

A Telehealth Case Study of Videophone Use Between Family Members

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ABSTRACT

This case study extends beyond the institution-centric provider-patient dyad to examine telehealth communication between a nursing home resident and a geographically distant family member. The participants communicated regularly for three months by videophone. They found technical performance and usability acceptable and were generally satisfied with this application of telehealth technology. They assumed a strong role in self-remedying technical and usability problems they experienced. Potential implications associated with such use of telehealth technology by residence-based patients and their significant others, and the self-directedness displayed by participants in this case study, are discussed.

INTRODUCTION

Adapting a framework used to evaluate telemedicine equipment,¹ the present case study examined perceived technical acceptability of, usability of, and overall satisfaction with videophone technology by a nursing home resident and a geographically distant family member.

METHODS

Structured interviews of about forty-five minutes were conducted with the resident (in person) and the family member (by phone). Interview transcripts were qualitatively analyzed and the research team achieved consensus in results and interpretation. Additional information was used from forms (validity- and reliability-tested) completed by the resident after most video-calls and from conversation with and notes recorded by the research assistant who oriented the participants.

RESULTS

Technical performance was not acceptable in initial phone calls because audio could not be established at either one end or the other. This was independently addressed by the family member in a subsequent videocall. The family member was experienced and comfortable with computer technology and also reported independent action to improve video clarity. After these initial adjustments, technical performance was acceptable to both participants. Led by the family member, participants also independently developed a call initiation sequence that they found

reliably connected them with best quality. With this sequence, participants perceived usability as also acceptable. Overall satisfaction with the application was quite good, as seen in the resident calling it “a wonderful thing” and the family member noting that each “enjoyed seeing” the other. Further evidence of satisfaction includes interest by the family member in purchasing videophones.

DISCUSSION

Findings show that both participants found technical performance and usability acceptable after trial-and-error workarounds were independently initiated by the family member. The literature supports greater acceptance of new technology by experienced users.² Both also were satisfied with the technology, preferring it to regular telephone communication. Additional information and meaning is gained through seeing as compared to only hearing the other person.³

CONCLUSION

There is evidence that videophone applications in traditional telehealth settings have positive psychosocial and other health-related effects for residence-based patients.⁴ Unlike in provider-patient telehealth communication, in this case the family dyad independently facilitated their own use and addressed some technical and usability problems. If this is found in large studies, long-term care facilities with limited staff may more actively encourage such use of videophones.

REFERENCES

- [1] DP Birkmire-Peters, LJ Peters, LA Whitacker, A usability evaluation for telemedicine medical equipment, *Telemedicine J.* 5 (2) (1999) 209–212.
- [2] Al-Gahtani, SS, and King, M "Attitudes, satisfaction and usage: Factors contributing to each in the acceptance of information technology," *Beh and Information Technology* (18:4), 1999, pp. 277-297.
- [3] Hegstrom TG Message Impact: What percentage is nonverbal? *Western J of Speech Communication* 1979;43:134-142.
- [4] Demiris G, Speedie SM, Finkelstein SM. The nature of communication in virtual home care visits. *Proc AMIA Symp* 2001:135-8.