

Review

Self-Compassion-Based Interventions in Oncology: A Review of Current Practices

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Abstract

Self-compassion consists of an attitude of self-support and self-benevolence. In the general population, increased self-compassion has been associated with well-being and decreased psychopathology. In oncology, higher self-compassion has also been linked with various benefits, such as lower emotional distress, fatigue, body-image disturbances, and sleep difficulties. Self-compassion also seems to foster treatment adherence. Various interventions based on self-compassion have recently been designed and tested in different clinical and non-clinical populations. They are particularly relevant in oncology, as patients are increasingly interested in complementary approaches to help them manage their symptoms and difficulties benevolently and without judgment. In this review, we described various self-compassion-based interventions that have been or will be proposed to patients with cancer, as well as their first results. The main interventions that have been tested are compassion-focused therapy, the combination of self-hypnosis and self-compassion learning, mindful self-compassion training, cognitively-based compassion training, and loving-kindness meditation. Other interventions include a self-compassion-focused writing activity, a mobile self-



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compassion application, and a self-compassion group therapy focused on the fear of cancer recurrence. Many of these studies were quasi-experimental or protocols. However, existing results tend to suggest the benefits of these interventions to improve different symptoms often endured by patients with cancer. Further research is needed to conduct rigorous studies on these approaches and to determine how and for whom they are efficient.

Keywords

Oncology; quality of life; well-being; self-compassion; compassion-focused therapy

1. Introduction

According to the standard definition developed by Neff, self-compassion refers to “being supportive toward oneself when experiencing suffering or pain, be it caused by personal mistakes and inadequacies or external life challenges” [1]. It encompasses three domains: how we emotionally respond to suffering (i.e., with kindness or judgment), how we cognitively understand the difficult situation we are living (i.e., as part of the human experience or as isolating), and how we pay attention to suffering (i.e., in a mindful or overly identified manner) [1]. Other distinct but overlapping definitions exist. For example, Gilbert defines compassion as “a sensitivity to the suffering of self and others, with a commitment to try to alleviate and prevent it” [2]. Self-compassion and compassion are often used as the same concepts in scientific literature, but self-compassion more clearly involves the application of compassion towards oneself. Self-compassion also has to be distinguished from self-esteem, a positive evaluation of self-worth, when self-compassion does not include judgment [1]. Self-compassion and self-esteem are positively correlated and considered complementary concepts [3]. Self-compassion has been recurrently associated with increased well-being [3, 4] and decreased psychopathology [5, 6]. The mechanisms of action of self-compassion seem to involve decreased automatic and negative thinking [7], decreased avoidance of negative emotions [8], and decreased entanglement with negative emotions [9], as well as improvement of emotion regulation skills [10]. In oncology, increased self-compassion has also been associated with lower anxious and depressive symptoms [11], cancer-related fatigue [12, 13], body image disturbances, body surveillance, and body shame [14], and increased sleep quality [15], quality of life [16], and treatment adherence [17, 18].

Interventions based on self-compassion are increasingly being developed, aiming to help patients adopt a kinder and less judgmental attitude towards their suffering [1]. In oncology, we note a growing interest in such interventions. Indeed, patient participation in their care is essential for numerous reasons (e.g., improved self-monitoring and self-management of various symptoms, and increased treatment adherence) [19]. Patients are often willing to regain control over their health and well-being [20] and a feeling of normality in their daily lives [21]. Different self-compassion-based interventions are being proposed and/or evaluated in oncology settings. Recent systematic reviews [22, 23] showed the positive effects of some of these interventions (e.g., compassion-focused therapy, mindful self-compassion training, cognitively-based compassion training) on depressive and anxious symptoms and on self-compassion and mindfulness in patients with cancer.

2. Objectives

The present review aims to describe the most common interventions based on self-compassion and their reported benefits for patients with cancer.

