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Revie ⊕: Impact of a resource-based life review intervention on patients with advanced cancer: A waitlist controlled trial

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ABSTRACT

Purpose: Life review interventions aim to support individuals facing an incurable disease accompanied by existential concerns and health-related challenges. Based on encouraging feasibility results, this study assessed the effects of Revie ⊕ life review intervention on the self-esteem of patients with advanced cancer, and the effects on well-being, post-traumatic growth, life satisfaction, symptom burden and interaction with nurses.
Method: The study consisted of a two-arm parallel-group, waitlist-controlled trial (WCT) in the oncology division of a Swiss-French University Hospital. Revie ⊕ was composed of nurse-led meeting with the patient to address and document significant life events using a strengths-focused approach and targeting the life project.
Results: Due to Covid-19 pandemic, adjustments were made regarding study duration and participant's allocation: Fifty-eight patients received Revie ⊕, 39 completed all the measurements. Self-esteem was high at baseline and maintained stability over time. The social well-being decreased in the intervention group before-after Revie ⊕ (−1.7 (3.9), $p = 0.044$) while emotional and functional well-being showed stability. The intensity of symptoms decreased in the intervention group before-after Revie ⊕: 4.9 (9.4), $p = 0.020$.
Conclusions: This study suggests that patients living with an advanced cancer and who received Revie ⊕ intervention may have maintained their self-esteem high over time. Observed results are promising, particularly considering the influence of the pandemic. Nevertheless, these findings do not allow us to draw definitive conclusions regarding the efficacy of the intervention on self-esteem. WCT seems not to be the appropriate design to highlight the added value of Revie ⊕ for this particularly vulnerable population.
Clinical trial registration number: NCT04254926.

1. Introduction

Cancer remains the second leading cause of death in Switzerland, with about 19,000 deaths in 2021, despite progress in diagnosis and treatment (Federal statistics office, 2021). Individuals with advanced cancer face a disease trajectory that entails enduring physical, psychological, and existential distress. Existential distress represents a loss of dignity and autonomy, lack of meaning and hopelessness, anxiety about death, and is linked to poor quality of life (Chen et al., 2022). The individual typically struggles to retain his/her identity in terms of the meaning of life, to develop coping strategies, and to redefine his/her relationships with others (Henoch and Danielson, 2009). These concerns may be accompanied by a loss of hope, depression, and a desire for hastened death (Rosenfeld et al., 2014).

With the view of supporting people in this potentially onerous retracing of identity, life review interventions have been proposed (Fitchett et al., 2015; Keall et al., 2015; Donato et al., 2016). A life review intervention is typically built on life, family memories and major life events, and how these may affect a person's values, meaning, awareness of oneself and purpose (Haber, 2006). This type of intervention, undertaken with individuals with an incurable disease, has shown positive effects that translate into a decrease in depression (Chan

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et al., 2013), an improvement in the quality of life and spiritual well-being, as well as a reduced level of anxiety linked with death (Ando et al., 2010). Dignity therapy – an intervention based on a psychological model of dignity (Chochinov et al., 2005), and which uses life review – was demonstrated to have a positive impact on the quality of life, well-being, sense of dignity (Chochinov et al., 2011), depression and anxiety (Juliao et al., 2017). Thus, use of life review appears to offer benefits at the existential level. Nonetheless, to our knowledge, no study of individuals with advanced cancer has integrated a positive approach centred specifically on personal development. There is a lack of knowledge regarding the management of patients' existential concerns (Miccinesi et al., 2012; Jaiswal et al., 2014), yet these arise as soon as a life-threatening diagnosis is announced and are magnified in a situation where there is no prospect of recovery (Da Rocha Rodrigues and Gaillard Desmedt, 2018).

Based on evidence that life review has positive effects on psychological distress (Liu et al., 2014), depressive symptoms (Rodin et al., 2018) and self-efficacy (Yu et al., 2014), the theory guided life-review intervention Revie ⊕ was developed with the aim of supporting people suffering from advanced cancer (Da Rocha Rodrigues et al., 2016a). A nursing conceptual framework embedded in the transformative unitary paradigm (Newman et al., 2008) guided the intervention development and the further selection of the variables. Revie ⊕ focuses on the individual's life review and uses a positive approach centred on the strengths of the patient (Gottlieb, 2014), to promote a positive life change from the experience of cancer. Revie ⊕ allows nurses to discuss life events with patients living with cancer, to identify the significant elements in their life course, and to explore how the diagnosis has changed their values and preferences. The intervention is geared toward working with the patient to discover their potential, to identify their strategies for coping with the events of their life, and to accompany them in achieving a better understanding of themselves and what defines their identity. The intervention also allows addressing patients' concerns about death, in addition to providing clarity regarding the life projects.

Revie ⊕ relies on a prior feasibility study conducted in 2017 on 41 patients with advanced cancer (Da Rocha Rodrigues et al., 2016a). The aim of the feasibility study was to evaluate the effects of the intervention on the sense of dignity, post-traumatic growth, and the satisfaction with life. The results supported the feasibility of the process and revealed a high level of acceptability among the patients and the nurses conducting the intervention (Da Rocha Rodrigues, 2017). The results matched those of other similar studies (Fitchett et al., 2015), for which the benefits were more pronounced in patients who were experiencing a high level of distress (Juliao et al., 2013). Most of nurses who delivered the intervention noticed a transformation in the relationship with the patient (Da Rocha Rodrigues et al., 2016b). The encouraging results of the feasibility study led their authors to assess the efficacy of Revie ⊕ intervention through a randomized controlled design (RCT). The use of an embedded concurrent mixed method facilitated the identification of the most relevant variables to be assessed in the RCT. While the sense of dignity did not emerge as the most suitable outcome, self-esteem seemed to be more appropriated.

Indeed, the knowledge derived from positive psychology (Lecomte, 2014) has shown that self-esteem is one of the essential components of self-identity and that contribute to fulfilment. However, the literature demonstrates inconclusive findings regarding the impact of life review interventions on patients' self-esteem. While research conducted among elderly populations indicated minimal to no effects of these interventions on self-esteem (Lan et al., 2017; Liu et al., 2023; Menn et al., 2020), contrasting results suggest that these interventions do affect the self-esteem of patients dealing with cancer (Sun et al., 2023; Zhang et al., 2017) or with life-threatening diagnoses (Chen et al., 2017). Revie ⊕ is meant to focus on as a positive approached centred on the strengths and therefore may positively impact self-esteem. In addition, this outcome appears to be relevant to patients with an advanced cancer because self-esteem strengthens the feeling of having had an accomplished life and contributes to the effort of exploring one's identity and redefining it. Improved self-esteem is also expected to be related to relationships with others.

Moreover, the previous feasibility study highlighted a beneficial effect of Revie ⊕ in terms of the overall satisfaction and the relevance of the procedure as well as transformation of the nurse-patient relationship. Thus the present project aimed to evaluate the effect of Revie ⊕ on another dimension of the personality, that can contribute to personal development and in accordance with the unitary vision which focuses on people's well-being (Smith and Fitzpatrick, 2019; Rogers, 1970).

