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RESEARCH / ARAŞTIRMA

The Factors Affecting the Choice of Supervisor Type for Postoperative Exercises in Cancer Patients with Bone Tumor Resection Surgery - A Qualitative Study

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ABSTRACT

Objective: The primary aim of this study was to investigate the motivators and barriers influencing supervision preferences for postoperative exercises in patients undergoing bone tumor resection. The secondary aim was to provide preliminary insights into how the experience of supervision may affect future supervision preferences. This study aimed to investigate the motivators and barriers influencing supervisor preference for postoperative exercises in patients undergoing bone tumor resection and to evaluate the impact of experience with the preferred supervisor on future choices.
Material and Methods: This study used a qualitative approach using thematic analysis. Participants who underwent bone tumor resection surgery participated in either supervised or non-supervised exercise programs lasting six weeks. Semi-structured, in-depth interviews were conducted with participants both before and after the exercise period.
Results: The study concluded that participants preferred face-to-face supervised exercise to feel safe, perform exercises correctly, and follow the program with discipline. Time flexibility and the comfort of exercising at home encouraged the choice of online supervision. Negative experiences, issues within the health system, and transportation difficulties deterred participants from preferring face-to-face supervision. Technical inadequacies were identified as the sole barrier to choosing online supervisor type.
Conclusion: Self-discipline, the need for companionship, transportation, and the need to feel confident are the strongest factors that determine the type of supervisor.
Keywords: Exercise, patient preference, qualitative research, telerehabilitation.

Kemik Tümörü Rezeksiyonu Ameliyatı Olan Kanser Hastalarında Postoperatif Egzersizler İçin Süpervizör Tipinin Seçimini Etkileyen Faktörler - Nitel Bir Çalışma

ÖZET

Amaç: Bu çalışmanın birincil amacı, kemik tümörü rezeksiyonu geçiren hastalarda postoperatif egzersizlerde süpervizör tercihini etkileyen motivasyonları ve engelleri araştırmaktı. İkincil amaç, süpervizör deneyiminin gelecekteki gözetim tercihlerini nasıl etkileyebileceği konusunda ön bilgiler sağlamaktı.
Gereç ve Yöntem: Bu çalışmada tematik analiz yöntemi kullanılarak nitel bir araştırma yapıldı. Kemik tümörü rezeksiyonu ameliyatı geçiren olgular, süpervizör eşliğinde denetimli veya denetimsiz altı hafta süren egzersiz programlarına katıldı. Katılımcılarla hem egzersiz öncesi hem de sonrası dönemde yarı yapılandırılmış, derinlemesine görüşmeler yapıldı.
Bulgular: Araştırma sonucunda, katılımcıların güvende hissetme, egzersizlerin doğru şekilde yapılmasını sağlama ve programa disiplinli bir şekilde uyma isteği nedenleriyle yüz yüze denetimli egzersizi tercih ettikleri sonucuna ulaşıldı. Zaman esnekliği ve ev konforu ise çevrimiçi süpervizörü seçmeyi teşvik etti. Olumsuz deneyimler, sağlık sistemi sorunları ve ulaşım zorlukları, katılımcıları yüz yüze süpervizör eşliğindeki denetimli egzersizi tercih etmekten alıkoydu. Teknik yetersizlikler, çevrimiçi süpervizör türünü seçmenin önündeki tek engel olarak bulundu.
Sonuç: Öz disiplin, refakatçi ihtiyacı, ulaşım, kendine güvenme ihtiyacı gibi faktörler süpervizör tipini belirleyen en güçlü etkenlerdir.
Anahtar Kelimeler: Egzersiz, hasta tercihleri, nitel araştırma, telerehabilitasyon.

1. Introduction

Cancer is a global health issue and the second leading cause of death worldwide, affecting individuals physically, emotionally, and socially (1). However, with advances in early diagnosis and treatment methods, the life expectancy of cancer patients is steadily increasing. Consequently, this improvement may lead to various psychosocial and physical problems related to the side effects of cancer treatments (2).

Studies have shown that cancer patients exhibit lower levels of physical activity compared to their healthy peers and the general

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population. Physical inactivity may lead to loss of muscle mass and strength, rapid weight gain, and functional decline in various systems, resulting in additional health problems (3,4). Conversely, studies have reported that a regular exercise program initiated in the early period reduces the side effects (pain, fatigue, etc.) of cancer treatments, contributes to the prevention of postoperative complications, and improves the quality of life of cancer patients by facilitating their adaptation to daily activities (3,5,6). However, motivators and barriers in the initiation and maintenance of the exercise programs should be determined first (7,8,9).

