



Survey article

Patient perspectives of telemedicine in gynecologic oncology during COVID

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ABSTRACT

Objectives: Healthcare rapidly expanded the use of telemedicine during the COVID-19 pandemic. Research regarding telemedicine benefits and patient perspectives during COVID are limited. The aim of this study was to determine how the pandemic impacted patient perspectives and value of telemedicine in gynecologic oncology. **Methods:** A cross-sectional survey was distributed to patients presenting for an appointment to the gynecologic oncology ambulatory clinic. The survey assessed patient demographics, frequency of technology use, and preferences of telemedicine use in their care. Descriptive statistics were generated and Pearson's chi square and analysis of variance (ANOVA) were used for statistical analysis.

Results: 116 patients completed the survey. Respondent age range was 20–70 years old. Most respondents (80 %) had a cancer diagnosis. Nearly all (91 %) patients had access to online medical records via an online portal. Increased use of technology was not associated with agreeing to a telemedicine visit. Only 36 % stated they would feel comfortable with a telemedicine visit with a gynecologic oncologist. Patients were more willing to agree to video rather than telephone visits (41.8 % vs 24.5 %). The pandemic did not affect patient comfort level with telemedicine.

Conclusions: Despite increased use and overall favorable impression, patients were not more eager to participate in telemedicine during the pandemic. Patients are open to incorporating telemedicine more often in follow up settings.

1. Introduction

Telemedicine has been in existence in the United States since the 1960 s. Telemedicine has historically been utilized to increase access to care for patients in lower resource and rural settings in the United States (Sabesan et al., 2014; Sabesan, 2014). However; due to COVID-19, telemedicine expanded to more patients in order to decrease unnecessary exposure and preserve personal protective equipment. Expansion was made possible with the Centers for Medicare and Medicaid Services announcement of rule waivers that cover all telehealth services and relaxation of statewide regulations (Press release Trump Administration Issues Second Round of Sweeping Changes to Support U.S. Healthcare System During COVID-19 Pandemic, 2020). In 2020; telemedicine encounters increased to 52.7 million from approximately 840,000 the year prior (Suran, 2022).

The field of oncology requires close follow up of patients and coordination of care with multiple providers. Previous studies regarding telemedicine implementation have been largely positive. In a study

conducted in Australia, patients with cancer believed that the quality of video consultations were as good as face-to-face consultations (Sabesan et al., 2014). Another study showed patients with a cancer diagnosis reported a reduction in pain and significant improvement in psychosocial outcomes with the use of additional services for counseling through telemedicine (Cox et al., 2017).

In a previous survey-based study, gynecologic oncology patients demonstrated strong interest in using telemedicine. However, this survey was conducted pre-pandemic and with a majority of patients traveling long distance (Dholakia et al.). One unanswered question is whether the patient's perspective had changed as a result of more widespread implementation of telemedicine. The aim of our study is to further understand the urban patient perspective of telemedicine in gynecologic oncology in the current setting of the pandemic.

2. Methods

An anonymous survey was distributed to patients at two urban,

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hospital-based gynecologic oncology practices (Supplemental Document 1). This study underwent IRB approval at both hospitals. The survey was conducted during in-person outpatient appointments and offered to all patients in May- July of 2021. This survey was limited to a 3-month period due to initial difficulty with accrual due to office staff availability with assistance during the pandemic and office visits being decreased. Written informed consent was obtained at one of the institutions per IRB request. At the other institution, the study was classified as exempt. Participants did not receive any incentive for participating. The authors developed the survey questions after literature review on patient views on telemedicine in other specialties (Cox et al., 2017; Dholakia et al.; Mooi et al., 2012). Socio-demographic data and disease status questions were assessed. We evaluated how frequently patients use technology in their daily life, use of integrative telemedicine through online portals, and opinions on options for telemedicine. We also evaluated patients' comfort level with varying amounts of telemedicine by asking them to imagine how their responses might have changed if they were "not in a pandemic" versus in the midst "of a pandemic." All subjective questions used a 5-point Likert Scale. Demographic data was presented in aggregate. Pearson's chi-square, Spearman's rank order correlation, and ANOVA were used. SPSS statistical software (IBM SPSS Statistics for Windows, version 27, IBM Corp., Armonk, N.Y., USA) was used.

