



A qualitative study exploring the experiences and perspectives of patients with cancer attending a 12-week exercise program

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Abstract

Purpose Physical activity is associated with a reduction in mortality and recurrence risks in patients with cancer. Despite the well-recognized benefits of exercise, patients' adherence to an exercise program remains a challenge. The present study aimed to assess the experiences of patients with cancer participating in a 12-week exercise program.

Methods A total of 21 survivors participated in focus group discussions after the conclusion of the exercise intervention. Semi-structured interview questions were developed according to the theory of the Health Belief Model. Data were analyzed using thematic analysis and categorized into perceived benefits, barriers, and cues to action.

Results Patients described a series of benefits achieved during the exercise program, from physical to psychological domains. Treatment-related side effects and logistic factors, including distance from the gym facility, were the most commonly reported barriers to adherence. Concerning cues to action, expected benefits from exercise were the most important reason to participate, while a patient-center program, supervised by skilled experts, highly stimulated patients to complete the program.

Conclusion Overall, patients with cancer reported a positive experience participating in a supervised exercise program. A variety of factors influencing participation and adherence were individuated. This study may help design and develop effective and sustainable programs addressing individuals' needs.

Keywords Exercise · Patients with cancer · Adherence · Barriers

Introduction

Whereas cancer incidence is growing worldwide [1], the discovery of innovative anticancer therapies has allowed for prolonging patients' survival, leading to a higher prevalence

of people having cancer [1]. In Italy, approximately 3.6 million people live after a cancer diagnosis, corresponding to 6% of the Italian population [2]. However, despite these improvements, cancer and its treatments are often accompanied by various side effects, such as nausea, fatigue, anxiety,

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depression, loss of strength and cardiorespiratory fitness, and peripheral neuropathy, seriously impacting patients' quality of life [3]. In addition, patients with cancer are exposed to a higher risk of comorbidities, like cardiovascular disease, osteoporosis, and musculoskeletal impairments, that, together with the adverse events of anticancer treatments, generate an elevated economic burden on the healthcare system [4]. In this sense, it is essential to find strategies aimed at managing these problems and supporting patients during their cancer journey. Among the possible interventions, a growing body of literature supports the potential role of exercise in the cancer setting. Epidemiological evidence has linked post-diagnosis physical activity with a reduction in overall and cancer-specific mortality, especially for breast, colon, and prostate cancers [5]. Moreover, cardiorespiratory fitness, muscle strength, and mass are prognostic factors in cancer [6, 7]. An exercise program can increase patients' physical condition, including cardiorespiratory fitness, strength, and body composition, and at the same time counteract some side effects such as fatigue, anemia, sleep problems, anxiety/depression, pain, and lymphoedema [8–11]. The last update of the American College of Sports Medicine (ACSM) guidelines for patients with cancer suggests that an effective exercise prescription should include moderate-intensity aerobic training at least three times per week, 30 min per session, and strength activities twice a week [8].

Despite the benefits and the potential impact on prognosis, most patients with cancer are insufficiently active [12]. To address this issue, a rapid expansion of exercise programs specifically dedicated to people living with and beyond cancer has been shown in the last decade [13]. Nevertheless, the patient's adherence to the exercise program remains still a challenge. Adherence is one of the most crucial factors potentially affecting the efficacy of the program, and it may be influenced by sociodemographic, physical, and medical aspects [14, 15]. A large body of literature has investigated the preferences and barriers associated with uptake and/or participation in a lifestyle program [12, 16]. Studying the experiences of patients participating in an exercise program is of utmost importance to develop a tailored exercise program that takes into account peculiar physical and psychological features, as well as treatment-related side effects. Moreover, understanding patients' specific needs is critical to adapting the program and enhancing adherence [13]. Although researches on the experiences of patients with cancer are available, the majority of these are conducted on subjects who participated in clinical trials. On the contrary, few qualitative studies explored patients' experiences and perspectives after completing a community exercise program, and, to our knowledge, no data on Italian patients are available, leaving this topic largely unknown. The current study aims to fill this knowledge gap by investigating

the experiences of patients with cancer joining a 12-weeks exercise program.