It has been reported that barriers to initiating exercise are mostly related to the side effects of cancer treatments and patients' lack of motivation (8,9). According to Agasi-Idenburg et al., supervised face-to-face exercise provided by a physiotherapist enhances adherence and motivation among cancer survivors, while transitioning to unsupervised exercise is perceived as challenging due to the loss of accountability and external motivation (10). In response to these difficulties in maintaining adherence and motivation without face-to-face supervision, alternative forms of supervision, such as telerehabilitation, have gained attention. With the COVID-19 pandemic, telerehabilitation has become increasingly common in exercise-based interventions, introducing a new mode of supervised exercise delivery (11). Studies have shown that the effects of telerehabilitation on functional capacity and quality of life are comparable to those of face-to-face exercise programs, and that remote supervision can improve patient adherence (12, 13). However, another study supports the idea that supervised exercise programs, particularly those incorporating face-to-face components, may provide greater improvements in quality of life and functional outcomes compared to unsupervised or mobile health–only telerehabilitation in patients with breast cancer (14). Although previous research has investigated the impact of supervisor presence and delivery mode on exercise outcomes in cancer patients (15), to the best of our knowledge, the factors influencing the choice of supervision type have not been thoroughlyexamined.

This qualitative study primarily aimed to identify the motivators and barriers influencing patients' preferences for a specific type of supervision following bone resection surgery. The secondary aim was to provide preliminary insights into how patients' experiences with supervision may affect their future supervision preferences.

2. Material and Method

2.1. Research Type and Sample of the Research

2.1.1. Study Design and Recruitment

This qualitative study, employing a descriptive phenomenological approach, was conducted between November 2022 and March 2023 at the Department of Orthopedics and Traumatology at Göztepe Prof. Dr. Süleyman Yaçın City Hospital. Participants (n=15) who met the study criteria and agreed to participate were invited to the hospital six weeks after surgery. Participant recruitment and the interviews were completed according to the principle of data saturation, defined as the point at which no new information or themes emerge during data collection (16).

2.2. Data Collection

2.2.1. Participants

The study group was determined using the typical case sampling method, a type of purposive sampling. Participants aged between 21 and65 years who had undergone benign tumor resection surgery for the first time, completed their cancer treatment process, received physician approval confirming no contraindications to participating in the exercise program, and were conscious with no communication difficulties (Mini-Mental State Examination score> 24) were included in the study. Participants with metastasis, any musculoskeletal, neurological, or cardiopulmonary conditions that could pose a risk during exercise, or those who had undergone head and neck bone resection surgery were excluded. All participants were informed about the study, and written informed consent was obtained.

The Mini-Mental State Examination (MMSE) is a 30-point cognitive screening tool assessing orientation, memory, attention, language, and visuospatial abilities. A cut-off score of 24 is traditionally used, with scores below 24 indicating cognitive impairment (17).

2.2.2. Interviewer and Interviews

The interviews were conducted by a researcher trained in qualitative methods. Another trained researcher participated as an observer during the interviews. Four pilot interviews were conducted with individuals who met the inclusion criteria but were not enrolled in the main study due to logistical reasons. A summary of the study design and participant flow is presented in Figure 1.

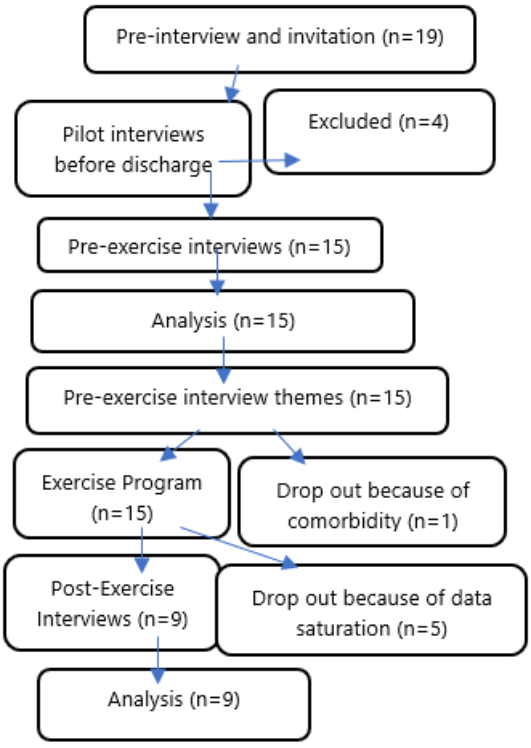

Figure 1. Flow diagram of the study

The interviews were carried out using a semi-structured, in-depth individual interview technique (19). Interviews were conducted twice, once at the beginning of the treatment and again at the end of the six-week treatment period. The interviews lasted between 20 and 40 minutes. All interviews were audio-recorded

with the consent of the participants. The interview questions are provided in Table 1.

