Chatting for Change: Insights into and Directions for Using Online Peer Support Groups to Interrupt Prolonged Workplace Sitting

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Abstract: Prolonged sedentary behavior and insufficient physical activity increase the risk for non-communicable diseases. Online peer support groups, driven by the widespread use of mobile phones and social media, have gained popularity among people seeking health condition management advice. This position paper examines the role of online peer support groups within a behaviour change intervention, MOV'D (Move Often eVery Day), which promotes physical activity and reduces sedentary behavior in the workplace. We conducted a thematic analysis of post-study interviews from two randomized control trials to identify the benefits and limitations of online peer support groups and provide recommendations for improvement. We found that participation in online peer support groups contributes to a sense of belonging and accountability, helps to facilitate the exchange of knowledge and application of the intervention content, and serves as reminders encouraging physical activity throughout the day. However, participants do not always have enough time and cognitive resources to read all the messages and actively participate in the group chats. Individual differences also contribute to a decrease in overall chat activity, as the group chat does not always meet all participant's preferences and needs.

1 INTRODUCTION

Peer support has proven to be invaluable in helping many people overcome difficult situations and is often defined by the ability of people with similar life experiences to establish deeper connections, offer more authentic empathy and validation and provide practical advice that professionals may not know about (Mead & MacNeil, 2006). In recent years, with the widespread use of mobile phones and social media, online peer support groups (OPSG) have gained popularity among those who are seeking advice on the management of physical and psychological health conditions and have demonstrated a number of benefits, such as protecting from social stigma, decreasing loneliness and anxiety, facilitating feelings of empowerment, boosting general well-being and providing better opportunities for self-expression (Iliffe & Thompson, 2019).

One of the areas where peer support groups can be applied is occupational health. A common workplace problem is prolonged and uninterrupted sedentary behavior[1] (Wu et al., 2023). Office workers have been

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[1] Sedentary behavior refers to any waking activities characterized by an energy expenditure equal to or below 1.5 metabolic equivalents (METs) while in a sitting, reclining, or lying posture; prolonged sedentary behavior refers to accumulation of sedentary behavior in extended continuous bouts (Tremblay et al., 2017).

reported to be sedentary for 81.8% of work hours on work days, with much of this time spent in prolonged uninterrupted bouts[2] of longer than 30 minutes (Parry & Straker, 2013). Moreover, individuals who were most sedentary at work were found to be also more sedentary outside work (Parry & Straker, 2013), which could potentially result in an overall daily sedentary time[3] ranging from 7.7 to 11.5 hours per day (Dunstan et al., 2021). People can meet physical activity recommendations for their age but still spend a substantial part of their day sedentary (Dunstan et al., 2021), and therefore still be at risk for the development of diseases such as type II diabetes, cardiovascular diseases, abdominal obesity, metabolic syndrome, and premature mortality (Dunstan et al., 2021; Wu et al., 2023). A growing body of evidence suggests that reducing sedentary behavior and breaking up prolonged sitting not only enhances the health and well-being of employees (Radwan et al., 2022) but also improves social interaction and work performance (Damen et al., 2020; Radwan et al., 2022).

According to reviews that have assessed interventions targeting sedentary behavior and physical activity in workplace contexts, one of the most promising and frequently used techniques was creating social support (Damen et al., 2020). The focus group study that investigated factors influencing the adoption of workplace activity breaks identified workplace culture and awareness of the activity breaks benefits as both facilitators and barriers: supportive workplace cultures and knowledge of the benefits were seen as facilitators, while cultures inhibiting breaks and lack of awareness were barriers (Hargreaves et al., 2020). Another study among full-time working adults examined the extent and type of social support for physical activity from coworkers, friends and family and discovered that coworker support was the sole source significantly associated with physical activity, emphasizing the importance of incorporating coworker social support in workplace health promotion programs (Sarkar et al., 2016).

We know workplace culture and social norms can be a barrier and social support can be a facilitator. The qualitative study on employee preferences for workplace health promotion highlighted the significance of virtual social connections in an online, asynchronous setting (Olsen et al., 2018). Given this, it becomes evident that there is a need to identify what role OPSG can play in workplace interventions to interrupt prolonged sitting. The primary aim of this

study was to address this gap and investigate the benefits and barriers associated with OPSG by conducting a thematic analysis of post-study interviews from two randomized control trials with adults employed in sedentary jobs.

