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ORIGINAL PAPER

Perspectives on the Implementation of Screening and Treatment for Depression and Alcohol Use Disorder in Primary Care in Colombia

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Abstract

Depression and alcohol use disorder (AUD) greatly contribute to the burden of disease worldwide, and have large impact on Colombia's population. In this study, a qualitative analysis evaluates the implementation of a technology-supported model for screening, decision support, and digital therapy for depression and AUD in Colombian primary care clinics. Patient, provider, and administrator interviews were conducted, exploring attitudes towards depression and AUD, attitudes towards technology, and implementation successes and challenges. Researchers used qualitative methods to analyze interview themes. Despite stigma around depression and AUD, the model improved provider capacity to diagnose and manage patients, helped patients feel supported, and provided useful prevalence data for administrators. Challenges included limited provider time and questions about sustainability. The implementation facilitated the identification, diagnosis, and care of patients with depression and AUD. There is ongoing need to decrease stigma, create stronger networks of mental health professionals, and transition intervention ownership to the healthcare center.

Keywords Depression · Alcohol use disorder · Primary care · Colombia · Qualitative analysis

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Introduction

Mental illness directly affects an estimated one out of every four people globally at some point in their lifetime (Steel et al. 2014). Depression and alcohol use disorder (AUD), in particular, are leading causes of morbidity and mortality across the globe (James et al. 2018); in Colombia, depression is among the top ten causes of years lived with a disability (YDL), and alcohol use is among the top ten risks contributing to Disability Adjusted Life Years (DALYs) (IHME 2020). According to the 2015 National Mental Health Survey, there is a 4.3% lifetime prevalence of depression in Colombia, 5.4% among women and 3.2% among men, and for AUD, a 12% prevalence among adults aged 18–44 years, 16% among men and 9.1% among women (Gómez-Restrepo, et al. 2015).

Depression and AUD are undertreated in Colombia. Colombia, like many low and middle-income countries (LMICs), has a shortage and maldistribution of mental health specialists; there are only about 900 psychiatrists and 1500 psychologists for a population of 49 million, with 90% of them concentrated within the country's largest cities (Chaskel et al. 2015). In 2013, the Colombian government, recognizing the need for increased access to mental health care, enacted a new law establishing that Colombian people have a right to mental health care and indicating that it should be offered through primary care (2013). Numerous studies have demonstrated the effectiveness and cost-effectiveness of integrating mental health services into the primary care setting in LMICs (Cubillos et al. 2020). Until now, however, primary care doctors in Colombia have received little formal training on mental health conditions. Additionally, primary care clinics lack organized programs to screen, diagnose, and treat patients with mental health disorders.

The "Detection and Integrated Care for Depression and Alcohol Use in Primary Care" (DIADA) project is a five-year, U.S. National Institute of Mental Health-funded study that aims to enhance and scale-up clinical and research capacity to address depression and unhealthy alcohol use in Colombia (Torrey et al. 2020). Researchers from Colombia and the United States are investigating the advantages and challenges of implementing technology-supported screening, decision-support, and digital therapeutic care for depression and AUD in Colombian primary care settings, with the ultimate aim of informing strategies for addressing these conditions nationally and across the region. This paper reports on qualitative interviews of patients, providers, and health care administrators three months after project implementation at the study's first site, and evaluates these findings using the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al. 2009). Specifically, it addresses participants' attitudes towards care of depression and unhealthy alcohol use, use of technology in care, and the successes and challenges of implementing the intervention. The aim of this study is to add this experience in Colombia to the field of implementation research, and to gain nuanced understandings that could improve success of the overall DIADA project, as it is implemented in more sites across the country.

Methods

This study asked participants about the DIADA training and process of care intervention at the first implementation site; in total, six primary care sites were included in the study, in various parts of Colombia. This site, in the capital city of Bogotá, provides care for the urban population and some of the surrounding rural areas, and has experience being involved in research studies. The implementation includes training of the physicians and administrators at the site on the specifics of the intervention, as well as training of the physicians on the diagnosis and management of depression and AUD. Clinic process changes include installation of a kiosk in the waiting room where all adult patients are screened for depression and AUD, decision-support tablets for each doctor to help them use the screening results to make diagnoses and initiate care, which include clinical information based on the national Clinical Practice Guidelines for Depression (Guía de Práctica Clínica (GPC) 2013a) and AUD (Guía de Práctica Clínica (GPC) 2013b), and, for those who receive a diagnosis and agree to study participation, access to a validated digital therapeutic instrument, Laddr©, to provide and/or complement treatment (Torrey et al. 2020; www.square2.co). Primary care doctors also receive the support of weekly meetings with a psychiatrist to discuss difficult cases or ask questions about patient care.

At the three-month mark, the study team conducted eighteen one-hour audio recorded interviews using interview guides developed by the DIADA researchers. Interviews were conducted at the first intervention site. At this point in time, 519 patients had been screened at the kiosk, and 50 patients had been enrolled in the study at this site. The qualitative interviews were conducted with six patients, six physicians, and six administrators who are participating in the study. Interview participants were chosen based on their availability and willingness to participate. The interviews discussed cultural views of depression and AUD, attitudes towards technology, and challenges and successes of the intervention. All participants signed informed consent forms before each interview. Dartmouth College and Javeriana University's Institutional Review Boards approved this study.