Table 1. Interview questions of the study

Main Questions (Pre-Exercise Interview)	
In which condition would you like to do the therapeutic exercise?	Face-to-face under the supervision
	In-home telerehabilitation under the supervision
	Home-based exercise without supervision
Drill Questions	What are the motivators that make you prefer this program?
	What are the barriers that cause you not to choose this program?
Post-Exercise Interview	
Main Ouestion	Could you tell us about your exercise experience?
Drill Questions	Would you like to change the exercise condition?
	What are the factors that make you want to change?
	What are the factors that make you not want to change?

2.3. Implementation of the Research

2.3.1. Exercise Program

At the initial interview, participants were asked to choose the most appropriate type of supervisor from the following options: face-to-face, online, or no supervisor. Patients were then categorized into three exercise groups based on the chosen supervisor type;

Group 1-Face-to-face (with supervisor): The supervisor conducts the exercise program one-on-one with the patient.

Group 2-Telerehabilitation (with online supervisor): The supervisor conducts the exercise program online and performs the exercises simultaneously with the patient.

Group 3- Home-Based (without supervisor): There is no supervisor present, and the participant performs the exercises alone at home with the guidance of the brochure.

Patients were asked to perform the exercises for six weeks, with two sessions per day and 3 days per week. The exercise program comprised breathing exercises, active–assistive and active joint movement exercises, and strengthening exercises. Strengthening exercises were performed for cancer patients with bone metastases according to an exercise protocol designed to minimize mechanical stress on the affected areas (18).

2.3.2. Analysis of Research Data

The recordings were transcribed by the researcher. All transcripts were checked by a third researcher to ensure consistency with the original recordings. Two researchers independently analyzed the transcripts and determined the codes using the Atlas.ti software (Version 23, Atlas.ti Scientific Software Development GmbH, Berlin, Germany). The codes were initially identified independently by two researchers. They then compared their coding decisions and refined them collaboratively through discussion until consensus was reached. Similarities and differences between codes were re-evaluated collaboratively, and related codes were grouped into code families. These families were further synthesized into subthemes and themes through iterative discussion. For example, codes such as "feeling safe under supervision," "willingness to be sure doing exercise right," and "needing an observer during exercises" were grouped within the code family "Factors about Supervisor" and contributed to the subtheme "Face-to-face Exercise" under the theme "Motivators.". This process ensured inter-rater reliability through consensus-building at each stage of the analysis (20). In addition, sample code trees and theme structures generated by Atlas.ti are presented in Figures 2-5 to enhance transparency.

2.4. Ethical Aspects of the Research

Istanbul Medeniyet University Göztepe Training and Research Hospital Clinical Research Ethics Committee approved the study on 30.03.2022 (Approval number: 2022/0179). The Clinical Trial records (NCT05746910) were obtained. This study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

3. Results

For each group that completed the program under different types of supervision, data saturation was achieved after interviewing three patients per group (face-to-face, n= 3, mean age: 50.66 ± 12.50 years; telerehabilitation, n= 3, mean age: 38.00 ± 15.13 years; home-based, n= 3, mean age: 39.00 ± 15.62 years). Data from a total of nine participants were included in the study (Table 1). Six additional participants were interviewed but excluded from the final analysis due to data redundancy, in accordance with the principle of thematic saturation (Figure 1). The sociodemographic characteristics and previous exercise experiences of the participants are presented in Table 2.

3.1. Pre-Exercise (Initial) Themes

Participants selected their preferred type of exercise supervision prior to beginning the program. Open-ended questions were asked to explore the reasons for choosing their preferred supervisor type (motivators) and the reasons for not choosing other types (barriers) (Table 3).

3.1.1. Theme-1: Motivators for choosing a type of supervisor (Appendix 1)

Motivators were categorized into three headings: "supervisor-related factors," "individual factors," and "environmental/external factors".

