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Hot Topic

Public Perceptions of Resuming Elective Surgery During the COVID-19 Pandemic



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ABSTRACT

Background: Many U.S. health systems are grappling with how to safely resume elective surgery amid the COVID-19 pandemic. We used online crowdsourcing to explore public perceptions and concerns toward resuming elective surgery during the pandemic, and to determine factors associated with the preferred timing of surgery after health systems reopen.

Methods: A 21-question survey was completed by 722 members of the public using Amazon Mechanical Turk. Multivariable logistic regression analysis was performed to determine factors associated with the timing of preferred surgery after health systems reopen.

Results: Most (61%) participants were concerned with contracting COVID-19 during the surgical process, primarily during check-in and in waiting room areas, as well as through excessive interactions with staff. Overall, 57% would choose to have their surgery at a hospital over an outpatient surgery center. About 1 in 4 (27%) would feel comfortable undergoing elective surgery in the first month of health systems reopening. After multivariable adjustment, native English speaking (OR, 2.6; 95% CI, 1.04–6.4; $P = .042$), male sex (OR, 1.9; 95% CI, 1.3–2.7; $P < .001$), and Veterans Affairs insurance (OR, 4.5; 95% CI, 1.1–18.7; $P = .036$) were independent predictors of preferring earlier surgery.

Conclusion: Women and non-native English speakers may be more hesitant to undergo elective surgery amid the COVID-19 pandemic. Despite concerns of contagion, more than half of the public favors a hospital setting over an outpatient surgery center for their elective surgery. Concerted efforts to minimize patient congestion and unnecessary face-to-face interactions may prove most effective in reducing public anxiety and concerns over the safety of resuming elective care.

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Although the U.S. health care system has united to meet the challenges of the coronavirus disease 2019 (COVID-19) pandemic, this effort has placed many hospitals and health systems under significant financial pressure [1–5]. A recent report estimated that this pandemic has resulted in over \$202 billion in losses to U.S. health systems and hospitals [1], much of which is due to the

cessation of elective surgery [1,3]. As the COVID-19 burden decreases, many health systems are increasingly eager to resume margin producing elective surgery in a safe and controlled manner [6–8]. A new set of challenges, however, present themselves with the resumption of elective care [5,9]. Health systems may be at a crossroads between the public health obligation to keep the population healthy and safe, and the financial solvency concerns about withstanding this pandemic [1,6,10].

It is unclear how patients will react to the resumption of elective surgery. Although early reports have demonstrated that most patients seem eager to have their procedures carried out, others are hesitant [11]. Resuming elective surgery safely and at a responsible time may still result in financial losses and suboptimal patient outcomes if the public's perceptions and subsequent treatment choices are not considered. Patients preferring to undergo surgery soon after health systems reopen may be at a higher risk of

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postoperative morbidity and mortality. Alternatively, unaddressed concerns leading to delayed presentations may further accentuate health care disparities in disadvantaged and vulnerable populations [12–15].

Currently, there are limited data to guide health systems in the resumption of elective surgeries [7]. Without a true understanding of the public's beliefs and concerns over the safety of resuming elective care, health care organizations may be flying blind in deciding how to optimize processes to reduce the fear of infection. In this context, we used an online crowdsourcing platform to explore public perceptions and concerns toward resuming elective surgery during the COVID-19 pandemic, and to determine factors associated with the timing of preferred surgery after health systems reopen.

Methods

This study was reviewed by our institutional review board and was granted an exempt research status.

Study Design

Our research team developed an electronic survey addressing public perceptions and concerns regarding resuming elective surgery during the COVID-19 pandemic. The survey was created using Qualtrics XM (Qualtrics, Provo, UT) and consisted of 21 multiple-choice questions. Before beginning the survey, responders read a brief description of our study aim as well as a definition of elective surgery. We defined elective surgery as a “nonurgent, quality of life–related surgery.” Demographic information included age, sex, race, native language, marital status, annual income, location (U.S. region), primary health insurance, and perceived overall health status.

We determined the rate of major depressive disorder with the Patient Health Questionnaire (PHQ-2) [16], and assessed health literacy using the single health literacy screening question [17]. Furthermore, patient engagement was gauged using the single health confidence question [18].