3. Methods

In this review, we chose to focus on interventions explicitly involving self-compassion. Other approaches share some components and mechanisms of actions with self-compassion (e.g., mindfulness-based stress reduction, self-management, acceptance and commitment therapy) but will not be developed here. Relevant interventions were determined through several strategies: checking of included studies in systematic reviews about self-compassion-based interventions [22, 23] and extensive search on PubMed and Google Scholar databases with various combinations of the following keywords: cancer, oncology, compassion, self-compassion, intervention, psychosocial intervention, self-care. We selected the articles that explicitly detailed a self-compassion-based intervention to which we had access. We chose as many papers as possible with solid methodologies (randomized-controlled trials, meta-analyses, systematic reviews). However, some interventions described in this review have not yet been studied with such robust methods, and in these cases, we had to rely on quasi-experimental or pilot studies. In this paper, we will detail the most common interventions based on self-compassion applied to patients with cancer. As most studies on self-compassion-based interventions are conducted with adult patients, we will also focus on this population. However, the benefits of self-compassion are also studied among children and adolescents with cancer [24, 25], relatives of patients with cancer (e.g., parents and spouses) [25-28], and healthcare providers [29, 30].

4. Self-Compassion-Based Interventions in Oncology

The main characteristics of the different self-compassion-based interventions included in this review are summarized in Table 1.

Table 1 Main characteristics of different self-compassion-based interventions.

Intervention	Origin	Target population	Design	Aim	Key principles or components
<i>Compassion-focused therapy (CFT)</i>	Based on evolutionary psychology, cognitive-behavioral therapy, and Tibetan Buddhist psychology.	Developed initially to tackle shame and self-criticism in patients with chronic complex mental health problems.	Initially proposed as individual therapy, but increasingly as group sessions, from 4 to 16 weeks.	Increasing awareness and understanding of automatic human emotional reactions and how they have been reinforced in early childhood	<ul style="list-style-type: none"> - Extending warmth and understanding toward oneself; - Increasing motivation to care for one’s well-being; - Increasing sensitivity to one’s own needs and tolerance of distress; - Decreasing tendencies toward self-judgment.
<i>Self-hypnosis/self-compassion (SH/SC)</i>	Based on cognitive-behavioral therapy, self-management, and patient empowerment approaches.	Originally developed for patients with chronic pain and extended to patients in oncology.	6 to 8 sessions, spaced by 1 or 2 weeks, in groups of approximately 8 participants.	Regaining control over one’s life, developing new tools and skills to manage personal difficulties.	<ul style="list-style-type: none"> - Concrete self-compassion tasks focusing on well-being rather than on the disease; - Hypnosis exercises. <p>Both to be practiced at home and during group sessions.</p>
<i>Mindful self-compassion training (MSC)</i>	Based on the Mindfulness-Based Stress-Reduction approach.	Developed initially for non-clinical populations.	8 weekly 2.5-hours session + ½ day retreat.	Developing greater compassion toward oneself and others and increasing mindfulness.	<ul style="list-style-type: none"> - Written exercises; - Meditations; - Informal practices to be used in daily life.
<i>Cognitively-based</i>	Based on traditional Indo-	Originally developed for non-	6 to 8 weekly modules.	Cultivating compassion through the use of	<ul style="list-style-type: none"> - Attentional stability and clarity; - Insight into the nature of mental experience;

compassion training (CBCT)	Tibetan Buddhist practices.	clinical populations.	cognitive reappraisal strategies.	<ul style="list-style-type: none"> - Self-compassion, cultivating impartiality; - Appreciation and affection; - Empathic concern and engaged compassion. 	
Loving-kindness meditation (LKM)	Based on Buddhist spiritual tradition.	Developed initially for non-clinical populations.	Various (e.g., 1 single 15-min session, 6 weekly 60-min sessions + 20 min of daily practice, 3 × 20 min sessions per week, etc.)	Fostering loving acceptance toward oneself and all beings.	Direction of loving feelings toward oneself, then to an expanding circle of being (i.e., loved ones, acquaintances, strangers, all beings).

