

# Evaluation of Appropriateness of A Nursing Intervention Program to Promote Pain Self-Management for Adult Outpatients with Cancer Pain

Masako Yamanaka<sup>1</sup>, Kumi Suzuki<sup>2</sup>

<sup>1</sup>Department of Nursing Science, Faculty of Health Care, Tenri Health Care University, Tenri, Nara, <sup>2</sup>Faculty of Nursing, Osaka Medical College, Takatsuki, Osaka, Japan

**Corresponding author:** Masako Yamanaka PhD, RN. Department of Nursing Science, Faculty of Health Care, Tenri Health Care University, Tenri, Nara, Japan. E-mail: m.yamanaka@tenriyorozu-u.ac.jp

Received: March 27, 2020; Accepted: June 27, 2020; Published: October 15, 2020

## ABSTRACT

**Objective:** This study aimed to develop a nursing intervention program structured to promote pain self-management for adult outpatients with cancer pain to enable coping with cancer pain-related problems and evaluate the appropriateness and clinical applicability of the program. **Methods:** A questionnaire survey was conducted with two pharmacists and ten oncology nursing specialists using a questionnaire created by the authors. The questionnaire comprised of 23 items asking about the appropriateness of the program, clinical applicability, and feasibility of instruction materials, rated by 5-point scales. **Results:** We collected 11 responses. The mean score of all the 23 items was 4.3 (standard deviation [SD] 0.6), the mean scores of the items were 4.4 (SD 0.6) for the appropriateness of the program, 4.2 (SD 0.5) for the clinical applicability of the program, and 4.3 (SD 0.7) for the feasibility of the instruction materials.

The participants provided comments that the program made it easier to select patients for intervention and tasks that patients and nurses can share. Some comments pointed out that the program should be improved to allow patients who need the same intervention several times. Based on these comments, we modified the program partially and completed the first edition of the cancer pain self-management (CPSM) program. **Conclusions:** The findings suggest that the CPSM program may be considered appropriate and clinically applicable from the point of view of pharmacists and oncology nurses. Further studies are needed to verify the effects and usefulness of the program in clinical settings.

**Key words:** Cancer pain, nursing intervention program, self-management

## Introduction

In Japan, approximately 60% of outpatients with advanced cancers suffer from pain.<sup>[1]</sup> As many outpatients with pain due to cancer use opioid analgesics, patients need to make decisions about the need for analgesics to

cope with pain at home. Adult patients who are active in professional and household work need to be able to cope properly with the cancer pain-related problems at

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** WKHLRPMedknow\_reprints@wolterskluwer.com

**Cite this article as:** Yamanaka M, Suzuki K. Evaluation of Appropriateness of A Nursing Intervention Program to Promote Pain Self-Management for Adult Outpatients with Cancer Pain. *Asia Pac J Oncol Nurs* 2021;8:33-9.

Access this article online

Quick Response Code:



Website: [www.apjon.org](http://www.apjon.org)

DOI:  
10.4103/apjon.apjon\_37\_20

home, and this makes it necessary for them to manage the pain independently rather than be passive subjects of pain management provided by health-care professionals. Yamanaka reported that self-management of cancer pain involves several factors, including the formation of a partnership with health-care professionals, ability to cope with physical and mental aspects depending on the patient social activities, and self-efficacy.<sup>[2]</sup> For this reason, it is difficult for health-care professionals alone to develop the independent attitude of patients with cancer pain toward self-management simply by providing advice and guidance on pain relief methods for patients with cancer pain. To resolve this, nurses are required to acquire advanced nursing skills, to intervene using these skills to promote cancer pain self-management (CPSM), as well as to have a basic knowledge and skills in cancer pain and pain treatment.