2 METHODS

2.1 Study Design

This paper analyses data from a larger parent trial, Move Often eVery Day, a randomized controlled pilot to decrease sedentary behavior by interrupting prolonged sitting with high intensity exercise snacks. The study was approved by the Stanford University Institutional Review Board (IRB-60388) and was registered with ClinicalTrials.gov (NCT05360485). This was a remotely-delivered study conducted from April to September 2022 with participants recruited from the United States. Inclusion criteria included: age (>18 years), language (English-speaking), owning a smartphone with internet access, being employed in sedentary job and with ability to safely increase physical activity. Informed consent was obtained from all participants who fulfilled the inclusion criteria. Consented participants were randomized in blocks of 20-24 to one of two groups: MOV'D, which included an online peer support group and study materials; and self-monitoring only, which received all study materials at the end of the 2-month study. Participants in each block were stratified by self-reported physical activity from most to least active. Participants were then randomized in blocks of four, with two "buddies" within the MOV'D peer support group, and the two others assigned to the control group with no connection (Full protocol paper pending publication).

The MOV'D intervention included a private peer support group which received once a week behavior change strategy videos and every weekday exercise snack videos (called a "snacktivity" in the study) and intervention prompts to reinforce the exercise snack behaviors and behavior change strategies taught in the intervention (Chase et al., 2009; Leelawong et al., 2002). Participants were given the option to select a behavior change video from a provided list. They were then encouraged to summarize the selected video to their buddy in the group chat as a means of reinforcing their understanding of the content. At the beginning of the intervention, all the participants in the MOV'D

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[2] Sedentary bout is a period of uninterrupted sedentary time (Tremblay et al., 2017).

[3] Sedentary time refers to the time spent for any duration (e.g., minutes per day) in any context (e.g., at work or home) in sedentary behaviors (Tremblay et al., 2017).

condition met via Zoom to practice tweeting / group messaging, practice a snacktivity, and learn about their weekly behavior change videos and goal setting with their buddies. Buddies met in breakout rooms during this initial Zoom meeting.

At the beginning of the study, some participants created private chats and used them as the main channel to communicate with their buddy. At the one-week check in point, a decision was made to direct all messages to the group chat, allowing everyone to engage in the activities and share in the learning experience. This approach was adopted from the Tweet2Quit buddy study (Pechmann et al., 2017) to ensure that even those without great matches could benefit from and observe the group's activities.

There were three cohorts within the MOV'D study. The first cohort was Twitter-based, modelled after the Tweet4Wellness (Oppezzo et al., 2021) and Tweet2Quit studies (Pechmann et al., 2017). The other two used GroupMe as a platform for online peer support due to participants' feedback from the first study and API changes.

2.2 Data Collection and Analysis

In this study, we focused on data from cohorts 2 and 3 due to their similarities in utilizing GroupMe as communication channel and audio-recordings of post-study interviews. In contrast, Cohort 1 was based on Twitter, and had only detailed notes rather than audio-recordings of interactions.

The research team conducted semi-structured, individual interviews with participants after the study period via Zoom. Before each interview began, the purpose of the interview was explained to the participant, confidentiality was guaranteed, permission to record the interview was asked and the participant was invited to clarify or ask questions. The interviews were systematically audio-recorded and subsequently transcribed and checked for accuracy.

The analysis and results reporting format followed guidelines for thematic analysis (Maguire & Delahunt, 2017). We started with open coding, based on recurring ideas and concepts found in the interview transcripts. For this study, we only analysed the parts of the interview that were related to the online peer support group and buddy system. The questions covered overall intervention experience, e.g., "What was your overall experience with the intervention?" and "Was there anything that stood out as particularly enjoyable or beneficial to you?", the nature of the relationship with buddy, e.g., "Did you have regular interactions with your buddy? Was that a good connection?" and interaction with study components, e.g., "What were your thoughts on the behavior change videos? Was it helpful when you shared with your buddy what you learned from these videos?". Codes were refined, merged, or split as necessary to ensure accuracy and consistency. Codes were then grouped together to develop the themes that emerged from the data.