Material and methods

Design and participants

A series of focus groups were carried out to qualitatively assess the experiences of patients with cancer who had participated in the “Choose Health: Oncological patients Centered Exercise” (CHOiCE) project.

To recruit study participants, a purposive sample was used. Eligibility criteria were: (i) age ≥ 18 years, (ii) a confirmed diagnosis of cancer, (iii) having completed the exercise program, and (iv) giving verbal informed consent to study participation. Eligible participants were contacted individually through a telephone call by the research team to introduce the study. If the patient agreed to participate, the focus groups were organized.

The study protocol adhered to Good Clinical Practice principles, and all the procedures were conducted in compliance with the Helsinki and Oviedo declarations. The local Ethics Committee for Clinical Trials has reviewed and approved the project (Prot. N. 33320). Patients informed consent was obtained. The present study was realized according to the Standard for reporting Qualitative Research, guidelines for qualitative study [17].

The CHOiCE project

The CHOiCE program was a 12-week exercise intervention addressed to patients with cancer and conducted through the collaboration between the Department of Oncology and the Department of Neuroscience, Biomedicine, and Movement at Verona University. This program was created to offer a patient-center intervention and was the result of two previous implementation studies, assessing patients' preferences and obstacles to exercise [12, 18].

The program lasted one year (from January 2020 to February 2021) and offered the participants the possibility to choose one of the following three exercise modalities: (i) autonomous, supervised (AS) program, which consisted of a personalized written exercise program to perform at home, and periodical meetings and weekly phone calls to monitor the program; (ii) personal training (PT) program, in which each session was performed at University of Verona, and supervised with a kinesiologist-patient ratio of 1:1; and (iii) group training program, which consisted of an intervention to perform in small groups at the facilities of University of Verona. Unfortunately, due to the COVID-19 pandemic, the group training program was not started. The training prescription and progression were the same for all three

modalities, according to the patient's baseline conditions. Exercise sessions consisted of bi-weekly training, including warm-up, aerobic and resistance training, and cool-down. The warm-up lasted 5–10 min and was composed of dynamic stretching exercises. The aerobic component comprised cardiovascular exercises, such as walking, jogging, and cycling, lasting from 10 to 30 min at moderate intensity, i.e., 3–5 of the 10-point Borg Rating of the Perceived Exertion Scale (CR-10). The amount of aerobic activity was set according to the patient's baseline conditions and progressively increased over the weeks until 30 min each session at moderate intensity. Resistance training included six body weight or elastic bands exercises involving the major upper and lower body muscle groups. The selection of exercises was individually prescribed, and each was performed in 2–3 sets of 8–12 repetitions at moderate intensity, i.e., 3–5 of CR-10. Resistance training prescriptions progressively increased based on patient response. Cool-down was composed of stretching exercises for the major muscle groups. Additionally, all patients were encouraged to perform a walking activity autonomously. Steps goals were proposed to be achieved at least once a week, gradually increasing over the week. Each patient was provided with a pedometer (OnWalk 500, Geonaute® France) and an elastic band (Thera-bands, Hygenic Corp. Akron OH). To assess the improvements of each participant, anthropometric measures, cardiorespiratory fitness, strength, and flexibility were taken at baseline and post-intervention.

Data collection and study procedures

Semi-structured interview questions were developed after a literature review and based on the Health Belief Model (Table 1). This theoretical framework is widely used to explore individuals' health behaviors and postulates that health practice is influenced by multiple factors, such as susceptibility and severity of the disease, perceived benefits, barriers towards a behavior, cues to action, and self-efficacy [19]. Because the present work was related to health-promoting factors rather than the severity/vulnerability of a disease,

it focused on the benefits perception of exercise program, barriers, and cues to action to the engagement.

