Overcoming the Digital Divide in the post-COVID "Reset": Enhancing Group Virtual Visits with Community Health Workers

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Abstract

The COVID-19 pandemic created numerous barriers to implement participant-facing research. For most, the pandemic required quickly transitioning to all virtual platforms. Like clinical care in the pandemic, our most vulnerable populations are at highest risk of falling through the cracks of engagement in research. Yet, we argue that we should reframe the discussion to consider how this transition may create opportunities to engage hard to reach populations. In the following, we present our experience in Atlanta, GA, transitioning a group visit model for South Asian immigrants to a virtual platform and the pivotal role community members in the form of community health workers (CHWs) can play in building capacity among participants. We provide details on how this model helped address common barriers to group visit models in clinical practice and how our CHW team innovatively addressed the digital challenges of working with an elderly population with limited English proficiency.

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Original Manuscript

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Abstract

The COVID-19 pandemic created numerous barriers to implement participant-facing research. For most, the pandemic required quickly transitioning to all virtual platforms. During this pandemic, our most vulnerable populations are at highest risk of falling through the cracks of engagement in clinical care and research. Yet, we argue that we should reframe the discussion to consider how this transition may create opportunities to engage hard to reach populations. In the following, we present our experience in Atlanta, GA, transitioning a group visit model for South Asian immigrants to a virtual platform and the pivotal role community members in the form of community health workers (CHWs) can play in building capacity among participants. We provide details on how this model helped address common barriers to group visit models in clinical practice and how our CHW team innovatively addressed the digital challenges of working with an elderly population with limited English proficiency.

Introduction

The rapid adoption and escalation of telemedicine during the current COVID-19 pandemic has given rise to concerns about widening gaps in health equity.[1] Among populations with limited digital access or literacy, notable gaps in access to care have been found; for example, less than a third of Medicare beneficiaries over 65 have reported digital access at home, and those over 75 and with less than a high school education are less likely to use technology for health care needs.[2,3] Potentially vulnerable groups include underserved racial and ethnic groups, older adults, and adults with limited English proficiency (LEP), for whom barriers to care access and health information technology (HIT) have been well documented, exacerbated by the pandemic, and are at risk of worsening.[3–8]

In addition, the pandemic and social distance guidelines have profoundly limited the ability of vulnerable populations to access reliable health care.[9,10] Particularly for chronic disease

prevention and management, this can lead to delays in care that may result in poor health outcomes. Over 40% of respondents in a recent survey of over 5,000 US adults reported delaying or avoiding care due to concerns related to COVID-19; which has been linked to excess deaths reported in 2020, compared to prior years.[9] Older adults, people of color, and low-income individuals –the same populations with the lowest telemedicine access and literacy– have been disproportionately afflicted by COVID-19 and are at highest risk of cardiometabolic disease.[11,12] The confluence of health risk and the digital divide in these communities create an environment in which these groups may be most vulnerable to gaps in care and social isolation, factors known to exacerbate chronic health conditions.

Despite these challenges, virtual group visits led by community health workers (CHWs), trained public health professional with shared lived experience of the communities they serve, may be a pivotal strategy to help address the digital divide in telehealth and foster social connectedness. Social connections can not only influence the risk of chronic illness but can also improve chronic disease management.[13,14] Social support is considered to be a major component of chronic disease self-management.[15] Previous research suggests that adults with limited social interactions are less likely to engage in health behaviors such as physical activity, smoking cessation, and health eating habits.[16] To address this and stimulate socially cohesive and supportive care, group visits have emerged as a type of visit format in which a portion of the visit is a group education class, that can be led by a health coach, nutritionist, or medical assistant, and a portion of time is spent in a brief one-on-one visit with a clinician. Yet, the implementation of group visits has challenges. [17,18] These challenges include visit level challenges such as logistics of clinic workflow and meeting space, patient-level factors such as scheduling or transportation conflicts, and group-leader level challenges such as comfort level in a group role and engaging and retaining participants.