4.1 Compassion-Focused Therapy

Compassion-focused therapy (CFT) is based on evolutionary, cognitive-behavioral, and Tibetan Buddhist psychology [31]. It was originally developed to tackle shame and self-criticism in patients with chronic complex mental health problems. This approach aims to increase awareness and understanding of automatic human emotional reactions and how they have been reinforced in early childhood (e.g., self-criticism). CFT relies on some fundamental principles: extending warmth and understanding toward oneself, increasing motivation to care for one's well-being, increasing sensitivity to one's needs and tolerance of distress, and decreasing tendencies toward self-judgment [31]. This intervention is intended initially to be proposed as an individual therapy, but group sessions are increasingly organized, lasting from 4 to 16 weeks [31]. The benefits of CFT for various clinical conditions (e.g., borderline personality disorders, eating disorders, depression, psychosis, opioid use disorders, and trauma) are now robustly supported by two systematic reviews and one meta-analysis [32, 33]. For a few years, CFT has also been proposed in oncology. Most of these studies were conducted in Iran. In their research, Tabibzadeh et al. proposed an intervention composed of eight 90-minute sessions of CFT for 15 patients with cancer. They showed positive effects on cancer-related fatigue and self-care behaviors compared to a control group [34]. In other randomized-controlled studies, eight 90-minute sessions of CFT showed benefits on death anxiety [35], stress and psychological distress [36], depression and anxiety [37], and body image and marital satisfaction [38] in women with breast cancer. Decreased experiential avoidance and cognitive fusion were also reported in 15 patients with cancer who presented depressive symptoms after benefitting from CFT [39] in comparison with a control group. Despite their small sample sizes, these studies suggest promising benefits of CFT to improve the quality of life in oncology. Finally, the protocol of an RCT has been recently developed by Lynch et al. [40], focusing on patients who experienced cancer recurrence. They will aim to assess the effects of a 6-week (one 90-minute session/week) online group intervention combining CFT and breathing pattern retraining, with the hypothesis that the intervention will be feasible and allow a decrease in distress.

4.2 Self-Hypnosis and Self-Compassion

Self-hypnosis/self-compassion (SH/SC) is an approach our team developed, specifically Prof. M.-E. Faymonville [41], who is an anesthetist and international expert in hypnosis. This approach was initially dedicated to patients with chronic pain [42, 43] and then transposed to patients with cancer [44, 45]. Initially labelled "self-hypnosis/self-care", we recently changed its name to "self-hypnosis/self-compassion" to reflect its components better. Indeed, self-care generally refers to "a process of maintaining health through health-promoting practices and managing illness" [46]. It includes various general and disease-specific behaviors aiming to maintain the patient's physical and emotional stability (e.g., good sleep hygiene, taking prescribed medications, physical activity) [46]. Even if some of these behaviors are encouraged in our SH/SC intervention, self-compassion is its core component rather than self-care. It is based on several approaches, including cognitive-behavioral therapy, self-management, and patient empowerment. More specifically, this intervention comprises 6 to 8 sessions, spaced by one or two weeks (depending on the study protocol), in groups of approximately 8 participants. Concrete self-compassion tasks are proposed to the participants, discussed in group, and implemented daily at home. These tasks focus on well-

being rather than the disease itself and encourage the participant to become an actor rather than an observer of their life [44, 47]. Tasks cover topics linked to self-compassion (i.e., concrete activities to take care of oneself, self-knowledge and support, organization, communication skills, coping strategies; see [44] for a complete list of the proposed tasks). At the end of each session, a 15-min hypnosis exercise is presented to the participants. They are encouraged to practice (self-)hypnosis at home with audio recordings to take full advantage of this technique without the help of a therapist. Hypnosis, through its impact on different brain structures, is expected to impact cognition and emotional regulation and facilitate the completion of self-compassion tasks [48]. Self-hypnosis and self-compassion learning are thus complementary. Our team proposed this intervention to patients with cancer in two major studies. The first one was a preference-based trial comparing the benefits of SH/SC, yoga, and cognitive-behavioral therapy proposed to 123 women with breast cancer. Results showed the greater excellent benefits of SH/SC on anxiety, depression, and fatigue compared with the other interventions. These benefits were maintained 9 months after the intervention [49]. The main limitation of this study is the unequal sample sizes between groups, with almost half of the participants choosing the SH/SC group. The benefits of SH/SC were then assessed through an RCT, including 95 women with different cancer diagnoses [45]. Results showed the benefits of this intervention on fatigue, emotional distress, sleep, subjective cognitive functioning, self-esteem, emotion regulation strategies, and mindfulness [50, 51]. This intervention also increased relaxation practice and was considered very relevant and helpful by the participants [44].