3. Results

3.1. Demographics

We approached 200 unique patients and 116 completed the survey. Demographic data is presented in Table 1. For patient age, a series of ranges were provided to choose from (see supplement 1 for survey question). The mean age group was '50–69 years old'. Eighty percent (N = 93) of patients had a cancer diagnosis and approximately 40 % (N = 46) were undergoing active cancer treatment. The educational attainment level was well balanced in our population. A majority (N = 73, 63 %) had less than a 30-minute commute to the hospital.

3.2. Technology use

Patients utilized text messaging in daily living more frequently (71 %) than computers (56 %), voice calls (42 %), social media (39 %), and online support groups (7 %) (Fig. 1). Patients with higher daily phone call use were less likely to worry about their ability to navigate a telemedicine visit (22.8 % vs 11.3 %, $p = 0.01$.) However, higher use of technology was not associated with a higher likelihood of agreement to telemedicine visits. When asked specifically if certain types of visits (i.e. 'new', 'post-op', 'follow up', 'problem') would be more appealing as a telemedicine visit, greater use of technology did not positively or negatively impact the response toward any visit type.

3.3. Forms of telemedicine

We found that patients were most favorable to telemedicine in a 'follow-up' setting (Fig. 2). Of the patients that were agreeable to a 'follow up' visit by telephone, we found similar acceptance of a 'follow up' visit by video ($p < 0.05$). Most patients expressed discomfort with a 'post-op' visit by both telephone and video. However, those who did not have cancer were more likely to respond positively to a 'post-op' video visit (17 % vs 40.9 %, $p = 0.02$).

Most respondents also stated that they would not feel comfortable with a 'problem' visit via telephone. Of the patients that expressed discomfort with a 'problem' visit by telephone, a majority also said they would not feel comfortable conducting the visit by video either ($p < 0.05$). We found that patients under the age of 50 were more likely to respond favorably to a 'problem' visit via telemedicine compared those older than 50 ($p = 0.001$). History of a previous telemedicine encounter

Table 1
Patient characteristics.

	Overall, n = 116 (%)
Age	
<50 years	19 (16.4)
50–59 years	30 (25.9)
60–69 years	41 (35.3)
70 yrs or greater	26 (22.4)
Race	
White	107 (92.2)
Black	8 (6.9)
Multiracial	1 (0.9)
Other	0
Education	
High School/GED	40 (34.5)
Some College	30 (25.9)
College	40 (34.5)
Post grad	6 (5.2)
Income	
<25 K	17 (14.7)
25 K–50 K	30 (25.9)
50 K–100 K	26 (22.4)
100 K–150 K	15 (12.9)
>150 K	9 (7.8)
Prefer not to answer	19 (16.4)
Commute	
<30 min	63 (63.6)
30 min–1 h	30 (30.3)
>1 h	6 (6.1)
Missing	(14.7)
Cancer	93
Yes	(80.2)23
No	(19.8)
Cancer Type	6
Cervix	(6.5)45
Endometrium/Uterus	(48.4)38
Ovary/Fallopian Tube/Peritoneal	(40.9)3
Vulva/Vagina	(3.2)1
Missing	(1.1)
Stage	35
I	(30.2)6
II	(5.2)25
III	(21.6)15
IV	(12.9)12
Missing	(12.9)
Cancer Treatment	29
Surgery alone	(31.2)11
Chemotherapy alone	(11.8)36
Surgery/Chemotherapy	(38.7)6
Surgery/Chemotherapy/Radiation	(6.5)3
Radiation	(3.2)2
Surgery/Radiation	(2.2)3
Radiation/Chemotherapy	(3.2)1
Other	(1.1)2
Missing	(2.2)
Recurrence	67
No	(58.8)16
Yes	(14)9
Not Sure	(7.9)22
N/A	(19.3)2
Missing	(1.7)

did not affect comfort level with various forms of telemedicine.