Four ($n = 5, 6, 7,$ and 3) focus groups were conducted between January 2022 and March 2022 using the online platform Zoom [20]. Each discussion lasted approximately 60–75 min. AM, a psychologist and a researcher working at the University of Verona, moderated each focus group while AB and VD observed and assisted. AB is a scholarship holder promoting exercise in the cancer context, and VD is a master's degree student in preventive and adapted physical activity. Each discussion was video-recorded and then transcribed verbatim. Pseudonyms were applied to report the data. Sociodemographic and clinical data were obtained from the charts of the CHOICE project.

Analysis

Two independent investigators (AB and AA) analyzed the transcripts using the Atlas.ti™, using the thematic analysis proposed by Braun and Clarke [21]. Initially, the researchers read and re-read the entire text several times to get a sense of the whole and identify the key concepts. Secondly, relevant data features were identified to generate initial codes. In the third step, codes were sorted and collated into themes and sub-themes. Subsequently, the themes and sub-themes were reviewed and refined in relation to the coded extracts and the data set. Finally, AB and AA discussed the findings, compared sub-themes and themes, resolved doubts and differences, and defined and named the final themes [21].

Results

Participants

A total of 36 patients with cancer participated in the CHOICE project and were contacted to propose the study. Fifteen did not take part in the focus group due to lack of interest ($n = 4$), lack of time ($n = 1$), and unavailability on the proposed days ($n = 2$); three patients did not answer the phone call ($n = 3$), and five were dead. Thus, the final sample consisted of 21 participants. The mean age of the study

Table 1 Semi-structured interview questions

Question
In your opinion, what were the advantages and disadvantages associated with your participation in the CHOICE project?
What factors and/or motivations have prompted you to participate in the CHOICE project?
What factors or situations have hindered your maintenance, including those related to the CHOICE, during the project?
Are there any aspects of the CHOICE project that you would like to change? Why?
What factors or situations have stimulated and/or facilitated your maintenance, including those related to the CHOICE, during the project?
Are you satisfied with your participation in the CHOICE project?

participants was 56 years (standard deviation = 9.8). Twelve participants took part in the personal training program, while nine chose the autonomous-supervised program. The overall adherence to the exercise program was 91%. Breast ($n = 14$), lung ($n = 2$), and colorectal ($n = 2$) were the most frequent cancer sites. Thirteen patients were on active treatment during the exercise program (Table 2).

Transcripts were analyzed according to the Health Belief Model, and the following themes were categorized: (1) perceived benefits, (2) barriers, and (3) cues to action.

Theme 1: perceived benefits

This theme mirrors the patients' perceived benefits while participating in the CHOICE project. Almost all the patients recognized the beneficial impact of exercise on physical and psychological well-being. On one side, participants reported that exercise helped them to counteract some disease symptoms and treatment-related side effects, as Caterina (head & neck, PT) remembered, “at the beginning of my anticancer treatment, I lost approximately 20 kilos...I had difficulties in my daily activities...with this program, I regained my muscle mass and my strength”, and Sofia (lung, AS) highlighted “I have a lung cancer...thus it was hard for me to breath, walk and climb stairs...my fatigue level was high...now I can move very well...I am able to walk about 30 km per week”. Moreover, doing physical exercise allowed to prevent some musculoskeletal disorders: “I had back pain due to a bad posture...thanks to the project, I learned to perform the exercises correctly...and since then I do not suffer from back pain anymore” (Laura-breast, PT).

All the participants reported a positive impact on socio-psychological well-being: “the major advantage was predominantly from the psychological point of view...I felt involved in something good for me” (Alessia-breast, AS), and “I felt embraced and cared...this was psychologically important” (Valeria-breast, PT). Other patients affirmed that they did not feel stigmatized as patients with cancer during the project, as Monica (breast, AS) and Chiara (breast, AS) remembered: “this program never made me feel like a patient with an oncological disease, but a person who was working for her health” and “I was not a sick patient at home...I walked, and I felt alive”.

Theme 2: barriers

This theme refers to the perceived obstacles to attending the exercise program of the CHOICE project. Two main sub-themes were grouped: (i) individual factors and (ii) logistic factors.