Specific questions used to assess public perceptions of resuming elective surgery were created. These questions were either binary or included four multiple-choice responses. Questions utilizing a Likert scale [19] were constructed to optimize symmetry and balance. The final survey was created by the full study team and utilized an iterative consensus process. The full survey can be found in Appendix A.

Data Source

The study population for our study was composed of participants on Amazon Mechanical Turk (MTurk; Amazon.com, Inc). Amazon Mechanical Turk (MTurk) is an international online crowdsourcing marketplace where workers are compensated for completing virtual tasks [20]. The MTurk workforce includes over 500,000 unique users worldwide, many of which are from the United States [21]. MTurk has emerged as a respected platform to perform medical research due to its generalizability to the overall U.S. population, high-scale reliability, concurrent and convergent validity, and internal consistency [22]. Furthermore, MTurk has been shown to be an efficient, reliable, and cost-effective tool for generating survey responses for medical research that are largely comparable with those collected through conventional means [20,23–25].

Study participants were limited to adults (≥ 18 years) with valid social security numbers currently residing in the United States. Each participant was awarded \$0.12 for completing the survey. Personal funds were used to award participants. Incomplete

surveys were excluded from the analysis. The survey was administered over a two-day period during May 2020. A sensitivity analysis was performed for participants over the age of 60 years, as they represent a considerable portion of the population undergoing elective orthopedic surgery.

Statistical Analysis

We performed a bivariate analysis to identify population characteristics associated with preferring early elective surgery (within one month of health systems resuming elective surgery). A Pearson's chi-squared test (or Fisher's exact test when appropriate) was used for each variable.

We then placed all variables with $P < .1$ from the bivariate analysis into a multivariable regression model to identify which population characteristics were independently associated with preferring early surgery. Variables were considered using an enter selection method. The results are presented as adjusted odds ratios (ORs) with 95% confidence intervals (CIs). A threshold of $P < .05$ was used to delineate statistical significance.

Results

Overall, 776 participants completed our survey. After excluding surveys with incomplete data, 722 responses remained for final analysis. Demographic data of our sample population is reported in Table 1.

Most (61.1%) participants were concerned (answered “somewhat” or “to a great extent”) with contracting COVID-19 during the surgical process, whereas 58.6% were worried that they would expose family members (Table 2). Concern centered around the check-in process and waiting room areas (39.9%), as well as excessive interactions with staff (25.5%). Overall, 56.6% of participants preferred to have their procedure performed at a hospital rather than at an outpatient surgery center. Twenty-eight percent of participants would pay an extra fee to have their procedure performed sooner if placed on a long wait list, whereas 37.7% would change surgeons in this scenario. Just under half (49.6%) reported a preference toward a virtual telehealth visit over an in-person visit for their first postoperative appointment. Women more commonly preferred to delay surgery compared with men (Figure 1). A sensitivity analysis was performed for participants over the age of 60 years, which demonstrated similar trends (Appendix B).

A bivariate analysis was performed to determine population characteristics associated with feeling comfortable undergoing early elective surgery (within one month) after health systems resume elective surgery. Just over 1 in 4 (27%) felt comfortable undergoing early elective surgery. These respondents were more likely to be male (57.6% vs 42.4%; $P < .001$), native English speakers (96.9% vs 92.3%; $P = .028$), earn less than \$30,000 annually (34.6% vs 25.2%; $P = .047$), and have Veterans Affairs as their primary health insurance (4.2% vs 0.6%; $P < .001$) (Table 3).

After controlling for potential confounding effects in the multivariable regression model (Table 3), the population characteristics independently associated with feeling comfortable undergoing early elective surgery included male sex (OR, 1.9; 95% CI, 1.3–2.7; $P < .001$), native English speaking (OR, 2.6; 95% CI, 1.04–6.4; $P = .042$), and Veterans Affairs insurance (OR, 4.5 reference: Medicare; 95% CI, 1.1–18.7; $P = .036$).