Thus, the primary objective of the present study was to evaluate the effects of the Revie ⊕ intervention on the self-esteem of patients diagnosed with advanced cancer. Our main hypothesis was that Revie ⊕ would show improvement in self-esteem regardless of the moment the intervention was delivered. The secondary objectives were to evaluate the effects of the Revie ⊕ intervention on social, emotional and functional well-being, post-traumatic growth, life satisfaction, symptom burden, and the perception of the interaction with the nurses.

2. Material and methods

2.1. Study design and setting

The study was conducted in the oncology division of a Swiss-French University Hospital. The study was designed as a pragmatic, two-arm parallel-group, waitlist randomized controlled trial (WLRCT). Participants were randomized into (i) intervention group or (ii) waitlist control group. At Timepoint T0, all groups completed baseline data. According to the prior randomization plan, the intervention group (IG) received the Revie ⊕ intervention at Timepoint T1 (maximum 2 months post T0) and completed follow-up data at Timepoint T2 (minimum 2 months after T1). The control group (CG) was waiting for the intervention at T1, and they received Revie ⊕ at T2 (minimum 2 months post T1) without further measurements. The WLRCT was meant to provide each participant the opportunity to receive the Revie ⊕ intervention. This design allowed comparison between the intervention group and waitlist group and pre-post intervention measures. It also allowed the assessment of long-term effects for the intervention group only. Timepoints of intervention and data collection are presented for each group in Table 1.

2.2. Eligibility criteria

The study population was composed of patients with advanced cancer treated on several units in the oncology division of a Swiss-French University Hospital. The inclusion criteria were: ≥18 years old; having an advanced cancer (clinically at stage T3 or T4), or with metastases, or with cancer that have a high mortality rate (e.g., lung cancer, pancreatic cancer); having a sufficient general health status for participation in the study; having signed the consent form to participate in the study. Patients were excluded if they had cognitive disorders related to memory loss or disturbances of speech that would not allow for a constructive exchange and/or not being sufficiently literate in the French language to understand written information or follow an

Table 1
Timepoints of data collection and intervention delivery for each group.

Group	Baseline T0 Study measures	Revie ⊕ sessions	T1 = 2 months Study measures	Revie ⊕ sessions	T2 = 4 months Study measures
Intervention group (IG)	X	X	X	0	X
Waitlist group (CG)	X	0	X	X	X

X: completed measures or received the intervention.
0: no intervention.

interview.

2.3. Recruitment and allocation

The recruitment was carried out by the nurses in the oncology department and a referring oncologist. Patient lists were screened weekly for potential study participants. The nurses and the oncologist assessed the inclusion and exclusion criteria for these potential participants about the study and, if inclusion was possible, invited them to participate. The trained nurses for Revie ⊕ (known as "Reviettes"), or the referring physician or the investigators explained to each participant the nature of the study, its purpose, the procedures involved, the expected duration, the potential risks and benefits and any discomfort it may entail. After obtaining informed consent, the participants were referred to the study nurse, which collected the data at baseline.

All participants for the study received an information sheet and a consent form describing the study and providing sufficient information for participant to make an informed decision about their engagement in the study. A minimum of 24 h was given to the recruits to decide whether to participate or not. If no answer was given within one week, one member of the research team contacted the potential participant to confirm the refusal to participate or to assist with any question they had. The formal consent of participation was obtained before the participant was submitted to any study procedure. Consent form included information regarding potential distress due to the intervention. The nurses in charge of the patients could address the patients for psychological support or address them to a psychologist.

The consent form was signed and dated by the investigator or his designee at the same time as the participant signature. A copy of the signed informed consent form was given to the study participant. The consent form was retained as part of the study records. After recording the baseline data (T0), participants were block-randomized (blocks of 6) and randomly assigned through concealed allocation to the intervention group or the control group. Randomization was computer-based by a person external to the study. The group allocation was written in sealed envelopes, opened consecutively in front of the patient by a delegated nurse blinded to the attribution. Due to the type of intervention delivered, the participants and the "Reviettes" could not be blinded to the intervention.

The COVID-19 pandemic had significant impact on the timeline of the intervention and the health status of participants. Hence, due to the rapid deterioration of health condition in certain participants, the steering committee was forced to reassess their allocation.

From, an ethical standpoint, it was not viable to delay further their access to the intervention. Consequently, patients were analysed as treated. The present study is therefore described as a waitlist controlled clinical trial due to these unforeseen circumstances and constraints.

2.4. Study intervention – Revie ⊕

The Revie ⊕ intervention comprised two sessions. The first face-to-face interview (approximately 60 min and audio-recorded) was carried out in the oncology care units by the "Reviettes" nurses with at least three years of oncology experience. The "Reviettes" were trained to conduct the intervention by the principal investigator. The training (8 h) covered life review intervention, and strengths-focused nursing care and the methodology of practice from a nursing theory (Newman's grand theory). Details on the eligibility criteria and procedures for the "Reviettes" are reported elsewhere (Da Rocha Rodrigues et al., 2016a).

During the session, nurses adhered to a predetermined protocol (see Table 2). Revie ⊕ enabled patients to share significant life events and fostered personal growth by underlying positive changes since the diagnosis of cancer. It encompassed five key domains: 1. Reflecting on notable events in the patient's life experience; 2. Addressing the patient's major concerns and thoughts regarding death and dying; 3. Focusing attention on the positive transformations since the cancer diagnosis; 4. Exploring the patient's values and connections with important individuals, including family, friends, or a proxy; and 5. Exploring meaningful plans or messages patients wished to share to their relatives. Revie ⊕ focused on how the cancer experience impacted patients themselves, their main values, and their relationships with others. A personalized booklet was made to align with patient's unique style, integrating their own words and expressions. According to what patients wanted to communicate, texts, poems, pictures, and quotations were integrated into the booklet.

During the second meeting (15–30 min) the booklet was presented and finalized according to the suggestions and modifications desired by the patient. At the end of the intervention, the patient received a booklet summarizing the major components of their life review, comprising photographs, quotations, and images.

The two sessions were scheduled in the designated month based on joint agreement between the patient and the Reviettes. The average interval between the first session and completion of the intervention was planned to be no more than 30 days.

Table 2
Revie ⊕ intervention guide for the "Reviettes".