At present, the PRO SELF<sup>®</sup> Plus Pain Control Program is based on self-care nursing theory as developed in the United States,<sup>[3]</sup> and research evaluation of the effectiveness in patients with cancer pain has been ongoing.<sup>[4]</sup> In Japan, certified nurse specialists for cancer nursing and certified nurses provide care to outpatients with cancer pain. However, these nurses respond to patients at their own discretion, and there is no systematic support of outpatients with cancer pain. This suggests the importance of developing systematic nursing intervention programs that will enable outpatients to manage their cancer pain appropriately.

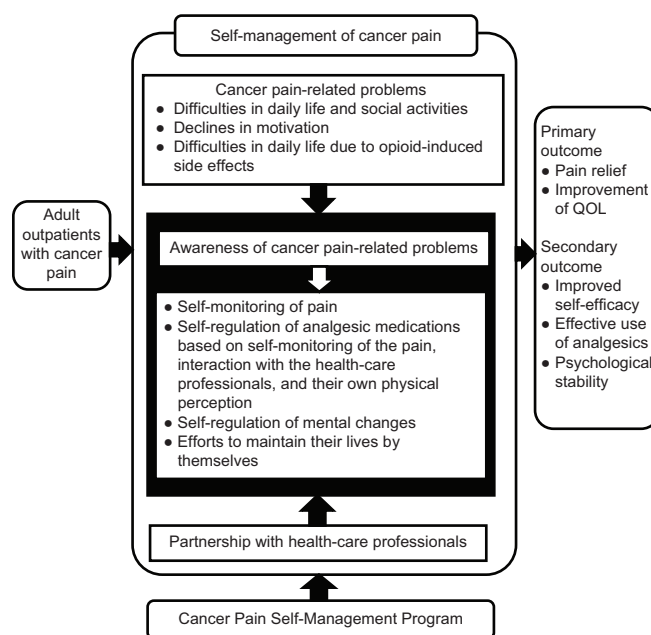
In this study, we define the self-management of cancer pain as “the process in which patients with cancer pain make the decision to manage their pain, enhance their self-efficacy by solving problems caused by pain, and incorporate pain-relieving strategies into daily life, through interactions with health-care professionals.”<sup>[5]</sup>

### Purpose

This study aimed to develop a nursing intervention program structured to assist adult outpatients with cancer pain to deal with cancer pain-related problems, termed the CPSM program, and evaluate the appropriateness and clinical applicability of the program based on the opinions of pharmacists and nurses in the field of oncology nursing.

### The conceptual framework

The conceptual framework of this study was developed based on the results of a conceptual analysis of self-management in dealing with cancer pain<sup>[5]</sup> and the results of a qualitative empirical study of 16 Japanese adult outpatients with cancer pain [Figure 1].<sup>[2]</sup> Adult patients with cancer pain are exposed to cancer pain-related problems, including experiencing obstacles in day-to-day life and social activities, as well as declines in motivation,



**Figure 1:** Conceptual model of a nursing intervention program that promotes self-management of cancer pain in adult outpatients. QOL: Quality of life

due to the cancer pain, and difficulties in day-to-day life due to opioid-induced side effects. To cope with these issues based on a partnership with health-care professionals, patients become aware of cancer pain-related problems and make efforts to maintain their lives by themselves by self-regulation of analgesic medications based on self-monitoring of the pain, interaction with the health-care professionals, their own physical perceptions, and self-regulation of mental changes affected by the pain. The CPSM program is intended to promote self-management of cancer pain, assuming that self-management among patients with cancer pain will improve using this program, alleviate cancer pain, improve the quality of life (QOL) and self-efficacy, enable patients to use analgesics effectively, and reach psychological stability.

### Process of developing the cancer pain self-management program

#### Development of a draft cancer pain self-management program

The components, patient goals, and details and methods of interventions of the CPSM program were determined based on the results of a literature review of educational interventions for patients with cancer pain,<sup>[6]</sup> the conceptual analysis of self-management toward dealing with cancer pain,<sup>[5]</sup> and a semi-structured interview survey with adult outpatients.<sup>[2]</sup>

The goal of the CPSM program is to improve the QOL by pain alleviation among adult outpatients with cancer pain through improving self-efficacy while actively dealing with cancer pain-related problems as accommodated

by their lives based on the partnership with health-care professionals. The intervention subjects were outpatients aged between 20 and 70 years of age with cancer pain and who were using opioid analgesics.