Subthemes

a) Motivators for choosing face-to-face exercise

The factors that led the participants to choose face-to-face supervision were all related to the presence of the supervisor. These factors included "adhering to the program in a disciplined manner," "feeling safe," "ensuring that the exercises are performed correctly," and "doing the exercises under supervision. Both participants emphasized the sense of security provided by face-to-face supervision. One participant (P2) shared, "It's better to exercise with a professional... at least if something happens, I'll know what it is," illustrating the sense of security provided by face-to-face supervision. This concern appears to reflect P2's comorbidities and limited prior experience with structured exercise, both of which likely heightened her desire for immediate professional assistance and reduced her confidence in exercising alone. Similarly, another participant (P1) noted, "Exercising with someone responsible is not the same as doing it yourself," highlighting the perceived safety of face-to-face supervision. Both narratives suggest that the primary reason for their preference for face-to-face supervision may be that trust in the supervisor alleviates participants' concerns about health risks

Table 2. Sociodemographic characteristics of the participants

Participants	Groups	Gender (Male /Female)	Age (years)	BMI (kg/m^2)	Marital Status	Education Status	Occupation	Previous Therapeutic Exercise Experience
P1	G_1	Female	65	35.20	Married	PS	Housewife	HB
P2	G_1	Female	42	18.18	Married	PS	Housewife	No
P3	G_1	Female	45	28.30	Single	PS	Tailor	HB
P4	G_2	Male	50	29.38	Married	BD	Teacher	No
P5	G_2	Male	21	20.11	Single	US	Student	HB
P6	G_2	Male	43	35.44	Single	SS	Worker	HB
P7	G_3	Female	29	38.06	Married	BD	Teacher	No
P8	G_3	Male	31	27.17	Married	BD	Policeman	HB
P9	G_3	Female	57	28.84	Married	PS	Housewife	HB

PS: Primary school; SS: Secondary school; US: University student; BD: Bachelor's degree; HS: home based; G_1: Face-to-face exercise; G_2: Telerehabilitation; G_3: Home-based exercise

Table 3. Pre-exercise (initial) themes

Themes	Sub-themes	Code-groups	Codes
Motivators	Face-to-face Exercise	Factors about Supervisor	Feeling safe under supervision
			Willingness to be sure doing exercise right
			Being disciplined
			Doing exercise under supervision
			Needing an observer during exercises
		Factors about Supervisor	One to one communication with supervisor
			Time flexibility
	Telerehabilitation	Enviromental Factors	Transportation is not required
			Not having risk of transfer accident
			Home comfort
	Home-based exercise	Individual Factors	Obligation of companion
			Having ability of self-discipline
			Childcare at home
		Enviromental Factors	Transfer difficulty
			Exercise program not requiring special exercise equipment Long distance to hospital
			Public health system engagement
		Enviromental Factors	Financial burden
			Health care system mess
			Negative hospital experience
			Business
Barriers	Face-to-face Exercise	Individual Factors	Companion Requirement
			Comorbidities
		Factors about Supervisor	Not needing an observer
	Telerehabilitation	Individual Factors	Not knowing how to use a computer
			Not having a computer/an internet connection
			Not to be sure about benefits of home based exercise
			Worried about harming yourself
		Individual Factors	Worried about doing exercise wrong
			Inability to have self-discipline
	Home-based exercise	Enviromental Factors	Home conditions

and that exercising with a supervisor enhances their self-discipline.

b) Motivators for choosing telerehabilitation

The environmental conditions that influenced the choice of online supervision (telerehabilitation) included "the comfort of the home environment," "absence of risk of accidents during transport," and "no need to transfer to the hospital." One participant (P6) explained his preference for online supervision, stating, "It allowed me to stay comfortable at home. My foot hurt so much that going anywhere was painful, and I felt it would be easier to avoid bumping into anything while sitting at home," illustrating how online supervision minimized both pain and the risk of further injury.

In addition, "the desire to ensure that the exercises were performed correctly," "the presence of a supervisor to monitor the exercises," and "the ability of instant communication with the

supervisor" were identified as supervisor-related factors that influencedthe choice of this type of supervision.

