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SCIENTIFIC INVESTIGATIONS

Patient experiences with telehealth in sleep medicine: a qualitative evaluation

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Study Objectives: The field of sleep medicine has been an avid adopter of telehealth, particularly during the COVID-19 pandemic. The goal of this study was to assess patients' experiences receiving sleep care by telehealth.

Methods: From June 2019 to May 2020, the authors recruited a sample of patients for semi-structured interviews, including patients who had 1 of 3 types of telehealth encounters in sleep medicine: in-clinic video, home-based video, and telephone. Two analysts coded transcripts using content analysis and identified themes that cut across patients and categories.

Results: The authors conducted interviews with 35 patients and identified 5 themes. (1) Improved access to care: Patients appreciated telehealth as providing access to sleep care in a timely and convenient manner. (2) Security and privacy: Patients described how home-based telehealth afforded them greater feelings of safety and security due to avoidance of anxiety-provoking triggers (eg, crowds). Patients also noted a potential loss of privacy with telehealth. (3) Personalization of care: Patients described experiences with telehealth care that either improved or hindered their ability to communicate their needs. (4) Patient empowerment: Patients described how telehealth empowered them to manage their sleep disorders. (5) Unmet needs: Patients recognized specific areas where telehealth did not meet their needs, including the need for tangible services (eg, mask fitting).

Conclusions: Patients expressed both positive and negative experiences, highlighting areas where telehealth can be further adapted. As telehealth in sleep medicine continues to evolve, the authors encourage providers to consider these aspects of the patient experience.

Keywordsqualitative, patient experience, telehealth

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BRIEF SUMMARY

Current Knowledge/Study Rationale: While numerous randomized trials support the efficacy of telehealth to treat obstructive sleep apnea and insomnia, relatively little is known about patients' experiences and perceptions in everyday clinical practice. The authors conducted qualitative interviews among patients undergoing sleep telehealth encounters in clinical practice in order to better understand their experience and identify themes.

Study Impact: Five themes emerged from qualitative interviews, including (1) improved access to care, (2) security and privacy, (3) personalization of care, (4) patient empowerment, and (5) unmet needs. Across these themes, patients expressed both positive and negative experiences, highlighting areas where telehealth can be adapted to better suit patient needs.

INTRODUCTION

Facilitated by recent technological advances, telehealth has evolved to deliver medical care remotely through a suite of platforms, often replacing in-person clinical visits.[1] Sleep medicine has been an avid participant in this revolution, embracing video encounters as a means of improving access.[1] This transition has been progressing steadily over the last decade, but accelerated rapidly in the past year due to the coronavirus disease 2019 (COVID-19) pandemic.[2]

As practices and payors consider a transition to greater telehealth usage, it is essential that we provide high-quality care that supports patient engagement, communication, and satisfaction. Numerous randomized trials have focused on telehealth's efficacy to support comparable outcomes for obstructive sleep apnea and insomnia treatment relative to in-person care.[3–5] Survey data from sleep practices that were early adopters of telehealth also suggest that patients are satisfied with telehealth encounters, and that patients viewed telehealth encounters as more convenient than in-person care.[6,7] While these results are reassuring, our understanding of patients' experiences with sleep medicine telehealth encounters remains limited.

Qualitative interviews are powerful tools to expand our understanding of patient experience with telehealth encounters. In contrast to quantitative survey-based methods that measure and compare concepts that are established and prespecified, qualitative interviews allow individuals to describe their experiences in their own words. In doing so, qualitative interviews facilitate a rich and comprehensive understanding of patient experience, often allowing for a more nuanced perspective.[8]

Recent qualitative investigations have assessed patients' experiences with telehealth encounters in other settings, including telehealth visits with established primary care providers.[9,10] These evaluations found that telehealth was acceptable to patients, and that their experiences centered around such topics as convenience, comfort in appointments, and privacy. Illustrating the benefits of an open qualitative approach, patients highlighted unanticipated benefits of telehealth in improving the delivery of serious news.[9] Given differences that surround the patient–provider relationship in primary vs specialty care practices such as sleep medicine, it is important that we understand how telehealth impacts care within our context.