When assessing the use of asynchronous telemedicine through online portals, 92 % of the patients surveyed had access. Most had only used this platform to view lab results. However, a majority (65 %), stated they would feel comfortable asking questions about their illness through portal messaging. Seventy- nine percent feel comfortable getting their pathology results online prior to a visit with their provider. Sixty percent would feel comfortable using this online portal to connect to telemedicine visits with their provider.

3.4. Comfort during a pandemic

The pandemic did not significantly influence perceived comfort level

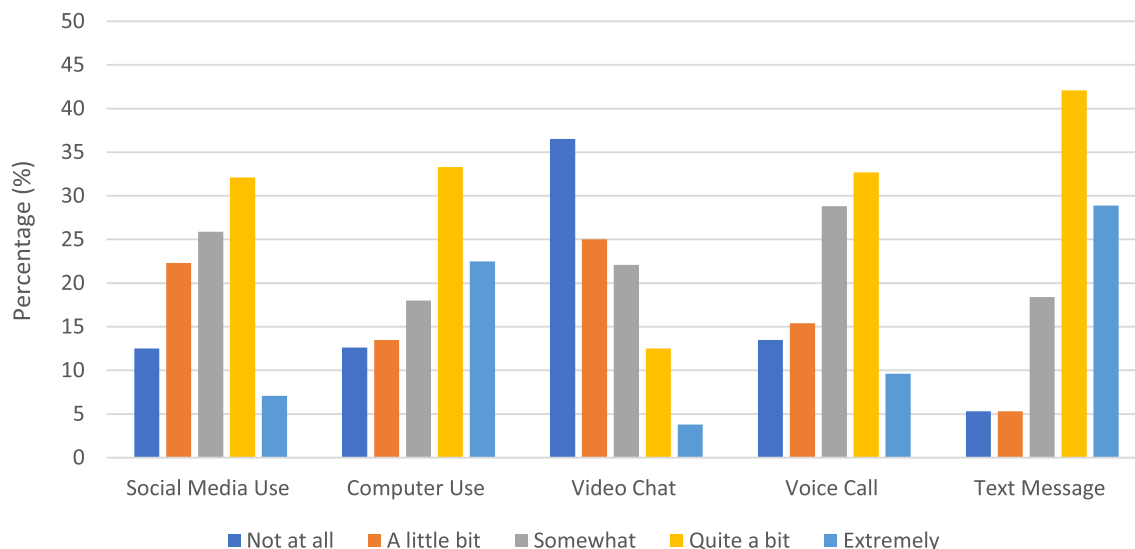


Fig. 1. Results of technology use as a part of daily routine.

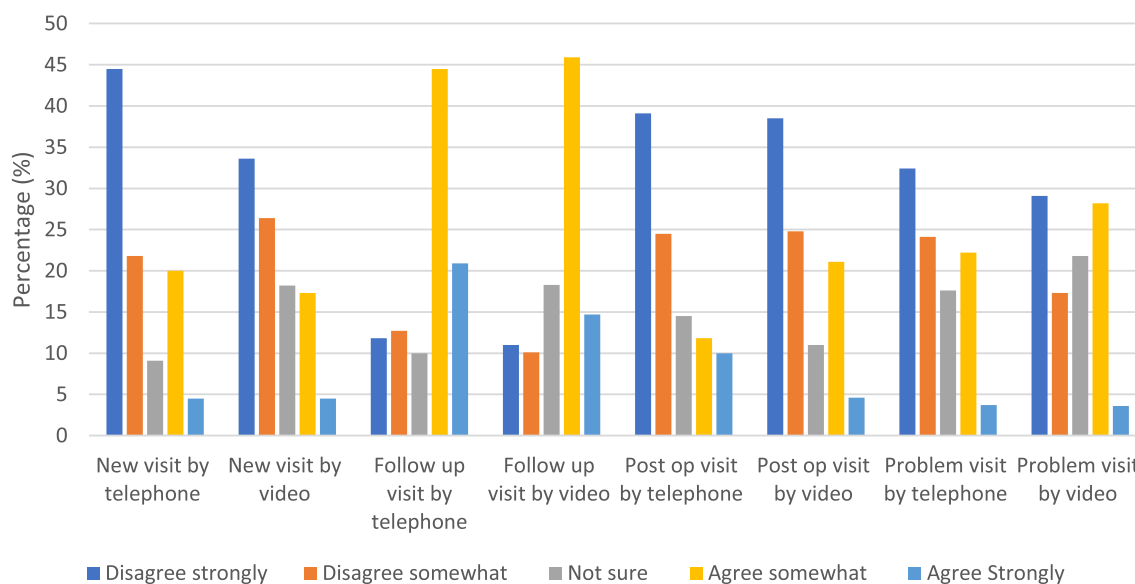


Fig. 2. Result of forms of telemedicine and comfort level.

