

Patients' experiences undergoing cancer surgery during the COVID-19 pandemic: a qualitative study

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Abstract

Purpose: This study aimed to understand patients' experiences undergoing cancer surgery during the COVID-19 pandemic. In response to COVID-19, many elective cancer surgeries were delayed creating a massive backlog of cases. Patients' experiences with surgical delays may inform healthcare systems' responses to the backlog of cases and guide preparations for future healthcare emergencies.

Methods: This was a qualitative description study. Patients undergoing general surgery for cancer at two university-affiliated hospitals between March 2020 and January 2021 were invited to one-to-one interviews. Patients were purposefully selected using quota sampling until interviews produced no new information (i.e., thematic saturation). Interviews were conducted using a semi-structured guide and analyzed according to inductive thematic analysis.

Results: Twenty patients were included [mean age 64 ± 12.9 ; male ($n=10$); surgical delay ($n=14$); cancer sites: breast ($n=8$), skin ($n=4$), hepato-pancreato-biliary ($n=4$), colorectal ($n=2$), and gastro-esophageal ($n=2$)]. When determining their willingness to undergo surgery, patients weighed the risk of COVID-19 infection against the urgency of their disease. Changes to the hospital environment (e.g., COVID-19 preventative measures) and deviations from expected treatment (e.g., alternative treatments, remote consultations, rescheduled care) caused diverse psychological responses, ranging from increased satisfaction to severe distress. Patients employed several coping strategies to mitigate distress, including eliciting reassurance from care providers, seeking information from unconventional sources, and reframing care interruptions.

Conclusions: Changes in care during the pandemic elicited diverse psychological responses from patients undergoing cancer surgery. Coping was facilitated by consistent communication with providers, emphasizing the importance of patient-centered expectation setting as we prepare for the future within and beyond the pandemic.

Introduction

On March 11th, 2020 the World Health Organization declared the global outbreak of coronavirus disease 2019 (COVID-19) a pandemic [1]. To accommodate an influx of patients with COVID-19, many healthcare systems began repurposing surgical care infrastructure and delaying non-essential surgical procedures [2]. These measures quickly created a massive backlog of surgeries worldwide, reaching an estimated 28 million within the first 12 weeks of the pandemic [3]. Cancer surgery represents a significant proportion of the surgical backlog, with approximately 38% of all oncology procedures delayed or cancelled globally [3]. It is estimated that this backlog may take two years to clear, with cancer surgery wait times returning to pre-pandemic durations only by 2024 [4, 5]. With the rise of new COVID-19 variants, variable uptake of immunizations, and waning immunity amongst immunized patients, the COVID-19 pandemic remains a persistent threat to patients in need of cancer treatment.

Extended delays to cancer surgery may have significant repercussions on patients' mental health [6], functional capacity [7], and long-term survival [8, 9]. As healthcare systems address the backlog of elective cases and prepare for the future, it is important that patients' perspectives are taken into consideration to inform healthcare systems' response to the backlog of cases and ensure preparedness for future healthcare emergencies. Therefore, the aim of this qualitative study was to understand the experiences of patients undergoing cancer surgery during the COVID-19 pandemic.

Methods

Study Design

A qualitative description study [10] was conducted at two university-affiliated hospitals in Montreal, Quebec, Canada from November 2020 to November 2021. Qualitative description methodology was selected for its flexibility (i.e., it is independent of pre-existing theoretical or philosophical commitments) and because this study aimed to describe patients' lived experiences [11, 12]. Ethics approval was granted by the McGill University Health Centre (MUHC) Research Ethics Board (Ref# 2021–7124). Trial reporting adheres to the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (**eTable S1, Supplemental digital content**) [13].

Participants

Adult patients (> 18 years old) who underwent a general surgical oncology procedure between March 16th, 2020 and January 31st, 2021 were eligible. Patients were excluded if they had documented cognitive impairments, were unable to speak English or French, or were unable to conduct the interview remotely via telephone. Patients were purposefully selected for maximum variation [14] using a quota sampling method to capture the heterogeneity in cancer patients' experiences (**eTable S2, Supplemental digital content**). The study period was selected to capture times when surgical services in Quebec were both 'ramped-down' and 'ramped-up' (i.e. classified based on government directives regulating operating room closures [15]).

Recruitment

A list of eligible surgeries scheduled during the study period at participating sites was screened. Eligible patients were mailed a letter outlining the study purpose, then telephoned by a member of the research team (MP or MLG). Interested patients were sent a consent form via email or mail, and interviews were scheduled after receipt of a signed consent form. Recruitment continued until thematic saturation was reached (i.e. the point where no new themes were identified) [16].

Data Collection

Data were collected via one-to-one, semi-structured interviews, conducted using a pre-written guide (**eFigure S1 and eFigure S2, Supplemental digital content**). The guide was drafted collaboratively by a multidisciplinary team of qualitative researchers and pilot-tested with two patients to optimize clarity of

questions and assess the richness of responses [17]. Prior to study initiation, interviewers (MP is a woman and PhD candidate; MLG is a man and MSc candidate) received interview training from an expert qualitative researcher (TN is a woman with PhD training in qualitative research). Participants were interviewed once via telephone in English or French. All interviews were audio-recorded and transcribed verbatim (MP or MLG), and interviews conducted in French were subsequently translated to English by a bilingual team member (PNP). The accuracy of interview transcripts was verified by comparing audio and transcription files. Participants' demographic characteristics (e.g., age, gender) and clinical data (e.g., surgery date, type of surgery) were collected from electronic medical records. The dataset generated during this study is available from the corresponding author upon reasonable request.