Expanding on prior work,[6,7] the authors elicited patients' perspectives regarding telehealth encounters. As part of a comprehensive evaluation of specialty care coordination and access, the authors conducted semi-structured interviews with patients who received sleep care remotely via telehealth. The main goal of this study was to assess patients' experiences with sleep medicine telehealth encounters and their perceptions of how these telehealth encounters impacted their care.

METHODS

The authors conducted semi-structured qualitative interviews between June 2019 and May 2020 within a sample of patients with sleep medicine telehealth encounters. The Department of Veterans Affairs (VA) Office of Veterans Access to Care approved the data collection and analyses as part of a quality-improvement evaluation, exempt from institutional review board approval.

The authors recruited patients served at 2 sites, 1 small rural site in White City, Oregon, and 1 large urban tertiary care site in Seattle, Washington. The authors included patients with 3 types of telehealth encounters with sleep medicine providers in the past 3 months: (1) video delivered by Clinical Video Telehealth, (2) video delivered using VA Video Connect, and (3) telephone. Clinical Video Telehealth encounters are physically located in a rural VA clinic and the patient communicates by video with a provider located at another VA site. VA Video Connect facilitates a video encounter using a patient's personal device (eg, smartphone or computer) at home or at another place of their choosing. The goal was to interview at least 10 patients with each type of telehealth encounter. The authors invited 136 eligible patients by mail (Clinical Video Telehealth: 37; VA Video Connect: 41; and telephone: 58) and followed up with up to 3 telephone calls to remind invitees and perform interviews individually with interested patients.

The authors developed a semi-structured interview guide (see the **Veteran Interview Guide** in the supplemental material) to elicit patients' perspectives and experiences with telehealth.[11] The interview began with open-ended prompts assessing general telehealth experiences, and then asked patients to discuss the most and least helpful aspects of telehealth and contrast their experience with prior encounters. The authors used follow-up probes, grounded in patients' verbatim language, to elicit rich examples. Audio was recorded and transcribed for all interviews for analysis.

The authors reviewed the first 10 transcripts using matrix categorization in order to rapidly report the findings of interviews to operational partners.[12] The authors identified 6 matrix domains based on interview guide questions and initial content: (1) positive aspects and facilitators, (2) negative aspects and barriers, (3) impact on care, (4) contrasts with in-person care, (5) suggestions for improvement, and (6) unintended consequences. As outlined below, these matrix domains were used for later in-depth coding.

Two analysts (L.M.D., A.C.M.) coded all transcripts and subsequently performed simultaneous deductive and inductive content analysis.[13] Inductive content analysis consisted of coding previously unidentified or unexpected content, while the deductive content analysis was structured and consisted of identifying meaningful units that fit within the preidentified matrix categories outlined above. Analysts met regularly while coding to ensure consensus. After review of coding and categorization, analysts met to identify emergent themes that cut across participants and inductive and deductive code categories. The authors conducted qualitative coding using the program ATLAS.ti v.8 (ATLAS.ti Scientific Software Development, Berlin, Germany).

RESULTS

The authors conducted semi-structured interviews with 35 patients. As outlined in **Table 1**, patients were interviewed across practice settings and telehealth platforms. Patients in this sample tended to identify as male and white. Most of the patients interviewed had obstructive sleep apnea, and a high prevalence of comorbid mental health disorders and cardiovascular comorbidities (**Table 1**) was observed. In **Table S1** in the supplemental material, characteristics of patients who were invited but did not proceed to an interview are included. Relative to interviewees, those who did not proceed to an interview tended to have younger age, greater racial/ethnic diversity, and have a higher burden of insomnia. Five themes emerged from qualitative interviews, including (1) improved access to care, (2) security and privacy, (3) personalization of care, (4) patient empowerment, and (5) unmet needs.

Improved access to care

Patients appreciated telehealth sleep care as providing specialty care access in a timely and convenient manner, especially during the COVID-19 pandemic. Some patients also saw telehealth as a welcome alternative to referrals to non-VA community providers.