Preparation	Take time to prepare for the interview: clear your head, focus on yourself, change your "hat".
Installation	a. Quiet room, put a note on the door so you won't be disturbed. Bring water and tissues. b. Make the interviewer comfortable. Indicate that the interview will be recorded to create the brochure. c. Introduce yourself: I'm here today to conduct an interview with you as part of the Revie ⊕ study. d. Specify duration of interview (max: 60 min). e. The interview is recorded. f. You are (name); do you wish to participate in this study? You have signed the consent documents. Are you ready?
Semi-structured interview with the patient (~30 min)	a. Tell me about your personal history: the most significant life events that have been important to you. b. Tell me about your life: what are the most important moments you'd like to share? c. What are the special memories you'd like to share with your loved ones and be reminded of? d. What is the most important role you have played in your life? What are your accomplishments of which you are most proud? e. What life lessons are most important to you and that you'd like to pass on to your loved ones? f. What would you like to share with future generations? g. Is there anything about yourself that you'd like to share with your family? (If you had to leave a legacy, what would it be?)
Semi-structured interview with the patient	a.What changes has the illness brought about in your life, your values, who you are you are? b. Describe how this event has given you a new vision. c. What do you remember as positive? d. How do you approach death? Are there any thoughts of death that preoccupy you? Would you like to talk about them? e. What would you like to achieve? What are your current projects?
End of the interview with the patient	Thank you very much for sharing your story with us. What format would you like to use for a brochure? Please specify the desired content. Would you like to include a poem, an image or a quote? If so, please send it to (name, email). We'll meet again on (date) to present the brochure.

2.5. Outcome measures and study instruments

2.5.1. Rosenberg self-esteem scale (RSE)

Self-esteem was measured with the self-rated RSE developed in 1965 (Rosenberg, 1965), using a French version (Vallieres and Vallerand, 1990). The RSE is the most widely used instrument for measuring self-esteem in populations with cancer (Li et al., 2015). The instrument entails 10 items; five of which are positive statements and five correspond with negative statements, each measured with a four-point Likert scale (1 = fully disagree, 4 = fully agree). The scale also provides a global score that ranges from 10 to 40 points. A score above 30 points corresponds to a high level of self-esteem, between 20 and 30 points indicates a moderate self-esteem, and a score of less than 20 points reflects a low self-esteem. This instrument has a Cronbach alpha of 0.83 and a test-retest reliability of 0.88 (Li et al., 2015).

2.5.2. Post-traumatic growth inventory (PTGI)

Personal development was measured with the self-rated PTGI (Tedeschi and Calhoun, 1996), using a French version (Lelorain, 2009). The instrument entails 21 items, each measured with a five-point Likert scale (1 = "I did not experience this change"; 6 = "I experienced this change to a great extent"). The PTGI determines five factors: appreciation of life, relating to others, personal strengths, new possibilities, and spiritual change. The scale provides a global score that ranges from 21 to 126 points and subscores by the five factors. A high score means a high level of development. The PTGI has a Cronbach alpha of 0.90, and an acceptable test-retest reliability (r = 0.71) (Mystakidou et al., 2008).

2.5.3. Satisfaction with life scale (SWLS)

Satisfaction with life was measured with the self-rated SWLS (Diener et al., 1985), using a French version (Blais et al., 1989). The SWLS is the most widely used instrument for measuring satisfaction with life in populations with different groups and ages. The instrument entails five items that have a positive connotation, each measured with a seven-point Likert scale (1 = "strongly disagree" and 7 = "strongly agree"). The scale provides a global score that ranges from five to 35 points. A high score means a high level of satisfaction with life. The internal consistency of the instrument is indicated by the α = 0.79–0.89 (Pavot and Diener, 2008). The test-retest reliability is 0.84.

2.5.4. Nurse-patient-interaction scale (NPIS)

Patient's perception of their interaction with the nurse was measured by the self-rated NPIS (Haugan et al., 2013). The instrument entails 14 items using a ten-point Likert scale (1 = not at all and 10 = very much). The scale provides a global score that ranges from 14 to 140 points. A high score means a great appreciation of interaction. The questionnaire has good psychometric properties, with construct validity with a Cronbach alpha of 0.91, and a test-retest reliability of 0.82. The questionnaire was translated by the research team using a translation and reverse-translation method (Maneesriwongul and Dixon, 2004).

2.5.5. Functional Assessment of Chronic Illness Therapy: social/family, emotional, and functional well-being

Social/family well-being (7 items), emotional well-being (6 items) and functional well-being (7 items) were measured with the Functional Assessment of Chronic Illness Therapy-spiritual well-being (FACIT-Sp), using a French version (Cronbach alpha of 0.87) (Peterman et al., 2002). Each subscale was measured with a five-point Likert scale (0 = not at all; 4 = very much).

2.5.6. ESAS

Symptoms were explored using a visual analogue version of the Edmonton Symptom Assessment System (ESAS) scale to assess the intensity of pain, tiredness, nausea, depression, anxiety, drowsiness, appetite, wellbeing, and shortness of breath. Scores range from 0 (best possible) to 10 (worst possible).

2.5.7. Sociodemographic and medical data

Information was collected regarding the age, gender, family circumstances, background, level of education, professional status, religious affiliations, the type of tumour, and the date of the diagnosis.

2.5.8. Data collection procedures

All participants completed baseline measures before randomization. Intervention group received Revie ⊕ between the measurement timepoints T0 and T1. They completed outcome measures at the end of intervention (T1) and at T2 (minimum 4 months between T1 and T2). The CG completed outcome measures at T1. They received Revie ⊕ between T1 and T2 and completed measures immediately at the end of the intervention (T2). Thus, measurements were collected prior to (T0) and immediately post-intervention for intervention (T1) and waitlist participants (T2) to assess the Revie ⊕'s efficacy.

2.5.9. Sample size

A difference of 3 points for the main outcome (self-esteem) was taken to be significant, with a standard deviation of 4.6 (α = 0.05; power = 90%). An improvement of the self-esteem of 3 points was considered to be clinically relevant. Therefore, the sample size was 102 participants (51 per group). Given that approximately 700 people are diagnosed annually with an advanced cancer at the University Hospitals of Geneva (HUG), that at least half are treated in outpatient units, and that the acceptance rate for our intervention was previously shown to be 49% (feasibility study), a recruitment period of 18 months was scheduled to ensure recruiting the 102 participants required. Calculation of the sample size was performed using G*Power (Faul et al., 2009).

2.5.10. Statistical analysis

As a result of the impact of the COVID-19 pandemic, participants were analysed "as treated". A total of 12 patients moved from the CG to the IG group because of their health status, and 1 patient moved from IG to CG, due to the COVID-19 pandemic.

Descriptive analyses were carried out for the main medical and sociodemographic characteristics. Analyses of covariance (ANCOVAs) was used to explore the effects over important confounding variables: age, gender, children (<18, No/Yes), civil status, education level, nationality (ies), professional status, religion, type of cancer, time since diagnosis, treatment with psychotropics, treatment for cancer. None was found to be significant. Thus, all the comparisons of variables with respect to treatment group were done by 2-sample t-tests. Comparison between time point were done using paired sample *t*-test because of the small sample size and few points in time (T0, T1, T2). Comparison of the intervention's impact between the two groups was carried out at T1 (for the IG this was post-intervention and for the CG this was without intervention). To assess the maintenance of Revie ⊕ effects, the IG was assessed at T2. The data were analysed by a statistician using SAS 9.4. The main comparisons were as follows.