Data Analysis

Data were analyzed by inductive thematic analysis informed by Braun & Clarke (2006) [18]. Analysis was data-driven, with no pre-existing coding scheme or theoretical framework applied (18). Data were analyzed independently by two researchers (MP and TN) with disagreements resolved by consensus arbitrated by a senior researcher (JF). The principles of reflexivity (i.e., continuously acknowledging the intersecting relationships between researchers and participant) were employed to prevent methodological error and increase trustworthiness [19]. Data were managed using MAXQDA2020 (VERBI Software, 2019) and the analysis proceeded in several phases: 1) researchers iteratively re-read interview transcripts; 2) initial codes were generated across the entire data set and coders met for peer-debriefing sessions following each set of five interviews; 3) codes were sorted into potential themes and all relevant data were gathered; 4) coded segments from each potential theme were evaluated for overlapping or dissimilar content through iterative comparisons; 5) a thematic "map" of the analysis was generated and revised iteratively with input from all research members; 6) definitions were generated for each theme based on the data qualities captured [18]. Synthesized member checking (SMC) was carried out following thematic analysis [20]. Two participants were sent a concise, four-page summary (**eFigure S3, Supplemental digital content**) of the study findings and completed a report indicating the extent of their agreement with the analysis. Saturation was assessed iteratively using a saturation grid (**eFigure S4, Supplemental digital content**) and considered to have been reached when three consecutive interviews produced no new themes [21].

Results

A total of 45 patients were telephoned for participation, 4 met exclusion criteria, and 21 declined participation (Fig. 1). Between November 2020 and November 2021, 20 patients [mean age 64 ± 12.9 ; male ($n = 10$); cancer sites: breast ($n = 8$), skin ($n = 4$), hepato-pancreato-biliary ($n = 4$), colorectal ($n = 2$), and gastro-esophageal ($n = 2$)] were interviewed until thematic saturation was reached. Interviews lasted between 15 and 50 minutes. A summary of participants' surgical and demographic characteristics is provided in Table 1. All recruitment quotas were met, except for underrepresentation of participants who experienced a surgical delay from a positive COVID-19 test (4 participants targeted, 2 interviewed). Four major themes were identified: 1) weighing risks of surgery, 2) perceived changes to care, 3) diverse

psychological responses, and 4) adaptive coping strategies. Table 2 includes definitions for themes and related subthemes with illustrative quotations. The final codebook is provided in **eTable S3 (Supplemental digital content)**.

Table 1
Participants' demographic and surgical characteristics

Characteristic	Participants (<i>n</i> = 20)
Sex, male	10 (50)
Age, years, mean (SD)	64 (13)
Age, years	
≤ 45	2 (10)
≥ 65	11 (55)
ASA Score	
= 1	2 (10)
≥ 3	6 (30)
Cancer Site	
Breast	8 (40)
Skin (e.g., melanoma)	4 (20)
Hepato-pancreato-biliary	4 (20)
Gastro-esophageal	2 (10)
Colorectal	2 (10)
Previous Cancer Surgery	
Yes	9 (45)
No	11 (55)
Delay Status	
No delay	6 (30)
Delayed by the hospital	8 (40)
Delayed by the patient	4 (20)
Delayed by a positive COVID-19 test	2 (10)
Pandemic Phase ^a	
Ramp-down ^b	14 (70)
Ramp-up ^c	6 (30)
Education Attained ^d	

Characteristic	Participants (<i>n</i> = 20)
≤ High School Diploma	7 (35)
≥ University Degree	11 (55)
Language of interview	
English	13 (65)
French	7 (35)
<p>All data are expressed as <i>n</i> (%) unless otherwise stated. ASA = American Association of Anesthesiologists</p> <p>^a Pandemic phase was classified as “ramp-down” or “ramp-up” based on government directives regulating the repurposing of surgical care infrastructure (27).</p> <p>^b March 16, 2020 – May 17, 2020 and December 21 2020 – January 31, 2021. During ramp-down periods, healthcare resources were directed away from surgical services and surgical capacity was reduced.</p> <p>^c May 18, 2020 – December 20, 2020. During the ramp-up period, surgical capacity approached levels comparable to previous years.</p> <p>^d Values do not sum to one hundred because two participants obtained a college diploma.</p>	

Table 2

Definitions of themes and subthemes with representative quotes from individual semi-structured interviews

THEME	SUBTHEME	SUBTHEME DEFINITION	REPRESENTATIVE QUOTATIONS
Weighing risks of surgery: Factors considered when determining willingness to undergo cancer surgery during the COVID-19 pandemic.	Perceived urgency of health condition	Participants' perception of the urgency of their health status and the consequence of delaying surgical treatment.	<p><i>"I thought more of having the surgery and getting rid of the carcinoma you know, more than I was worried about what COVID would do to me."</i> (03)</p> <p><i>"My concern wasn't whether I would get COVID-19, it was more about how aggressive would this cancer be if I didn't [get surgery]."</i> (12)</p> <p><i>"I mean the surgery was, it was a major operation. So my concerns were mostly about the operation itself rather than COVID."</i> (19)</p>
	Anticipated susceptibility to COVID-19 infection	Participants' impressions regarding their personal susceptibility to COVID-19 infection based on their demographics, habits, and beliefs about the virus.	<p><i>"I'm 83. I'm a high risk patient. A high risk person for COVID."</i> (09)</p> <p><i>"I didn't have an immune system, or a very limited immune system. And it was a scary thing in the beginning, I must say."</i> (20)</p>
	Appraisal of healthcare system safety	Participants' appraisal of the likelihood of being infected with COVID-19 while at the hospital, based on their perception of healthcare system safety.	<p><i>"I know that in the OR they were taking all the appropriate precautions. The PPE was available there, it was prioritized and I was fully confident in their procedures."</i> (01)</p> <p><i>"I figured the safest place to be was in hospital. At that point. I mean in surgery, not necessarily other floors but definitely in surgery."</i> (06)</p> <p><i>"When you start going to the hospital, you realize that they were very, very cautious with everything ... I wasn't scared of catching COVID going to the hospital."</i> (10)</p>

