1. Introduction

In Japan, it is estimated that 1.52 million people need cancer treatment [1], and the period of survival for those affected by cancer has been increasing [2]. Baxter et al. [3] reported that cancer treatments have been saving lives. However, survivors were often left with residual physical and psychosocial complications that prevented them from fully engaging in their everyday lives. These complications subsequently result in a compromised quality of life (QOL). Furthermore, the number of cancer patients who receive treatment or die at home is expected to increase because of policies such as the shortening of the admission period and promoting home medical care [4].

Many cancer patients undergo chemotherapy, radiation therapy, and surgery; experience side effects and complications from these treatments; and often live in the community with cancer recurrence, financial uncertainty, and pain. For the reasons mentioned above, it is presumed that a cancer survivor may find it difficult to perform well in daily life after discharged from the hospital. Peer support is one of the most effective supports in such cases. Peer support can be defined as the process of giving and receiving nonprofessional, nonclinical assistance from individuals with similar conditions or circumstances to achieve long-term recovery [5]. Furthermore, peer supporters often work with patients and/or healthcare providers to address system-level barriers, such as fragmented care, financial constraints, other
practical challenges (e.g., transportation, employment concerns, and childcare), and communication difficulties [6]. In Japan, there are two types of associations that provide peer support: hospitals and patient groups. In some cases, hospitals commission patient groups to provide peer support at the hospital [7]. Currently, the actual situations and effectiveness of peer support are being examined by the Ministry of Health, Labor and Welfare in Japan [8]. We believe that it is important for cancer survivors living at home to be able to receive peer support comfortably and securely in order to improve their QOL, whether the associations providing the support is hospitals or patient associations.

Several studies on peer support programs for cancer survivors have shown that such programs increase participant satisfaction and improve psychological adjustment [9, 10]. In Japan, Ikeuchi et al. [11] conducted a systematic review of community-based occupational therapy programs to improve the QOL of cancer survivors and reported that it is important to provide programs with peers who have the same disease. Furthermore, in the nursing field, the effect of peer support has been explained using the direct effect model [12], that is, the following are reported to have positive impacts on health-related outcome measures: (a) decreasing isolation and feelings of loneliness, (b) deterring maladaptive behavior or responses, (c) promoting positive psychological states and individual motivation, and (d) providing information regarding access to medical services or the benefits of behavior that positively influence health and well-being. On the other hand, peer support also has aspects that can have adverse outcomes, for example, criticism, reinforcement of poor behaviors, and diminished feelings of self-efficacy [12].

In terms of QOL, in general, randomized controlled trials (RCTs) did not find significant effects of participation in peer support programs on QOL [9]. However, further research is needed because of the impact of methodological issues such as a small sample size, lack of long-term follow-up, and limited outcome measures, as well as social resource issues such as the relatively high abundance of support (peer and professional) already available because the study participants only had breast cancer (BC). Furthermore, the study participants were recruited primarily by hospitals and specialists. In general, it is thought that cancer survivors have fewer opportunities to contact peers in the community than in hospitals admission; thus, we believe that further research is needed on the degree of peer support provided in the community. In summary, peer support programs are mainly studied by hospitals and medical professionals, and further research is needed on their impact on QOL.

Therefore, it is necessary to examine the effects of peer support programs that aim to improve QOL in community settings. This study aimed to identify an effective community-based peer support program to improve the QOL of cancer survivors. This study has the potential to promote mutually supportive relationships among cancer survivors when they live in the community. To investigate effective peer support programs, this study focused on RCTs with a higher level of evidence.

2. Methods

2.1 Study Design

This study was a systematic review and was conducted by following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement [13, 14].

2.2 Data Sources and Searching Strategies

PubMed and Igaku Chuo Zasshi [15] were the databases used in the current study. Igaku Chuo Zasshi contains bibliographic citations and abstracts from more than 2,500 biomedical journals and other serial publications in Japan. A hand search was also performed. The search terms in English were ((community) OR (home)) AND (peer) AND (cancer) AND (quality of life), and those in Japanese were ((tiiki) OR (zaitaku)) AND (pia) AND (gan) AND (seimei-no-shitsu) OR (seikatsu-no-shitsu)). The last date of the search was December 3, 2020, for both Japanese and English.

2.3 Inclusion Criteria

The inclusion criteria were as follows: (1) the program was conducted in the community or at home, (2) the program participants were cancer survivors aged 18 years or older, (3) the program participants were not in the terminal stage, (4) the program was conducted with peers, (5) the program was peer-reviewed, (6) the study design was an RCT, (7) the language was English or Japanese, and (8) the full text was available for ordering.

