also received the CPKE workbook in the form of a leaflet entitled "What do I want to know right now? Self-report workbook with focus on knowledge expectations and satisfaction with the patient education". They were encouraged to reflect on their own knowledge expectations and communicate them to the health care personnel, as well to evaluate whether the patient education they received was based on their expectations, understandable and usable.

Instruments

There are very few instruments available for the purpose of measuring empowerment. In orthopedic context [23], the components of an empowerment scale include encouraging patients to make choices, encouraging active involvement, making information easy to understand, and focusing on patient concerns. In the Diabetes Empowerment Process Scale [24], the subscales consist of mutual participation, raising awareness, providing necessary information, and open communication. These scales are, however, concerned with the antecedents of empowerment process, whereas we are interested in the clinical outcomes of perceived empowerment.

We were not able to identify any empowerment instruments for oncologic context, but some data analysis themes are related to cancer patients' empowerment. In a randomized controlled trial study of Ryhänen, et al. [25], breast cancer patients' (n = 90) quality of life, anxiety and management of treatment-related side effects were analyzed at eight points of time during 12 months as the outcomes of patients' empowerment process. In another intervention study [26], breast cancer patients (n = 18) considered as being empowered when they were able to focus on their strengths instead of weaknesses and to take control and make choices. In a study conducted by Fee-Schroeder, et al. [27], cancer patients' (n = 66) empowerment indicators, after a chemotherapy-related intervention, included self-reported understanding of chemotherapy, perceived confidence in managing side effects, satisfaction with consistent information from the health care team, and lower level of anxiety. The two last mentioned studies included only pre- and post-test phases.

In order to measure the empowerment outcomes related to our empowering self-report workbook for identifying cancer patients' knowledge expectations in a heterogeneous sample with different cancer types and both genders, a set of instruments measuring the different aspects of empowerment were chosen.

We chose to measure some background variables, such as age, gender, marital status, education, type of cancer, self-perceived knowledge on cancer and its' management before the intervention, information searching preference, decision-making preference and control preference (on the scale from 0 = don't agree to 4 = totally agree).

The Brief Illness Perception Questionnaire [28] was selected to measure the contextual self-understanding and comprehension during and after the patient education. The BIPQ consists of eight items measuring, e.g., understanding the illness trajectory and the perceived control over illness (on the scale from 0 = not at all to 10 = very much). The scale has been evaluated in samples of asthma, renal and diabetes outpatients (n = 560) and found to have good test-retest reliability, good concurrent validity with relevant measures such as self-efficacy, and good predictive validity as well as discriminant validity.

The Functional Assessment of Cancer Therapy scale [29] was chosen to measure changes in physiological, social, functional and emotional states. The general scale, FACT-G, has 27 items measuring physical, social, emotional and functional well-being during the past seven days (on the scale from 0 = not at all to 4 = very much). The instrument validity and reliability have been tested in many patient groups and the developers report test-retest reliability range from 0.82 to 0.88.

The Posttraumatic Growth Inventory Short Form [30] was chosen to measure the growth in the sense of self. The PTGI-SF has ten items measuring the respondent's perceived human growth (on the scale from 0 = I did not experience this change as a result of my crisis to 5 = I experienced this change to a very great degree as a result of my crisis) after a trauma, such as severe illness or any life crisis. The instrument has been tested in large samples and its five-factor structure has been supported by - fitness-of-good test and factor analyses.

Data analysis

The data were analyzed statistically using the SAS 9.3 software (SAS Institute Inc., Cary, North Carolina, USA). Frequencies, percentages, means, standard deviations and medians were used as descriptive statistics. Sum variables for FACT-G, PTGI-SF and BIPQ were calculated if at least 50% of the items were completed

per sum variable. Background characteristics between intervention and control groups were compared by chi-square test or Fisher's exact probability test. Normality of the sum variables was studied by Shapiro-Wilk test. In case of normal distribution t-test was used for comparisons between the groups, otherwise Wilcoxon signed-rank test were used. Small sample sizes prohibited any multivariate analyses. P-values less than 0.05 were considered as statistically significant.