The CPSM program is comprised of the following six components: improving communication with health-care professionals, awareness of problems related to pain, self-monitoring of the pain, self-regulation of opioid analgesics, stress management, and concerns about maintaining day-to-day life.

Assuming that improvements in self-management of patients with cancer pain need to be based on a relationship with medical staff that will enhance the self-efficacy of patients when settling on intervention methods, we decided to work with patients focusing on using the following four skill areas: education related to cancer pain, approaches which promote self-monitoring and its analysis, approaches which promote behavior for pain relief, and stress management. The educational support provides patients with an understanding of the knowledge and skills needed to solve pain-related problems. The cognitive support assists patients in analyzing the conditions of the pain and the analgesic medications by themselves based on the results of self-monitoring of the pain. The behavioral support instructs patients in the use of pain alleviation methods in their day-to-day life. The emotional support helps patients conduct stress management.

The basic attitude of the intervention providers was to emphasize communication with patients, respect the opinions of patients on pain management, and interact with patients in a manner to stimulate thinking together, to build a partnership with the patients. Considering these components and methods, a total of three face-to-face individual interventions were considered appropriate in this program. The intervention providers were certified nurse specialist for cancer nursing and certified nurses. Due to the limitations in medical fees for home health care in Japan, we decided to intervene at the hospital on the day outpatient consultations were scheduled. The intervention providers used a nursing practice guide prepared by the researchers.

We created a booklet and a pain diary for patients who participated in this program.

#### **Modification of the cancer pain self-management program**

A focus group interview was conducted to determine aspects of the appropriateness, clinical applicability, significance, and the modifications of the draft CPSM program with 12 participants (oncology nurse specialists and pharmacists).

Table 1 gives a summary of descriptive data obtained from the focus group interview. The main ideas about the significance of the program stated by the participants

**Table 1: Opinions on the draft nursing intervention program to promote self-management of cancer pain of adult outpatients**

Item	Summary
General	Subjects, goals, content, frequency, and intervention providers are appropriate
Significance of use	Improving the quality of cancer pain nursing Expected to be used in nurse education Improving motivation of nurses
Patients subject to intervention	Difficult to select patients for intervention Wish to broaden the area of application for intervention Wish to reduce the burden on patients subject to the intervention Difficult to provide the first intervention to patients on the first day of opioid analgesics administration
Methods	Necessity to think about ways to facilitate intervention Wish to extend the interval between interventions Necessity to emphasize the significance of the program when introducing the program
Contents	Additional techniques are needed to motivate patients Avoid expressions that could appear to compel patients to conduct self-management Insufficient explanations of self-monitoring Expressions of pain assessment items are difficult to understand Difficulties in understanding the importance of becoming aware of problems with pain Expressions in the action plan are difficult to understand Evaluation perspective in the action plan is insufficiently considered Difficult to adapt to patient individuality Difficult due to barriers in the communication between patient and doctor Difficult to learn the program
Instruction materials	Difficult to use the pain diary
Situation for outpatients	Insufficient instructions on narcotic drugs in hospitals Insufficient cooperation between hospitals and out-of-hospital pharmacies regarding drugs Lack of arrangements to identify patients who need intervention Necessary to establish a standard to identify patients who need intervention Outpatient nursing care is insufficient The system for providing nursing is working Temporary narcotics administration is becoming increasingly complicated

include that “it was an opportunity to warn us to avoid involvement in giving patients one-sided instruction” and “when reading the program, we became aware that the support usually provided helped patients improve their self-management.” Comments on the intervention subjects include that “on the first day of the introduction of opioid analgesics, it is difficult for us to promote self-management” and “the criteria for patient selection are difficult to understand.” Comments on the details of the interventions include that “we need efforts not to give patients the impression that we compel them to conduct self-management,” “the program should detail examples of how nurses acknowledge patient behaviors, and express thanks to patients.” Considering the outpatient setting, the participants stated that “instructions on medication for the patients who take opioid analgesics for the first time are not sufficiently detailed,” “some patients receiving opioid

analgesics at out-of-hospital pharmacies do not know that they are narcotic drugs,” “communication between hospitals and out-of-hospital pharmacies is insufficient,” and “there are no criteria to identify patients who need nursing intervention.”