Availability of specialists

Particularly among patients served at the rural site, there was a general appreciation for the ability of telehealth to facilitate access to specialists: "Being able to see somebody of his stature and a pulmonologist . . . is a distinct advantage."

Timely care

Patients remarked on a decreased wait time for telehealth appointments. Patients also appreciated the rapid treatment changes that were facilitated by providers having access to remote

Table 1—Sample characteristics.

	Entire Sample (n = 35)	Clinic-Based Video (n = 12)	Home-Based Video (n = 11)	Telephone (n = 12)
Age, mean (SD), y	61.8 (13.8)	71.2 (8.5)	57.8 (15.1)	56.1 (12.6)
Age by strata, n (%)				
20–49 years	6 (17.2)	0 (0.0)	3 (27.3)	3 (25.0)
50–59 years	10 (28.6)	2 (16.7)	4 (36.4)	4 (33.3)
60–69 years	5 (14.3)	1 (8.3)	1 (9.1)	3 (25.0)
70–79 years	12 (34.3)	8 (66.7)	2 (18.2)	2 (16.7)
80–89 years	2 (5.7)	1 (8.3)	1 (9.1)	0 (0.0)
Sex, n (%)				
Male	30 (85.7)	12 (100.0)	7 (63.6)	11 (91.7)
Female	5 (14.3)	0 (0.0)	4 (36.4)	1 (8.3)
Race, n (%)				
White	31 (88.6)	12 (100.0)	10 (90.9)	9 (75.0)
Black	1 (2.9)	0 (0.0)	0 (0.0)	1 (8.3)
Asian/Pacific Islander	3 (8.6)	0 (0.0)	1 (9.1)	2 (16.7)
Ethnicity, n (%)				
Hispanic/Latinx	2 (5.7)	0 (0.0)	1 (9.1)	1 (8.3)
Site, n (%)				
Rural	15 (42.9)	12 (100.0)	3 (27.3)	0 (0.0)
Urban tertiary care	20 (57.1)	0 (0.0)	8 (72.7)	12 (100.0)
Diagnoses, n (%)				
OSA	28 (80.0)	9 (75.0)	7 (63.4)	12 (100.0)
Insomnia	6 (17.1)	3 (25.0)	2 (18.2)	1 (8.3)
Depression	14 (40.0)	7 (58.3)	5 (45.5)	2 (16.7)
Anxiety	7 (20.0)	3 (25.0)	2 (18.2)	2 (16.7)
PTSD	14 (40.0)	4 (33.3)	5 (45.5)	5 (41.7)
CAD	9 (25.7)	6 (50.0)	2 (18.2)	1 (8.3)
CHF	4 (11.4)	2 (16.7)	1 (9.1)	1 (8.3)
COPD	6 (17.1)	3 (25.0)	1 (9.1)	2 (16.7)
CVD	3 (8.6)	1 (8.3)	2 (18.2)	0 (0.0)

CAD = coronary artery disease, CHF = congestive heart failure, COPD = chronic obstructive pulmonary disease, CVD = cerebrovascular disease, OSA = obstructive sleep apnea, PTSD = post-traumatic stress disorder, SD = standard deviation.

information: "He could have the machine make those changes right then and there, so that I could experience it that night."

Travel, convenience, and cost

Patients appreciated not having to travel to appointments and the associated inconvenience and costs, which included gasoline and motel stays. Patients who were currently employed appreciated that they could attend clinic encounters without taking time off work. "It saves me from having to use leave or leave my cubicle."

Access during the COVID-19 pandemic

The COVID-19 pandemic began midway through data collection and was frequently discussed by patients during this period. Patients remarked that telehealth was helping to keep them safe, and they expressed appreciation for telehealth's role in maintaining access during the pandemic: "instead of being left in the lurch, you're getting the phone call and you're talking about your situation."

Alternative to care in the community

Telehealth allowed some patients to maintain continuity of care within the VA, avoiding referrals outside of the organization to local community providers.