Results

The intervention group (n = 32) comprised 10 patients taking part in the baseline measurement (M1), 14 patients in the follow-up measurement (M2) and eight patients in the final measurement (M3). The control group (n = 83) comprised 36 patients at the baseline (M1), 20 patients at the first follow-up (M2) and 27 patients at the final measurement (M3).

The informants in the intervention and control groups were not exactly the same individuals for the baseline (M1) and follow-up data collections (M2, M3) but there were no significant differences between the groups with regard to age, gender, marital status, educational background, cancer diagnosis and cancer treatment (Table 1). For all data combined, the informants were near the pensionable age (the mean age was 65 years in the intervention group and 60.5 years in the control group), female (79% vs. 75%), married (63% vs. 47%) and had only basic education (37% vs. 28%). The most frequent diagnosis was breast cancer (74% vs. 69%), and radiation therapy (67% vs. 50%) or cytostatics (20% vs. 22%) were the most common treatments.

The information searching, decision-making and information control preferences of the informants were assessed at the three measurement points. When all data sets M1-M3 were analyzed together (Table 2), there were significant differences between the intervention group and control group in the statements concerning information searching preferences in favor of the intervention group: "I know enough about the cancer management alternatives" (p 0.02), "I want myself to look for information about my cancer" (p 0.02) and "I want to get as much information as possible about my cancer" (p 0.03). No other significant differences were found. When the different data sets were analyzed separately, the informants in the intervention group perceived themselves as knowing better (p 0.04) the cancer management alternatives at the last measurement (M3) than the informants in the control group.

As to the decision-making and information control preferences, both groups wanted as much as possible to participate in the decision-making concerning their

Table 3: Illness perception in the intervention and control group when the measurements M1, M2 and M3 are combined.

Item Scale from 0 = not at all to 10 = very much	Intervention group n = 24			Control group n = 41-45 depending on measurement point		
	Mean	Md	StDev	Mean	Md	StDev
How much does the illness affect your everyday life?	5.29	5.00	3.17	6.16	7.00	3.20
How long do you think the illness will take?	3.25	3.00	2.01	4.80	5.00	2.91
How much do you think you can control the illness?	5.04	5.00	2.93	5.30	6.00	3.04
How much do you think the care alternatives help in your case?*	8.9	9.00	1.16	9.19	9.00	1.03
How much do you perceive symptoms?	2.96	2.00	1.85	4.02	4.00	3.01
How worried are you about the illness?	4.50	4.00	2.96	5.67	5.00	3.20
How well do you perceive you understand the illness?*	8.63	9.00	1.66	8.53	9.00	1.40
How much does the illness affect you emotionally?	5.00	5.50	3.19	4.86	4.00	3.11
Sum	3.55	3.88	1.60	4.09	3.88	1.74

Table 5: Posttraumatic growth in the intervention group and control group at M3.

PTGI-SF factor	Intervention group n = 8		Control group n = 14	
	Mean	StDev	Mean	StDev
Appreciation of life	4.13	0.64	3.14	1.23
New possibilities	3.38	0.52	2.46	1.22
Spiritual change	2.13	1.41	1.79	1.96
Relations to others	4.00	0.76	3.11	1.53
Personal strength	4.44	2.68	2.68	1.51
Sum	3.61	0.52	2.62	1.27

Scale: 0 = I did not experience this change at all; 5 = I experienced this change to a very great degree.

cancer management, wanted to know how effective the cancer management was in their situation, and trusted in their own skills to take care of themselves between the cancer management visits. However, according to the analysis of the data collected with the Brief Illness Perception Questionnaire [28], the patients' contextual self-understanding and comprehension of the illness in the intervention group (n = 24 answers) differed (Table 3) from the perceptions of control patients (n = 41-45 answers depending on measurement time). The patients in the intervention group perceived themselves as knowing the duration of their illness trajectory better than the patients in the control group (p 0.05). The patients in the intervention group also seemed to perceive slightly fewer symptoms due to their illness than the patients in the control group. However, this was not a statistically significant difference between groups.