Based on these opinions, we modified the program by creating a flowchart to facilitate the selection of the kind of patient the intervention project has in mind, and all intervention subjects were allowed to receive detailed explanations about opioid analgesics. For the intervention providers, we also included nurses who perform the same duties as a certified nurse specialist for cancer nursing and certified nurses. The nursing guide was revised by changing expressions that may make it sound as forcing patients to conduct the self-management to softer expressions that more clearly show respect for the feelings of patients, and which acknowledge patient behaviors.

## Methods

### Participants

The participants were 12 certified nurse specialists for cancer nursing, certified nurses, and pharmacists. The inclusion criteria are those with experience of providing care and/or instruction for outpatients with cancer pain and having conducted such work for >1 year. The participants were recruited through the persons in whom contact had been established.

### Data collection and analysis

A self-rating questionnaire survey was conducted between October 20 and December 30, 2018, to collect data. The questionnaire contained 23 items in the following three sections: appropriateness of the CPSM program (17 items), clinical applicability (3 items), and feasibility of instruction materials (3 items). The appropriateness section asks about the goals, number of interventions, timing of use, and details of the intervention. The clinical applicability asks if the program is suitable for clinical settings, easy for nurses to use, and easy for patients to understand. The feasibility section asks about the practicality of the materials. Each item is rated by a numerical rating (1–5): 5 points for “definitely applicable” to 1 for “not applicable.” The questionnaire has a write-in space for comments on the program.

We sent the modified program, instruction materials, and an anonymous self-rating questionnaire to the participants by post, requesting a review of the modified parts of the program and completion of the questionnaire. Participants were also requested to write comments on the modified program in the write-in space for comments in the questionnaire or directly

in the instruction materials and return the completed questionnaire and instruction materials by post. On data analysis, the mean value and standard deviations (SD) were calculated for each item. Comments on the program were organized according to the similarities of the matters mentioned.

### Ethical approval

Participants expressed consent for participation after having the following items explained orally and in writing: the purpose and methods of the study, freedom of participation and withdrawal, absence of advantages or disadvantages whether participating or not participating, protection of human rights including personal information, anonymity of data, methods of data storage, eventual discarding of materials, and in the publication of the research results. The study was conducted with the approval of the Research Ethics Committee of Osaka Medical College (Approval No. Nurs-104).

## Results

### Participants

The questionnaire was distributed to the 12 participants: 10 nurses and 2 pharmacists (10 females and 2 males). Eleven responses were collected (91.7%) from nine female and two male participants. The qualifications of the respondents were one certified nurse specialist for cancer nursing, four certified nurses for cancer pain management nursing, two for palliative care, two for cancer chemotherapy nursing, and two pharmacists. The mean age was 43.5 years (SD 3.7), and the mean length of experience in caring for and providing instruction to outpatients with cancer pain was 6.2 years (SD 4.3).

### Appropriateness and clinical applicability of the cancer pain self-management program

The mean score of all the 23 items in the questionnaire was 4.3 (SD 0.6) [Table 2]. The mean score and score range for each item were as follows: for the appropriateness of the program 4.4 (SD 0.6), 2–5; for the clinical applicability of the program 4.2 (SD 0.5), 3–5; and for the feasibility of instruction materials 4.3 (SD 0.7), 3–5.