3 RESULTS

3.1 Participants Characteristics

This sub analysis looks at cohort 2 and 3 intervention groups of the MOV'D study, and specifically the 9 of 25 participants who agreed to attend the post-study interview. Demographics and other baseline characteristics are presented in Table 1. The majority of participants in both cohorts worked full-time in a hybrid work situation. Cohort 2 features the younger age group (mean age of 37 years) with a relatively balanced gender distribution (25% male, 67% female and 8% non-binary). Cohort 3 represents an older age group (mean age of 41.6 years) with a predominantly female population (92%). Body mass index (BMI) for each participant was calculated using a formula, BMI = weight (lb) / [height (in)]^2 x 703, provided on the CDC website based on self-reported weight and height data. In Cohort 3, 12 participants out of 13 provided information about their weight and height. In both cohorts, mean BMI score was within the overweight range (CDC, 2022).

Table 1: Baseline characteristics by cohort.

Characteristics	Intervention groups		Interview subgroups	
	C2 (n = 12)	C3 (n = 13)	C2 (n = 3)	C3 (n = 6)
Age (years), mean (SD)	37 (9.1)	41.6 (10.7)	33.3 (0.6)	48.5 (9.4)
BMI (ib/in^2), mean (SD)	26.7 (6.8)	26.7 (9.8) (n = 12)	25.5 (7.9)	28.6 (6.3)
Gender, n (%)				
Man	3 (25)	1 (8)	1 (33)	0 (0)
Woman	8 (67)	12 (92)	2 (66)	6 (100)
Non-binary	1 (8)	0 (0)	0 (0)	0 (0)
Employment status, n (%)				
Full-time	12 (100)	12 (92)	3 (100)	5 (83)
Part-time	0 (0)	1 (8)	0 (0)	1 (17)
Work situation, n (%)				
From home	1 (8)	3 (23)	0 (0)	1 (17)
Office	4 (33)	3 (23)	2 (66)	1 (17)
Hybrid	7 (58)	7 (54)	1 (33)	4 (66)

C2 – Cohort 2, C3 – Cohort 3.

3.2 Thematic Analysis

The thematic analysis resulted in the emergence of 6 themes, which we organized into two categories: benefits and barriers (Table 2). Pseudonyms have been used to protect the identity of the participants. Each pseudonym consists of a single alphabetic character representing gender (either "M" for male or "F" for female), followed by a unique numerical identifier allocated at the time of participant registration, separated by an underscore character, and concluding with a number indicating the participant's cohort affiliation.

Table 2: Themes by category.

Category	Themes
Benefits	Accountability and Motivation
	Community and Connection
	Peer Learning
	Reminders
Barriers	Time and Cognitive Resource Demands
	Individual Differences

In the following we breakdown these themes and present evidence in their support.

Benefits:

Theme 1: Accountability and Motivation

OPSGs provide participants with motivation and a sense of accountability to the group and to their buddy and support the commitment of the participants to their physical activity goals: *"It was encouraging just in the GroupMe because we would tag each other and say, 'Hey, what'd you do today?' or 'How'd it go?' or if she [her buddy] said something I'd say, 'Oh well good job. Congratulations on what you're doing.' So, we were encouraging and pushing each other forward. So, it was great."* (F57_3).

Even though some participants had doubts about the use of social media before the study began, the mode of interaction was still beneficial to them: *"I'm not big into social media in that type of way, but I found that it helped me be more accountable, I think."* (F36_3).

Theme 2: Community and Connection

Most participants valued the sense of community and support they received from the OPSG members. The group allowed them to discuss challenges, share experiences and progress, and feel that they were not alone in their efforts: *"I just feel people was very supportive in that group. For example, some people mentioned that they didn't work out lot during the day,*

and the group show some sympathy to that person. I think on that day, I also didn't work out lot, so I feel that that not really a bad day. That wasn't a bad day for me." (M51_2).

Several participants valued the opportunity for face-to-face connections provided by Zoom meetings before the study. They found it beneficial for establishing connection with their buddy: *"I definitely felt like making that the personal Zoom face-to-face connection was helpful. Otherwise to me it's just like this nameless, well it's not a nameless, it's a named but faceless person out there that I know nothing about."* (F36_3).