Changes in physiological, social, emotional and functional well-being were also explored at three time points. There was only one statistically significant difference between the intervention and control groups at the different measurements (Table 4). The emotional well-being of the informants in the intervention group seemed to be higher than in the control group (p 0.001) already at the first measurement, at the time they were recruited to take part in the study. The other areas of well-being over the preceding seven days did not differ between the groups

and only marginally within each group: Physiological well-being seemed to be slightly poorer in both groups at the second measurement, which was probably due to the active cancer management period. Social and functional well-being were perceived as good in both groups during the whole illness trajectory.

The posttraumatic growth of the informants was assessed only once, at the time when the informants were at the outpatient clinic for the final cancer management visit (Table 5). In the intervention group, the informants perceived appreciation of life (p 0.04) and found personal strength (p 0.01) to a greater extent than the informants in the control group at the end of illness trajectory.

Discussion

The aim of the study was to describe the empowering outcomes of a patient education intervention in the form of a self-report workbook with focus on patients' self-perceived knowledge expectations.

If empowerment is considered as a process of reciprocal patient activation and self-efficacy, our intervention had measurable empowering outcomes. On the basis of our data, the patients in the intervention group (n = 32) had slightly higher self-confidence in their own knowledge about their illness and about the cancer management alternatives, as compared with the control group (n = 83). This was seen at all measurements M1-M3 (p 0.02) but especially for the last measurement (M3) at the end of illness trajectory (p 0.04). This suggests that our personalized patient activation intervention [17] may lead to better self-efficacy in terms of cancer patients' knowledge. With self-efficacy defined as skills and confidence to manage own health and health care [15] and belief in one's own ability to complete a future task or solve a future problem [16], the patients in both the intervention group and the control group trusted in their own skills to take care of themselves between cancer management visits, and wanted to look for information about their cancer independently. However, it seems that the informants in the intervention group had higher desire

for independent information searching already at the baseline measurement (p 0.02). Furthermore, the patients in the intervention group also had a greater desire to get as much information as possible about their cancer (p 0.03). These patient activity and self-efficacy differences between the groups may be a result of our intervention, that is, the acknowledgment that one is belonging to a patient education group or the self-report workbook as such.

If empowerment is considered as an outcome, such as beliefs that allow for greater control in education process [11,19], there was only one statistically significant difference between the groups in terms of measured illness perception [28]. The patients' contextual self-understanding and comprehension of the illness differed between the groups: The patients in the control group perceived that they did not know the duration of their illness trajectory to the same extent as the patients in the intervention group did (p 0.05). This difference between the intervention and control groups might be related to the individually tailored, continuous patient education [1] based on the intervention. According to Vaartio-Rajalin, et al. [8,11], cancer patients wish that patient education be focused both on the process and on action knowledge, and they find it very important to know also the timetable for one's illness trajectory. This sense of control is prominent in empowerment: In improving the quality of one's life and in making rational decisions about how to manage the illness [2].

Considering self-determination and informed consent as empowerment outcomes, patients in both the intervention and control group wanted to know how effective the cancer management was in their situation so that they would be empowered to make rational decisions about how to manage their illness [2]. Both groups also wanted as much as possible to participate in decision-making concerning their cancer management in order to have sufficient control and resources to implement their decisions [3]. However, the changes in physiological, social, emotional and functional well-being over the past seven days before the measurement might have affected empowerment outcomes, such as self-determination preferences [20]. The emotional well-being of the informants in the intervention group seemed to be higher than in control group (p 0.001) throughout the study, and already in the first measurement at the time they were recruited to the study (p 0.04). The other areas of well-being did not differ between the groups and only marginally within each group: Physiological well-being seemed to be slightly poorer in both groups at the second measurement, which is probably due to the active cancer management period. Social and functional well-being was perceived as good in both groups during the whole illness trajectory. The difference in emotional well-being

between the groups may be a result of our intervention, the willingness to participate in a specific patient education group with personalized patient education, and being an active part thereof. Emotional well-being can both be a part of the process and an outcome of empowerment defined as the process of recognizing, promoting and enhancing one's abilities to meet own needs, solve own problems and mobilize the necessary resources to feel in control [4].