Group visits can be enhanced by meeting patients where they live, work, and worship. CHWs are trained and trusted members of their community, who can serve as a bridge between clinical and

community settings. CHWs can work in a variety of capacities to support health education, treatment adherence, health system navigation, and linkage to social services for some of the most vulnerable populations with chronic health conditions.[19] Integrating CHWs into and having them lead group visits may be a particularly effective approach to engaging patients in socially-cohesive activities because of CHWs' familiarity with the communities with which they work. Often, they have shared experiences that enhance rapport-building with patients. A systematic review demonstrated chronic disease management interventions that included CHWs were associated with increases in tobacco cessation, improved blood pressure control, and low blood sugar levels, with no risk of adverse events.[20]

In the current context of the COVID-19 pandemic, virtual group visits may have additional challenges but also expose unanticipated advantages to address the digital divide. Here, we describe our experience transitioning from in-person to a virtual CHW-guided group visit intervention for diabetes and hypertension management among older South Asian adults with LEP.

DREAM Atlanta

Funded by the National Institute of Health, the DREAM Atlanta study was designed to test the effectiveness of CHW-delivered in-person health education on diabetes and hypertension that was tailored for South Asians adults living in Atlanta. Over the course of 6 months, those in the intervention group were to receive 5 group education sessions, and 2 one-on-one home visits. Initiated in the fall of 2019, the pandemic forced the program's transition to virtual group visits just as study recruitment began. The transition to a virtual program necessitated not only training of CHWs and other study staff in utilizing technology to deliver remote sessions, but also to educate study participants to utilize digital devices and access virtual platforms. Among the 190 adults of South Asian descent enrolled in the program, all reported English as a second language. At baseline, participants were on average, 56 years old (range: 30-80), with approximately 40% of participants over the age of 60; 56% were female; 44% were male; and 96% reported access to a smartphone or

tablet.

The CHWs worked one-on-one with participants to address barriers to engaging with remote technologies such as creating email accounts, downloading applications to smart devices, and teaching participants how to use features of video conferencing such as the video and mute features. CHWs utilized several strategies to help participants connect.

Rapid Transition Assessment Methods and Findings

To gather study team perspectives on the transition to virtual group visits, one 90-minute, tape-recorded video group discussion was conducted with 3 CHWS and the study project coordinator. Discussion topics included a discussion of feasibility to conduct virtual recruitment and study sessions, barriers to implementing the study virtually, and specific adaption processes utilized. This data was supplemented with reviews of meeting minutes from weekly team meetings held from March 2020 to December 2020. The first and senior authors reviewed common themes emerging from the group discussion and reviews of meeting minutes to determine key facilitators and barriers to implementation of the remote intervention. All study activities conducted were reviewed by the NYU School of Medicine IRB, which serves as the single IRB for this study.

Table 1 lists the digital challenges and solutions fostered by the CHW team. For example, CHWs would start with technology that participants were familiar with to help them learn to log on to the video-conferencing apps. Most of the DREAM study participants are mobile internet users via their smartphones, and similar to studies in South Asia, participants report familiarity with such platforms as Facebook and WhatsApp.[21] Thus, for example, if participants used WhatsApp, the CHW would ask them to join a video call on this platform to help them understand the process of connecting to study-approved remote platforms such as Zoom. This teach back method by the CHWs to their participants greatly enhanced their confidence to schedule and lead group virtual visit sessions.

Table 1: Digital Challenges and Strategies used by Community Health Workers to Enhance Virtual Group Visit Attendance among South Asian Adults with Limited English Proficiency