Of note, there was no association between a preference toward early surgery and age ($P = .086$), geographic region of residence ($P = .057$), perceived overall health status ($P = .344$), or marital status ($P = .722$). Furthermore, race ($P = .637$), a history of major depressive disorder ($P = .412$), health literacy ($P = .488$), and patient

Table 1
Survey Participant Characteristics (n = 722).

Variable, n (%)	Respondents
Age in years	
≤40	479 (66.3)
41-60	173 (24.0)
>60	70 (9.7)
Sex	
Female	387 (53.6)
Male	335 (46.4)
Race	
White	520 (72.0)
Black	44 (6.1)
Asian	119 (16.5)
Other	39 (5.4)
Native English speaker	
Yes	675 (93.5)
No	47 (6.5)
Marital status	
Single	294 (40.7)
Separated/divorced	58 (8.0)
Married	353 (48.9)
Widowed	17 (2.4)
Annual income in US\$	
<30,000	200 (27.7)
30,000-60,000	285 (39.5)
>60,000	237 (32.8)
United States region	
Northeast	169 (23.4)
Midwest	180 (24.9)
South	257 (35.6)
West	116 (16.1)
Primary health insurance	
Medicare	146 (20.2)
Medicaid	71 (9.8)
Private	433 (60.0)
Veterans Affairs	11 (1.5)
Uninsured	61 (8.4)
Perceived overall health status	
Poor or fair	55 (7.6)
Good	308 (42.7)
Very good or excellent	359 (49.7)
Major depressive disorder ^a	155 (21.5)
Limited health literacy ^b	128 (17.7)
Low patient engagement ^c	79 (10.9)

^a Defined as Patient Health Questionnaire-2 (PHQ-2) score of 3 or greater.

^b Defined as answers of “somewhat/a little/not at all” to the single health literacy screening question.

^c Defined as an answer of “not very confident” to the single health confidence question.

engagement ($P = .608$) were not predictive of the timing of preferred surgery.

Discussion

As the COVID-19 burden declines and society slowly reopens, health systems are beginning to resume elective procedures. A clear understanding of the public's beliefs regarding the resumption of elective surgery may help guide health systems in providing patients with equitable, efficient, and safe care while also optimizing financial stability through this transition period. In this context, we used an online crowdsourcing platform to explore public perceptions and concerns toward resuming elective surgery during the COVID-19 pandemic, and to determine factors associated with the timing of preferred surgery after health systems reopen.

The primary strengths of this study include its large sample size and the novel use of an online crowdsourcing platform to obtain survey responses. The rapid evolution and daily changes occurring throughout the COVID-19 pandemic has created an information lag in the medical community [26]. The nature of the pandemic has resulted in many clinical decisions being made with

a dearth of quality evidence [27–29]. Clinical trials cannot be conducted fast enough to maintain pace with the rate of change. The ability of MTurk to obtain reliable, consistent, and generalizable survey responses significantly faster and with decreased costs compared with traditional methods makes its use for data collection during the COVID-19 pandemic and beyond opportune [20,22].

Despite its strengths, our study was not without limitations. The primary weakness of this study is the lack of preexisting symptomatic pathology in our study population. An expectant approach toward surgery may be less likely in patients coping with disabling musculoskeletal conditions. However, the beliefs of our cohort are a reasonable proxy to use in this case for several reasons. Multiple prior survey studies have used the general public as a proxy to understand the perceptions of patients choosing to undergo elective surgery [30,31]. Furthermore, the MTurk platform has been extensively evaluated and is thought to have arguably closer generalizability to the US population than results derived using traditional survey methods [20,32]. Another weakness of the study is that certain MTurk users may have chosen to not participate in the study. It is unknown whether the demographics of this group differed from our sample population. Finally, the higher computer literacy of our sample population may have biased their responses toward favoring telehealth for their postoperative care.