2.4 Papers Extraction

Identification, screening, eligibility, and included were performed according to the PRISMA Flow Diagram [14] for research inclusion (Figure 1). In the screening stage, we excluded papers that clearly would not meet inclusion criteria (1) to (8) on the basis of their titles and abstracts. Papers that could not be judged by the title and abstract or in which the title and abstract met the inclusion criteria were carefully reviewed after a thorough reading of the full text at the eligibility stage. After paper extraction was completed, an abstract table was created for the studies included in the qualitative
synthesis (Table 1).

2.5 Evaluating the Quality of Papers

After the eligibility stage, two or more authors assessed the quality of the included articles according to the manual described in the Cochrane risk-of-bias tool for RCTs (RoB 2.0) [16, 17] in the Cochrane Handbook. Two of the authors had experience with systematic reviews. There were five types of bias risk: bias arising from the randomization process, bias due to deviations from intended interventions, bias due to missing outcome data, bias in the measurement of the outcome, and bias in the selection of the reported result. To determine the risk of bias, we had to check the manual and then answer two to six signaling questions corresponding to each bias (Table 2). For example, when bias arises from the randomization process, we answered signaling questions such as “1.1 Was the allocation sequence random?” and “1.3 Were there baseline imbalances that suggest a problem with the randomization process?” When answering signaling questions, respondents selected yes, probably yes, no, probably no, no information, and not applicable. After answering these signaling questions, five types of bias risk could be classified as “low risk,” “some concerns,” and “high risk” (Table 3).

3. Results

3.1 Process of Adopting Papers (Figure 1)

After searching the database, 120 articles were listed (119 articles in PubMed and 1 article in Igaku Chuo Zasshi). We screened 124 papers, including 4 papers collected by hand searching. In the screening, 101 papers that clearly would not meet inclusion criteria (1) to (8) on the basis of their title and abstract were excluded. Nineteen papers were excluded in terms of eligibility. In other words, four papers [18–21] were included. Nineteen papers were excluded for eligibility because 2 papers were research protocol papers with unknown results, 2 papers did not have QOL as an outcome measure, 1 paper had inpatients as participants, 1 paper had cancer survivors who did not participate in programs with peers, and the other 13 papers were not RCTs. There have been no studies on the process of quantitative integration (meta-analysis).

3.2 A Review of Accepted Papers (Table 1)

Among the four articles that were accepted, all study participants were women with BC. Furthermore, QOL was significantly improved in three of the papers [18, 20, 21]. The peers instructed in programs were BC survivors who had been diagnosed one to three years earlier, and some studies required peers to be free of recurrence for several years or more. Peers also received special training of approximately eight hours per session for a total of two to seven days before providing support to the participants. The programs of the intervention groups in the three papers that significantly improved QOL are described below.

Nápoles et al. [18] evaluated a community-based,
### Table 1. An abstract table for accepted papers

Information on the adopted papers (n = 4) are organized.

| No. | First author, Year (Country) | Design | Cancer type | Number of Participants | Intervention contents | Main outcome measure | QOL outcomes with significant improvements |
|-----|-----------------------------|--------|-------------|------------------------|----------------------|---------------------|-------------------------------------------|
| 18  | Nápoles, 2015 (USA)         | RCT    | BC          | n = 151               | Intervention: Nuevo Amanecer (n = 76) Control: Usual care (n = 75) | QOL: FACT-B, General distress symptoms: BSI, Breast cancer- specific distress: a subscale of the IES-R | Emotional well-being of FACT-B |
| 19  | Nápoles, 2020 (USA)         | RCT    | BC          | n = 153               | Intervention: Nuevo Amanecer-II (n = 76) Control: usual care (n = 77) | QOL: FACT-B, General distress symptoms: PHQ-8, BSI and MOCS-A | None |
| 20  | Giese-Davis, 2016 (USA)     | RCT    | BC          | n = 104               | Intervention: peer-counseling (n = 52) Control: usual care (n = 52) | QOL: BSW and TOI in FACT-B, Cancer-related trauma symptoms: PCL-C, Cancer self-efficacy: CBI, Marital interaction: LWMAT, Depression symptoms: CES-D, BC resources: BCRQ | BSW in FACT-B |
| 21  | Toija AS, 2019 (Finland)    | RCT    | BC          | n = 260               | Intervention: usual care and peer support via telephone (n = 130) Control: usual care (n = 130) | Generic state of health: 15D, QOL: EORTC QLQ-C30, EORTC-QLQ-BR23 | Sexual function in EORTC QLQ-C30 and EORTC-QLQ-BR23 |

### Table 2. Answering signaling questions

Answers to signaling questions are described.