(a) Intervention group: T0- > T1; Control group: T0- > T2
(b) Intervention group: T0- > T2; Control group: T0- > T2
(c) Both groups together, overall change: T0- > T2

2.5.11. Ethical considerations

This study was approved by the ethics committee of Geneva canton on February 20, 2019 (2018–02354). The study was conducted in compliance with the Declaration of Helsinki. All participants signed a consent form, and they were informed that they could withdraw from the study at any time.

In regards of potential risk, the prior feasibility study conducted did not report any harm of the intervention on participant psychological distress. Hence, this study presented minimal risks to participants, primarily associated with potential disruptions to psychological and emotional comfort due to the sensitive nature of the subject under investigation. To mitigate these risks, Reviettes had a minimum of 3

years professional experience and continuing training in the fields of oncologic and palliative care to provide tailored support to patients during sessions. Continuous communication with the healthcare team ensured the facilitation of emotional expression and appropriate care adjustments. In cases of severe emotional reactions, internal psychological support resources were available, with the researcher providing assistance as needed in taking appropriate actions.

3. Results

3.1. Study participation

The duration of the overall study, as initially planned was 18 months. However, the effective duration was 29 months (April 2019–August 2021), due to the COVID-19 pandemic. The first wave of COVID-19 had a huge impact on the progress of the study since March 2020. The second COVID-19 wave slowed down the process as well, as particularly vulnerable patients could not receive Revie ⊕, being asked to stay at home except for a medical emergency. Study participation data are reported in the participation flow diagram (Fig. 1). At the start, the

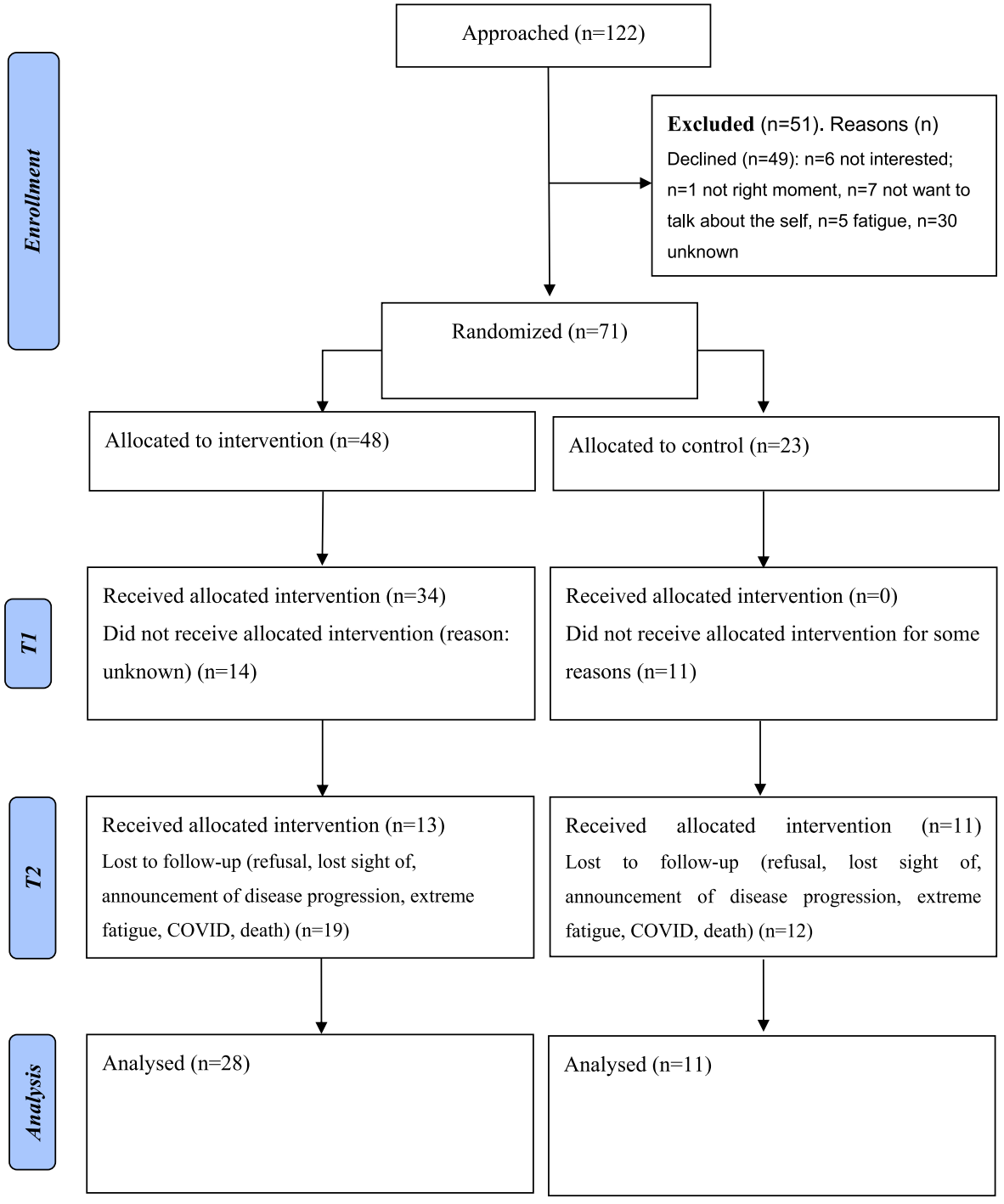

Fig. 1. Participant flow chart.

intervention group was composed of 47 participants and the control group of 24 participants. In total, at the end, 58 patients received the intervention (including those from control group that received the intervention later), and 39 completed all the questionnaires and were analysed.

3.2. Demographic and disease characteristics

Demographic and disease characteristics are presented in Table 3. Due to the allocation changes made in the group attributions during the study (see Fig. 1), the data include the final intervention and control groups (n = 39). The demographic and disease characteristics of all participants (n = 71) can be found in the Appendix A Supplementary data. Demographic characteristics were compared to ensure that the sample was similar before and after dropout.

The mean age for the study population was 60.0, with slightly more female (20, 51.3%) than male participants, and most of the participants were living with a partner (21, 53.8%). The most common primary cancer type was lung (12, 30.8.8%). We found the two groups comparable at baseline but did see more men in the control group.

Table 3
Baseline demographic and disease characteristics of participants (N = 39).