We found that men strongly favored early surgery, whereas women demonstrated a preference toward delaying surgery. Interestingly, this same trend has been reported in regard to patients undergoing total joint arthroplasty (TJA) before the COVID-19 pandemic [33]. Gender bias, specifically in the form of surgeons being less likely to recommend TJA and including fewer shared decision-making elements to women [34,35], may play a role in this phenomenon. However, other studies have demonstrated that the values influencing the decision to undergo surgery may also differ between sexes and contribute to this trend [33]. Specifically, a study by Karlson et al. described that the women with knee osteoarthritis overwhelmingly chose to delay undergoing total knee arthroplasty longer than men because of more concerns of a bad outcome, the hope for improved future technology, and their perceived caregiver responsibilities [33]. Men conversely preferred earlier surgery as they wanted to return to a high functional level sooner, were more trusting of their surgeons, and less fearful of a bad outcome [33].

Interestingly, there may be risks unique to undergoing both early and late surgery after health systems reopen. Surgery soon after the reintroduction of elective procedures might place patients an increased risk of contracting COVID-19, as hospitals will have had less time to optimize their protocols. On the other hand, choosing to delay surgery may result in excessive postponement as long wait lists and a possible “second-wave” may occur. A shared decision-making process including a discussion of the risks and benefits of each option should be undertaken with each patient. Nevertheless, deliberate and strategic efforts must be undertaken to ensure equitable treatment to both sexes throughout the surgical process.

Our study also demonstrated that non-English speakers preferred to delay elective surgery. Reports in the lower limb arthroplasty literature have previously described a similar trend in non-native English speakers [36]. Many of the communities hit hardest by the COVID-19 pandemic have been largely comprised of non-English speakers [15]. It might be possible that the worldview non-native English speakers have developed during this pandemic has shifted their preference toward delaying elective surgery even further to limit interactions with the health care system. Mistrust and fear of the health care system may last well past the peak of the

Table 2
Public Perceptions of Resuming Elective Surgery During the COVID-19 Pandemic (n = 722).

Question/Statement	Respondents, n (%)			
	Not at all	Very Little	Somewhat	To a Great Extent
How worried would you be about becoming infected with COVID-19 if you were in the hospital getting surgery?	86 (11.9)	195 (27.0)	273 (37.8)	168 (23.3)
How worried would you be about the risk of exposing your family to COVID-19 after your surgery?	81 (11.2)	218 (30.2)	264 (36.6)	159 (22.0)
	Within 1 mo	1 mo to 3 mo	3 mo to 6 mo	Greater than 6 mo
Once COVID-19 restrictions are removed, when would you feel comfortable having elective (nonurgent) surgery?	191 (26.5)	199 (27.6)	158 (21.9)	174 (24.1)
	Hospital		Outpatient Surgery Center	
If given the choice, where would you prefer to have elective (nonurgent) surgery post-COVID-19?	409 (56.6)		313 (43.4)	
	No		Yes	
There may be a long wait list for elective surgery post-COVID-19. Would you pay an extra fee to have your surgery done sooner?	517 (71.6)		205 (28.4)	
There may be a long wait list for elective surgery post-COVID-19. Would you change surgeons if you had to wait too long?	450 (62.3)		272 (37.7)	
	Check-in and waiting room	Operating room	Interactions with staff	Postsurgery recovery area
What part of the surgical process would worry you the most about getting COVID-19?	288 (39.9)	129 (17.9)	184 (25.5)	121 (16.8)
	In-person visit		Telehealth visit	
For your first visit after surgery, would you prefer to see your surgeon in-person or with a video call (telehealth)?	364 (50.4)		358 (49.6)	

pandemic in this community. Furthermore, communication hurdles, specifically in regard to obtaining up-to-date COVID-19 information, and cultural differences are other factors that might influence non-native English speakers regardless of their socio-economic status or residence location. Certainly, dedicated outreach programs geared toward minimizing language barriers through the surgical process are warranted.

Participants who listed Veterans Affairs as their primary insurance type showed a predilection toward preferring early surgery in our study. Patients utilizing veterans affairs services often are subject to long wait lists and institutional inefficiencies [37]. Given these baseline factors, it may be reasonable to assume that these patients would prefer to have their elective procedures completed as soon as possible once health systems reopen. Furthermore, fears of future budget cuts given the economic implications of the

COVID-19 pandemic on the U.S. government may also predispose this population toward preferring early surgery [38].