4.3 Mindful Self-Compassion Training

Mindful self-compassion training (MSC) was developed initially for non-clinical populations [52] and is based on the mindfulness-based stress reduction approach [53]. This intervention consists of eight weekly 2.5-hour sessions combined with a half-day retreat. It aims to allow participants to develop greater compassion toward themselves and others and increase mindfulness, which is considered a foundation for self-compassion. Written exercises, meditations, and informal practices to be used in daily life are proposed during this program [52]. In the general population (i.e., non-clinical), this intervention showed short- and long-term benefits: increased self-compassion, mindfulness, compassion for others, and life satisfaction, and decreased anxiety, stress, and emotional avoidance [53]. For a few years, MSC has been studied in oncology settings. In 2017, Campo et al. [54] conducted a feasibility study of an 8-week MSC program composed of weekly 90-minute group-based videoconference sessions. Twenty-five young adult (i.e., between 18- and 29-year-old) cancer survivors (various diagnoses) participated in the intervention. Its feasibility and acceptability were demonstrated, as well as the first benefits on anxiety, depression, body image, social isolation, and post-traumatic growth, among others. These benefits, however, need to be confirmed by other rigorous studies. Another qualitative research from the same team on the same population [55] showed that this intervention addressed different psychosocial needs of young adult cancer survivors: peer isolation, body concerns, and health-related anxiety through other mechanisms (e.g., self-kindness, gratitude, acceptance, self-reliance). A feasibility study of an MSC program has also been conducted on adults with different cancers by Brooker et al. [56]. Twenty-seven patients participated in the intervention and rated it as highly relevant. Most of them also reported improved mental well-being, especially fear of cancer recurrence, stress, depressive

symptoms, loneliness, body image satisfaction, mindfulness, and self-compassion. Here again, these results need to be replicated by more rigorous studies. Recently, a British study also found benefits of the MSC 8-week program on satisfaction with life, stress, depression, and mindfulness in 38 men and women with breast cancer, some participants even reporting that the intervention changed their lives for the future [57]. However, this study did not include any control group, suggesting that other factors than the intervention itself could be, at least in part, responsible for these benefits. Finally, a large preference-based controlled trial is ongoing in our hospital [58], proposing 160 patients with different cancer diagnoses who have completed their treatments to participate in one of three group interventions: hypnosis, MSC, or self-induced cognitive trance (i.e., volitional non-ordinary state of consciousness, derived from traditional shamanic trance training [59, 60]), or a control group (N = 40 per condition). The aim is to assess the effects of these three interventions on quality-of-life-related variables such as cancer-related fatigue, sleep difficulties, emotional distress, pain, or cognitive functioning, among others. The hypothesis is that the three interventions will allow some benefits on these variables, with possible differences across the groups.