In the comments in the write-in space, there were positive comments on the program: “flowcharts made it easier to assess the patients in the program,” “easy to understand the patient goals at each intervention because of a step-up format,” “we can start intervention after assessing the physical and psychological condition,” “easy to understand because the viewpoint of the intervention is clearly defined,” and “I expect that this program will improve the quality of nursing.” Comments on the clinical



**Table 2: Appropriateness and clinical applicability of the nursing intervention program promote self-management of cancer pain of adult outpatients**

Component	n	Evaluation item	Mean	SD
Appropriateness	1	Goal	4.5	0.5
	2	Number of interventions	3.8	1.0
	3	Timing of use	4.3	0.8
	4	Contents	4.5	0.5
	5	Improve the partnership of patients and health-care professionals	4.5	0.5
	6	Improve communication with health-care professionals	4.7	0.5
	7	Improve awareness of problems related to pain	4.6	0.5
	8	Improve self-monitoring of the pain	4.5	0.5
	9	Improve self-regulation of the medical analgesic medication and side effects	4.1	0.5
	10	Improve stress management	4.0	0.6
	11	Lessen concerns about maintaining day-to-day life	4.3	0.5
	12	Alleviate pain	4.5	0.7
	13	Improve QOL	4.3	0.6
	14	Improve self-efficacy	4.5	0.7
	15	Enable effective use of analgesic medication	4.5	0.5
	16	Bring mental stability	4.0	0.4
	17	Encourage independent cancer pain management	4.5	0.5
	Subtotal		4.4	0.6
Clinical applicability	18	Ease of application in clinical settings	4.3	0.6
	19	Ease of use for nurses	4.3	0.5
	20	Ease of use for patients	4.1	0.3
	Subtotal		4.2	0.5
Instruction materials	21	Booklet for patients	4.3	0.8
	22	Pain diary	4.4	0.7
	23	Nursing practice guide	4.2	0.6
	Subtotal		4.3	0.7
Overall average score			4.3	0.6

SD: Standard deviation; QOL: Quality of life

applicability included that “I think it is easy to use as a guide at the time of intervention because the practices of nurses are clearly described,” “both patients and nurses can verify the self-management aspect we should work on,” and “I think that nurses will also improve in intervention skills with repeated use of the program.”

There were comments for points of improvement: “as I misunderstood that some patients needed to repeat the same stage, I put “2” to the question asking the number of programs,” “I think that you should add a line saying ‘you can return to the previous stage of intervention according to the self-management condition of the patient,’” and “It would be better if there were evaluation items before proceeding to the next stage,” “the patient goal in the third intervention, the “patient understands the importance of their own efforts to alleviate pain,” needs a more concrete explanation for the intervention.”

Based on these comments, we modified the procedures of the program so that each intervention can be repeated and patients can repeat the previous intervention, and added more concrete intervention details. The pain diary was also modified. With these modifications, the first edition of the CPMS program [Table 3] was created.

## Discussion

### *Appropriateness and clinical applicability of the cancer pain self-management program*

The results of the questionnaire survey showed the appropriateness of the program with the mean score of 4.4 (SD 0.6), and for the clinical applicability the score was 4.2 (SD 0.5). These suggest that the CPSM program was evaluated as appropriate and clinically applicable by the responding pharmacists and oncology nurses.

The reasons for the positive evaluation of the program may be because the components of the program, patient goals, and details of the interventions were extracted based on the conceptual analysis of self-management toward dealing with cancer pain;<sup>[5]</sup> and including the results of an empirical qualitative study of adult outpatients with cancer pain;<sup>[2]</sup> and because the methods of the interventions of the CPSM program were determined based on the results of a literature review of educational interventions. A further reason for the high score in the appropriateness and clinical applicability of the program would be that the program was modified by obtaining opinions based on the practical

**Table 3: Outline of the first version of the nursing intervention program to promote self-management of cancer pain of adult outpatients**