Notably, our analysis did not find an association between age, perceived overall health status, or geographic region of residence with the timing of preferred surgery. Given the increased risk of a more severe form of COVID-19 in older patients [39,40] and patients with certain comorbidities [41–43], it may be anticipated that these patients would take an expectant approach toward the timing of elective surgery given the possibility of contracting the virus during the surgical process. This same trend may also be expected among patients residing in regions of the United States that have been hit hardest during the pandemic [44]. Interestingly, this was not the case in our analysis, as these populations did not show a predilection toward delaying surgery. Providers should be aware of the fact that “higher risk” patients may be just as willing to

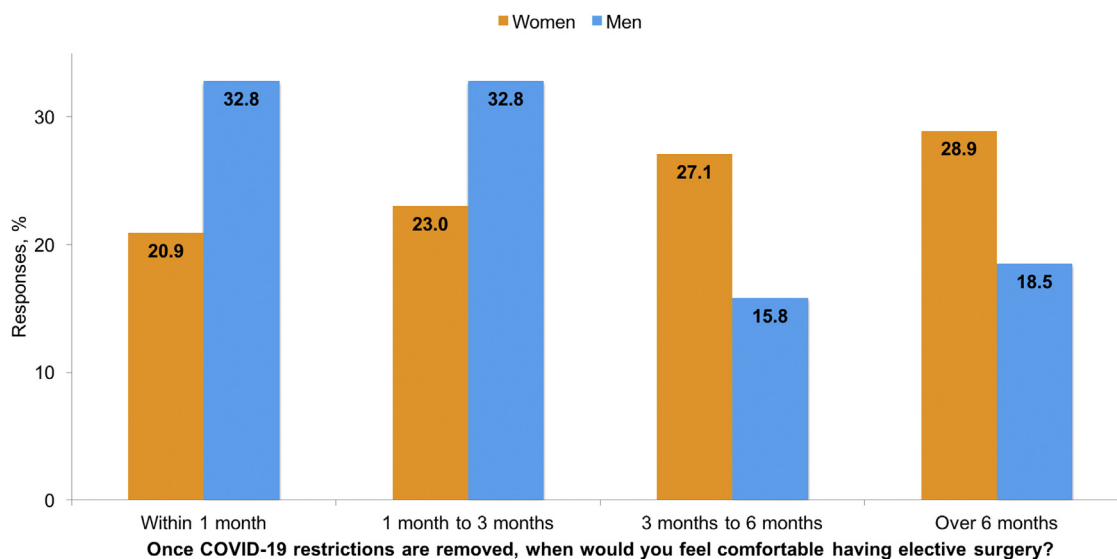


Fig. 1. Figure showing preferred timing of elective surgery following the reopening of health systems.

Table 3
Population Characteristics Associated With Preferring Early Surgery (Within 1 Month) After Health Systems Resume Elective Care.