Some participants noted that they did not consider the group chat to be an important part of the study and that it did not help them change their behavior, but they believed it was nice to be in a group of people who were going through the same things they were going through: *"I like the idea of the chat. I think it was more fun than anything else. I don't think it really changed my behavior, but hey, it's nice to talk to people who are doing the same thing. So, I would recommend keeping it."* (F73_3).

Theme 3: Peer Learning

Participants found value in reading about other participants' ideas, tips and experiences, which aided their own learning: *"I guess one of the things I liked about the group chat was that people also put on other ideas for snacktivities. So, I'm not sure I would have even thought about going to, let's say YouTube, to look for other things. And so, I did my own searches as well and found things. Some I felt were good and some were not good, but at least it just made me look around a little bit more."* (F36_3).

Participants mentioned that summarizing the behavior change videos to their buddy helped reinforce learning and understanding of the content: *"I think it is useful. I mean I definitely do because I think that like me and like I say, things are not taking residence in my memory because it's just too crowded up there. But at least having to restate it makes me think about it one more time."* (F36_3). Participants also found it useful to read others' video summaries: *"I think that the buddy restatement was helpful. It was helpful for me because when I would read what videos they read, I'd be like, oh, I think all the videos on a weekly basis were kind of similar but a little bit different. So, I was able to learn from other people because I would read other people's summaries to just see what they read or how their lesson was different from my lesson."* (F57_3).

Theme 4: Reminders

Participants perceived messages as reminders of their commitments encouraging physical activity throughout the day: *"Whenever I would see the GroupMe chat, it would bring me back to the study and take my eyes away from my work to my phone and remind myself about it, and so I think just that habit of every few hours of seeing others update their activity just kept that cycle in my brain of that break."* (F68_2) and engagement with the study components: *"But as I said, as time went on it became like, oh reminders, oh I got to do this. Oh, such and such already read hers, let me read mine, let me send my report, let me connect with my person. So, I liked the dings and the reminders ..."* (F57_3).

Barriers:

Theme 5: Time and Cognitive Resource Demands

Initially, certain participants perceived the OPSG as an overwhelming responsibility due to the numerous study components associated with it, all of which were expected to be completed: *"In the beginning I think it kind of felt a little bit overwhelming because it was like, man, I got to watch this video and then I have to summarize it and then I have to tag my person."* (F57_3).

Several participants mentioned the challenges they had of being actively involved in the chat. They did not always have enough time and cognitive resources to read all the messages, reply to them, post something about themselves: *"By the time I get around to it [group chat] I have to scroll so many. And usually at that time I'm just skimming through."* (F46_3). Sometimes it was difficult for participants to remember to open the app as it was a separate one which they were not used to using: *"I use text message more and I think having a separate app to message on, it was easy for me to forget about it. So, I think towards the end, if other people hadn't sent something, I would forget that message had come through."* (F72_2).

Some participants mentioned that they or their buddies were not active in the group chat, and this lack of engagement may have limited the overall effectiveness of the group interaction: *"So, I think my buddy, I think, the connection was good, but I think that she was struggling in a way, probably that I couldn't help her. So, I would contact her in the chat, and we would interact when she was able to chat. So, she chatted a lot less than I did and was less engaged. But when she did engage me, she did, I would tell her, 'I hope you met your goal,' and she would tell me that she did and I would tell her what I had done for the*

day, that kind of thing. But she wasn't as active, so it wasn't every single day. It might go a few days to a week even."* (F81_3) and caused a feeling of isolation: *"I think I didn't receive any message from the supportive group. I think I just feel a little bit isolated, maybe."* (M51_2).

Theme 6: Individual Differences

OPSG may not cater to individual preferences and needs, potentially causing social pressure and guilt, hindering support and overall desire to participate in the group chat: *"Yeah, I think I feel a little bit of pressure that I need to, maybe, do something quite equally with what my buddy did for the rest of the day. [...] I think it's both positive and negative [peer pressure]. Sometime, because I just feel I'm too tired at the end of the day, but I want to, maybe that I don't want to let my buddy down."* (M51_2).