The only individual factor that made online supervision appealing to the participants was the "flexibility in scheduling exercise times." One participant (P6) shared, "If the hours didn't suit me, this could prevent me. But since the hours can be adjusted in

online supervision, it makes the online option attractive," highlighting how scheduling flexibility contributed to his preference for online supervision. This flexibility enabled P6 to fit exercise into his daily responsibilities.

c) Motivators for choosing home-based exercise

The motivators for choosing an unsupervised program were primarily individual and environmental. Individual motivators included "not needing a transfer or companion," "confidence in one's ability to follow the program independently and disciplined" and "home-care responsibilities." Environmental motivators included "difficulty going to the hospital" and "the exercise program not requiring any special equipment." These factors were identified as reasons for preferring a program without supervision.

While P9 and P7 remarked that they preferred to do exercise without a supervisor due to unavoidable reasons, P8, in contrast, stated that he favored this program because he did not need any supervision under the current conditions. P8 said that when there are movements that require equipment, he needs to be guided by a professional. However, if no equipment is involved, he prefers to perform the exercises at home. He has no problem with being disciplined. P8's preference appeared to reflect his confidence in his ability to perform the exercises independently and his familiarity with unsupervised physical activity. His view that professional support is only necessary for complex movements demonstrates a sense of self-efficacy and practical judgment regarding when supervision is truly required.

Table 4. Supervisor type choices of participants

Participants	Pre-Exercise	Post-Exercise
P1	Face-to-face	Face-to-face
P2		
P3		
P4	Telerehabilitation	Telerehabilitation
P5		
P6		
P7	Home-based	Home-based
P8		
P9*		Face-to-face

*The type of supervisor was changed

3.1.2. Theme-2: Barriers to choosing a type of supervisor

Like motivators, barriers were categorized under three headings: "supervisor-related factors," "individual factors," and "environmental/external factors." (Appendix 2)

Subthemes

a) Barriers to choosing face-to-face exercise

The environmental and external barriers identified included "the distance between home and the hospital," "crowdedness and complexity of the public health system," and "the cost of transportation to the hospital." Individual factors such as "negative hospital experiences," "comorbidities," "companion requirement," and "working overtime" were also identified as barriers to exercising with face-to-face supervision. Only one participant (P8) reported that he did not need a supervisor during the exercise program.

These barriers appeared particularly relevant for participants with comorbid conditions or demanding work schedules, for whom traveling to the hospital or navigating the healthcare system posed significant challenges. P8's lack of need for a supervisor may reflect his confidence in self-management and his preference to avoid the complexities associated with hospital-based exercise sessions.

b) Barriers to choosing telerehabilitation

It was determined that the barriers to exercising with online supervision were caused by individual factors, such as "not knowing how to use a computer," and external factors, such as "not having a computer or an internet connection."

These barriers likely reflected the participants' limited digital literacy and socioeconomic constraints, which restricted their access to, or comfort with, online exercise formats.

c) Barriers to choosing the home-based exercise

It was found that exercise without supervision was generally preferred due to individual factors. Beliefs about "doing the exercises incorrectly," "fear of harming oneself" and "exercising independently not being beneficial" emerged as barriers to choosing a home-based exercise program.

These barriers appeared particularly pronounced among participants with limited prior exercise experience or low confidence in their ability to safely and effectively complete the program without guidance.

3.2. Post-Exercise (Final) Themes

Of the participants who completed the six-week exercise program, only one participant (from the home-based group) wanted to change the type of supervisor, whereas the other eight participants were satisfied with their choice of supervisor (Table 4).

3.2.1. Reasons for not changing the supervision type

Participants who chose supervised exercise programs stated that they did not want to change their preferences because of factors such as "one-on-one communication with the supervisor," "feeling safe under supervision," "being more disciplined under supervision," "making sure that they performed exercises correctly," and "being able to synchronize their movements with the supervisor" (applicable only to telerehabilitation). Conversely, the home-based exercise group stated that they did not need a supervisor because of the "flexibility of exercise time," "comfort of exercising at home ," and "ability to maintain self-discipline." (Table 5) (Appendix 3).

Table 5. Post-exercise (final) themes

Themes	Sub-themes	Codes
Reasons for Not Changing the Exercise Condition	Supervised Exercise	One to one communication with supervisor
		Exercising simultaneously with supervisor
		Feeling safe with supervisor
		Having dicipline with supervisor
		Willingness to exercising properly with supervisor
	Unsupervised Exercise	Having self discipline
		Time flexibility
		Home comfort
Reasons for Changing the Exercise Condition		Worried about doing wrong without supervisor
		Unsuitable home conditions
		Worried about harming yourself without supervisor
		Inability to have self-discipline without supervisor

These preferences reflected the participants' desire for continued safety, structure, and external accountability in supervised settings, while those in the home-based group valued autonomy and flexibility. This likely stemmed from their confidence in self-management and their need to balance exercise with daily responsibilities.

