Effectiveness of participant support in a digital health trial: insights from the DIAMANTE study

Sara Guzman-Estrada[6], Lynn Leng[1,2], Marvyn Arevalo Avalos[3], Adrian Aguilera[3,4], Courtney R Lyles[5]

[1]School of Public Health, UC Berkeley-UCSF Joint Medical Program, University of California, Berkeley, Berkeley, CA, [2]School of Medicine, University of California, San Francisco, San Francisco, CA, [3]School of Social Welfare, University of California, Berkeley, Berkeley, CA , [4]Department of Psychiatry and Behavioral Sciences, University of California, San Francisco, San Francisco, CA, [5]Center for Healthcare Policy and Research, University of California at Davis, School of Medicine, Sacramento, CA, [6]Division of General Internal Medicine at Zuckerberg San Francisco General Hospital, Department of Medicine, University of California, San Francisco, San Francisco, CA

Background

There is limited research on what capacity research teams interact with participants in digital health trials and whether study support affects retention rates.

Objective

To examine the effectiveness of automated and human support in participant retention in a digital health trial (the DIAMANTE study), for adults with type 2 diabetes and depression.

Methods

Patient population

- English and Spanish-speaking patients; aged 18-75 years old.
- Patients of San Francisco Health Network and/or social media.
- Diagnosed with diabetes and depressive symptoms.

Intervention arms

3 intervention arms, receiving varying mental and physical health content (measured by step count on smartphones).

Study support

- Automated = text reminders sent at 24, 48, and 72 hours following missing step count data.

e.g., “DIAMANTE has not received your activity today and will be unable to send you a correct message tomorrow. Please open the app to share your progress with this link”.

- Human support = follow-up call/text after 72 hours if automated text reminders did not result in patients re-engaging in step count transmission.

Statistical analysis

Chi-square test was performed to examine associations between support received, patients’ demographic characteristics, and self-reported digital literacy skills.

Results

168 patients were included in the secondary analysis, with a mean age of 49 (SD 12.1), 104 (62%) female, and 128 (76%) English speaking.

- 130 (77%) patients received at least one form of contact (either automated text message or call) from study staff.
- 65 (50%) rejoined step count transmission after receiving automated text reminder.
- 40 (80%) rejoined after receiving human support from study staff.

There were no significant differences in patients’ demographic characteristics **(p > 0.05)**, or self-reported digital literacy skills **(p > 0.05)** for those who rejoined vs. those who did not rejoin the study via automated support or human support.

Figure 1: Patient support flowchart

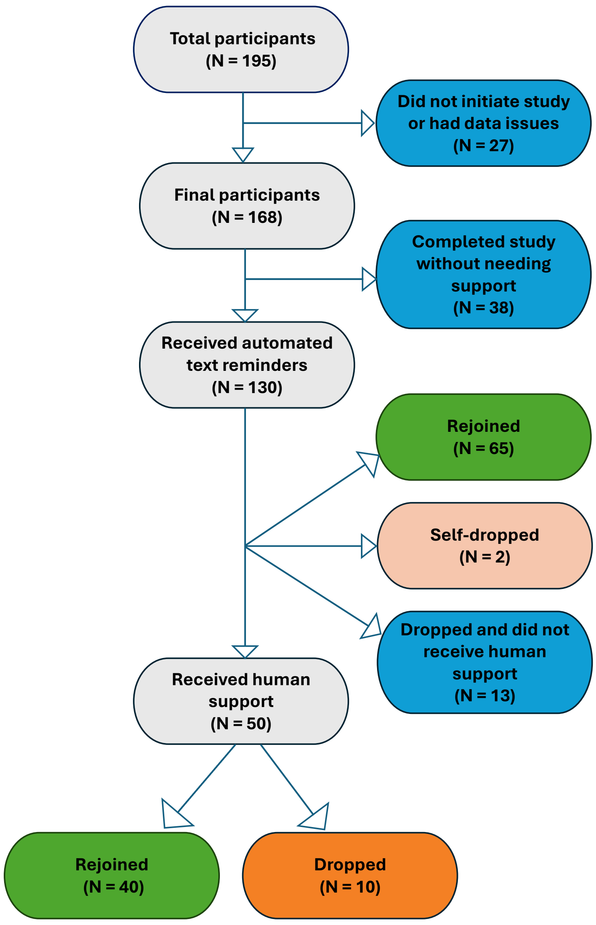

Figure 2: Frequency and range of support

Mean number and range of support (N = 130)	
Automated text support:	
1st text: 13.98 [1,53]	
2nd text: 2.49 [0,34]	
Human contact support:	
2.68 [1,9]	
Top reasons participants dropped and rejoined study (N = 40)	
Technical:	Non-technical:
1. App not open (26)	1. Physical (2)
2. Phone/App issues (5)	2. Weather (1)
3. Unknown technical issues (2)	3. Thought study was over (1)

Conclusion

Utilizing low-cost automated support, with human support as a supplement may optimize retention for mHealth trials.

For more information on the DIAMANTE study, scan QR code below.

PMID: 39378080
jmir.org/2024/1/e60834