The posttraumatic growth of informants in terms of, e.g., personal strength, relating to others, spiritual change, new possibilities and appreciation of life [30] was measured only once in both groups, prior to the final cancer management visit to the outpatient clinic. In our data, the informants in the intervention group appreciated life (p 0.04) and found personal strength (p 0.01) to a greater extent than the informants in the control group at the end of illness trajectory. This may be taken as an indicator of growth in the sense of self [4,17] due to increased self-confidence, self-efficacy, perceived control and emotional well-being as a result of our patient-centered patient education intervention.

Conclusions

On the basis of our study, the patient-centered patient education intervention in the form of a self-report workbook resulted in empowering outcomes among oncologic patients during their illness trajectory. The informants in the intervention group experienced better self-confidence and self-efficacy in terms of information searching preferences, but there were no differences between the intervention group and the control group as regards decision-making and information control preferences during the illness trajectory. The informants in the intervention group also perceived more contextual self-understanding in relation to the duration of their illness trajectory, and positive emotional well-being as compared with the informants in the control group. Furthermore, their personal growth in terms of appreciation of life and personal strength at the end of illness trajectory was higher than in the control group.

These findings indicate individual empowerment outcomes through the process of acknowledging that one is asked to participate in a patient education group, belonging to that group, and the use of the self-report workbook, i.e. having control over patient education, and experiencing contextual self-understanding, emotional well-being, and personal strength. This is in accordance with Gibson's [4] definition of empowerment as the process of recognizing, promoting and enhancing one's abilities to meet own needs, solve own problems and mobilize the necessary resources to feel in control.

Limitations

This study has certain limitations. First, the data sets were collected from one single hospital. However, this university hospital is one of the largest hospitals in Finland and has a reputation of excellence in clinical cancer management, and it is responsible for the care and treatment of thousands of cancer patients annually. Second, the informants in the intervention group and in the control group were not the exactly the same individuals for the baseline (M1) and follow-up data collections (M2, M3). Nevertheless, there were no significant differences between the groups regarding age, gender, marital status, educational background, and cancer diagnosis and cancer treatment. Third, the instruments applied in this study may have been too loading, thus resulting in relatively small sample sizes and missing data. Fourth, we do not know when the informants completed the questionnaires, whether it was directly after receiving them or just before their next visit to the outpatient clinic, and we did not record how the self-report workbook affected the patient education. However, the findings are based on the patients' individual perceptions of their own information searching, decision-making and information control preferences, illness perceptions and functional capacity during the cancer trajectory as well as posttraumatic growth at the end thereof.