THEME	SUBTHEME	SUBTHEME DEFINITION	REPRESENTATIVE QUOTATIONS
	Evaluation of healthcare system burden	Participants' evaluation of the burden of COVID-19 on healthcare system resources and its implications for the quality of their surgical care.	<i>"There was a shortage of anesthesia techs and nurses and I was cautioned that it would be, if I didn't have really urgent surgery and could wait it was probably wise to wait. So I turned down the surgery date... I was afraid of the strain on hospital resources if some complication happened to me."</i> (01)
	Recommendations of healthcare professionals	Recommendations of healthcare providers guiding participants' decision-making process.	<i>"My surgeon said when I get offered the next date it doesn't matter what, I have to say 'yes'. So I will."</i> (01) <i>"I just considered the decision of my oncologist and the surgeon. I never thought of opposing their decision and to refuse."</i> (04) <i>"The advice was to operate anyway, and I felt, I didn't have any qualms about that. And it was discussed, and that was the advice of the professionals. I went along with it."</i> (17)
Perceived Changes in Care: Alterations to the hospital structure and deviations from expected treatment procedures resulting from the COVID-19 pandemic.	Thoughts regarding COVID-19 preventative measures	Diverse perceptions regarding the adequacy of COVID-19 preventative measures.	<i>"There was Purell everywhere, they asked questions in each department that you enter, they changed your masks if it doesn't fit you; very well organized."</i> (10) <i>"Everybody was well protected, wearing masks, wearing visors, wearing gowns. And they gave you areas where you could walk where it was safe and you wouldn't have to worry about anything."</i> (13)

THEME	SUBTHEME	SUBTHEME DEFINITION	REPRESENTATIVE QUOTATIONS
	Navigating unconventional communication pathways	Reorganized communication pathways and the use of electronic communication platforms (ex. phone calls, telemedicine).	<p><i>"Because of the COVID there was really extensive, the nurse called a couple of times and we had, the nurse and I had conversations. So there wasn't an in-person, how should I say, interview."</i> (11)</p> <p><i>"I received several phone calls, no contact in person because of the pandemic, I guess. But I received several phone calls informing me about this procedure that was going to happen."</i> (12)</p>
	Experiencing non-participatory decision-making	Having little agency or autonomy over treatment decisions.	<p><i>"My role I think was inexistent... So, all I did was wait and well, I played no role in the delay in question, the operation rescheduling."</i> (04)</p> <p><i>"I had no choice but to wait anyways... it's obvious that cancer was a priority but I didn't have a choice to wait."</i> (14)</p>
	Managing delayed and rescheduled care	Delaying or cancelling surgery as a result of the COVID-19 pandemic.	<p><i>"They had postponed [my surgery] a month before because of the COVID."</i> (05)</p> <p><i>"He had scheduled a [surgery] time and called to say it couldn't be, because they were overwhelmed with COVID patients and they had to reschedule... But I had to wait for that, it didn't come right away"</i> (09)</p>
	Undergoing alternative and interim treatments	Offering alternative surgical procedures or substitute treatments.	<p><i>"I got phoned to say if they had time or an opening came up, that I could have an abbreviated surgery that wasn't the initial surgery."</i> (01)</p> <p><i>"I could take Tamoxifen as a drug... he said it's up to you whether you want to try it until we get the second surgery, it could slow things down a bit. So I did, I took Tamoxifen until my second surgery."</i> (03)</p>

THEME	SUBTHEME	SUBTHEME DEFINITION	REPRESENTATIVE QUOTATIONS
	Observing changes to the hospital environment and processes	Changes to the physical environment and typical functioning of the hospital.	<p><i>"[My surgery] wasn't done in a normal hospital where those resources are routine. I was done in a different hospital because of COVID." (01)</i></p> <p><i>"There wasn't as many people. The last few operations I've had, a lot more people waiting and a lot more rooms. I mean, it just seemed like there were less people waiting for operations." (15)</i></p>
Diverse Psychological Responses: The psychological impacts of the COVID-19 pandemic, and related changes to care, on cancer patients undergoing surgery.	Comprehensive satisfaction	Satisfaction with all aspects of surgical care, including the operation, preparation and follow-up, and the conduct of healthcare professionals.	<p><i>"I found that it was really well done during the pandemic... For me, it was done well and properly." (07)</i></p> <p><i>"It was a better experience; it was safer and a better experience." (08)</i></p> <p><i>"It was handled perfectly well, it was properly protected. It was all very cautious because I was, you know I was early on in the pandemic in terms of having a diagnosis that needed surgery. So I was very, very pleased that we got it done." (09)</i></p>
	Appreciation and gratitude	Feeling a heightened sense of appreciation, gratitude, or privilege at undergoing surgery during the pandemic.	<p><i>"It's not easy for the frontline people... Our nurses and doctors and orderlies are working really, really hard and think they do the very best they can. I think they do a good job, and we have to thank them for that." (03)</i></p> <p><i>"From my experience I'm very lucky to have the care that I'm given. And I think [the healthcare staff] are doing a very good job at doing what they have to. And in tough, I'm sure very tough circumstances." (15)</i></p>

THEME	SUBTHEME	SUBTHEME DEFINITION	REPRESENTATIVE QUOTATIONS
	Feeling supported	Feeling adequately supported throughout the surgical experience by family, friends, the healthcare team, and/or their surgeon.	<i>"My husband was with me up to the time when they brought me up to the surgery... It's always very comforting to have a family member with you when you, it's reassuring and comforting to have somebody there with you in this time of stress."</i> (11)
	Feeling abandoned	Feeling abandoned and unsupported throughout the surgical experience as a result of being disconnected from family, friends, the healthcare team, and/or their surgeon.	<i>"What I didn't like was that while I was waiting for surgery, my husband wasn't with me, but you know, you're used to having a support person next to you, but because of COVID, you couldn't have anyone next to you to support you."</i> (14) <i>"My wife couldn't come and visit me, or none of the family members could come and visit me, that was a struggle... Stress wise it was, it was incredible. It was very, very, very difficult."</i> (20)
	Compounding distress	Experiencing a mixture of negative or distressing emotions and managing more stressors.	<i>"The trauma for me, was having the surgery delayed and my whole treatment plan changed because of the government directive."</i> (01) <i>"I mean you have to think of COVID when it came, so if that wasn't present you know you would just be thinking about the tumor that you have and having it removed... you would just have one thing to worry about and not two things."</i> (03) <i>"I was frustrated, I was annoyed, I was outraged... It wasn't just stressful, but [the delay] could have cost me my life."</i> (16)