Table 2 Study participants' characteristics

Characteristics	Samples ($n = 21$)
Age (mean, age)	56
Education	
Secondary	4
High school degree	9
Undergraduate degree	5
Postgraduate degree	3
Marital status	
Unmarried	2
Married	18
Divorced	1
Employment	
Part-time employed	7
Full-time employed	8
Retired	4
Unemployed	2
Family income	
Barely adequate	2
Adequate	13
More than adequate	6
Modality of chosen exercise program	
Personal training	12
Autonomous, supervised	9
Adherence to exercise program (percentage) ¹	91
Tumor site	
Breast	14
Lung	2
Colorectal	2
Pancreas	1
Ovary	1
Head and neck	1
Stage	
I	8
II	4
III	4
IV	5
Diagnosis	
Time since diagnosis (mean in months)	33
Type of treatment	
Chemotherapy	16
Radiotherapy	14
Hormone therapy	11
Surgery	18
Current treatment status	
Ongoing	15
Ended	6

¹Calculated as the ratio of performed exercise sessions compared to the planned

Individual factors

Health conditions and treatment-related side effects were the major barriers encountered during the CHOICE program. For instance, therapy-related adverse events hindered the adherence to the exercise program as Benedetta (lung, AS) said, “for two weeks, I did not feel very well...I had to suspend the program for that time”. Moreover, Chiara (breast, AS) remembered, “I could not finish my last training because I lost my toenails due to chemo...I could not wear the shoes”. Also, Roberto (pancreas, PT) highlighted, “during chemo, I had some critical days due to its side effects... sometimes, I had to postpone the training sessions”.

In some cases, lack of motivation, described as subjective “laziness”, and lack of time sometimes interfered with the exercise program, as Marco (colorectum, AS) and Francesco (colorectum, AS) said: “by performing the program at home, I occasionally postponed the exercises due to laziness” and “sometimes it was difficult to take time to exercise”.

Logistic factors

Distance from fitness facilities and seasonality, especially winter, reduced both participation and adherence to the CHOICE project, as Francesco (colorectum, AS) remembered: “*fitness facility was very distant from my home...and sometimes in winter was hard to walk outdoor*”.

Theme 3: cues to action

Factors facilitating participation and adherence to the CHOICE program were grouped into five sub-themes, as follows: (i) expected benefits and individual motivation to participate in the CHOICE project, (ii) supervised and tailored exercise program, (iii) trained and caring exercise specialists, (iv) social support, (v) future perspectives.

Expected benefits and individual motivation to participate in the CHOICE project

For almost all the patients, the most important reason to start the exercise program was associated with the expected effect of exercise in reducing treatment-related side effects and the risk of cancer recurrence. For instance, Francesco (colorectum, AS) stated, “I decided to start this exercise program to manage therapies adverse events, especially the reduction of muscle mass”, and Gloria (breast, PT) reinforced, “I wanted to lose weight, to reduce the risk of recurrence”. More in-depth, Giorgia (breast, AS) reported, “I accepted to begin this project to manage my bone and muscular pains caused by the treatments”, and Roberto (pancreas, PT) said, “my goal was to reduce my tiredness and fatigue level”.

Back to everyday life activities was another crucial motive that has triggered patients’ participation at the CHOICE: “I joined the program because I wished to return to my life and my hobbies” (Sara-breast, PT), and “I wanted to restart, look forward, and do not think to my disease” (Benedetta-lung, AS).

Supervised and tailored exercise program

Several features of the CHOICE were identified as an incentive for the maintenance of the program. All the participants have defined the project as *patient-centered* and directed to individual needs. In this light, Maria (ovary, AS) emphasized that “the proposed activities were tailored and well-designed, my job was just to follow the program” and Gloria (breast, PT) supported: “the exercise program was personalized, with attention to individual characteristics”. Some participants appreciated that the program was adapted to medical procedures, as Giorgia (breast, AS) reported, “I had the peripherally inserted central catheter that limited my arm movement...this program has taken into account my condition”.