4.4 Cognitively-Based Compassion Training

The cognitively-based compassion training (CBCT) adapts traditional Indo-Tibetan Buddhist practices aiming to cultivate compassion [61]. Its cognitive component relies on the use of cognitive reappraisal strategies. In its original form, the CBCT protocol consisted of eight modules [62], now often grouped into six modules: attentional stability and clarity, insight into the nature of mental experience (i.e., inner thoughts, feelings, emotions, and reactions), self-compassion, cultivating impartiality, appreciation and affection (for others), and empathic concern and engaged compassion [61]. Recent studies have examined the feasibility and benefits of CBCT in oncology settings. In their pilot RCT, Dodds et al. [63] proposed that 12 breast cancer survivors participate in an 8-week CBCT. Their results underlined the feasibility of this protocol and the high satisfaction of the participants. After the intervention, participants also reported fewer depressive symptoms, less functional impairment due to fear of cancer recurrence, less avoidance, less fatigue, and enhanced mindful presence. These benefits will need to be confirmed by a subsequent RCT. In another RCT [64], 28 breast cancer survivors participated in an 8-week CBCT. Attendance to the sessions was high, and their results showed a decrease in stress due to fear of cancer recurrence and an increase in self-compassion and mindfulness. However, they did not show any effect of the intervention on quality of life or bodily and emotional well-being. The small sample size is a significant methodological limitation of this study. Finally, an RCT is ongoing, aiming to compare the benefits of two 8-week (one 120-min session/week) group interventions on the quality of life of cancer survivors (all solid tumors diagnoses accepted) and their informal caregivers [65]. The two interventions will be a CBCT program and a cancer health education program (i.e., active control condition focusing on topics relevant to health and cancer for survivors and caregivers, such as lifestyle interventions, health and cancer biology, or nutrition). The study will include 40 dyads and aims to assess the acceptability of both interventions and explore their differences regarding their impact on quality-of-life-related variables, stress-related biomarkers of inflammation, and healthcare utilization.

4.5 Loving-Kindness Meditation

Loving-kindness meditation (LKM) yields from the Buddhist spiritual tradition [66] and can be considered “a state of unselfish and unconditional kindness to all beings, without exception” [67]. This kindness-based meditation technique aims to foster loving acceptance toward oneself and all beings [68]. In this approach, caring feelings are directed first toward oneself, then to an expanding circle of beings (i.e., loved ones, acquaintances, strangers, then all beings without distinction). Several meta-analyses showed the benefits of LKM delivered through various frequencies and intensities on positive and negative effects, well-being, psychological distress, positive thinking, interpersonal relationships, and empathy in the general population [69-71]. In oncology settings, recent studies also explored the benefits of this approach. Indeed, two pilot RCT from the same team [72, 73] were conducted on 121 and 60 women with breast cancer undergoing biopsy. Participants were randomized into three conditions: a brief LKM intervention (i.e., short guided LKM during a biopsy in [72], with the addition of 20-minute at-home practice during one week with LKM recordings in [73]), music (i.e., during the biopsy, then 20-minute at-home listening during one week), and usual care. Results suggested the benefits of LKM on pain, anxiety, fatigue, and self-compassion. These results need to be replicated in larger RCTs.

4.6 Other Self-Compassion-Based Approaches

Various other interventions based on self-compassion exist and are just starting to be studied in oncology settings. First, an Australian randomized-controlled trial on 304 breast cancer survivors assessed the benefits of an online single-session (30 mins) self-compassion-focused writing activity [74]. Participants were instructed to think about a distressing event linked to their body after breast cancer and to write freely about it. Then, they had to continue writing about their body image after cancer guided by five self-compassionate prompts, starting from a focus on negative aspects of the self, then moving to a self-compassionate perspective, and finally to a focus on the personal situation. The control group undertook a 30-minute online writing activity very similar to the intervention group, but without self-compassionate-focused writing prompts. Results showed high compliance with the intervention, decreased body image-related distress, and increased body appreciation and self-compassion. These two interventions were later compared to a third one consisting of the self-compassion-focused writing activity with a 5-minute self-compassion-based audio meditation to be listened to during three weeks [75]. This study involved 79 breast cancer survivors and showed a high acceptability in the two intervention groups but a modest adherence (i.e., 21% of participants completed all questionnaires and adhered to their respective protocols). Results showed increased state self-compassion and positive effects after the self-compassion-focused writing activity, as well as increased trait self-compassion and decreased anxiety after the self-compassion-focused writing activity combined with meditation. However, they must be considered cautiously, given the small sample size and low adherence. Two other self-compassion-based interventions have been designed recently. First, a mobile self-compassion intervention has been created for people with newly diagnosed cancer [76]. This intervention, labeled *Compas-Y*®, comprises six sequential training modules accessible at any time and based mainly on compassionate mind training, then on positive psychology and mindful self-compassion. Each module has a theme and includes psychoeducation and exercises aimed at developing self-compassion after cancer. Results regarding the benefits of this intervention are not available yet.