with telemedicine either positively or negatively. We asked patients a series of questions to assess what percentage of visits patients would feel comfortable conducting through telemedicine. Patients were asked to imagine how their responses may have changed if they were “in a pandemic” versus “not in a pandemic.” We found a high correlation between the decreasing level of comfort with each level of decreased in person visits both during a pandemic and not during a pandemic (Spearman’s rho = 0.582 p = 0.00 for 100 % of visits in person, 0.716 p = 0.00 for 50 % of visits in person, 0.751 p = 0.00 for 25 % of visits in person, 0.664 p = 0.003 for no visits in person, Table 2). Stated differently, the pandemic did not increase patients’ interest in incorporating more telemedicine visits as a part of their care. Previous telemedicine encounter did not affect their comfort level with telemedicine during a pandemic or outside a pandemic.

3.5. Perceived opinions about telemedicine

Only 11 % of patients believed telemedicine would increase their anxiety. Neither cancer stage nor whether patients had a cancer

diagnosis was associated with increased anxiety (p = 0.93). Most patients believed telemedicine visits were as confidential as in person visits (61 %). Fifty-six percent of patients stated that telemedicine visits would be easier to schedule than in person visits.

However, while 65 % stated they would feel comfortable with a telemedicine visit with a primary care provider, only 36 % stated they would feel comfortable with a gynecologic oncologist. Three-quarters of patients worried about the inability for a physician to perform a hands-on exam during telemedicine, and this was not affected by whether patients had cancer or not (p = 0.69). Most patients that said they were worried about the inability to perform a hands-on exam stated they would be willing to agree to a ‘follow up’ visit by telephone (p < 0.05) or video but not other types of visits (p < 0.05). Sixty-two percent stated that they would miss the personal connection between themselves and the physician without in-person visits. We did find that 81 % would feel comfortable asking for an in person visit instead of a telemedicine visit.

Table 2
Spearman's rank order correlation.

		Not during pandemic Visits all in person	Not during pandemic Visits 50 % in person	Not during pandemic Visits 25 % in person	Not during pandemic Visits none in person
During pandemic Visits all in person	Correlation-Coefficient	0.582**	0.162	-0.090	-0.119
	Sig. (2-tailed)	0.000	0.101	0.364	0.234
	N	111	103	103	101
During pandemic Visits 50 % visits in person	Correlation-Coefficient	0.166	0.716**	0.495**	0.064
	Sig. (2-tailed)	0.090	0.000	0.000	0.523
	N	106	104	103	102
During pandemic Visits 25 % visits in person	Correlation-Coefficient	-0.025	0.542**	0.751**	0.293**
	Sig. (2-tailed)	0.803	0.000	0.000	0.003
	N	106	104	103	102
During pandemic Visits none in person	Correlation-Coefficient	-0.155	0.178	0.355**	0.664**
	Sig. (2-tailed)	0.118	0.073	0.000	0.000
	N	103	102	102	102

4. Discussion

COVID-19 pandemic has forced rapidly increased access to telemedicine in multiple subspecialties including gynecologic oncology (2019 State of the States Report. American Telemedicine Association). Previous research has shown high interest and eagerness to engage in telemedicine from patients. With rapid adoption of telemedicine due to the pandemic, we were interested if patients responded favorably. Our team hypothesized that patients would feel that telemedicine was as effective as in-person visits. Our findings suggest that gynecologic oncology patients remain apprehensive to telemedicine.