Security and privacy

Patients described how home-based telehealth afforded them greater feelings of safety and security within appointments due to avoidance of anxiety-provoking triggers. However, patients also noted a potential loss of privacy when telehealth was delivered at home.

Avoiding triggers for anxiety through home-based telehealth appointments

Some patients appreciated the opportunity to have appointments from home because they could avoid the stress of travel and triggers of past traumatic experiences: "[For in-person appointments] I have to be around people, I have to jump in

the car and maintain myself while I drive there, I have to maintain my cool while I'm trying to find a parking spot . . . and then I have to deal with walking inside, the long elevator, and all of the wheelchairs running me over." Home-based telehealth appointments, in contrast, enabled some patients to receive care in an environment where they felt more secure: "it's really nice just to be able to relax . . . I still feel like I'm getting the same care as if I were in the office. So to me, it's the best of both worlds."

Limited privacy with home-based telehealth

Patients described how they needed to exert more effort to maintain a professional environment and minimize distractions when telehealth was delivered outside of a clinic. Highlighting the distractions within their homes, patients commented that "it's kind of hard to have a private conversation when you have kids and you're a mom" or if "you're talking about some of the conflicts you have in your house . . . and the person you're having conflicts with is sitting 20 or 30 feet away . . . it's a little strained." In contrast, patients who had clinic-based telehealth specifically highlighted their privacy in these appointments: "I just felt secure . . . no distractions."

Greater privacy and "less pressure" over the phone

Several patients preferred phone encounters because they wished to avoid face-to-face contact. Patients expressing this view stated that they did not like being on camera, describing telephone conversations as "less pressure." These patients also noted that providers should be able to understand their needs through verbal communication alone.

Personalization of care

Patients described experiences with telehealth care that either improved or hindered their ability to communicate their individual needs to providers, which, in turn, translated into the delivery of personalized care and resulting health impacts.

Telehealth improves communication of individual needs

Patients primarily described telehealth encounters as a productive and effective means to express their needs around sleep. Additionally, patients appreciated providers' personalized attention over telehealth: "it just seemed like all of her attention was focused on me," "[personal attention] raises that level of comfort . . . you can trust this individual." Several patients discussed the specific benefits of video over telephone-based conversations. These patients expressed how face-to-face discussions could facilitate rapport and allow providers to more easily assess salient clinical features: "They can pick up on things like they're trained to." Citing a specific example, another patient said: "as opposed to just trying to manually explain it . . . he could say, 'oh yeah, that mask is just not suitable for you personally.'"

While patients predominantly noted an equivalent ability to communicate their needs over telehealth compared with in-person care, some patients perceived a relative advantage of video over in-person encounters. Patients cited fewer provider distractions as factors contributing to better communication over telehealth: "It's just you and them and nobody else . . . . He's not being bothered by having to go out and answer questions . . . . He's right there . . . . He's like your captive or something."

Patients also felt at times that they could express their concerns more freely over telehealth: "Sometimes you're braver without the person there in front of you." Finally, some perceived value in allowing providers to see their home environment: "It's also more personal because they can see also how you actually are at your home or where you're calling from."

Loss of a "personal" relationship

Contrary to findings expressed above, several patients felt that telehealth encounters were less personal, leading to a lack of trust. One patient described, "When I listen to the doctors I can stare into their eyes and tell if they're giving me a line . . . or fibbing. I like to read people a little bit, you can't do it on a video conference. So, there's a little bit of distrust on my part." Patients also attributed fewer personal interactions over video to poor image quality or camera orientation: "Images weren't really that crisp, you couldn't see the facial representations," and "It wasn't really eye to eye contact, it was kind of eye to the top of the head." Contrary to those who felt that telehealth encounters allowed them to speak freely, some patients also experienced a lack of dynamic discussion with telehealth compared with in person.

Variety of connection options

Based on their experiences, patients appreciated having a variety of telehealth options, with 1 patient suggesting that the VA consider "making it as easy as possible and giving [patients] as many options as possible," including phone, video, and in-person options as well as flexibility for timing of appointments.