Intervention	1 <sup>st</sup> intervention	2 <sup>nd</sup> intervention	3 <sup>rd</sup> intervention
Patient goals	Able to describe the pain experienced to nurses in detail Able to understand pharmacological and nonpharmacological pain alleviation methods Able to understand the significance and method of self-monitoring of pain and analgesics	Able to decide the goals and action plan for pain alleviation together with nurses based on the results of self-monitoring Able to understand the importance of communication with health-care professionals Able to understand the mental and physical remedies to maintain an independent life	Ability to share the results of the action plan with health-care professionals and discuss and arrangements for the continuation, additions, and modifications to the action plan Able to think about how to maintain day-to-day life Able to understand the importance of the own effort to alleviate pain
Contents of intervention (excerpt)	Education related to cancer pain Explain the goals and steps of the program Confirm the analgesic medication currently administered and the instructions for taking them Confirm the precautions in handling and storing opioid analgesics Encourage the patient to read the booklet by the next visit  Approach which promotes self-monitoring and its analysis Explain the importance of describing the condition of the pain to health-care professionals because pain is difficult for others to understand Check how patients use the pain diary. Explain how to use the diary if they have not used it  Approach which promotes behavior for pain relief Perform a pain assessment with the patients Explain the self-image and the lifestyle achieved by the pain alleviation	Using the booklet patients have read, asking them what they think and if they have questions, provide necessary advice and share information through discussion Confirm the ideas and awareness of opioid analgesics of patients  Based on the results of the self-monitoring and together with the patients, analyze the relationship between pain and analgesic medication, and the side effects  Together, think about feasible and specific goals Together, think about an action plan to achieve the goals Assist patients in asking questions and discussing their thoughts with physicians about conducting the action plan	Discuss the provisions necessary to maintain future day-to-day life and provide information that meets the needs of patients  Ask patients how they analyze their self-monitoring and what they think and discuss the matters based on the results of the self-monitoring  Together look back over the planned activities conducted by patients and have the patients be aware that they have been actively engaged in the treatment and the effects Evaluate the achievement of the goals with the patients and discuss needs to change the plan and methods Assist patients in communicating their thoughts and wishes about the analgesic medication to physicians
	Stress management Listen to patients by showing interest in what they wish to report	Discuss what patients are doing to cope with stress and how to cope with stress in future	Discuss the effects of the stress-coping methods

experience of pharmacists and oncology nurses. Further, we decided to intervene at the hospital on the day outpatient consultations were scheduled in accordance with the Japanese insurance system, and this may have strengthened the clinical applicability. We also prepared a nursing practice guide for intervention providers to be able to understand the intervention easily and created a booklet and a pain diary assuming that these will help intervention providers utilize the program while talking with patients. Because these instruction materials have the advantage that both the patient and intervention provider can share the direction of the problem-solving, these may be effective to form a partnership between patient and provider and increase the independent attitude of patients. It may be that this process of developing the program made it possible to achieve the goals of promoting CPSM, alleviating cancer pain, and improving the QOL of adult outpatients as reported here.

### **Significance of the cancer pain self-management program**

In Japan, the average length of hospital stays for cancer patients has been reduced by 8.5 days to 16.1 days in the last 12 years,<sup>[7]</sup> and the number of outpatients with cancer is expected to increase in future. However, the results of the present study showed that the support arrangements of hospitals for patients with cancer pain have not been adequate, including the insufficiently detailed instructions on opioid analgesics for outpatients.

Furthermore, it has been reported that outpatients reduce the doses of opioid analgesics due to worries about their tolerance and poisoning, and some patients suffer from drowsiness and constipation.<sup>[2]</sup> Considering these situations of outpatients in Japan, the use of the CPSM program would be clinically significant as it makes it easier for nurses to identify patients for intervention and to provide

interventions that promote self-management of outpatients with cancer pain.