| Reference number | Bias arising from the randomization process | Bias due to deviations from intended interventions | Bias due to missing outcome data | Bias in measurement of the outcome | Bias in selection of the reported result |
|------------------|--------------------------------------------|-------------------------------------------------|---------------------------------|----------------------------------|-----------------------------------------|
|                  | 1.1 | 1.2 | 1.3 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 3.1 | 3.2 | 3.3 | 4.1 | 4.2 | 5.1 | 5.2 |
| 18               | Y   | Y   | N   | PY  | PY  | PN  | PN  | N   | NA  | Y   | NA  | NA  | Y   | PY  | N   | N   |
| 19               | Y   | Y   | N   | PY  | PY  | PN  | PN  | N   | NA  | Y   | NA  | NA  | Y   | Y   | Y   | N   |
| 20               | NI  | PY  | N   | PY  | PY  | PN  | PN  | N   | N   | N   | N   | Y   | Y   | N   | N   |
| 21               | Y   | Y   | N   | PY  | PY  | PN  | PN  | N   | NA  | Y   | NI  | NA  | Y   | Y   | PN  | PY  |

Y: Yes, PY: Probably yes, N: No, PN: Probably no, NI: No information, NA: Not applicable

Signaling questions are as follows:

1.1 Was the allocation sequence random?
1.2 Was the allocation sequence concealed until participants were recruited and assigned to interventions?
1.3 Were there baseline imbalances that suggest a problem with the randomization process?
2.1 Were participants aware of their assigned intervention during the trial?
2.2 Were carers and trial personnel aware of participants’ assigned intervention during the trial?
2.3 Were there deviations from the intended intervention beyond what would be expected in usual practice?
2.4 Were these deviations from intended intervention unbalanced between groups and likely to have affected the outcome?
2.5 Were any participants analysed in a group different from the one to which they were assigned?
2.6 Was there potential for a substantial impact (on the estimated effect of intervention) of analysing participants in the wrong group?
3.1 Were outcome data available for all, or nearly all, participants randomized?
3.2 Are the proportions of missing outcome data and reasons for missing outcome data similar across intervention groups?
3.3 Is there evidence that results were robust to the presence of missing outcome data?
4.1 Were outcome assessors aware of the intervention received by study participants?
4.2 Was the assessment of the outcome likely to be influenced by knowledge of intervention received?
5.1 Multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain?
5.2 Multiple analyses of the data?
translational stress management program called Nuevo Amanecer (NA) to improve health-related QOL in Spanish-speaking Latinas with BC. The specifics of the NA involved managing the initial impact of cancer, finding cancer information, obtaining support, identifying helpful and unhelpful thoughts, managing thoughts and mood, stress management techniques, managing activities that affect mood, and goal setting. The NA was conducted once a week for a total of eight sessions of 90 minutes each.

Giese-Davis et al. [20] conducted an RCT of peer counseling for patients with newly diagnosed BC. Peer navigators provided support during medical treatment, made connections to community resources, recognized trauma symptoms, and helped sojourners know whether to seek professional help for distress. The pair could meet weekly by telephone, email, or in person for up to six months.

Toija et al. [21] explored the effectiveness of a simple and low-cost peer support program on the health-related QOL of patients with BC. This peer support was provided by trained volunteer BC survivors via telephone, thus enabling newly diagnosed BC patients to get in contact with survivors in a simple and uncomplicated manner to ask questions and receive emotional support when needed. Moreover, it was continued according to the patients’ preferences as long as it was necessary, with approximately one call per week.

3.3 Evaluating the Quality of Papers

The results of the responses to the signaling questions (Table 2) guided the evaluation of the quality of the papers (Table 3). For example, in a study by Nápoles et al. [18], the answer to signaling question 1.1 “Was the allocation sequence random?” was “Yes.” In answering the other signaling questions, four items of the article quality rating were “low risk” and one item was “high risk.” The studies with the lowest risk of bias were those of Nápoles et al. [18, 19], followed by Toija et al. [21]. The study with the highest risk of bias was that of Davis et al. [20].

4. Discussion

4.1 Reported Programs

Three studies [18, 20, 21] showed significant enhancements in QOL, among which the study by Nápoles et al. [18] had the lowest risk of bias, followed by the studies by Toija et al. [21] and Giese-Davis et al. [20]. The following describe the details of the three papers [18, 20, 21] that showed significant improvements in QOL.

The NA conducted by Nápoles et al. [18] showed a statistically significant improvement in emotional well-being in FACT-B at six months. Their sample consisted mostly of Mexican and Central American Latinas, and participant cancer survivors with low educational and economic status were included in the NA. Therefore, this study may not be generalizable to Japanese groups. On the other hand, it may be useful for Japan because NA has contents that are strongly related to the community life of cancer patients, such as searching for cancer information; good skills when communicating with health professionals, family, and friends; managing activities that affect mood; and goal setting [22].