Variable, n (%)	Decision for Early Surgery		P	Adjusted OR (95% CI)	P ^d
	No	Yes			
Total	531 (73.5)	191 (26.5)			
Age in years					
≤40	345 (65.0)	134 (70.2)	.086	1.0 (0.55-1.8)	.999
41-60	138 (26.0)	35 (18.3)		0.71 (0.36-1.4)	.334
>60	48 (9.0)	22 (11.5)		Ref.	
Sex					
Female	306 (57.6)	81 (42.4)	<.001	Ref.	
Male	225 (42.4)	110 (57.6)		1.9 (1.3-2.7)	<.001
Race					
White	377 (71.0)	143 (74.9)	.637	-	
Black	33 (6.2)	11 (5.8)		-	
Asian	93 (17.5)	26 (13.6)		-	
Other	28 (5.3)	11 (5.8)		-	
Native English speaker					
Yes	490 (92.3)	185 (96.9)	.028	2.6 (1.04-6.4)	.042
No	41 (7.7)	6 (3.1)		Ref.	
Marital status					
Single	211 (39.7)	83 (43.5)	.722	-	
Separated/divorced	43 (8.1)	15 (7.9)		-	
Married	263 (49.5)	90 (47.1)		-	
Widowed	14 (2.6)	3 (1.6)		-	
Annual income in US\$					
<30,000	134 (25.2)	66 (34.6)	.047	1.4 (0.88-2.3)	.151
30,000-60,000	216 (40.7)	69 (36.1)		0.91 (0.59-1.4)	.647
>60,000	181 (34.1)	56 (29.3)		Ref.	
United States region					
Northeast	125 (23.5)	44 (23.0)	.057	Ref.	
Midwest	119 (22.4)	61 (31.9)		1.5 (0.91-2.4)	.111
South	196 (36.9)	61 (31.9)		0.89 (0.55-1.4)	.625
West	91 (17.1)	25 (13.1)		0.76 (0.42-1.4)	.352
Primary health insurance					
Medicare	98 (18.5)	48 (25.1)	<.001	Ref.	
Medicaid	51 (9.6)	20 (10.5)		0.82 (0.42-1.6)	.545
Private	341 (64.2)	92 (48.2)		0.66 (0.42-1.03)	.066
Veterans Affairs	3 (0.6)	8 (4.2)		4.5 (1.1-18.7)	.036
Uninsured	38 (7.2)	23 (12.0)		1.3 (0.69-2.5)	.401
Perceived overall health status					
Poor or fair	42 (7.9)	13 (6.8)	.344	-	
Good	218 (41.1)	90 (47.1)		-	
Very good or excellent	271 (51.0)	88 (46.1)		-	
Major depressive disorder ^a	110 (20.7)	45 (23.6)	.412	-	
Limited health literacy ^b	91 (17.1)	37 (19.4)	.488	-	
Low patient engagement ^c	60 (11.3)	19 (9.9)	.608	-	

^a Defined as Patient Health Questionnaire-2 (PHQ-2) score of 3 or greater.

^b Defined as answers of "somewhat/a little/not at all" to the single health literacy screening question.

^c Defined as an answer of "not very confident" to the single health confidence question.

^d Bold denotes significant result ($P < .05$) in multivariable regression.

undergo early elective surgery as the general population. Because of the unknown risk of contracting COVID-19 during the surgical process, careful consideration and discussion should be undertaken with each patient before surgical booking.

Another interesting theme that emerged in our study was the relatively large proportion of participants who would prefer to have their procedure performed at a hospital (56.6%) instead of an outpatient surgery center. Despite the theoretical higher risk of contracting COVID-19 at an inpatient facility, where infected patients are presumably receiving treatment, much of the public paradoxically would still prefer to have surgery in a hospital setting. While it should be noted that patients would likely be more amenable to having surgery at an outpatient center for certain procedures over others, previous reports have cited concerns over pain control, falling, and not having enough help at home as reasons patients are hesitant to have surgery at outpatient facilities [45]. As health systems will inevitably transition many elective cases to outpatient facilities throughout this pandemic [46], providers should be aware of patient concerns and preferences in this shift and adjust on a patient-to-patient basis.

Finally, our study demonstrated that the most concerning aspects of the surgical process to the public were the check-in and waiting room areas, as well as interactions with staff. Minimizing crowding in the waiting room, proper availability of personal protective equipment for staff and patients, and minimizing unnecessary face-to-face interactions with patients during the surgical process might help optimize the patient experience and minimize the spread of COVID-19 [7]. This is especially relevant as payers are increasingly linking financial incentives to the patient experience [47]. Furthermore, transitioning to telehealth postoperative visits and home-based virtual physical therapy programs to minimize public interactions may improve patient compliance, optimize costs, and regain public confidence in the safety of restarting elective care during this pandemic [46].

Conclusion

Women and non-native English speakers may be more hesitant than others to proceed with elective surgery amid the COVID-19 pandemic, and should receive careful discussion through the

surgical decision-making process. Despite concerns of contagion, more than half of the public favors a hospital setting over an outpatient surgery center for their elective surgery. Concerted efforts to minimize patient congestion and unnecessary face-to-face interactions may prove to be most effective in reducing public anxiety and concerns over the safety of resuming elective care.

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Appendix*Appendix A: Public Perceptions of Resuming Elective Surgery During the COVID-19 Pandemic*

1. Age

A: <40 B: 41-60 C: >60

2. Sex

A: Male B: Female

3. Is English your native language?

A: Yes B: No

4. Where do you live in the United States?

A: Northeast B: Midwest C: South D: West.