In view of the nursing intervention programs for outpatients with cancer pain, the following programs have been developed: The “ANtiPain” intervention use structured and tailored components and are based on three key strategies: information, skill building, and nurse coaching.<sup>[8]</sup> Pain management intervention prepares pain management to overcome the factors that hinder pain relief on the patient side.<sup>[9]</sup> With the Palliative Homecare Program, pain management is led by nurses.<sup>[10]</sup> However, the CPMS program is unique in that it is not a nurse-initiated program where patients simply follow advice and instruction by nurses, but that it emphasizes the promotion of patient independence by patients and nurses working together on pain-related problems. We expect that the CPMS program will provide outpatients with the opportunity to become aware of the importance of their independence in solving cancer pain problems. Further, nursing practices using this program would display the unique practices of nurses to staff in other occupations in an interdisciplinary medical team, as well as contribute to improving the skills of individual nurses.

### Limitations and Issues for Future

This study developed a nursing intervention program that promotes self-management of cancer pain in adult outpatients, alleviates the pain, and improves the QOL. Further studies are needed to evaluate the effect and usefulness of the program by adapting it more closely to clinical settings. There remain many issues to be improved in the nursing care provided to outpatients in Japan. This makes it useful to do different kinds of things in applying the program depending on the outpatient situation at different hospitals when adapting it to clinical settings.

### Conclusions

This study evaluated the appropriateness and clinical applicability of the draft CPSM program based on the opinions of pharmacists and nurses in the field of oncology nursing. We believe that this process enabled us to develop a more useful program suitable for clinical settings in Japan. The future challenge is to verify the effect and usefulness of the program in clinical settings through experimental studies.

### Acknowledgments

We wish to express our gratitude to participants for their cooperation. This study is part of a doctoral dissertation submitted to Osaka Medical College Graduate School of Nursing.

### Financial support and sponsorship

This study was financially supported by JSPS KAKENHI (C) (Grant No. JP16K12084).

### Conflicts of interest

There are no conflicts of interest.

### References

1. Yamagishi A, Morita T, Miyashita M, Igarashi A, Akiyama M, Akizuki N, *et al.* Pain intensity, quality of life, quality of palliative care, and satisfaction in outpatients with metastatic or recurrent cancer: A Japanese, nationwide, region-based, multicenter survey. *J Pain Symptom Manage* 2012;43:503-14.
2. Yamanaka M. Investigation of specifics of self-management towards dealing with cancer pain among adult outpatients. *Health* 2018;10:1520-38.
3. Dodd MJ, Miaskowski C. The PRO-SELF program: A self-care intervention program for patients receiving cancer treatment. *Semin Oncol Nurs* 2000;16:300-8.
4. Koller A, Hasemann M, Jaroslowski K, De Geest S, Becker G. Testing the feasibility and effects of a self-management support intervention for patients with cancer and their family caregivers to reduce pain and related symptoms (ANtiPain): Study protocol of a pilot study. *Open J Nurs* 2014;4:85-94.
5. Yamanaka M. A concept analysis of self-management of cancer pain. *Asia Pac J Oncol Nurs* 2018;5:254-61.
6. Yamanaka M, Suzuki K. Educational intervention for promoting self-management of patients with cancer pain: A literature review [in Japanese]. *Palliat Care Res* 2018;13:7-21.
7. Ministry of Health, Labour and Welfare. Patient Research; 2017. Available from: [https://www.mhlw.go.jp/toukei/list/10-20-kekka\\_gaiyou.html](https://www.mhlw.go.jp/toukei/list/10-20-kekka_gaiyou.html). [Last accessed on 2020 Mar 03].
8. Koller A, Gaertner J, De Geest S, Hasemann M, Becker G. Testing the implementation of a pain self-management support intervention for oncology patients in clinical practice: A randomized controlled pilot study (ANtiPain). *Cancer Nurs* 2018;41:367-78.
9. Yates P, Edwards H, Nash R, Aranda S, Purdie D, Najman J, *et al.* A randomized controlled trial of a nurse-administered educational intervention for improving cancer pain management in ambulatory settings. *Patient Educ Couns* 2004;53:227-37.
10. Aubin M, Vézina L, Parent R, Fillion L, Allard P, Bergeron R, *et al.* Impact of an educational program on pain management in patients with cancer living at home. *Oncol Nurs Forum* 2006;33:1183-8.