THEME	SUBTHEME	SUBTHEME DEFINITION	REPRESENTATIVE QUOTATIONS
	Uncertainty and unpredictability	Experiencing feelings of uncertainty, unpredictability, confusion, or inner conflict throughout the surgical experience.	<p><i>"It's hard on the patient, having to wait and not know when their surgery was going to be done."</i> (03)</p> <p><i>"I was in the dark, knowing how long I'd have this prosthesis, that's that."</i> (10)</p> <p><i>"The worst is waiting and not knowing what's going on with you, with your body."</i> (15)</p>
	Sense of injustice	Believing that COVID-19 related surgical delays were implemented in a manner that was unfair, unjust or discriminatory to cancer patients.	<p><i>"Why would cancer patients be delayed when they have COVID people taking the beds."</i> (05)</p> <p><i>"I think that the hospital protocols have to be changed. Sick people are sick people, but they're stacked up in big numbers now, still, to get surgery. Waiting in big numbers. So that's all, they should have been more prepared."</i> (09)</p>
Adaptive Coping Strategies: Strategies employed by cancer patients to mitigate COVID-19 related distress while awaiting surgery.	Positive reframing of care interruptions	Rationalizing changes or interruptions to care in a positive manner to mitigate any distressing feelings that arose due to the COVID-19 pandemic.	<p><i>"Having it delayed, for me it didn't really bother me because at one point, maybe this is just the way I think, maybe it's delayed because it's not that serious, without me knowing that it would be serious."</i> (05)</p> <p><i>"I'm naturally an optimist. I always try to see the bright side of things, so I did not want to dramatize it. I didn't dramatize the problem."</i> (16)</p>
	Sustaining mental and physical health	Focusing on optimizing mental and physical health in preparation for undergoing surgery during the COVID-19 pandemic.	<p><i>"I just tried to exercise and be as healthy as I could for when I finally was going to have the surgery."</i> (01)</p> <p><i>"I was just trying to rest and trying to recuperate my strength so that I could be in fairly good health for my surgery. So my attention was on just getting better and not overly exert myself."</i> (11)</p>

THEME	SUBTHEME	SUBTHEME DEFINITION	REPRESENTATIVE QUOTATIONS
	Seeking additional information	Finding additional information or recourses to compensate for insufficient communication during the COVID-19 pandemic.	<p><i>"I was going on websites for all the other hospitals, like BC hospital, I was trying, I was going on the web, Google, to try and find out what I should be doing."</i> (01)</p> <p><i>"I went to also get second opinions from other doctors, that were referred to me actually by my doctor. So I went to see another, I went to see a radiologist. And another oncologist surgeon."</i> (06)</p> <p><i>"I went to the hospital in try to find someone in the surgery department to talk about my case."</i> (16)</p>
	Communicating with surgeon for reassurance	Contacting the surgeon or surgical team for reassurance throughout the care process.	<i>"I had many comments for [the surgeon] from the beginning, and I felt like I was heard, and I found that, you know, he asked me questions to really make sure I understood everything, to demystify the process and listened to all my questions."</i> (10)
	Acclimating to COVID-19 related changes	Becoming more familiar with COVID-19 related changes in the hospital over the course of their treatment.	<p><i>"I think we're more used to [the COVID-19 pandemic] – sometimes we're scared maybe at the beginning – because it's been awhile, because we're sick of it, because it's so normal."</i> (10)</p> <p><i>"It was a scary thing in the beginning, I must say. But it ended up that you get used to it after a while."</i> (20)</p>

Weighing risks of Surgery

Participants weighed the risks of COVID-19 infection against the risk of cancer progression when accepting surgery.

Perceived urgency of health condition: When their health condition was perceived as serious, participants were more likely to prioritize surgery and disregard the risk of infection: *"when you're diagnosed with stage 4 cancer, everything else takes a backburner, you don't even think about [COVID-19]"*(Participant-13). Additionally, participants prioritized surgery when they believed that *"the effects of [cancer] would be*

more disastrous than, ultimately, the pandemic, than COVID-19 would be”(Participant-12). Conversely, participants who did not perceive their health status as urgent were less likely to prioritize timely surgery: *“it was not an aggressive cancer... I didn’t feel like I needed to jump into it”*”(Participant-06).

Anticipated susceptibility to COVID-19 infection: Participants’ who considered themselves *“high risk”* (Participant-09) for COVID-19 (i.e., older age, comorbidities, or scheduled for inpatient surgery during a surge in COVID-19 cases) expressed reticence towards surgery. For example, one participant refused surgery because *“a lot of people were dying and I’m up in age, I have lung problems, so I’m a candidate let’s face it”*”(Participant-02). In contrast, some participants did not believe they were susceptible to COVID-19 because they were taking precautionary measures, or they had *“a certain amount of immunity”*”(Participant-11) following a previous COVID-19 infection.

Appraisal of healthcare system safety: Participants’ perception of the risk of becoming infected with COVID-19 from surgery varied, with several expressing apprehension about the hospital environment: *“the worst place to be is in a hospital because of COVID”*”(Participant-05). For one participant, skepticism regarding healthcare system safety stemmed from personal experience, *“[my father] contracted COVID at the hospital so that was very concerning for me”*”(Participant-11). However, most participants *“trusted that the hospital measures to prevent COVID contamination were sufficient”*”(Participant-19).

Evaluation of healthcare system burden: Some participants believed that COVID-19 imposed considerable burden on healthcare systems, potentially impacting the quality of their care. These participants considered how *“overworked [the surgical team] may have been at that time, and whether they were at their top level of performance”*”(Participant-12). Timing of surgery was considered in relation to availability of resources. One participant refused surgery because *“it was predicted to be the peak of the second wave”*”(Participant-01), whereas another accepted surgery during the first wave to *“have it done now at the beginning before all the floors are full of COVID”*”(Participant-02).

Recommendations from healthcare professionals: Recommendations from healthcare providers guided participants’ decision-making process. Some participants reported that, when accepting surgery during the pandemic, they considered *“only the decisions of... the healthcare personnel”*”(Participant-04).

Perceived Changes to Care

Participants experienced changes to the hospital environment and deviations from expected treatment.

Thoughts regarding COVID-19 preventative measures: Many participants were reassured by the consistent implementation of COVID-19 preventative measures; *“everything was cleaned, disinfected... that really reassures us as patients”*”(Participant-08). However, other participants were disappointed by *“substandard”*”(Participant-01) COVID-19 precautions, describing instances when staff used insufficient personal protective equipment.