Some participants expressed a preference for direct messaging with their buddy and believed it would be more effective than group interactions for maintaining accountability and personal connections: *"I think having a little bit more of a personal connection with my buddy would've been more accountable and then more easier for me to check in on her and be like, 'Hey, did you get it done today?' Rather than, I wouldn't want to say that in the group. I feel like I'm shaming her, you know what I mean, calling her out in the group, too."* (F68_2) and completing study components: *"So, the videos, originally, I watch it pretty religiously. Because then if I forget, if I don't see it, my buddy will remind me, 'Hey did you watch this video?' I'm like, 'what video?' And I go find it. When we moved to a public chat, all our discussions were all buried. And when you get an alert, it's not very apparent. I have to go find my buddy."* (F46_3).

However, they noted that direct messaging experience depends on the buddy: *"It really depends, right? If you have a good buddy. The experience [of direct messaging], depending on the kind of buddy you have, the experience will probably be different, right. I had a really good buddy."* (F46_3).

Participants expressed diverse attitudes towards chat interactions. While some felt comfortable engaging in group chat: *"For me, it was easy to react to every message."* (F61_3), others found it hard to keep up: *"For me it's kind of a hit and miss. I'll be active one or two days and then I'll disappear and vice versa. And so on the days where you see me pop in on the public chat or the group chat are usually days I might have more time or whatever."* (F46_3), and some participants showed a preference for offering help and support rather than receiving it

themselves: *"I'm better at helping people do it [receiving help or support] than I am for receiving it, to be honest with you. And so, I don't get as much from it as I might be helpful in giving it."* (F81_3).

4 DISCUSSION

4.1 General Discussion

This paper reports on a qualitative analysis of a subset of post-study interview data collected after a randomized controlled pilot of a remotely delivered exercise snack intervention with a peer support component, targeting adults with sedentary jobs to promote physical activity and reduce sedentary behavior in the workplace. The identified themes fall into two categories: the benefits that the participants derived from participating in the OPSG and challenges they experienced.

Participation in OPSG was observed to have several beneficial effects on the study participants, consistent with prior literature (Delisle et al., 2017; Iliffe & Thompson, 2019; Karusala et al., 2021). First, OPSG gave participants the sense of belonging and accountability that created a supportive and motivational environment. Participants saw that others experienced similar difficulties and felt that they were not alone in their journey towards better health and physical activity. This sense of community provided motivation and encouragement, helping participants stay on track with their physical activity goals and driving participants to feel responsible not only to themselves but also to the group and their designated buddies.

Moreover, the OPSG became a peer learning space where participants could share their experiences, ask for help and advice, exchange knowledge and ideas, as well as summarize the behavior change videos that foster a deeper understanding of the intervention content (Chase et al., 2009; Leelawong et al., 2002). This knowledge sharing allowed participants to gain insights, tips, and different perspectives from their peers, ultimately enhancing their own learning and reinforcing use of the behavior change concepts introduced during the study.

Additionally, the OPSG played a role of reminders, nudging participants to maintain their commitment to physical activity. Participants noted that group messages acted as prompts to break up prolonged periods of sitting and engage in more active behaviors. The constant presence of the group chat facilitated a continuous awareness of their health goals, reminding them to make healthier choices throughout the day, even in a busy office environment.

However, it is important to acknowledge that despite the numerous benefits of OPSG, participants do face some significant challenges that can affect their ability to fully engage in the group chats and harness the advantages (Karusala et al., 2021). One of the primary challenges is the constraint of both time and cognitive resources. Participants noted that demanding work environment and personal responsibilities make it challenging to dedicate the necessary attention to OPSG: post their updates, read and respond to other participants' messages. Moreover, some participants found it difficult to remember to open the GroupMe app because they were not used to using it. As a result of low engagement of participants themselves and their buddies, some people may have experienced feelings of isolation from the group.

Furthermore, individual differences in preferences and needs significantly influenced their engagement in the OPSG. While some found it easy to engage in group chat, maintaining a high level of involvement, others experienced fluctuations in their engagement, acknowledging that they might actively participate for a few days, and then experience periods of inactivity. Notably, participants' perceptions of the group chat's significance also differ. Some find it highly motivating and integral to their behavior change goals, while others perceive it as a secondary aspect that doesn't substantially affect their progress. This discrepancy in perceptions suggests that the group chat may not align with everyone's communication preferences or objectives. Moreover, some participants expressed a preference for more personalized, one-on-one communication with their designated buddies rather than with the whole group. This preference could stem from concerns about discussing their progress with a large group of unfamiliar people (Smythe et al., 2022) or feeling of peer pressure and the potential guilt associated with not meeting physical activity commitment. While some felt positively driven by the desire to meet their weekly physical activity goals and feeling of accountability, others found it burdensome and sometimes guilt-inducing. These emotional responses were often influenced by individual characteristics and their perceptions of social interactions within the group.