Digital Challenge	Strategy/Modification	Example/Representative Quote
CHWs had limited experience with video-conference software	• In-person sessions with the project coordinator and trial and error with the platform to learn to use features.	"The project coordinator met with us [the CHWs] in the office and we created the initial set up and user experience for zoom." "There was steady progress with features such as using the chat box, chatting, and muting participants as the CHWs became more familiar with interface [*sic*]".
Participants did not know how to download applications to their smartphone	• Call participant or involve a family member and walk them through the steps to download the application. • Provide in-language and empowerment to assist participants to address frustrations with new technology.	" [We] encourage the participant that a challenge they experience is common (such as problems with the audio), and this encourages the participant to continue to work through the technical situation."
Challenges with scanning consent forms or other survey documents	• Provide real-time virtual of telephone assistance to trouble shoot issues with documents rather than waiting for weekly meetings or follow up meetings/calls.	"At the time that the CHW/participant needs to send a form, they call the coordinator/CHW to learn the skill. The person receiving the form then sometimes makes quick edits to the form to make it legible or printable."
Participants did not have email addresses to receive study documents	• Utilize family members who can provide email addresses or support participants. • Choose a communication strategy that the participant might be familiar with like a text messaging platform.	"It is often easier to send a link through text message or WhatsApp than email. In general, email proficiency of the participants has not change over time. It is not seen as an easy form of communication in the community".
Participants did not know how to log on to Zoom	• Involve family members in the meetings. • Schedule meetings based on other family member's availability.	"We ask family members when they will be available and try to schedule sessions at those times."
Internet connectivity challenges	• Be flexible with scheduling and offer multiple times and days of the week, including weekends and evenings to attend sessions. • Change to audio only or telephone sessions if participants cannot connect.	"Multiple family members may be using the same smartphone for internet; thus we offer our sessions on the weekend and evenings and often have to reschedule to make sure participants can attend [*sic*]".

In the 5 months of this transition, we have observed CHWs' unique strengths to help close the

digital divide among this highly vulnerable population. While previous studies have demonstrated the effectiveness of mobile technologies for chronic health conditions, including diabetes self-management, there are few published studies examining or reporting on the process of getting participants connected to telehealth platforms.[22,23] However, technical challenges and education of patients about telehealth services are well-documented challenges for health systems' implementation of telehealth services.[24] Similar to our experience, a recent systematic review identified the participant training in videoconferencing by an information technology specialist or a group facilitator as a method used to overcome participant challenges to connect for psychotherapy interventions.[25] Thus, our findings add to and may have broader application to address the known challenges of user-related technical difficulties connecting to virtual health services.

Moreover, they have addressed several known challenges of groups visits that are both participant- and visit-related. Firstly, the barrier of adequate transportation, particularly acute in large, diffuse urban areas like Atlanta with limited public transportation options, can prevent participants from attending group visits. Previous research of barriers to participation in group medical visits include lack of transportation or scheduling conflicts,[26,27] yet by offering this virtual option, participants report that it has facilitated their ability to engage in the intervention. One female CHW commented, "For our participants, Zoom is better, because they don't need to get ready or drive anywhere. We are able to spend more time with them."

Logistical issues of meeting space and workflow can lead to inefficiency and be time-intensive for group visit implementation in clinical practice.[27,28] The move to virtual visits has given the team flexibility in scheduling and location that has likely enhanced participation and engagement and improved the efficiency of the visits. The CHWs report having more flexibility to hold multiple sessions if needed to facilitate participation, as these logistical obstacles are easier to overcome in virtual sessions.

Lastly, all participants share a common background and health conditions. Shared personal

health characteristics can greatly enhance participation and patient activation, leading to improved benefits and health outcomes from group visits.[26,28] While still in progress, the retention rate is >90% going into the fifth month of this six-month program. At the height of the pandemic, at a time when older adults of underserved racial and ethnic communities with LEP were at greatest risk of social isolation, the virtual groups visits have provided much welcomed social interaction for these at-risk individuals. As one female CHW commented, “They [participants] are bored at home; now they are eagerly awaiting our sessions!”.

While this pandemic has certainly strained most aspects of well-being for a majority of individuals, there are opportunities to shape our “new normal”. Namely, for communities of color, older adults, and those with LEP, where the risk of the digital divide and social isolation may widen, investing in resources, like CHW-led group virtual visits, may help address gaps in care. The group visit model offers the opportunity to enhance social interaction and patient activation, and preliminary results from our study demonstrate that the virtual group visit is feasible and acceptable for older adults with LEP. Further, we believe that the utilization of CHWs is critical to this process, to help cross the digital chasm that is at risk of widening further during this ongoing pandemic and enhance the digital literacy of our most vulnerable populations. Beyond the current pandemic, we believe this model is feasible and can continue to reach our most vulnerable populations in the future.

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Conflicts of interest
The authors declare that they have no conflicts of interest.