Coordination of personalized care

Many of the patients expressed that providers were able to coordinate tailored and personalized care as a result of their encounters: "They were able to get me something that is customized and works for me, not a one size fits all . . . . I've got the equipment that fits my needs, not everybody else's, but my needs . . . . It has improved my sleep time immensely, which has given me a lot more energy."

This experience was not universal. Some patients described difficulty communicating their priorities and values. One patient reported a persistent lack of personalization despite their telehealth encounter: "I told them that I hated [continuous positive airway pressure] . . . they just keep wanting to slap it on my face and telling me to use it."

Health impacts of sleep care

Some patients discussed the positive impacts that sleep telehealth has had on their health, including improvements in daytime sleepiness and quality of life: "My quality of life is quite a bit better . . . now I can get out and do the things that I enjoy doing, which I couldn't do before."

Patient empowerment

Patients described experiences with sleep medicine telehealth encounters where they felt that their empowerment in managing their sleep conditions was either supported or limited.

Better understanding of sleep issues

Many patients highlighted moments where they received needed instruction or information through telehealth: "I found out things I needed to know." Patients noted that providers facilitated effective instruction by "going slow" and being "really engaged." Patients also highlighted the role of multimedia education possible through video-based telehealth: "the data that they have, because it's right there on the screen, next to their face. It makes it real easy for me, the patient, to see what the doctor is talking about." These patients reported better comprehension of their care plans and greater confidence in their treatment: "we discussed my issue and came up with a plan that's going to help me."

Empowerment to continue or reattempt treatment

Many patients talked about past struggles with sleep care treatment but reported that their recent telehealth encounter provided them with new options and encouragement. These patients described receiving supportive motivation from their providers: "They were concerned that I had given up before . . . . They wanted to change that so that I would be successful this time. So they did everything to make that happen." Recurrent in these experiences was the perception that providers "go out of their way to try and help." One patient reported that their provider "gave me hope" that they would find some relief for their sleep problems.

Mask-fitting issues

Many patients described issues with positive airway pressure (PAP) machine masks, and some were able to find solutions with help from a technician or provider. One patient talked about using their provider's recommendation for a mask and finally getting a good fit: "I haven't been able to find the right mask . . . except now, [the provider] has come up with this mask, he said it was his favorite one, and it works." Others reported persistent mask-fitting issues despite telehealth encounters.

Unmet needs

In addition to outlining the strengths of telehealth, patients also identified specific areas where telehealth was not meeting their needs.

Lack of follow-through with PAP therapy

Although patients felt telehealth appointments were useful in communicating with providers, several patients expressed a persistent need for onsite and hands-on services to start PAP therapy. In particular, patients in rural areas noted a persistent gap in executing the plan of care discussed during their video encounters around PAP therapy: "I need somebody here, somebody to show me these things and what's going on with the machine . . . . If I don't have somebody to do that . . . then [a video encounter] just doesn't help me at all."

Lack of a physical examination

Some patients also expressed concern that providers were limited in understanding their condition due to the absence of a physical examination. Contrasting telehealth with his prior in-person encounters, 1 patient noted, "they wouldn't have assessed my deviated septum . . . if it was video care."

DISCUSSION

Through semi-structured qualitative interviews, the authors explored patients' experiences with sleep medicine telehealth encounters. Similar to qualitative analyses of patients receiving telehealth in primary care,[9] patients presented diverse perspectives, centered around themes of access, security and privacy, personalization, empowerment, and unmet needs. Across these themes, patients expressed both positive and negative experiences, highlighting areas where telehealth can be adapted to better suit patient needs. Together with prior surveys and recent qualitative work expressing patient satisfaction more globally with remote care in sleep medicine (eg, home testing, remote PAP monitoring),[6,7,14] these findings reinforce the patient acceptance of telehealth for sleep medicine care.