References

1. Yuille L, Bryant-Lukosius D, Valaitis R, et al. (2016) Optimizing Registered Nurses Roles in Delivery of Cancer Survivorship Care within Primary Care Settings. *Nurs Leadersh* 29: 46-58.
2. Funnell MM, Anderson RM, Arnold MS, et al. (1991) Empowerment: An idea whose time has come in diabetes education. *Diabetes Educ* 17: 37-41.
3. Kleier JA, Welch Dittman PW (2014) Attitude and empowerment as predictors of self-reported self-care and A1C values among African Americans with diabetes mellitus. *Nephrol Nurs J* 41: 487-493.
4. Gibson CH (1991) A concept analysis of empowerment. *J Adv Nurs* 16: 354-361.
5. Nikolaichuk CL, Turner J, Collie K, et al. (2013) Cancer patients' experiences of the early phase of individual counseling in an outpatient psycho-oncology setting. *Qual Health Res* 23: 592-604.
6. Vaartio-Rajalin H, Huuonen T, Iire L, et al. (2017) Development of a self-report workbook for identifying and communicating cancer patients' knowledge expectations.
7. Jansen CE (2013) Cognitive changes associated with cancer and cancer treatment: patient assessment and education. *Semin Oncol Nurs* 29: 270-279.
8. Vaartio-Rajalin H, Leino-Kilpi H, Iire L, et al. (2015) Oncologic patients' knowledge expectations and cognitive capacities during illness trajectory-analysis of critical moments and factors. *Holis Nurs Pract* 29: 232-244.
9. Ormandy P (2011) Defining information needs in health-as-similating complex theories derived from information science. *Health Expect* 14: 92-104.
10. Nossum R, Rise MB, Steinsbekk A (2013) Patient education-which parts of the content predict impact on coping skills? *Scand J Public Health* 41: 429-435.
11. Vaartio-Rajalin H, Huuonen T, Iire L, et al. (2015) Patient education process in oncologic context-what, why and by whom? *Nurs Res* 64: 381-390.
12. Mok E (2001) Empowerment of cancer patients: From a Chinese perspective. *Nursing Ethics* 8: 69-76.
13. Mok E, Martinson I (2000) Empowerment of Chinese patients with cancer through self-help groups in Hong Kong. *Cancer Nurs* 3: 206-213.
14. Chang LC, Li IC, Liu CH (2004) A study of the empowerment process for cancer patients using Freire's dialogical interviewing. *J Nurs Res* 12: 41-50.
15. Hibbard JH, Greene J (2013) What the evidence shows about patient activation: Better health outcomes and care experiences; fewer data on costs. *Health Aff* 32: 207-214.
16. Bandura A (1977) *Social Learning Theory*. Prentice Hall, Alexandria, VA, USA, 247.
17. Chen J, Mullins CD, Novak P, et al. (2016) Personalized strategies to activate and empower patients in health care and reduce health disparities. *Health Educ Behav* 43: 25-34.
18. Crawford T, Roger P, Candlin S (2017) The interactional consequences of 'empowering discourse' in intercultural patient education. *Patient Education & Counseling* 100: 495-500.
19. Breeding R (2008) Empowerment as a function of contextual self-understanding. *Rehabilitation Counseling Bulletin* 51: 96-106.
20. Ozer EM, Bandura A (1990) Mechanisms governing empowering effects: A self-efficacy analysis. *Journal of Personality and Social Psychology* 58: 472-486.
21. World Medical Association (2013) Declaration of Helsinki - ethical principles for medical research involving human subjects.
22. Armstrong TS, Cohen MZ, Eriksen L, et al. (2005) Content validity of self-report measurement instruments: an illustration from the development of the Brain Tumor Module in the M.D. Anderson Symptom Inventory. *Oncol Nurs Forum* 32: 669-676.
23. Pellino T, Thiczek A, Collins M, et al. (1998) Increasing self-efficacy through empowerment: preoperative education for orthopedic patients. *Orthop Nurs* 17: 48-51, 54-59.
24. Chen MF, Ruey-Hsia W, Chung-Ping C, et al. (2010) Diabetes empowerment process scale: development and psychometric testing of the Chinese version. *J Adv Nurs* 67: 204-214.
25. Ryhänen A, Rankinen S, Siekkinen M, et al. (2013) The impact of an empowering internet-based breast cancer patient pathway program on breast cancer patients' clinical outcomes: A randomized controlled trial. *J Clin Nurs* 22: 1016-1025.
26. Stange I, Mittelmark MB (2010) Intervention to enhance empowerment in breast cancer self-help groups. *Nurs Inq* 17: 47-57.

27. Free-Schroeder K, Howell L, Kokal J, et al. (2013) Empowering individuals to self-manage chemotherapy side-effects. *Clin J Oncol Nurs* 17: 369-371.
28. Broadbent E, Petrie KJ, Main J, et al. (2006) The brief illness perception questionnaire. *J Psychosom Res* 60: 631-637.
29. Cella DF, Tulsky DS, Gray G, et al. (1993) The functional assessment of cancer therapy scale: Development and validation of the general measure. *J Clin Oncol* 11: 570-579.
30. Cann A, Calhoun NG, Tedeschi RG, et al. (2010) A short form of the posttraumatic growth inventory. *Anxiety Stress Coping* 23: 127-137.