Our data did not find that the pandemic increased patient comfort level with telemedicine, despite the large implementation. Rather, we found that patients had a decreasing level of comfort with a higher percentage of total telemedicine visits in the setting of a pandemic versus not in a pandemic. This may be because there is something inherent to telemedicine visits that makes patients apprehensive to further uptake. This was particularly evident when we discovered that the percentage of patients that were comfortable with a telemedicine visit with a primary care provider was almost double compared to those that felt comfortable with a telemedicine visit with a gynecologic oncologist. In our survey, patients reported significant concern for lack of a 'hands-on' physical examination from their gynecologic oncologist. This finding is echoed in a recent survey-based study where half of the gynecologic oncology patients stated that they preferred no telehealth care at all (Quam et al., 2022). In this study, it was speculated that the apprehension was due to the perception that a physical exam was critical for detecting recurrence. Recent research has called into question whether a physical examination is required with every visit during cancer surveillance (Janke et al., 2022). Additionally, prior studies have demonstrated that apprehension regarding lack of a hands-on physical exam can be overcome by explaining to patients why a physical exam is not always necessary (Sabesan, 2014). Further education of patients may improve willingness for telemedicine in 'follow up' visits.

While patients may not desire telemedicine for all encounters, telemedicine may be an option to supplement a patient's care when necessary, and it is important for healthcare providers to understand which circumstances patients may be amenable to telemedicine. Of all office visit types, patients were most receptive to telemedicine for a 'follow up' visit (Fig. 2). 'Follow up' visits may be less stressful for patients due to not having to create rapport with the provider compared to a 'new patient' visit. In our data, when given the option, patients would prefer to conduct a telemedicine visit by video instead of telephone. Further supporting the previous study by Quam et al, our study showed that two factors that may affect a patient's likelihood of accepting a telemedicine visit are cancer diagnosis and age (Quam et al., 2022).

The biggest success of telemedicine we found was through online patient portal access. On this platform, patients receive timely updates on labs and imaging, access educational information, and request services. Previous studies have demonstrated that patient portals can

improve adherence to medications, provide better patient-provider communication, and enable the discovery of medical errors (Dendere et al., 2019). Large uptake at our institution may be attributed to the increasing number of patients that already utilize various forms of technology in their daily lives. This form of access gives patients greater control and encourages them to be active members of the health care team.

The strengths of the study include the ability to capture current patient perspectives on telemedicine after the onset of the pandemic. In contrast to previous studies, which found broad acceptance among patients traveling great distance, our population depicts an urban group where most of the respondents to the survey had a short commute to the office. Another strength of our study was the in-person nature of the survey, which allowed for maximal capture of participants.

This study also has several notable limitations. This survey was conducted at a community gynecologic cancer clinic in the Midwest, which treats predominantly white women of which many had access to technology. Perspectives may not reflect those of other gynecologic oncology populations across the United States, especially in areas with higher non-white populations. Moreover, we asked patients to consider what their comfort level with telemedicine might be both in a pandemic and outside of a pandemic. The results to this answer may have been skewed due to recall bias as patients cannot remain completely unbiased after having already undergone so many changes in the pandemic. Two additional limitations are worth noting. Our survey was not tested prior to initiation, opening the possibility of patients not understanding certain questions. We also recognize that inherent to all survey studies, participation in the survey may be biased by preconceived opinions.

In conclusion, we found mixed opinions about telemedicine especially after the onset of the pandemic. Gynecologic oncology patients in our population are not as open to telemedicine as previously reported (Dholakia et al.). While patients may not be willing to convert all their visits to telemedicine, they may be willing to integrate telemedicine into their visits through follow-ups. More potential may lie within the ability to continue fostering the patient-physician relationship through online patient platforms, where large uptake has already occurred. Further research is needed to determine continued comfort with telemedicine following pandemic restrictions being lifted.

CRedit authorship contribution statement

Christina Nestlerode: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Visualization. **James Pavelka:** Supervision. **Jack Basil:** Supervision. **Kevin Schuler:** Supervision. **Angela N. Fellner:** Formal analysis, Data curation. **Mostafa Ghaderian:** Formal analysis, Data curation. **Robert Neff:** Conceptualization, Methodology, Investigation, Writing – review & editing, Visualization, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.gore.2022.101071>.

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