The variety of the activities, as well as the flexibility of the program, intended as the possibility of changing the appointments if treatment-related side effects arose, allowed patients to maintain the program participation, as Roberto (pancreas, PT) reported: “sometimes I had to change the fixed sessions, due to chemotherapy adverse events, but this was never a problem”. Moreover, a strong stimulus to continue the exercise program was weekly monitoring through phone calls by the trainer and the supplied equipment, especially in patients of the AT program. In this regard, Francesco (colorectum, AS) reported that “weekly phone calls from the trainers to supervise my training and to remind me the importance of exercise was a great help for me”, and Matilde (breast, AS) said, “having a pedometer was a spur to increase my daily steps; it was funny”.

Improvements in well-being and recovery movement skills were important incentives, as reported by almost all the participants. “Every session, I saw physical improvements... I came out of the gym, and I felt reborn...this gave me much satisfaction”, reminded Valeria (breast, PT), or “the results encouraged me to continue the program...I felt well, my brain was fully functional...I did not think too bad things” told Benedetta (lung, AS).

Trained and caring exercise specialists

Patients stated that the presence of skilled instructors was an important advantage during the project because “if I had a doubt, I immediately had a person to ask and trust” said Monica (breast, AS). Moreover, participants recognized the importance of exercise specialists, specifically trained for

their condition: “in a “normal” gym, you are one of many... in this program, I had a personal trainer, explicitly trained for my disease” (Laura-breast, PT) and “my instructors put much attention to control the correct execution of exercises and to problems related to my cancer, adapting the activity on my needs” (Gloria-breast, PT).

Moreover, patients highlighted the psychological support received by the trainers: “at the beginning of the program, I had important psychological help from kinesiologists...this was fundamental...they were attentive, prepared, thoughtful to listen to my problems” (Sara-breast, PT), or “in the most difficult moments, during the chemo, I knew that there were the kinesiologists that were waiting for me...they were a reference point...at the end of each session I was happy because I had spoken with very positive persons” (Robertopancreas, PT).

Social support

Interpersonal relationships have been recognized as important features, contributing both to starting and maintaining adherence to the CHOiCE project. On one side, the referral from oncology staff, especially oncologists and dietitians, or the advice from another patient with cancer was a key incentive to participate in the exercise program, as Sara (breast, PT) remembered, “the chief of the Oncology Unit spoke to me of the program...thus, I understood that it was important” or Caterina (head & neck, PT) said, “the dietitian has proposed me the project...so I thought OK I try it”. On the other hand, support from family has been reported as a

stimulus during the participation in the CHOiCE project by some patients. In this regard, Valeria (breast, PT) said, “my daughters told me: great mom, do not stop the activity, you have found the right way”, and Benedetta (lung, AS) highlighted, “my husband supported me, corrected my exercise execution...and during the weekend we walked together”.

Future perspectives

Patients gave us some useful suggestions for improving the CHOiCE program. First, almost all the participants stated that the CHOiCE should be better sponsored inside the Oncological Unit, as Claudia (breast, PT) said: “this program should be mandatory...or at least the information should be given to all the patients”. Other participants proposed some strategies to implement the program structure, such as a duration greater than 12 weeks, the use of isotonic machines, and the possibility of having not only a verbal but also a written report about the physical improvements at the end of the program.

Discussion

This qualitative study investigated the experiences of patients with cancer participating in a 12-week exercise program, applying the Health Belief Model (Fig. 1).