Navigating unconventional communication pathways: Several participants appreciated having remote preoperative appointments, *“I think it’s easier that it’s over the phone, because it’s less stressful, because*

it's less disruptive"(Participant-12). However, others emphasized that they require in-person appointments to feel comfortable with surgery. Additionally, many participants did not feel adequately informed, attributing disorganized communication to the hospital's COVID-19 measures: *"I did not have the postop nursing information that normally I would have"*(Participant-01).

Experiencing non-participatory decision-making: Participants had little agency over their treatment, describing their role in decision-making as *"inexistent"*(Participant-04). Many participants felt they were not given choices or options and were not included in discussions regarding changes to care; *"It wasn't my decision at all. And I think the operating rooms were closed and COVID was taking over and there was no discussion"*(Participant-09).

Managing delayed and rescheduled care: Participants described delays and cancellations to their surgical care, remarking on the difference from before the pandemic, *"the first time, I was operated three weeks after they detected the cancer... the second operation was delayed by 4 months because of COVID-19"*(Participant-08). Participants emphasized that healthcare staff operated as soon as they were permitted, *"it was the government that really ruled, and our surgeons and staff just had to follow the guidelines"*(Participant-01).

Undergoing alternative and interim treatments: Some participants underwent a partial operation (i.e., breast resection without reconstruction) and had to wait for additional procedures: *"it was a huge compromise for me to accept that surgery but that's all the time that was being offered"*(Participant-01). Other participants were offered interim treatments during their delay; some appreciated these options while others felt pressured to accept them, *"I'm not doing radiation before surgery just because the surgery rooms are closed right now"*(Participant-06).

Observing changes to the hospital environment and processes: Several participants commented on physical restrictions in the hospital, *"I was stuck in my room for a couple of days, I couldn't go walk around"*(Participant-05). Decreasing occupancy in the hospital was considered a positive change, with participants believing care was *"a little bit more personalized"*(Participant-15), since *"there was only one other person in the recovery room, so I had more than one hundred percent attention from the recovery nurses"*(Participant-06).

Diverse Psychological Responses

Participants described diverse psychological responses to changes in care.

Comprehensive satisfaction: Many participants perceived their operation was *"technically great"*(Participant-01), describing organized and safe perioperative care. Satisfaction with care during the COVID-19 pandemic reinforced positive impressions of the hospital for several participants; *"I never really had a bad experience, and COVID... proved that I was in a place that was, for me, secure and good"*(Participant-07).

Appreciation and gratitude: Some participants expressed heightened appreciation, gratitude, or privilege at receiving timely and attentive care from healthcare workers that were facing considerable adversity: *“imagining what the doctors and the medical staff are going through, I was privileged that I was able to have my surgery”*(Participant-17).

Feeling supported: Participants who felt supported were generally those who had a family member accompany them in the hospital and underwent surgery during a lull in COVID-19 cases. Also, healthcare staff were acknowledged as important sources of support; *“I had a good experience as far as being in the hospital was concerned, only because of the support I was getting from the staff members”*(Participant-20).

Feeling abandoned: Limiting visitor access to the hospital caused intense feelings of abandonment for several participants: *“the worst thing is going in alone, without my husband or anything, that was really scary”*(Participant-02). Receiving insufficient postoperative instructions and having limited contact with the surgical team also generated feelings of abandonment, likened to *“bushwhacking”* by one participant, *“I felt like I was all alone, like going through a forest and trying to find my way”*(Participant-01).

Compounding distress: Participants experienced a mixture of stress, anxiety, frustration, anger, disappointment, and fear. Participants described surgical postponements as *“nerve wracking”* and worried their cancer would spread; *“you know I keep thinking to myself, COVID is going to kill me by multiple melanoma”*(Participant-09). One participant was petrified of contracting COVID-19 during surgery, describing the experience as a *“hell trip”*(Participant 02). Changes in treatment plan were emotionally traumatic and considered *“stress on top of stress”*(Participant-14).

Uncertainty and unpredictability: Deviations from expected surgical care caused a state of inner conflict, resulting in *“a period of great uncertainty”*(Participant-01), exacerbated by limited information dissemination regarding delays: *“they were cancelling my surgery with no knowledge of when it would be rebooked, which was very emotionally hard to accept”*(Participant-03). Furthermore, prolonged delays were fraught with unpredictability as participants ruminated over the potentially detrimental health effects.

Sense of injustice: Some participants felt they were not prioritized fairly in comparison to others, believing cancer surgery *“should have never been delayed, because I have some friends that had surgery on their knee —non-urgent operations during COVID-19— and me, I was delayed”*(Participant-08). The decision to allocate hospital beds to COVID-19 patients while delaying cancer surgeries was criticized, with one participant calling it *“irresponsible. I’d go so far as say it’s criminal even”*(Participant-16). One participant perceived that the cancellation of breast reconstruction procedures was *“discrimination against women’s surgery”*(Participant-01).

Adaptive Coping Strategies

Participants employed various coping strategies to mitigate distress.

Positive reframing of care interruptions: Rationalizations employed to reframe care interruptions included: experiencing few cancer symptoms, having a minor delay, and solidarity with other patients. One participant was initially angry about their delay, but reframed the experience because, *“I was lucky that I was in stage zero you know, I wasn’t in stage 4, I wasn’t waiting you know, to see if I’d change stages the next morning”*(Participant-10).

Sustaining mental and physical health: Several participants focused on sustaining their mental and physical health by exercising, keeping a positive attitude, maintaining routines, placing trust in clinicians, or prayer. Faith was particularly important for one participant, *“you have to have faith... so you have to put trust in the professionals if you feel instinctively that you’re in the right hands and say a prayer”*(Participant-17).

Seeking additional information: To compensate for disorganized communication and insufficient information dissemination, participants consulted online forums, watched the news, called the preoperative clinic, reviewed materials from previous surgeries, read books, spoke with other cancer patients, and visited other healthcare professionals.

Communicating with surgeon for reassurance: Many participants communicated with their surgeon for reassurance; *“if I can trust my surgeon and be able to communicate with him or her it means the world to me, then I feel secure”*(Participant-01). Participants emphasized the importance of accessible, consistent communication during delays, *“if it’s delayed indefinitely, you need to reassure the patient that the impact on healthcare is not going to be that great”*(Participant-19).