4.2 Limitations and Future Directions

While our study provides valuable insights into using OPSG to reduce workplace sedentary behavior, it is

essential to acknowledge certain limitations that may influence the interpretation of our findings.

As the paper relies on self-reported data, it might be subject to social desirability bias (Piedmont, 2014), i.e., participants might have reported what they thought the researchers wanted to hear, especially regarding their engagement and experiences in the OPSG. Moreover, as is common in interview studies, even though all the participants were offered the opportunity to share feedback, it is possible the subset who agreed to do interviews did not represent the full breadth of participant OPSG experiences. Nevertheless, this subset of participants was large enough (9 out of 25 (36%) participants in both cohorts combined) to provide a wide range of opinions and experiences, which were sufficient to enable the creation of rich themes (Braun & Clarke, 2021).

The qualitative focus provides depth to the study, yet the absence of quantitative data might limit the ability to generalize the findings. Nonetheless, in line with established interview research practices, the goal of this study was not generalizability (Crouch & McKenzie, 2006), but rather generating conceptual insights. The challenges faced by individuals are worthy of future exploration. For example, future research should explore technological barriers in more details, e.g., ask process questions about initial unfamiliarity with the GroupMe app and eventual adoption or resistance with using the app. Questions on participants' technological change over the course of the experiment can provide insight into how to help participants with initial technological barriers overcome these.

While our study primarily focused on the benefits and challenges of OPSGs in breaking up prolonged sitting, it's worth noting the potential overlap with gamification strategies in promoting physical activity goals and acknowledging the potential advantages of incorporating gamification elements that could provide an alternative means to motivate people in workplace settings (Mazeas et al., 2022). It may be beneficial to further investigate the advantages and disadvantages of an OPSG approach compared to a more gamified approach in the context of workplace sedentary behavior interventions. Future research could aim to explore the distinctions and possible collaborations between these approaches, as well as the effects on participant engagement, motivation, and behavior change.

4.3 Recommendations

Findings from this research indicated several challenges. To address them and pave the way for more effective future research, we offer the following recommendation ideas for further exploration.

Participants sometimes struggle to find the time and cognitive resources for active engagement in OPSG. For time demand, we can provide a system of reminders and prompts and help participants to implement time management strategies to allocate time for OPSG interactions. For cognitive resource demand, we can use a messaging platform with different threads and channels that enable participants to focus on specific topics or conversations, reducing the cognitive load associated with scrolling through a continuous stream of messages.

Low engagement from participants and their buddies can lead to feelings of isolation within the group. We can add gamification elements, such as challenges and quizzes and include a group moderator who can facilitate discussions and provide words of encouragement and support.

Some participants prefer one-on-one communication with their designated buddies, sometimes driven by concerns about discussing their progress with a large group of unfamiliar individuals. We can accommodate the preference for personalized communication by providing alternative channels for one-on-one interactions with buddies and schedule regular virtual meetings with group members to transform faceless interactions into face-to-face connections, fostering a stronger sense of connection and providing participants with a better understanding of who they are interacting with in the group chat.

By addressing these challenges and implementing the recommended solutions, OPSG interventions can be enhanced to better meet individual needs and foster more meaningful engagement, ultimately increasing their effectiveness in supporting behavior change.

5 CONCLUSIONS

We presented a qualitative study of two cohorts within a randomized control parent trial of GroupMe-based peer support groups, aiming to reduce sedentary behavior in the workplace. We found that participation in online peer support groups not only fosters a sense of community and accountability and serves as a platform for the exchange of knowledge and the reinforcement of study materials, but it also plays a role in reminding participants about the intervention, encouraging consistent and sustained engagement in healthy behaviors throughout the workday. Despite challenges like intermittent

participation, personal preferences, and issues related to unfamiliar technology use and participation in a group with unknown people, participants remained motivated and encouraged by the sense of community, aiding in their health goals. Studies should continue to learn from participant experiences to help address challenges and refine OPSGs within interventions, as it can provide daily, organic behavioral support in health behavior interventions.

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