Variable	All participants (n = 39)	Intervention group (n = 28)	Control group (n = 11)
Age			
Mean (SD)	60.0 (10.2)	59.4 (10.0)	61.5 (11.1)
Median (p25-p75)	62.2 (51.4–69.1)	62.3 (51.1–66.8)	56.2 (55–71)
Min-max	38–79	38–77	44–79
Sex	**n (%)**	**n (%)**	**n (%)**
Male	20 (51.3)	10 (35.7)	10 (90.9)
Female	19 (48.7)	18 (64.3)	1 (9.1)
Nationality			
Swiss	20 (51.3)	14 (50.0)	6 (54.5)
European	17 (43.6)	12 (42.9)	5 (45.5)
Other	2 (5.1)	2 (7.1)	0
Belief (miss n = 3)			
Expresses a belief	28 (77.7)	22 (81.5)	6 (66.7)
Marital status			
Single	5 (12.8)	2 (7.1)	3 (27.3)
In couple or married	21 (53.8)	17 (60.7)	4 (36.4)
Separated or divorced	9 (23.1)	6 (21.4)	3 (27.3)
Widower	4 (10.3)	3 (10.7)	1 (9.1)
Children (miss n = 1)			
Yes	25 (65.8)	19 (67.8)	6 (60.0)
< 18 years	8 (20.5)	5 (17.9)	3 (27.3)
≥ 18 years	31 (79.5)	23 (82.1)	8 (72.7)
Education			
Apprenticeship, obligatory education, college	29 (74.4)	20 (71.4)	9 (81.8)
University	10 (25.6)	8 (28.6)	2 (18.2)
Employment status			
In employment	13 (33.3)	9 (32.1)	4 (36.4)
Unemployed	3 (7.7)	3 (10.7)	0
Retired/Disability insurance	23 (59.0)	16 (57.1)	7 (63.6)
Type of cancer			
Colorectal	7 (17.9)	5 (17.9)	2 (18.2)
Oeso-gastro-hepatic	5 (12.8)	3 (10.7)	2 (18.2)
Pulmonary	12 (30.8)	11 (39.3)	1 (9.1)
Other	15 (38.5)	9 (32.1)	6 (54.5)
Actual oncology treatment*			
Chemotherapy	30 (76.9)	19 (67.9)	11 (100)
Radiotherapy	11 (28.2)	5 (17.9)	6 (54.5)
Immunotherapy	22 (56.4)	16 (57.1)	6 (54.5)
Hormonotherapy	2 (5.1)	2 (7.1)	0
Other treatment			
Anxiolytic	7 (20.0)	5 (17.8)	2 (18.2)
Antidepressive	4 (10.3)	3 (10.7)	1 (9.1)
Time since diagnosis (months)			
Mean (SD)	28.2 (26.2)	24.5 (24.2)	37.7 (29.6)
Median (p25-p75)	19.6 (8.9–39.1)	15.4 (7.5–33.7)	26.3 (15.7–47.3)
Min-max	1–99	1–97	6–99

min-max: minimum-maximum; NA: not applicable; *Some participants received more than one treatment. p25-p75: Lower and Upper Quartiles.

3.3. Effects of Revie ⊕

3.3.1. Primary outcome

Self-esteem was quite high at baseline and was stable during the study. There were no significant changes across time and between interventions (see Tables 4 and 5).

3.3.2. Secondary outcomes

Descriptive data on secondary outcomes is presented in Table 6. The results regarding the effects of Revie ⊕ on secondary outcomes are presented in Table 7. The analyses of covariance showed no statistical significance of the confounding variables. The social well-being decreased in the intervention group before-after Revie ⊕ (−1.7 (3.9), p = 0.044), while functional well-being slightly increased over time. The intensity of symptoms decreased in the intervention group before-after Revie ⊕: 4.9 (9.4), p = 0.020, as well as for groups combined: 3.7 (9.5), p = 0.036.

4. Discussion

Baseline scores indicated a high self-esteem in both intervention and control groups. Nevertheless, patients' high self-esteem was maintained over time. Results further highlighted a decrease in social wellbeing and an increase in functional wellbeing over time for the intervention group. Finally, a decrease in symptoms' intensity over time was reported for the control group and both groups combined after receiving the intervention. No other changes in variable were reported.

In contrast with a meta-analysis and a recent trial, which reported an increase in self-esteem after life-review interventions among patients with life-threatening diseases (Harorani et al., 2020; Chen et al., 2017), the present study reported no statistically significant improvement on self-esteem after the Revie ⊕ intervention. This could be explained by the high participants' self-esteem at baseline, suggesting a ceiling effect. Indeed, a score between 30 and 40 points indicates a good self-esteem, compared to the literature that shows rather self-esteem scores varying between 24.8 and 28.8 (Li et al., 2015; Abbasian et al., 2016; Ates et al., 2016). It may also be hypothesized that people with lower self-esteem or well-being (e.g., feeling too sad to participate) may have declined to participate in the study, as it was reported by Da Rocha Rodrigues et al. (2019). However, Revie ⊕ may have contributed to maintain a high level of self-esteem in patients with advanced cancer over time, which is particularly encouraging during the pandemic period, although due to small samples in both groups and particularly in the control group, it is not possible to assert that this is a result of Revie ⊕ intervention. Nevertheless, the literature suggest that life-review interventions like Revie ⊕ should be considered to be integrated into routine care to increase patients' well-being (Chen et al., 2017).

The results regarding the secondary outcomes showed a significant decrease in the intervention group in the social well-being before-after Revie ⊕. The emotional well-being showed stability over time, while functional well-being increased. In other words, patient felt less social support and communication. These results may be partly linked to the social distance measures recommended during the covid-19 pandemic (Benke et al., 2020). However, they felt the intervention improved their ability to participate and enjoy normal daily activities (Peterman et al., 2002).Although the spiritual well-being was not measured in the present study, a meta-analysis reported that spiritual well-being is increased by psychosocial interventions such as Revie ⊕ in the context of advanced cancer (McLouth et al., 2021). In addition, the present study reported a slight decrease in perceived symptoms over time in the intervention group. However, patients' burden score was quite low at baseline

Table 4
Self-esteem at baseline (T0), T1 and T2.

Outcome	Scale		Baseline score (T0)			T1			T2		
			Control	Intervention	All	Control	Intervention	All	Control	Intervention	All
Self-esteem	RSE[S]-Total	N (miss)	10 (1)	27 (1)	37 (2)	7 (0)	25 (0)	32 (0)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**33.0 (4.1)**	**33.4 (4.1)**	**33.3 (4.0)**	**33.3 (3.9)**	**33.3 (4.4)**	**33.3 (4.2)**	**31.9 (4.2)**	**35.2 (3.5)**	**34.0 (4.0)**

Table 5
Changes in self-esteem.

Outcome Scale		Pre-post change			Between groups change			Pre-post change[a]	Between groups change[b]
		Control[a]	**Interv.[a]**	**All[c]**	**Control[b]**	**Interv.[b]**	**All**	Statistics (Intervention-Control) **P, Estimate (95%CI)**	Statistics (Intervention-Control) **P, Estimate (95%CI)**
Self-esteem RSE[S]-Total	N (miss)	8 (3)	24 (4)	32 (7)	8 (3)	16 (12)	24 (15)		
	Mean Δ (SD)	**−0.8 (2.1)**	**0.2 (3.5)**	**−0.1 (3.2)**	**−0.8 (2.1)**	**1.3 (4.1)**	**0.6 (3.6)**		
	Pr.(mean change = 0)	0.351	0.816	0.912	0.351	0.217	0.408	P = 0.567 Est. = 0.785 95% CI=(-2.063,3.633)	P = 0.362 Est. = 1.939 95% CI=(-2.440,6.317)

a For each group: intervention group at T0 (before intervention) and T1 (post-intervention); control group at T0 (before intervention) and T2 (post-intervention).
b Between groups differences: combination of intervention group between T0 and T1, and T1 and T2 (long-term effects), and control group between T0 and T2 (pre-post).
c For groups combined: intervention group T0 >T2 and control group T0 >T2.