In our study, patients attending the exercise program experienced a positive impact on their physical and psychological well-being. The psychological impact of exercise,

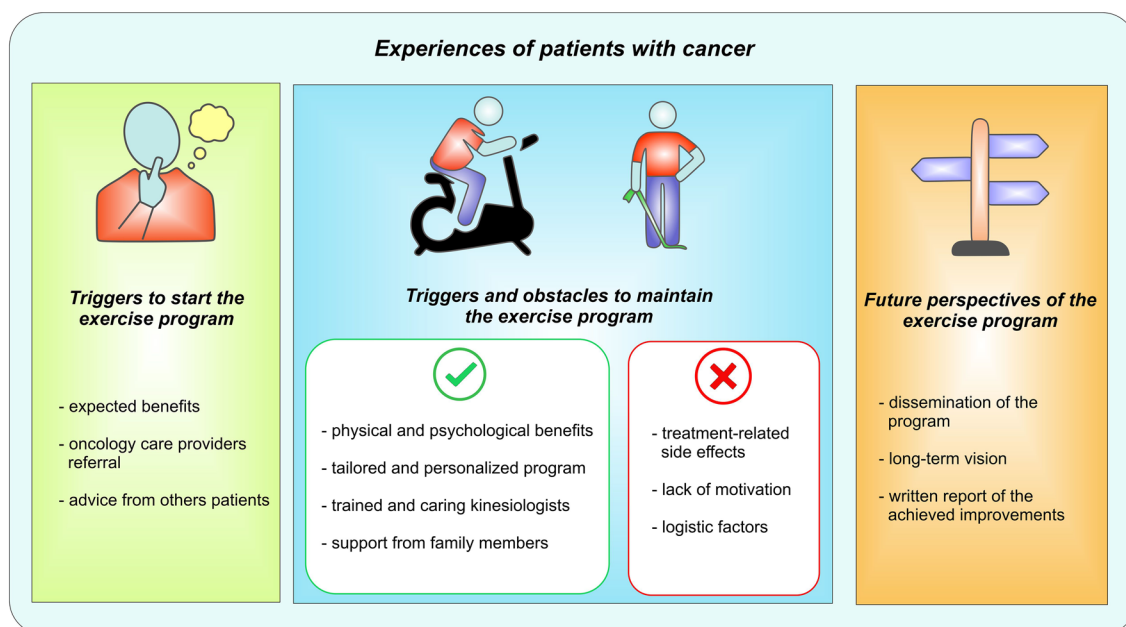


Fig. 1 Factors influencing the participation and adherence to the exercise program

which consisted of enhancement in mood and not feeling like a patient, has been previously described [22–24]. The most commonly reported improvements in our sample regarded cardiorespiratory fitness, muscle mass, and strength, as well as better management of symptoms and treatment-related side effects, such as fatigue. These findings were similar to a previous study [25–28]. For instance, Spence and colleagues found that 12 weeks of exercise, delivered after the completion of chemotherapy, helped patients with colorectal cancer to increase fitness and reduce fatigue [25]. Similarly, another research on patients with gynecological cancer demonstrated a beneficial exercise in counteracting fatigue [29].

Of note, cancer-related fatigue is the most commonly reported symptom, affecting approximately 80%–90% of patients undergoing anticancer therapies and interfering with their daily activities [30]. The guidelines for cancer-related fatigue by the European Society of Medical Oncology recommend physical activity as the first line of treatment in those patients experiencing this debilitating symptom [30]. Despite the importance of physical exercise in managing fatigue, the literature frequently reports this symptom as a major obstacle impacting patients' adherence to exercise [31, 32]. This paradox has also emerged in our study. Indeed, patients reported adverse events, especially fatigue, as the most prevalent reason to delete or postpone the exercise sessions (Fig. 1). Educating patients about the effects of exercise and organizing the sessions according to the weekly fatigue patterns could be a potential solution to break this paradox.

Also, laziness, lack of time, distance from facilities, and seasonality were mentioned as potential factors interfering with exercise maintenance, particularly in patients performing the autonomous-supervised program. These results align with our prior investigation [18] and suggest that supporting materials to increase patients' motivation may help to enhance their autonomy and improve the efficacy of those programs involving a remote approach.

Study participants reported that the potential benefits of exercise in terms of managing disease side effects, reducing recurrence risk, and regaining a sense of normality, were the main reasons to participate in the CHOICE program (Fig. 1). This desire to be proactive in their disease journey, particularly in those aspects, such as lifestyles, in which patients may take action in the first person, has been described previously [33]. Thus, enhancing patients' knowledge about the beneficial effects of physical activity on long-term outcomes may be crucial for adherence to physical exercise.