Acclimating to COVID-19 related changes: Over time, participants familiarized themselves with COVID-19 related changes in care and they became less distressing, *“it was a scary thing in the beginning, I must say. But it ended up that you get used to it after a while”*(Participant-20).

Discussion

In this qualitative study, patients weighed the risks of COVID-19 against the risks of prolonged delays to their cancer treatment when accepting surgery during the pandemic. Deviations from expected treatment caused diverse psychological responses, ranging from heightened satisfaction to distress. In particular, surgical delays generated intense fear of disease progression, which was experienced in addition to the “typical” distress associated with undergoing cancer surgery. Participants described a variety of coping strategies to mitigate distress, including reframing care interruptions, sustaining mental and physical health, seeking additional resources, and communicating with clinicians. These findings highlight the importance of effective clinician-patient communication and clear expectation setting as we prepare for the future of cancer surgery within and beyond the pandemic.

Existing literature suggests that patients undergoing surgery for non-malignant diseases (e.g., cardiovascular surgery) prefer to delay surgery given the risk of COVID-19 infection while in hospital [22]. Only four participants opted to delay cancer surgery in this study, suggesting that cancer patients may be

more willing to attend planned treatments during healthcare emergencies in comparison to other populations. Findings from this study were consistent with previous literature reporting that disruptions to care are the primary cause of stress, death anxiety, and depression among cancer patients during the pandemic [23–28]. Although previous studies have described the experiences of cancer patients during the pandemic, few have targeted patients who underwent surgery. Our study identified further sources of distress unique to this population, such as non-participatory decision-making, loss of autonomy and agency, and feelings of discrimination (i.e., believing cancer patients were unjustly prioritized in comparison to other populations). While telemedicine helped preserve the continuity of perioperative care for some participants, others were uncomfortable with the lack of in-person clinical encounters and felt inadequately informed. Communication was further impaired by lack of transparency regarding changes to care, creating a state of confusion that compounded existing cancer-related uncertainties. Participants responded to insufficient information dissemination by reaching out to their treating surgeon for reassurance and seeking additional information from non-conventional sources. Satisfactory communication with the treating surgeon was identified by Sokas et al. (2021) to facilitate acceptance of surgical delays during the COVID-19 pandemic and protect against distress [29]. Thus, findings from our study further underscore the importance of surgeons' role in proactively addressing patients' distress.

Findings from this study emphasize areas for improving cancer patients' experiences with surgical postponement during the COVID-19 pandemic and beyond. Given that surgical delays are associated with significant psychological and emotional distress, [30, 31] there is an urgent need to prioritize the mental health of wait-listed patients. Previous literature has demonstrated the importance of addressing emotions in patient-centered cancer care, by eliciting, listening to, and validating patients' concerns [32]. Thus, patient-centered discussions should involve an acknowledgement of the mental strain caused by surgical delays and explicitly address patient worries and needs [32]. Clinicians can elicit patients' individual strategies for managing psychological distress and affirm positive coping strategies. Additionally, clinicians may further mitigate distress by providing reliable contact information for the surgical clinic, advising the patient on symptom monitoring, explaining the process of follow-up, offering strategies for emotional management, and referring patients to relevant services [33, 34]. Periodic communications regarding the estimated length of delays may also help patients withstand wait-times [32, 35]. Previous literature has suggested that online portals can be used for wait-list dissemination, to enhance transparency in triaging decisions, and improve continuity of care [32, 36]. When in-depth communication with treating clinicians is not feasible, automated platforms may prevent patients from relying on potentially inaccurate and distressing information sources, such as online forums. Delivering automated wait-list communication to patients awaiting cancer surgery is an important avenue for future research.

The use of robust qualitative research methods was a strength of this study. Purposive sampling with maximum variation was used to include clinically and demographically diverse participants, data were coded in duplicate, peer debriefing was conducted with qualitative research experts, member checking was performed, and thematic saturation was assessed to increase the trustworthiness of findings [37]. However, this study was subject to some limitations. Participants who were unable to communicate in

English or French were excluded, limiting the participation of patients from ethnically diverse backgrounds who may have experienced unique challenges accessing surgical care during the pandemic. Patients whose surgery was delayed due to a positive COVID-19 test were underrepresented in our study. Finally, sampling was conducted at two academic hospitals in Canada, potentially limiting the transferability of results when considering regional and institutional variations in surgical repurposing measures.

This qualitative study highlighted that changes in care caused by COVID-19 elicited diverse psychological responses from patients undergoing cancer surgery during the pandemic. Patient coping was facilitated by open, continuous communication with clinicians. These findings emphasize the importance of patient-centered discussions and transparency regarding surgical delays as healthcare systems' address the backlog of cancer surgery cases and ensure preparedness for future healthcare emergencies.

Declarations

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Author Contributions: All authors contributed to the study conception and design. Makena Pook and Maxime Lapointe-Gagner performed data collection. Makena Pook, Tahereh Najafi, Maxime Lapointe-Gagner, and Philip Nguyen-Powanda performed data analysis. Tahereh Najafi, Hiba Elhaj, Pepa Kaneva, Fateme Rajabiyazdi, Lawrence Lee, Liane S. Feldman, and Julio F. Fiore Jr. oversaw the study conduct and contributed to data interpretation. Makena Pook prepared the first draft of manuscript and all authors provided revisions and feedback on previous versions of the manuscript. All authors reviewed and approved of the final manuscript. All authors agree to be accountable to all aspects of the work.

References

1. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020 [Internet]. World Health Organisation. 2020 [cited 2022 Apr 19]. Available from: <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19—11-march-2020>
2. Richards M, Anderson M, Carter P, Ebert BL, Mossialos E. The impact of the COVID-19 pandemic on cancer care. *Nat Cancer*. 2020 Jun;1(6):565–7.
3. Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans. *Br J Surg*. 2020 Jun 13;107(11):1440–9.

