Patient-perceived Barriers and Facilitators of Using Remote Health Technology to Manage Diabetes and Cardiovascular Disease in Underserved Adult Populations: A Systematic Review

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Purpose
Despite showing great promise for improving chronic disease management, little is known about the factors that contribute to the adoption of remote health technology in underserved populations. As diabetes and the relative risk of cardiovascular disease (CVD) disproportionately affect medically underserved and minority individuals, the aim of this study was to systematically review the published literature for barriers and facilitators influencing the use of remote health technology, as perceived by underserved adult patients with diabetes or CVD.

Methods
We conducted a systematic review of the literature utilizing four electronic databases (i.e., PubMed, Embase, CINAHL, and PsychINFO). We sought studies that included underserved adult patient feedback about remote health technology as an assessment or intervention tool for their diabetes or CVD-related self-management. Broadly, the search terms captured studies mentioning “telehealth”, “diabetes mellitus”, cardiovascular disease”, “medically underserved” or “minority” groups. We collected information such as: characteristics of remote health technology used, diversity of the sample, and patient feedback on facilitators and barriers to the adoption of the technology. Categories were derived and then placed under broad themes after analyzing the article content for patient-reported feedback.

Results
After a full review of 3,258 papers, 39 studies met the inclusion criteria. Five broad themes were identified for barriers (n=83) and facilitators (n=142) to utilization of remote health technology: characteristics of the remote health technology in use, clinical and lifestyle risk management, access, knowledge, and attitudes (Figure 1).

The design of the remote health technology (daily reminders, features, and message frequency) was the most frequently mentioned facilitator (Figure 1) and barrier to remote technology use.

Conclusion
This systematic review highlights the challenges and opportunities for the adoption of remote health technology by underserved adult patients with diabetes or cardiovascular disease. Specifically, the technology design (i.e., usability, extra features, and message frequency) was mentioned most often during patient feedback sessions as either facilitating or hindering their use of remote health technology for disease management. Future studies may build upon this work in order to increase implementation of remote health technology among underserved populations.

References