References
1. NouriSarah, C K, R L, KarlinerLeah. Addressing Equity in Telemedicine for Chronic Disease Management During the Covid-19 Pandemic. NEJM Catalyst Innovations in Care Delivery [Internet] Massachusetts Medical Society; 2020 May 4 [cited 2020 Dec 15]; Available from: https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0123

2. Roberts ET, Mehrotra A. Assessment of Disparities in Digital Access Among Medicare Beneficiaries and Implications for Telemedicine. JAMA Intern Med 2020 Oct 1;180(10):1386. [doi: 10.1001/jamainternmed.2020.2666]

3. Gordon NP, Hornbrook MC. Differences in Access to and Preferences for Using Patient Portals and Other eHealth Technologies Based on Race, Ethnicity, and Age: A Database and Survey Study of Seniors in a Large Health Plan. J Med Internet Res [Internet] 2016 Mar 4 [cited 2020 Nov 17];18(3). PMID:26944212

4. Din HN, McDaniels-Davidson C, Nodora J, Madanat H. Profiles of a Health Information-Seeking Population and the Current Digital Divide: Cross-Sectional Analysis of the 2015-2016 California Health Interview Survey. J Med Internet Res 2019 14;21(5):e11931. PMID:31094350

5. Chunara R, Zhao Y, Chen J, Lawrence K, Testa PA, Nov O, Mann DM. Telemedicine and healthcare disparities: a cohort study in a large healthcare system in New York City during COVID-19. Journal of the American Medical Informatics Association [Internet] 2020 Aug 31 [cited 2020 Dec 15];(ocaa217). [doi: 10.1093/jamia/ocaa217]

6. Yoon H, Jang Y, Vaughan PW, Garcia M. Older Adults' Internet Use for Health Information: Digital Divide by Race/Ethnicity and Socioeconomic Status. J Appl Gerontol 2020;39(1):105–110. PMID:29661052

7. Nguyen A, Mosadeghi S, Almario CV. Persistent digital divide in access to and use of the Internet as a resource for health information: Results from a California population-based study. Int J Med Inform 2017;103:49–54. PMID:28551001

8. Casillas A, Moreno G, Grotts J, Tseng C-H, Morales LS. A Digital Language Divide? The Relationship between Internet Medication Refills and Medication Adherence among Limited English Proficient (LEP) Patients. J Racial Ethn Health Disparities 2018;5(6):1373–1380. PMID:29600351

9. Czeisler MÉ. Delay or Avoidance of Medical Care Because of COVID-19–Related Concerns — United States, June 2020. MMWR Morb Mortal Wkly Rep [Internet] 2020 [cited 2020 Nov 17];69. [doi: 10.15585/mmwr.mm6936a4]

10. COVID-19 And Health Disparities: Insights From Key Informant Interviews | Health Affairs Blog [Internet]. [cited 2020 Dec 15]. Available from: https://www.healthaffairs.org/do/10.1377/hblog20201023.55778/full/

11. Clark A, Jit M, Warren-Gash C, Guthrie B, Wang HHX, Mercer SW, Sanderson C, McKee M, Troeger C, Ong KL, Checchi F, Perel P, Joseph S, Gibbs HP, Banerjee A, Eggo RM, Nightingale ES, O'Reilly K, Jombart T, Edmunds WJ, Rosello A, Sun FY, Atkins KE, Bosse NI, Clifford S, Russell TW, Deol AK, Liu Y, Procter SR, Leclerc QJ, Medley G, Knight G, Munday JD, Kucharski AJ, Pearson CAB, Klepac P, Prem K, Houben RMGJ, Endo A, Flasche S, Davies NG, Diamond C, Zandvoort K van, Funk S, Auzenbergs M, Rees EM, Tully DC, Emery JC, Quilty BJ, Abbott S, Villabona-Arenas CJ, Hué S, Hellewell J, Gimma A, Jarvis CI. Global, regional, and national estimates of the population at increased risk of severe COVID-19 due to underlying health conditions in 2020: a modelling study. The Lancet Global Health Elsevier; 2020 Aug 1;8(8):e1003–e1017. PMID:32553130

12. Preliminary Estimates of the Prevalence of Selected Underlying Health Conditions Among Patients with Coronavirus Disease 2019 - United States, February 12-March 28, 2020 - PubMed [Internet]. [cited 2021 Mar 29]. Available from: https://pubmed.ncbi.nlm.nih.gov/32240123/