4. Bruemmer R. It will take two years to reduce Quebec's surgery backlog, Dubé says [Internet]. *montrealgazette*. 2021 [cited 2022 Apr 19]. Available from: <https://montrealgazette.com/news/local-news/it-will-take-two-years-to-reduce-quebecs-surgery-backlog-dube-says>
5. Malagón T, Yong JHE, Tope P, Miller Jr. WH, Franco EL, McGill Task Force on the Impact of COVID-19 on Cancer Control and Care. Predicted long-term impact of COVID-19 pandemic-related care delays on cancer mortality in Canada. *International Journal of Cancer*. 2022;150(8):1244–54.
6. Søreide K, Hallet J, Matthews JB, Schnitzbauer AA, Line PD, Lai PBS, et al. Immediate and long-term impact of the COVID-19 pandemic on delivery of surgical services. *BJS (British Journal of Surgery)* [Internet]. [cited 2020 Jul 20];n/a(n/a). Available from: <http://bjssjournals.onlinelibrary.wiley.com/doi/abs/10.1002/bjs.11670>
7. COVIDSurg Collaborative. Global guidance for surgical care during the COVID-19 pandemic. *BJS (British Journal of Surgery)* [Internet]. [cited 2020 Jul 20];n/a(n/a). Available from: <http://bjssjournals.onlinelibrary.wiley.com/doi/abs/10.1002/bjs.11646>
8. Shin DW, Cho J, Kim SY, Guallar E, Hwang SS, Cho B, et al. Delay to curative surgery greater than 12 weeks is associated with increased mortality in patients with colorectal and breast cancer but not lung or thyroid cancer. *Annals of surgical oncology*. 2013 Aug;20(8):2468–76.
9. Johnson BA, Waddimba AC, Ogola GO, Fleshman JW, Preskitt JT. A systematic review and meta-analysis of surgery delays and survival in breast, lung and colon cancers: Implication for surgical triage during the COVID-19 pandemic. *The American Journal of Surgery*. 2021 Aug 1;222(2):311–8.
10. Kim H, Sefcik JS, Bradway C. Characteristics of Qualitative Descriptive Studies: A Systematic Review. *Res Nurs Health*. 2017 Feb;40(1):23–42.
11. Sandelowski M. Whatever happened to qualitative description? *Research in Nursing & Health*. 2000;23(4):334–40.
12. Sandelowski M. What's in a name? Qualitative description revisited. *Research in Nursing & Health*. 2010;33(1):77–84.
13. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007 Dec 1;19(6):349–57.
14. Patton MQ. Qualitative Research. In: *Encyclopedia of Statistics in Behavioral Science* [Internet]. American Cancer Society; 2005 [cited 2020 Nov 9]. Available from: <http://onlinelibrary.wiley.com/doi/abs/10.1002/0470013192.bsa514>
15. Ministère de la Santé et des Services sociaux. Directives cliniques aux professionnels et au réseau pour la COVID-19: Bloc opératoire [Internet]. 2020 Oct [cited 2022 May 20] p. 1–9. Available from: <https://publications.msss.gouv.qc.ca/msss/fichiers/directives-covid/archives/dgaumip-archive-bloc-operatoire.pdf>
16. Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, et al. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quant*. 2018;52(4):1893–907.
17. Kallio H, Pietilä AM, Johnson M, Kangasniemi M. Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *J Adv Nurs*. 2016 Dec;72(12):2954–65.

18. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Reserach in Psychology*. 2006;3(2):77–101.
19. Dodgson JE. Reflexivity in Qualitative Research. *J Hum Lact*. 2019 May;35(2):220–2.
20. Birt L, Scott S, Cavers D, Campbell C, Walter F. Member Checking: A Tool to Enhance Trustworthiness or Merely a Nod to Validation? *Qual Health Res*. 2016 Nov 1;26(13):1802–11.
21. Kerr C, Nixon A, Wild D. Assessing and demonstrating data saturation in qualitative inquiry supporting patient-reported outcomes research. *Expert Rev Pharmacoecon Outcomes Res*. 2010 Jun;10(3):269–81.
22. Byrnes ME, Brown CS, De Roo AC, Corriere MA, Romano MA, Fukuhara S, et al. Elective Surgical Delays Due to COVID-19. *Med Care*. 2021 Apr;59(4):288–94.
23. Boutros M, Moujaess E, Kourie HR. Cancer management during the COVID-19 pandemic: Choosing between the devil and the deep blue sea. *Critical Reviews in Oncology/Hematology*. 2021 Nov 1;167:103273.
24. Colomer-Lahiguera S, Ribi K, Dunnack HJ, Cooley ME, Hammer MJ, Miaskowski C, et al. Experiences of people affected by cancer during the outbreak of the COVID-19 pandemic: an exploratory qualitative analysis of public online forums. *Support Care Cancer*. 2021 Sep 1;29(9):4979–85.
25. Türkcü SG, Uludağ E, Serçekuş P, Özkan S, Yaren A. Experiences and coping strategies of women receiving treatment for breast and gynecological cancers during the COVID-19 pandemic: A qualitative study. *European Journal of Oncology Nursing* [Internet]. 2021 Oct 1 [cited 2022 Mar 14];54. Available from: [https://www.ejoncologynursing.com/article/S1462-3889\(21\)00151-4/fulltext](https://www.ejoncologynursing.com/article/S1462-3889(21)00151-4/fulltext)
26. Savard J, Jobin-Théberge A, Massicotte V, Banville C. How did women with breast cancer experience the first wave of the COVID-19 pandemic? A qualitative study. *Support Care Cancer*. 2021;29(10):5721–7.
27. Butow P, Havard P, Butt Z, Juraskova, Sharpe L, Dhillon H, et al. The impact of COVID-19 on cancer patients, their carers and oncology health professionals: A qualitative study. *Patient Education and Counseling* [Internet]. 2022 Jan 31 [cited 2022 Mar 14]; Available from: <https://www.sciencedirect.com/science/article/pii/S0738399122000453>
28. Chen G, Wu Q, Jiang H, Zhang H, Peng J, Hu J, et al. Fear of disease progression and psychological stress in cancer patients under the outbreak of COVID-19. *Psychooncology*. 2020 Jul 14;10.1002/pon.5451.
29. Sokas C, Kelly M, Sheu C, Song J, Welch HG, Bergmark R, et al. Cancer in the Shadow of COVID: Early-Stage Breast and Prostate Cancer Patient Perspectives on Surgical Delays Due to COVID-19. *Ann Surg Oncol*. 2021 Dec 1;28(13):8688–96.
30. Wang J, Vahid S, Eberg M, Milroy S, Milkovich J, Wright FC, et al. Clearing the surgical backlog caused by COVID-19 in Ontario: a time series modelling study. *CMAJ*. 2020 Nov 2;192(44):E1347–56.
31. Botly LCP, Martin-Rhee M, Kasiban A, Swartz RH, Mulvagh SL, Lindsay MP, et al. COVID-19 Pandemic: Global Impact and Potential Implications for Cardiovascular Disease in Canada. *CJC Open*. 2020

Jun 6;2(4):265–72.