3.2.2. Reasons for changing the type of supervision

A participant from the home-based exercise group stated that she wanted to change the type of supervision and exercise with a supervisor for reasons such as "inconvenience of home conditions," "not being disciplined in implementing the program," "performing the exercises incorrectly" and "fear of self-harm." (Table 5) (Appendix 4).

This participant's change in preference may reflect her individual difficulty in maintaining discipline and overcoming environmental challenges without supervision. Although this finding is based on a single participant, it offers preliminary insight into how direct experience with supervision could influence future preferences in certain individuals.

4. Discussion

This is the first study in the literature investigating the motivators and barriers determining the choice of supervision (face-to-face supervisor, online supervisor, or non-supervisor) for post-operative exercise programs in patients who have undergone bone tumor resection surgery. It also provides preliminary insights into how supervision experience may influence future preferences. The results showed that the factors determining the type of supervision were generally caused by the supervisor itself, environmental/external factors, and individual factors. Most participants expressed satisfaction with their initial supervision choice, and their preferences remained stable throughoutthe study period.

The main motivator for choosing a face-to-face supervisor was to ensure that they performed the exercises correctly without harming themselves. In addition, the presence of a supervisor was deemed necessary to maintain discipline and ensure adherence to the program. Similarly, the study by Schneider et al. on breast cancer patients showed that face-to-face supervision made patients feel safer and enhanced their self-discipline (15). In the present study, the sense of discipline and safety provided by a supervisor motivated participants to prefer face-to-face exercise.

Çınaroğlu et al. (2021) found that regions in Türkiye with low per capita numbers of health professionals experienced significantly restricted access to health services and reduced quality of care, highlighting the negative impact of an insufficiently distributed health workforce (21). Similarly, in the present study, the crowdedness and complexity of the healthcare system were cited as barriers. The health system in Türkiye is largely under state guarantee and includes multistage procedures. Moreover, the patient load is high due to the disproportionate number of hospitals and health professionals per patient. These factors have made patients reluctant to participate in face-to-face exercise programs in a hospital setting. In eight patients, tumor resection was performed on the lower extremity. This situation necessitated a companion due to advancing age and surgery. In Turkish culture, characterized by intricate family relationships, companions are typically first-degree relatives, such as spouses, parents, siblings, or children, rather than professional caregivers (22). The findings of this study are consistent with previous studies showing that in Türkiye, caregiving responsibility mostly falls on family members, which may lead to difficulties in accessing regular healthcare services when a companion is needed (23, 24). For this reason, face-to-face supervision was not preferred, as it would cause disruptions in the life dynamics of relatives who assume this role. A similar situation applied to patients who returned to work after surgery; face-to-face supervision was not preferred due to factors such as inability to take time off work. These factors were also linked to transportation, which influenced supervision preferences. Although public transportation is widespread in Türkiye (25), it was considered unsafe for these patients, making private vehicles such as taxis necessary, and the associated costs a deterrent. Only one patient said that the hospital was a traumatic environment for her, as she had lost her relatives in the hospital in the past and that she did not want to visit the hospital unless absolutely necessary. The patient emphasized that her primary preference was to engage in exercise under supervision at home, and that home care services of this kind were necessary.

In the present study, participants expressed similar views about face-to-face and online supervision. The trust established through face-to-face supervision was also felt in online supervision. In addition, flexible hours, the comfort of home, not needing to visit the hospital, and the absence of constraints that would affect one's work and social life made online supervision particularly appealing to the participants. The fact that the group that chose telerehabilitation comprised young and active

individuals (either working or studying) supports the view that it can be safely implemented without disrupting daily life under current conditions (26). This finding suggests that sociodemographic characteristics, such as age, educational level, and occupational status, may influence supervision preferences. In the present study, most participants who preferred face-to-face supervision were older, female, and had lower educational levels, likely valuing direct guidance and perceived safety. In contrast, younger, more educated, and employed participants were more open to telerehabilitation, which is consistent with previous studies indicating that younger and more educated individuals are more likely to adopt technology-based health interventions (27,28). In particular, addressing barriers such as unfamiliarity with computer use and lack of internet access could further increase the preference for exercising under online supervision.