13. Christakis NA, Fowler JH. The spread of obesity in a large social network over 32 years. N Engl J Med 2007 Jul 26;357(4):370–379. PMID:17652652

14. Cunningham SA, Adams SR, Schmittdiel JA, Ali MK. Incidence of Diabetes after a Partner's Diagnosis. Prev Med 2017 Dec;105:52–57. PMID:28823754

15. Strom JL, Egede LE. The impact of social support on outcomes in adult patients with type 2 diabetes: a systematic review. Curr Diab Rep 2012 Dec;12(6):769–781. PMID:22949135

16. Kobayashi LC, Steptoe A. Social Isolation, Loneliness, and Health Behaviors at Older Ages: Longitudinal Cohort Study. Ann Behav Med 2018 Jan 25;52(7):582–593. PMID:29860361

17. Careyva BA, Johnson MB, Goodrich SA, Shaak K, Stello B. Clinician-Reported Barriers to Group Visit Implementation. J Prim Care Community Health 2016 Jul;7(3):188–193. PMID:26883437

18. Thompson C, Meeuwisse I, Dahlke R, Drummond N. Group medical visits in primary care for patients with diabetes and low socioeconomic status: users' perspectives and lessons for practitioners. Can J Diabetes 2014 Jun;38(3):198–204. PMID:24909090

19. Peretz PJ, Islam N, Matiz LA. Community Health Workers and Covid-19 — Addressing Social Determinants of Health in Times of Crisis and Beyond. New England Journal of Medicine

Massachusetts Medical Society; 2020 Nov 5;383(19):e108. [doi: 10.1056/NEJMp2022641]

20. Jeet G, Thakur JS, Prinja S, Singh M. Community health workers for non-communicable diseases prevention and control in developing countries: Evidence and implications. PLoS One 2017;12(7):e0180640. PMID:28704405

21. Prinjha S, Ricci-Cabello I, Newhouse N, Farmer A. British South Asian Patients' Perspectives on the Relevance and Acceptability of Mobile Health Text Messaging to Support Medication Adherence for Type 2 Diabetes: Qualitative Study. JMIR mHealth and uHealth 2020;8(4):e15789. [doi: 10.2196/15789]

22. Lee J-A, Choi M, Lee SA, Jiang N. Effective behavioral intervention strategies using mobile health applications for chronic disease management: a systematic review. BMC Medical Informatics and Decision Making 2018 Feb 20;18(1):12. [doi: 10.1186/s12911-018-0591-0]

23. Narasimha S, Madathil KC, Agnisarman S, Rogers H, Welch B, Ashok A, Nair A, McElligott J. Designing Telemedicine Systems for Geriatric Patients: A Review of the Usability Studies. Telemed J E Health 2017 Jun;23(6):459–472. PMID:27875667

24. Ellimoottil C, An L, Moyer M, Sossong S, Hollander JE. Challenges And Opportunities Faced By Large Health Systems Implementing Telehealth. Health Affairs Health Affairs; 2018 Dec 1;37(12):1955–1959. [doi: 10.1377/hlthaff.2018.05099]

25. Banbury A, Nancarrow S, Dart J, Gray L, Parkinson L. Telehealth Interventions Delivering Home-based Support Group Videoconferencing: Systematic Review. J Med Internet Res 2018 Feb 2;20(2):e25. PMID:29396387

26. Wadsworth KH, Archibald TG, Payne AE, Cleary AK, Haney BL, Hoverman AS. Shared medical appointments and patient-centered experience: a mixed-methods systematic review. BMC Fam Pract [Internet] 2019 Jul 8 [cited 2020 Nov 17];20. PMID:31286876

27. Jaber R, Braksmajer A, Trilling JS. Group visits: a qualitative review of current research. J Am Board Fam Med 2006 Jun;19(3):276–290. PMID:16672681

28. Edelman D, Gierisch JM, McDuffie JR, Oddone E, Williams JW. Shared Medical Appointments for Patients with Diabetes Mellitus: A Systematic Review. J Gen Intern Med 2015 Jan;30(1):99–106. PMID:25107290