32. Gagliardi AR, Yip CYY, Irish J, Wright FC, Rubin B, Ross H, et al. The psychological burden of waiting for procedures and patient-centred strategies that could support the mental health of wait-listed patients and caregivers during the COVID-19 pandemic: A scoping review. *Health Expectations*. 2021;24(3):978–90.
33. Park M, Giap TTT, Lee M, Jeong H, Jeong M, Go Y. Patient- and family-centered care interventions for improving the quality of health care: A review of systematic reviews. *Int J Nurs Stud*. 2018 Nov;87:69–83.
34. McCormack LA, Treiman K, Rupert D, Williams-Piehota P, Nadler E, Arora NK, et al. Measuring patient-centered communication in cancer care: a literature review and the development of a systematic approach. *Soc Sci Med*. 2011 Apr;72(7):1085–95.
35. Sauro KM, Smith C, Kersen J, Schalm E, Jaworska N, Roach P, et al. “It affects every aspect of your life”: A qualitative study of the impact of delaying surgery during COVID-19 [Internet]. *medRxiv*; 2022 [cited 2022 May 24]. p. 2022.01.20.21267627. Available from: <https://www.medrxiv.org/content/10.1101/2022.01.20.21267627v1>
36. Lombe D, Sullivan R, Caduff C, Ali Z, Bhoo-Pathy N, Cleary J, et al. Silver linings: a qualitative study of desirable changes to cancer care during the COVID-19 pandemic. *Ecancermedicalscience*. 2021 Mar 11;15:1202.
37. Shenton AK. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*. 2004 Jan 1;22(2):63–75.

Figures

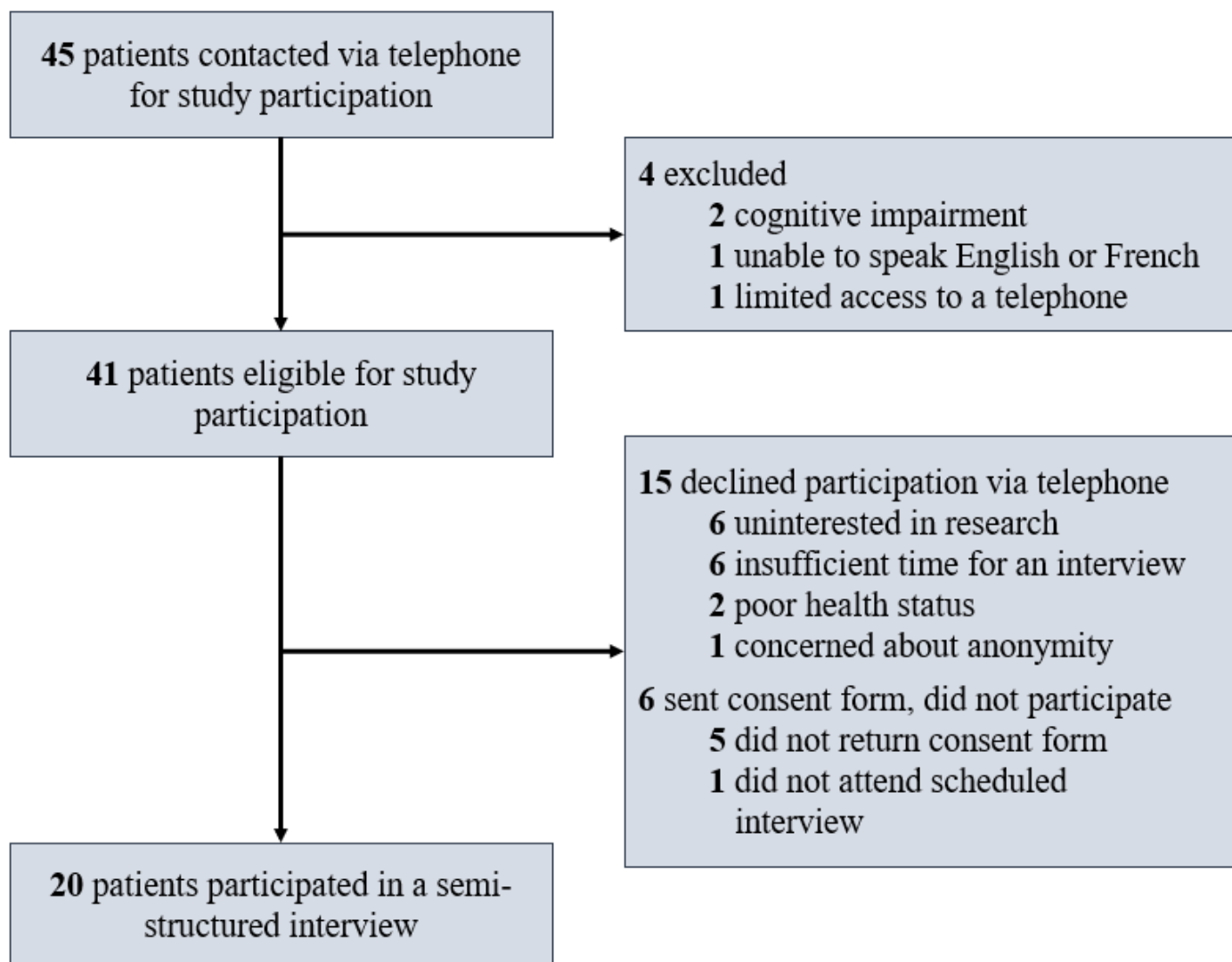


Figure 1

Participant recruitment

Supplementary Files

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