5. Marital status

A: Single B: Married C: Separated/Divorced D: Widowed

6. Annual income

A: <\$30,000 B: \$30,000 - \$60,000 C: >\$60,000

7. Race

A: White B: Black C: Asian D: Other

8. Health insurance

A: Private or commercial B: Medicare C: Medicaid D: Military or Veterans Administration E: None

9. How often do you need to have someone help read or interpret instructions, pamphlets, or other written material from your doctor or pharmacy?

A: Never B: Rarely C: Sometimes D: Most of the time
E: Always

10. Over the last 2 weeks, how often have you had little interest or pleasure in doing things?

A: Not at all B: Several days C: More than half the days
D: Nearly every day

11. Over the last 2 weeks, how often have you felt down, depressed, or hopeless?

A: Not at all B: Several days C: More than half the days
D: Nearly every day

12. How is your overall health status?

A: Poor or fair B: Good C: Very good D: Excellent

13. How worried are you about becoming infected with COVID-19 if you were in the hospital getting surgery?

A: Not at all B: Very little C: Somewhat D: To a great extent

14. Once state COVID-19 restrictions are removed, when would you feel comfortable having elective (nonurgent) surgery?

A: ≤1 month B: 1 month to 3 months C: 3 months to 6 months
D: >6 months

15. If given the choice, where would you prefer to have elective (nonurgent) surgery post-COVID-19?

A: Hospital B: Free-standing ambulatory surgery center

16. There may be a long wait list for elective (nonurgent) surgery after COVID-19. Would you pay an extra fee to have your elective (nonurgent) surgery done sooner?

A: Yes B: No

17. There may be a long wait list for elective (nonurgent) surgery after COVID-19. Would you change surgeons if you had to wait too long?

A: Yes B: No.

18. How worried would you be about the risk of exposing your family to COVID-19 after your surgery?

A: Not at all B: Very little C: Somewhat D: To a great extent

19. What part of the surgical process would worry you the most about getting COVID-19?

A: Check-in and waiting room B: Operating room C: Postsurgery recovery area
D: Interactions with staff

20. For your first visit after surgery, would you prefer to see your surgeon in-person or with a video call (telehealth)?

A: In-person appointment B: Video call (telehealth)

21. How confident are you that you can control and manage most of your health problems?

A: Very confident B: Somewhat confident C: Not very confident
D: I don't not have any health problems

Appendix B

Sensitivity Analysis in the Public >60 years Old (n = 70).

Question/Statement	Respondents, n (%)			
	Not at all	Very Little	Somewhat	To a Great Extent
How worried would you be about becoming infected with COVID-19 if you were in the hospital getting surgery?	10 (14.3)	14 (20.0)	23 (32.9)	23 (32.9)
How worried would you be about the risk of exposing your family to COVID-19 after your surgery?	11 (15.7)	22 (31.4)	21 (30.0)	16 (22.9)
	Within 1 mo	1 mo to 3 mo	3 mo to 6 mo	Greater than 6 mo
Once COVID-19 restrictions are removed, when would you feel comfortable having elective (nonurgent) surgery?	22 (31.4)	15 (21.4)	20 (28.6)	13 (18.6)
	Hospital		Outpatient Surgery Center	
If given the choice, where would you prefer to have elective (nonurgent) surgery post-COVID-19?	37 (52.9)		33 (47.1)	
There may be a long wait list for elective surgery post-COVID-19. Would you pay an extra fee to have your surgery done sooner?	No 48 (68.6)		Yes 22 (31.4)	
There may be a long wait list for elective surgery post-COVID-19. Would you change surgeons if you had to wait too long?	52 (74.3)		18 (25.7)	
	Check-in and waiting room	Operating room	Interactions with staff	Postsurgery recovery area
What part of the surgical process would worry you the most about getting COVID-19?	26 (37.1)	12 (17.1)	23 (32.9)	9 (12.9)
	In-person visit		Telehealth visit	
For your first visit after surgery, would you prefer to see your surgeon in-person or with a video call (telehealth)?	35 (50.0)		35 (50.0)	