Recent randomized trials support that sleep specialists can provide care over telehealth that is of comparable efficacy to care provided in person.[5,15–17] However, concerns persist around possible challenges to patient–provider communication and the formation of productive therapeutic relationships.[18,19] Aligning with prior quantitative surveys in sleep medicine and qualitative work from other contexts,[6,7,9,10] many patients expressed a reassuring view of provider relationships over telehealth. In fact, several patients noted superior relationships with providers over telehealth due to reduced interruptions and greater feelings of safety and security. Patients also described how telehealth could facilitate personalized education and instruction, leaving them feeling empowered with strategies to manage their sleep disorders. Contrary to these more positive experiences, some patients perceived that telehealth had a negative impact on communication with providers. Highlighting areas for improvement, patients noted that poor communication often stemmed from specific and potentially addressable issues (eg, poor video quality, camera placement).

While many patients appreciated improved access to sleep specialists over telehealth, some expressed persistent concerns around a lack of hands-on services such as mask fitting. Similar to qualitative analyses of patients seen in other contexts,[9,10] patients in the sample raised concerns about the lack of a physical examination. Several patients viewed onsite and hands-on services as essential to optimal management and expressed concern that providers may have "missed out" on salient information from a detailed physical examination. Consistent with these concerns, recent work demonstrates limited concordance between in-person and virtual upper airway examination.[20] These patient concerns reinforce the need for more research regarding the role of the physical examination in sleep medicine and its feasibility over telehealth. Furthermore, the field of sleep medicine will also need to better understand the utility of strategies to improve mask fitting in the remote setting. Such strategies could include instructional materials and videos or matching simultaneous in-person visits with respiratory therapists to telehealth encounters.[21]

Including patients across various age ranges and telehealth platforms, the interviews provide valuable insights into patients' experiences with telehealth encounters in sleep medicine. However, there are limitations in this approach. First, the authors only included individuals who completed telehealth encounters. Therefore, the authors cannot say that the experiences and themes that were found are unique to telehealth. For instance, the delivery of personalized care that leads to patient empowerment has also been described with in-person appointments.[22,23] The composition of the sample is also important to discuss. While in-depth qualitative interviews allowed for a rich collection of patient experiences, they do require a time investment from the patient (at least 15 minutes). The majority of those invited, 74%, did not proceed to interviews, and it is possible that patients with more positive telehealth experiences were more likely to complete interviews. Furthermore, the sample was primarily composed of those who were older, white, and male, and all participants were fluent in the English language. Therefore, the sample's perspectives may not be generalizable to non-VA populations with greater age, sex, and language and racial/ethnic diversity. These concerns are particularly salient given the growing "digital divide" that disproportionally limits access to telehealth technologies among racial and ethnic minorities and other disenfranchised groups.[24,25] It also is important to note that the necessity of telehealth during the COVID-19 pandemic may have impacted patients' perspectives related to telehealth. It is possible that patients' perspectives around telehealth may change once in-person encounters become more available. Finally, given the qualitative focus of the approach, the authors did not quantify the favorability of telehealth or quantify specific patient preferences for telehealth vs in person, preferences for 1 telehealth platform over another, or the relative frequency of technical issues. Furthermore, such comparisons would have been difficult to interpret within the sample as not all patients had access to the same telehealth platform (eg, the urban-based patients did not have access to clinic-based video appointments). Future investigations using quantitative survey-based methods in a larger sample would potentially be better suited to comparing patient preferences related to telehealth platforms and their respective technical issues.

CONCLUSIONS

With evolving technologies and growing familiarity with telehealth during the COVID-19 pandemic, it is likely that the telehealth revolution is here to stay. The authors found that patients' experiences with clinic and home-based telehealth encounters for sleep medicine centered around 5 themes: improved access to care, security and privacy, personalization of care, patient empowerment, and unmet needs. While these outcomes may not necessarily translate into traditional outcomes of interest (eg, treatment sleepiness, adherence), the authors encourage providers and hospital systems to consider these aspects of patient experience as we strive to deliver patient-centered care.

ABBREVIATIONS

COVID-19, coronavirus disease 2019
PAP, positive airway pressure
VA, Department of Veterans Affairs

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DISCLOSURE STATEMENT

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