Table 6
Summary of mean scores for secondary outcomes at baseline (T0), T1 and T2.

Outcome	Scale		Baseline score (T0)			T1			T2		
			Control	Intervention	All	Control	Intervention	All	Control	Intervention	All
Social well-being	FACIT-S	N (miss)	11 (0)	28 (0)	39 (0)	7 (0)	24 (1)	31 (1)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**16.7 (6.4)**	**23.3 (3.5)**	**21.5 (5.3)**	**15.4 (7.3)**	**21.6 (4.3)**	**20.2 (5.6)**	**18.2 (7.0)**	**23.2 (5.1)**	**21.4 (6.2)**
Emotional well-being	FACIT-E	N (miss)	11 (0)	28 (0)	39 (0)	7 (0)	24 (1)	31 (1)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**18.2 (3.4)**	**18.8 (4.3)**	**18.7 (4.0)**	**20.3 (2.2)**	**18.8 (4.2)**	**19.1 (3.9)**	**17.7 (5.5)**	**21.3 (2.4)**	**20.0 (4.1)**
Functional well-being	FACIT-F	N (miss)	11 (0)	28 (0)	39 (0)	7 (0)	24 (1)	31 (1)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**16.1 (6.9)**	**18.0 (6.0)**	**17.5 (6.2)**	**17.9 (7.5)**	**19.6 (5.0)**	**19.2 (5.5)**	**16.4 (5.6)**	**22.2 (4.6)**	**20.1 (5.6)**
Satisfaction with life	ESDV-Total	N (miss)	11 (0)	27 (1)	38 (1)	7 (0)	25 (0)	32 (0)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**23.4 (7.6)**	**25.1 (6.6)**	**24.6 (6.8)**	**23.1 (6.4)**	**26.4 (5.4)**	**25.7 (5.7)**	**21.7 (8.6)**	**27.8 (4.7)**	**25.6 (6.9)**
Post-traumatic growth	PTGI-Total	N (miss)	11 (0)	27 (1)	38 (1)	7 (0)	25 (0)	32 (0)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**77.4 (20.5)**	**84.2 (21.7)**	**82.2 (21.3)**	**82.4 (26.4)**	**89.3 (17.1)**	**87.8 (19.2)**	**73.2 (13.3)**	**84.6 (21.8)**	**80.5 (19.7)**
Post-traumatic growth	PTGI-F1	N (miss)	11 (0)	25 (3)	36 (3)	7 (0)	25 (0)	32 (0)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**26.9 (7.0)**	**29.7 (7.2)**	**28.8 (7.2)**	**28.1 (9.4)**	**30.9 (7.0)**	**30.3 (7.6)**	**26.3 (4.4)**	**28.0 (7.9)**	**27.4 (6.8)**
Post-traumatic growth	PTGI-F2	N (miss)	11 (0)	25 (3)	36 (3)	7 (0)	24 (1)	31 (1)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**16.3 (7.4)**	**17.6 (7.1)**	**17.2 (7.1)**	**18.4 (7.1)**	**19.7 (5.3)**	**19.4 (5.6)**	**15.2 (5.3)**	**19.7 (5.9)**	**18.1 (6.0)**
Post-traumatic growth	PTGI-F3	N (miss)	11 (0)	27 (1)	38 (1)	7 (0)	24 (1)	31 (1)	9 (0)	15 (1)	24 (1)
		Mean (SD)	**15.9 (3.6)**	**16.5 (5.2)**	**16.3 (4.8)**	**17.0 (6.2)**	**17.8 (4.4)**	**17.6 (4.8)**	**14.7 (4.6)**	**17.6 (4.9)**	**16.5 (4.9)**
Post-traumatic growth	PTGI-F4	N (miss)	11 (0)	27 (1)	38 (1)	7 (0)	25 (0)	32 (0)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**4.9 (3.4)**	**6.3 (3.6)**	**5.9 (3.6)**	**5.4 (3.6)**	**7.0 (3.7)**	**6.7 (3.7)**	**4.1 (2.8)**	**5.7 (3.6)**	**5.1 (3.4)**
Post-traumatic growth	PTGI-F5	N (miss)	11 (0)	27 (1)	38 (1)	7 (0)	25 (0)	32 (0)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**13.4 (4.0)**	**13.9 (3.0)**	**13.7 (3.2)**	**13.4 (3.5)**	**14.2 (2.3)**	**14.1 (2.6)**	**12.9 (2.8)**	**14.3 (2.5)**	**13.8 (2.6)**
Nurse-patient interaction	NPIS-Total	N (miss)	10 (1)	20 (8)	30 (9)	4 (3)	22 (3)	26 (6)	7 (2)	13 (3)	20 (5)
		Mean (SD)	**120.0 (19.0)**	**123.0 (14.1)**	**122.0 (15.6)**	**129.5 (7.1)**	**125.3 (15.2)**	**125.9 (14.2)**	**120.1 (22.6)**	**126.6 (14.2)**	**124.4 (17.3)**
Symptom assessment scale	ESAS-Total	N (miss)	11 (0)	27 (1)	38 (1)	7 (0)	23 (2)	30 (2)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**33.8 (22.4)**	**23.5 (17.7)**	**26.5 (19.4)**	**25.7 (14.9)**	**21.5 (16.1)**	**22.5 (15.7)**	**31.1 (26.2)**	**16.8 (16.9)**	**22.0 (21.4)**
Symptom assessment scale	ESAS-E9	N (miss)	11 (0)	27 (1)	38 (1)	7 (0)	23 (2)	30 (2)	9 (0)	16 (0)	25 (0)
		Mean (SD)	**3.9 (3.0)**	**2.7 (2.2)**	**3.0 (2.5)**	**3.6 (1.8)**	**2.0 (2.0)**	**2.4 (2.1)**	**3.3 (3.4)**	**2.1 (2.4)**	**2.5 (2.8)**

Table 7
Within and between differences for secondary outcomes.