The factors influencing the choice of a home-based exercise program over face-to-face supervision were found to be similar. Self-confidence in maintaining self-discipline was identified as a key reason for not choosing supervised exercise. Other factors included the desire to schedule the exercise program independently, the lack of a need for transportation or a companion, and the desire to avoid disruption of domestic responsibilities. On the contrary, the absence of supervision was identified as the most common factor undermining compliance with the exercise program by demotivating patients (10). Most participants reported satisfaction with their preferred supervision method at the end of the six-week exercise program and indicated they would make the same choice again under similar circumstances. This finding is consistent with studies conducted in other cancer populations outside Türkiye. For example, Brouwer et al. (2025) in the Netherlands found that metastatic colorectal cancer patients participating in supervised rehabilitation expressed high satisfaction, highlighting the value of personalized guidance, professional support, and motivational benefits (29). Similarly, Westphal et al. (2022) in Austria reported that breast cancer patients in supervised exercise programs achieved greater adherence and fitness improvements compared to those in autonomous (unsupervised) programs, supporting the advantages of professional supervision (30).

In this study, while the safe and disciplined environment created by the supervisor was identified as the main reason for preferring both online and face-to-face supervision, time flexibility, home comfort, and the ability to maintain self-discipline were the main reasons motivating participants to continue with unsupervised exercise. These findings may be interpreted within the framework of the Self-Determination Theory, which posits that the needs for autonomy, competence, and relatedness drives human motivation. In this context, participants who preferred supervised formats sought external structure to enhance competence and reduce anxiety, while those choosing unsupervised exercise emphasized autonomy and intrinsic motivation (31). The only participant (P9) who shifted from an unsupervised to a supervised preference may have experienced heightened perceived vulnerability and a need for reassurance, influenced by a past traumatic event and concerns about performing exercises incorrectly or causing self-harm. Although this observation is limited to a single case, it provides an initial indication that supervision experience might influence future preferences; however, further research with larger samples is needed to explore this potential relationship.

Strengths

There are certain strengths in this study. This is the first study to investigate the factors affecting the type of supervisors in patients with bone cancer. Furthermore, the study sample was homogeneous because all participants had the same type of cancer and underwent the same surgical procedure. Another strength of the study is that the consistency of participants' initial preferences (in line with their experiences) was evaluated after completing the exercise program.

4.1. Limitations of the Study

The limitations of this study include the selection of the sample from a single center, which may restrictthe generalizability of the findings to other clinical settings. The inclusion of only patients with benign bone tumors contributed to the homogeneity of the sample, which is a strength; however, this may also limit the applicability of the results to patients with malignant bone tumors. In addition, tumor resection was performed predominantly in the lower extremity (in 8 of 9 participants), potentially limiting the relevance of the findingsto patients with tumors in other anatomical locations. The small sample size and qualitative design, while appropriate for achieving thematic saturation, constrain the statistical generalizability of the results. Finally, although codes and themes were developed collaboratively through discussions between two researchers, member checking was not conducted, which may be considered a limitation since direct feedback from participants regarding the accuracy of the findings was not obtained. Moreover, the conclusion regarding the influence of supervision experience on future preferences is limited, as it was based on the report of only one participant. Further studies are needed to explore this relationship in greater depth.

5. Conclusion and Recommendations

Supervision preferences in patients undergoing bone tumor resection are shaped by personal, environmental, and healthcare-related factors. Recognizing these preferences early may enhance participation and adherence to post-operative exercise programs, particularly when using tailored delivery methods such as telerehabilitation or home-based plans with periodic support.

6. Contribution to the Field

This study highlights how supervision preferences among patients undergoing bone tumor resection are influenced by personal, environmental, and healthcare-related factors. The findings have important clinical and research implications, including the design of tailored exercise programs, the development of screening tools to identify supervision preferences, and the need for policy changes to enhance access to telerehabilitation.

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None.

Conflict of Interest

There is no conflict of interest with any person and/or institution.

Authorship Contribution

Concept: EM, NK; Design: EM, NK Supervision: EM; Funding: None; Materials: MA; Data Collection/Processing: EM, NK, MA;

Analysis/Interpretation: EM; Literature Review: EM, NK; Manuscript Writing: EM, NK; Critical Review: KÖ.

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