Giese-Davis et al. [20] reported that peer counseling performed for a maximum of 6 months showed a statistically and clinically significant difference in FACT-B BSW at 12 months. The content of this program, which helps peers talk about their experiences, make connections with community resources, and decide whether to seek professional help, is likely to be applicable in Japan. However, it should be noted that the risk of bias was the highest among the four papers adopted in this study.

Toija et al. [21] reported a small but statistically significant improvement in sexual function in EORTC-QOL30 and EORTC-QLQ-BR23 at six months follow-up. Unfortunately, there are many limitations to this study: the number of phone calls made differed between participants; data on participants’ disease stage and treatment were not reported; and data on sexual function in the EORTC-QOL30 and EORTC-QLQ-BR23, which showed statistically significant improvements, were not
shown. Therefore, generalizing this program is difficult.

The three studies [18, 20, 21] that showed significant improvements in QOL all incorporated a follow-up period of more than six months into their study design. This finding is consistent with that of Hoey et al. [9], who stated that an extended period of time may be required before people can develop relationships and build sufficient rapport to enable them to gain benefits from peer support. When running a peer support program in the community, it is also necessary to support cancer survivors so that they can take time to fully build trusting relationships with each other.

By contrast, Nápoles et al. [19] found no significant improvement in QOL. This program for Latinos living in rural areas is a revision of the NA [18, 22] for Latinos living in urban areas. As a result of revisions, NA-II was expanded from 8 to 10 sessions, the use of audiovisual materials was increased, and a handout for family members providing information on the program was created. Nápoles et al. [19] stated that the reason for the lack of significant improvement in QOL with NA-II was that all women who received NA were enrolled mostly within three months of diagnosis or within one year, whereas women who received NA-II were enrolled farther from the date of their initial diagnosis (within 2.5 years on average). This may be due to the longer time since the diagnosis and that the baseline levels of QOL among women in the NA-II were better than those in their prior RCT, thus leaving less room for improvement. This is similar to what Hong-Li et al. [23] reported when following the QOL of nonmetastatic BC patients after initial treatment with surgery and chemotherapy for one, two, and five years; they found that the QOL at one year was the lowest. Therefore, it is important to concentrate on providing QOL support to BC survivors within the first year after diagnosis or initial treatment.

From the above four studies, there was a scarcity of programs that could be fully applied in Japan because every study has its advantages and limitations.

4.2 What Kind of Support Should A Specific Peer Provide?

Peers in the four studies were BC survivors who had been diagnosed one to three years previously and had received several specific training sessions of approximately eight hours each. Therefore, educated peers provided support to the participants. By contrast, Petrusviciene et al. [24] conducted a program in which untrained BC survivors formed groups to knit, make paper cranes, and attend lectures by an occupational therapist. As a result, participants reported a significant improvement in QOL, which was suggested to be due to the mental well-being of women with the same disease doing the same program. As shown above, peer support can be provided by trained cancer survivors or by a group of untrained individuals. Furthermore, a study showed that programs [25] provided by healthcare professionals, not peers, have improved QOL. As mentioned above, there are hospitals and patient groups that provide peer support in Japan. These two types of peer support programs have their advantages and disadvantages. For example, although the peer support provided at hospitals is for any cancer survivor and their family members, some patients may feel burdened to participate because they have to go to the hospital. In addition, while the provided information is highly reliable as medical staff oversees, services focused on the patient’s life are less likely to be provided [26]. On the other hand, peer support provided by patient groups is less difficult to participate and can provide support that is more relevant to the patient’s life, yet it is necessary to consider whether or not the information provided is reliable. Therefore, it is essential to educate peers because peer support programs provided by hospitals and patient groups have advantages and disadvantages. Also, it is important that peer support provided by hospitals and patient groups complement each other and provide services so that cancer survivors can use peer support comfortably and securely, taking into consideration the wishes of cancer survivors and the community resources that should be provided when providing community-based support to improve QOL.

4.3 Limitations and Prospects

A limitation of this study is that the small number of RCTs that met the inclusion criteria did not allow for a meta-analysis to be performed. Given that there were only three programs that showed significant improvements in QOL, research that includes QOL as an outcome measure should be conducted in the future. This systematic review should be updated when new and more effective studies are published or when approximately three to five years have passed.

5. Summary and Conclusion

A systematic review was studied with the aim of investigating community-based peer support programs for improving QOL. The results showed that four studies met the eligibility criteria, and three of them showed statistically significant improvements in QOL. However, few programs can be fully applied in Japan. In terms of program effectiveness and risk of bias, programs that include obtaining support and managing activities that affect mood may be effective. Furthermore, the importance of taking enough time to help cancer survivors
trust each other and provide support according to the survivors’ wishes and available community resources was demonstrated.

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