Second, a study is currently proposing a fear-focused self-compassion therapy for women with breast cancer [77]. This 8-week group intervention (one 60-90-minute session/week) is based on compassionate mind training, compassion-focused therapy, and mindful self-compassion therapy. The hypotheses are that it will increase self-compassion, improve cognitive evaluation processes, and decrease anxiety. By improving self-compassion, the intervention is expected to improve the functioning of the sympathetic and parasympathetic nervous systems, and reduce the fear of cancer recurrence.

5. Discussion

Self-compassion is a powerful tool to alleviate suffering that anyone can access easily at any moment [1]. Contrary to common misconceptions, self-compassion does not equal being soft, weak, selfish, or self-indulgent and will not decrease motivation. On the contrary, increased self-compassion has been linked to numerous positive outcomes, including more adaptive coping strategies, resilience, health-promoting behaviors, forgiving others' imperfections, emotional connection, relationship satisfaction, self-efficacy, and personal initiative [1]. Our review showed that self-compassion-based interventions are highly relevant in oncology and generally well-accepted by patients. In addition to allowing an increase in self-compassion, most of these interventions also have clear benefits on various quality-of-life-related variables such as pain, anxiety, depression, or fatigue. Given the increasing interest of both patients and healthcare professionals in complementary approaches, many interventions based on self-compassion are currently being designed and tested, promising exciting results and new therapeutic options to propose to patients with cancer to help them manage their symptoms.

This review suffers from several limitations. First, as it is not a systematic review, it is possible that some relevant papers are not included in it, despite our intensive search in PubMed and Google Scholar databases. Second, we also decided to focus on interventions based on self-compassion, which had to be mentioned clearly in their title or description. Thus, we did not include other interventions often linked with self-compassion and that share some components with the interventions discussed in this review. Finally, most studies included in this review suffer from methodological limitations. Many were quasi-experimental or pilot studies, involving small samples, and some lacked randomization or control groups. This limits the generalization of their results. Others were study protocols and thus did not involve any results. The studies included in this review also used various self-compassion-based interventions, sometimes with some adaptations from the original intervention design, and included patients based on different criteria, making their comparison difficult. However, they underlined the interest of the research community in self-compassion-based interventions, which is a promising perspective for the field and the patients.

This review opens several perspectives. First, despite the benefits of self-compassion-based interventions, their mechanisms of action are generally unclear. In addition, they often involve multiple components and overlap with other existing therapies. In these conditions, it is difficult to define which component allows which effect and in which conditions one specific intervention will have maximal benefits for a particular population. The role of other factors, such as the frequency and mode of delivery, the therapist's characteristics, or the exact content discussed during the sessions (e.g., cancer-specific or more general content), is also unclear. It complicates the comparison of these interventions and the understanding of their mechanisms of action. Future

research should further explore the mechanisms of action of self-compassion-based interventions and in which conditions these approaches are the most beneficial for specific patients (e.g., according to their cancer diagnosis or phase of treatment). Future studies should also aim to rigorously compare several self-compassion-based interventions with one another and with other active conditions. In addition, this review would benefit from an update in a few years, when the study protocols we described will have been implemented and their first results published.

6. Conclusions

This review showed the increasing development of self-compassion-based interventions during the last few years and their relevance and benefits in oncology settings. These works open the path to further rigorous studies and eventually to the integration of such interventions in the usual care of patients with cancer. As more and more people are now living with cancer and its sequelae, allowing them to regain some control over their well-being and manage their symptoms by themselves is essential, and self-compassion represents a promising tool to do so.

Author Contributions

CG wrote the manuscript. AP and AV reviewed the manuscript for important intellectual content. All authors agreed on the final form of the manuscript.

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Competing Interests

The authors have declared that no competing interests exist.

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