Outcome Scale		Pre-post change			Between groups change			Pre-post change[a]	Between groups change[b]
		Control[a]	**Interv.[a]**	**All[c]**	**Control[b]**	**Interv.[b]**	**All**	Statistics (Intervention-Control) **P, Estimate (95%CI)**	Statistics (Intervention-Control) **P, Estimate (95%CI)**
Social well-being	N (miss)	9 (2)	24 (4)	33 (6)	9 (2)	16 (12)	25 (14)		
FACIT-S	**Mean Δ (SD)**	**0.9 (1.5)**	**−1.7 (3.9)**	**−1.0 (3.6)**	**0.9 (1.5)**	**0.2 (4.8)**	**0.4 (3.9)**		
	Pr.(mean change = 0)	0.104	0.044	0.126	0.104	0.901	0.592	P = 0.274 Est. = -2.006 95% CI=(-5.771,1.759)	P = 0.790 Est. = -0.706 95% CI=(-6.241,4.829)
Emotional well-being	N (miss)	9 (2)	24 (4)	33 (6)	9 (2)	16 (12)	25 (14)		
FACIT-E	**Mean Δ (SD)**	**−1.0 (2.4)**	**0.4 (3.1)**	**0.0 (2.9)**	**−1.0 (2.4)**	**0.8 (2.7)**	**0.1 (2.7)**		
	Pr.(mean change = 0)	0.228	0.506	0.963	0.228	0.272	0.836	P = 0.911 Est. = 0.140 95% CI=(-2.487,2.767)	P = 0.281 Est. = 1.540 95% CI=(-1.398,4.478)
Functional well-being	N (miss)	9 (2)	24 (4)	33 (6)	9 (2)	16 (12)	25 (14)		
FACIT-F	**Mean Δ (SD)**	**−0.1 (6.3)**	**2.5 (4.4)**	**1.8 (5.0)**	**−0.1 (6.3)**	**1.2 (4.7)**	**0.7 (5.2)**		
	Pr.(mean change = 0)	0.979	0.012	0.049	0.979	0.325	0.481	P = 0.200 Est. = 1.536 95% CI=(-0.908,3.980)	P = 0.367 Est. = 2.303 95% CI=(-2.972,7.578)
Satisfaction with life	N (miss)	9 (2)	24 (4)	33 (6)	9 (2)	16 (12)	25 (14)		
ESDV-Total	**Mean Δ (SD)**	**−0.6 (5.7)**	**1.7 (4.8)**	**1.1 (5.1)**	**−0.6 (5.7)**	**0.2 (4.2)**	**−0.1 (4.7)**		
	Pr.(mean change = 0)	0.778	0.105	0.241	0.778	0.860	0.933	P = 0.595 Est. = 0.939 95% CI=(-2.724,4.601)	P = 0.940 Est. = 0.169 95% CI=(-4.493,4.832)
Post-traumatic growth	N (miss)	9 (2)	25 (3)	34 (5)	9 (2)	15 (13)	24 (15)		
PTGI-Total	**Mean Δ (SD)**	**−1.6 (14.7)**	**5.5 (17.9)**	**3.6 (17.2)**	**−1.6 (14.7)**	**5.5 (21.0)**	**2.9 (18.8)**		
	Pr.(mean change = 0)	0.759	0.137	0.225	0.759	0.324	0.462	P = 0.845 Est. = 2.092 95% CI=(-20.216,24.400)	P = 0.761 Est. = 3.246 95% CI=(-19.018,25.510)
Post-traumatic growth	N (miss)	9 (2)	23 (5)	32 (7)	9 (2)	14 (14)	23 (16)		
PTGI-F1	**Mean Δ (SD)**	**−0.1 (7.9)**	**0.9 (7.4)**	**0.6 (7.4)**	**−0.1 (7.9)**	**0.1 (7.6)**	**0.0 (7.6)**		
	Pr.(mean change = 0)	0.968	0.577	0.653	0.968	0.945	0.978	P = 0.919 Est. = -0.483 95% CI=(-10.478,9.512)	P = 0.987 Est. = -0.067 95% CI=(-8.884,8.750)
Post-traumatic growth	N (miss)	9 (2)	22 (6)	31 (8)	9 (2)	15 (13)	24 (15)		
PTGI-F2	**Mean Δ (SD)**	**0.2 (4.4)**	**1.5 (4.7)**	**1.1 (4.6)**	**0.2 (4.4)**	**2.1 (5.9)**	**1.4 (5.4)**		
	Pr.(mean change = 0)	0.884	0.151	0.181	0.884	0.195	0.221	P = 0.934 Est. = -0.215 95% CI=(-5.640,5.209)	P = 0.788 Est. = 0.862 95% CI=(-5.823,7.546)
Post-traumatic growth	N (miss)	9 (2)	24 (4)	33 (6)	9 (2)	14 (14)	23 (16)		
PTGI-F3	**Mean Δ (SD)**	**−0.8 (2.9)**	**1.6 (4.4)**	**0.9 (4.2)**	**−0.8 (2.9)**	**1.5 (5.5)**	**0.6 (4.7)**		
	Pr.(mean change = 0)	0.452	0.094	0.206	0.452	0.325	0.542	P = 0.801 Est. = 0.650 95% CI=(-4.747,6.047)	P = 0.581 Est. = 1.483 95% CI=(-4.122,7.089)
Post-traumatic growth	N (miss)	9 (2)	25 (3)	34 (5)	9 (2)	15 (13)	24 (15)		
PTGI-F4	**Mean Δ (SD)**	**−0.3 (2.2)**	**0.7 (3.2)**	**0.4 (3.0)**	**−0.3 (2.2)**	**0.5 (3.5)**	**0.2 (3.1)**		
	Pr.(mean change = 0)	0.667	0.275	0.397	0.667	0.567	0.743	P = 0.830 Est. = 0.323 95% CI=(-2.809,3.455)	P = 0.993 Est. = 0.015 95% CI=(-3.687,3.718)
Post-traumatic growth	N (miss)	9 (2)	25 (3)	34 (5)	9 (2)	15 (13)	24 (15)		
PTGI-F5	**Mean Δ (SD)**	**−0.6 (3.7)**	**0.3 (2.2)**	**0.1 (2.6)**	**−0.6 (3.7)**	**0.5 (2.4)**	**0.1 (2.9)**		
	Pr.(mean change = 0)	0.665	0.473	0.847	0.665	0.407	0.837	P = 0.845 Est. = 0.215 95% CI=(-2.089,2.520)	P = 0.911 Est. = 0.139 95% CI=(-2.454,2.731)
Nurse-patient interaction	N (miss)	7 (4)	15 (13)	22 (17)	7 (4)	10 (18)	17 (22)		
NPIS-Total	**Mean Δ (SD)**	**4.3 (9.7)**	**1.6 (9.7)**	**2.5 (9.6)**	**4.3 (9.7)**	**−2.8 (17.2)**	**0.1 (14.6)**		
	Pr.(mean change = 0)	0.286	0.535	0.242	0.286	0.619	0.974	P = 0.939 Est. = 0.500 95% CI=(-14.205,15.205)	P = 0.913 Est. = -1.625 95% CI=(-34.726,31.476)
Symptom assessment scale	N (miss)	9 (2)	23 (5)	32 (7)	9 (2)	16 (12)	25 (14)		
ESAS-Total	**Mean Δ (SD)**	**−0.6 (9.5)**	**−4.9 (9.4)**	**−3.7 (9.5)**	**−0.6 (9.5)**	**0.6 (19.0)**	**0.2 (16.0)**		
	Pr.(mean change = 0)	0.865	0.020	0.036	0.865	0.907	0.960	P = 0.969 Est. = -0.167 95% CI=(-9.223,8.889)	P = 0.734 Est. = 3.500 95% CI=(-18.057,25.057)
Symptom assessment scale	N (miss)	9 (2)	23 (5)	32 (7)	9 (2)	16 (12)	25 (14)		
ESAS-E9	**Mean Δ (SD)**	**−0.4 (2.4)**	**−0.9 (2.0)**	**−0.8 (2.1)**	**−0.4 (2.4)**	**0.1 (2.7)**	**−0.1 (2.6)**		
	Pr.(mean change = 0)	0.594	0.037	0.041	0.594	0.856	0.877	P = 0.687 Est. = -0.433 95% CI=(-2.681,1.814)	P = 0.753 Est. = 0.483 95% CI=(-2.727,3.694)

a For each group: intervention group at T0 (before intervention) and T1 (post-intervention); control group at T0 (before intervention) and T2 (post-intervention).
b Between groups differences: combination of intervention group between T0 and T1, and T1 and T2 (long-term effects), and control group between T0 and T2 (pre-post).
c For groups combined: intervention group T0 >T2 and control group T0 >T2.