Several factors contributed to keeping doing the program (Fig. 1). The appointments' flexibility was very appreciated, especially for patients experiencing treatment-related side effects. This was a novel finding, highlighting the importance of a flexible program, particularly for patients undergoing pharmacological therapies. Weekly phone calls, the

variety of exercises, the use of the pedometer, and improvements obtained during the program were also mentioned as important features motivating patients. A prior study, including patients with gynecological cancer who completed an exercise randomized controlled trial, found that the patients appreciated weekly telephone contacts, having a pedometer, and feedback regarding improvements [29]. These strategies may enhance the patient's empowerment. To this aim, providing a tailored program appears to be fundamental. Dennet and colleagues found similar results, showing that tailored exercise programs were considered more effective than those which were not individualized [34]. A tailored exercise program goes hand in hand with the expertise of kinesiologists, which should be able to adapt the program and mentally support patients. In this sense, the "ideal" kinesiologist should be fully prepared to assist patients both from a physical and psychological point of view. This aspect has emerged from previous researches [26, 29, 34] and suggested by recent evidence, Sports Science universities could have an active role in training experts with specific skills to adequately support patients in their lifestyle modification [35].

The referral to the exercise program from the oncology staff was an incentive to start the CHOICE project (Fig. 1). This result is supported by previous literature showing that patients preferred to receive exercise instructions from their oncologist [12]. However, a lack of specific exercise programs for patients is one of the major obstacles reported by oncology care providers to promoting exercise [36]. In the current study, patients have also found support from their family members during the program. Most of the investigations reported similar results [18, 22]; nevertheless, others describe indifference from their caregivers regarding exercise [37]. Involving family members during the lifestyle change intervention could be a strategy to increase encouragement from caregivers.

This study presents some limitations, including the low response rate. This may have led to a selection bias, even if the reasons for refusing participation did not support this hypothesis. In addition, patients with different cancer sites and stages have been included, making the results a little generalizable. Nevertheless, the CHOICE program, and thus this research, aimed to investigate the experience of patients with cancer in a "real-world" context, in which the chance of having individuals with different characteristics is highly possible.

Conclusions

In conclusion, patients with cancer had a positive experience with the exercise program from physical and psychological points of view. Expected benefits and oncology care providers' referral has been individualized as an incentive to begin

the exercise program. In addition, different aspects have emerged as determinants for exercise adherence. The results of the present study may help to design and develop effective and sustainable programs addressing patients' needs.

Author contributions AB: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; resources; software; supervision; validation; visualization; roles/writing—original draft; writing—review and editing. AM: Conceptualization; data curation; formal analysis; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. VD: Conceptualization; data curation; formal analysis; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. AD: conceptualization; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. LB: conceptualization; data curation; formal analysis; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. FS: conceptualization; data curation; formal analysis; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. ML: conceptualization; data curation; formal analysis; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. SP: conceptualization; data curation; formal analysis; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. MM: conceptualization; data curation; formal analysis; resources; software; validation; visualization; roles/writing—original draft; writing—review and editing. AA: conceptualization; data curation; formal analysis; investigation; methodology; project administration; resources; software; supervision; validation; visualization; roles/writing—original draft; writing—review and editing.

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Data availability All data generated or analysed during this study are included in this published article.

Declarations

Conflict of interest The authors declare that this research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. M.M. reports personal fees from Pfizer, EUSA Pharma and Astra Zeneca, outside the submitted manuscript. S.P. received honoraria or speakers' fee from Astra Zeneca, Eli-Lilly, BMS, Boehringer Ingelheim, MSD and Roche, outside the submitted manuscript. All remaining authors declare that they have no competing interests.

Ethical approval The local Ethics Committee for Clinical Trials has reviewed and approved the project (Prot. No. 33320).

Informed consent Written informed consent was signed by all participants recruited in the CHOICE project and renewed before each focus group discussion in a verbal manner.

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