compared to other studies with a similar population (Hannon et al., 2015; Hui et al., 2016; Lee et al., 2020). In line with the quantitative results of the Revie ⊕ feasibility study (Da Rocha Rodrigues et al., 2019), post-traumatic growth scores as well as life satisfaction did not change significantly over time. Similarly, after having delivered a life review therapy with memory specific training to patients affected by cancer, Kleijn et al. (2021) did not show any significant change in the post-traumatic growth of their informal caregivers (Kleijn et al., 2021). However, their self-esteem remained stable over time (Kleijn et al., 2021). Patients with advanced cancer reported that Revie ⊕ increased the focus on positive aspects, like redefining their personal relationships (Da Rocha Rodrigues et al., 2019). Patients also reported a change in their relationship with the nurse through an increased trust (Da Rocha Rodrigues et al., 2019), although quantitative changes in the nurse-patient interaction in the present study were not statistically significant. From nurses' perspective, the authentic communication developed during Revie ⊕ interviews promotes an increased awareness of personal values and needs, and reinforces the relationship between the patient and the nurse (Da Rocha Rodrigues et al., 2023). Nevertheless, life review interventions are supported by literature in broader contexts than cancer.

Revie ⊕ is an innovative intervention that promotes a maintained high self-esteem of patients facing advanced cancer. From a clinical point of view, maintaining self-esteem score over time is very encouraging in view of all the effects of oncological disease, its progression and treatments. The extent to which COVID-19 influenced responses is unknown.

However, in order to confirm its effectiveness in improving self-esteem and other psycho-spiritual outcomes, more research is needed with adequate samples (Chen et al., 2017). Considering lower self-esteem eligibility criteria may increase the ability to show improvements after being exposed to life-review interventions like Revie ⊕. Further research could integrate family caregivers and explore the experiences and perspectives of patients who decline to participate in such studies. In addition, pragmatic designs may be more suitable in case of vulnerable participants.

4.1. Strengths and limitations

To date, few studies have documented the added value of life review in oncology settings. The added value of Revie ⊕ for patients with advanced cancer has been unanimously endorsed by nurses in a previous study (Da Rocha Rodrigues et al., 2019).

The waitlist design in the context of vulnerable population may have increased the attrition rates in the present study. The participants who received the intervention immediately increased commitment. In contrast, those in the control group expressed disappointment that they must wait two months, and many had to give up for medical reasons. More importantly, the COVID-19 had a huge impact on the progress. In total, the recruitment had to be stopped for 3–6 months due to pandemic. The teams were overloaded and could no longer find the time to perform the Revie ⊕ intervention. Therefore, three additional inpatient units in the same department were included, and six additional nurses were trained to deliver Revie ⊕. Few adjustments were necessary in allocating participants across the various conditions which undermined the rigorous design and reliability of the results. Furthermore, the data analysis may be impacted by insufficient statistical power attributable to the inability to reach the estimated sample size and as 12 participants didn't follow the treatment they were randomized to. The WLCT had several limitations, therefore we recommend pragmatic effectiveness studies that focus on whether the intervention works in real-world conditions, and whether the intervention is flexible as it is in normal practice.

More globally, the COVID-19 pandemic affected clinical research activities in all centres, with the problem of overload of healthcare professionals and the difficulties to enrol patients (Sathian et al., 2020; Shiely et al., 2021). Besides cancer, which is a stressful disease, accompanied by existential distress, the choice of the best treatment or approach and the exposure of the individual and their families have been exacerbated by the COVID-19 pandemic. Furthermore, in addition to anxiety, due to the recommendation to observe social distancing and even quarantine during a pandemic may have led to less communication between people, with a possible effect on emotional and physical functioning (Benke et al., 2020).

5. Conclusion

The results of this waitlist controlled trial suggest that patients living with an advanced cancer and being exposed to the life review Revie ⊕ intervention may have maintained their self-esteem high over time. The findings show promise, especially considering the constraints of the current study, which experienced limitations stemming from a smaller-than-anticipated sample size, a consequence of the COVID-19 pandemic and its influence on participant allocation process. Nevertheless, these findings do not allow us to draw definitive conclusions regarding the efficacy of the intervention on self-esteem.

Life review interventions focus on patient's strengths, and maintaining or improving patients' self-esteem may strengthen their identity and promote their dignity. Through Revie ⊕, the nurses have a better understanding of how to meet the clinical needs of patients facing advanced cancer. Clinical recommendation should take into account individual patient preferences and be based on rigorous research evidence. In addition, nurses are receptive to life review interventions, which is an important criterion if considering implementing interventions like Revie ⊕ in routine oncology care.

A waitlist randomized controlled trial seems not to be the appropriate design to highlight the added value of Revie ⊕ for this particularly vulnerable population. Living with cancer is often a distressing and unpredictable experience. The use of such a research methodology is incompatible with real life.

Revie ⊕ is designed to provide ongoing, personalized support for patients approaching the challenges of transition to the end of life. Evidence of its effectiveness will play a crucial role in the decision to embed this intervention into clinical practice. For this reason, we recommend further research to confirm the encouraging results obtained in a difficult context related to the pandemic. We suggest integrating family caregivers and explore the experiences and perspectives of patients who decline to participate. Finally, further research could focus on the change in the interaction between the patient and the nurses due to positive approaches like Revie ⊕, and investigate the possible changes in the nursing care.

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CRediT authorship contribution statement

Gora Da Rocha Rodrigues: Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Project administration, Supervision, Validation, Writing – original draft, Writing – review & editing. **David W. Warne:** Data curation, Formal analysis, Methodology, Software, Writing – review & editing. **Luca Scuderi:** Data curation, Writing – original draft, Writing – review & editing. **Déborah Lilla:** Data curation, Writing – original draft. **Jelena Stanic:** Formal analysis, Writing – original draft. **Sophie Pautex:** Conceptualization, Formal analysis, Funding acquisition, Project administration, Writing – review & editing.

Declaration of competing interest

None declared.

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Appendix A. Supplementary data

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