The researchers used thematic analysis to develop codes from the data. The coding of the interviews was an iterative process. The interviews were transcribed and translated into English, and all identifiable information was removed. The lead authors, a medical student, a PhD candidate, and a psychiatrist, all of whom are from the United States, were trained in qualitative coding and ensured a coordinated approach to the qualitative analysis. Three of the authors (CS, SB, WT) read all of the interviews and met to discuss the major themes. CS and SB went on to create a list of topical and interpretive codes, wrote definitions for each code, conducted a test of inter-coder reliability, using the shared codebook, compared results, and then redefined some of the codes and created additional interpretive codes that emerged from the data. After further practice, results comparisons, and resolution of remaining discrepancies CS and SB fully coded all of the interviews in NVivo 12, a qualitative analysis software, using the finalized codebook, and discussed and reconciled any differences (NVivo Qualitative Data Analysis Software). CS, SB, and WT summarized the concepts that emerged under each node, discussed the primary themes that stood out from the data, and selected illustrative quotes that demonstrated the primary themes. This process allowed salient themes to emerge from the data. The translations of the illustrative quotes included in the article were reviewed by a bilingual Colombian medical student for accuracy.

Finally, the findings were organized and evaluated across the CFIR's five domains: intervention, outer setting, inner setting, individual characteristics, and process. The CFIR notes that implementation success is dependent on a number of factors that can support or interfere with implementation, and these factors are distributed across the five domains (Damschroder et al. 2009). This systematic evaluation helped us to understand our findings and allowed us to identify factors that led to the intervention's success.

Results

The results are presented in four broad themes: perspectives on care of depression and AUD, attitudes toward the technologic aspects of the intervention, implementation successes, and implementation challenges. A table with selected illustrative quotes from each theme is included at the end of each section.

Perspectives on Depression and AUD

Depression is generally recognized among patients as a legitimate medical illness. However, family members and peers do not always view it as such. While some patients receive support from family members or friends, others are ignored and lack a support network. Numerous patients and providers spoke about the gender differences in depression and treatment seeking. According to the interviews, women are more likely to recognize and seek help for depression, while the machismo culture often prevents men from acknowledging the symptoms or accepting the diagnosis.

AUD is more challenging for both patients and providers to address. Because alcohol consumption at levels that pose a health risk is common, it is not viewed as a health concern by many patients or their family members. One interviewee described, *"We celebrate everything with alcohol. So as a part of our normal life, and our culture, you could say, we do not see it as a problem until something really serious happens … Alcoholism is something very tolerated."* As patients often do not acknowledge AUD as a medical issue, providers have a hard time discussing the condition with them.

Patients with depression and/or AUD have a sense of stigma around mental health care. There is a predominant belief that only "crazy people" seek psychologic or psychiatric care. Patients fear that providers will be judgmental about their mental health condition and immediately put them on psychiatric medications, without any discussion of behavior change, therapy, or other strategies.

Depression and AUD are both under-addressed in the primary care setting, in part due to a lack of physician education about mental health. One physician succinctly stated, *"We, as professionals, are not as well prepared to handle the emotional or psychiatric part."* The physicians in this study are eager to learn more about how to manage patients with common mental health conditions, such as depression and AUD.

In addition to stigma and lack of formal mental health education, there is also a lack of broader mental health programming. As one provider said, *"We do not have mental health programs in place. That is, we have established hypertension programs, diabetes programs, but you do not see an established depression program: that does not exist."* Despite the high rates of mental health conditions, health clinics do not have systems in place to support patients suffering from these conditions (Table 1).

Attitudes Towards Technology

Patients, physicians, and administrators all perceive technology as a useful innovation for delivering care. From the patient perspective, the kiosk screening process in the waiting room normalizes mental health care and increases awareness about depression and AUD. One administrator described the phenomenon, *"People are understanding this [screening question] is part of health, and it is generating the culture of 'I am being asked this not because something is strange in me, but everyone who comes is being asked this because it is important.' I think that the fact that this*

Table 1 Key quotations: attitudes about depression and alcohol use disorder

Theme	Quote
AUD culturally normalized	We celebrate everything with alcohol. So as a part of our normal life, and our culture, you could say, we do not see it as a problem until something really serious happens … Alcoholism is something very tolerated
AUD more difficult to address than depression	Most of the patients who come for alcohol screening, most of them are not looking for help, they are here because of another subject and if one begins to inquire about the alcohol part, they are very reluctant and say that they aren't having any problem. Those with depression do seem very open, they do talk more and are really looking for help, but with some fear
Patient fear of mental health providers	There is still stigmatization with the subject of depression because there are still patients who believe that going to the psychiatrist or the psychologist is for people who are crazy
Lack of mental health education	We, as professionals, are not as well prepared to handle the emotional or psychiatric part
Lack of mental health programs	We do not have mental health programs in place. That is, we have established hypertension programs, diabetes programs, but you do not see an established depression program: that does not exist

is becoming routine for patients lowers the stigma a bit." Because every patient is invited to do the screening, it reduces some of the stigma around mental health.

The digital therapeutic instrument, Laddr©, is also viewed as a useful tool for education about mental illness. However, some patients express concern that technology is not as valuable as face-to-face interactions for creating behavioral and cultural change. As one interviewee stated, *"You can rely on technology to improve or make a social change, but technology on its own is not going to allow you to make that social change that allows you to remove taboos…technology alone is not going to make that change, but it is necessary as a tool to achieve the change…"* Technology is a useful supplementary tool, but may not be able to replace the patient-provider relationship.

Physicians view technology as a helpful tool to start the conversation about mental health with their patients. The kiosk screening process helps to identify patients struggling with depression or AUD who likely would not have otherwise been identified. Additionally, it helps legitimize depression and AUD as important topics warranting discussion. Physicians also identified the tablet-based decision aid as a useful tool to improve diagnostic and treatment confidence, when working with patients with these illnesses.

From the administrative perspective, technology is also perceived as very useful. Administrators find that the novelty of the kiosk, tablet-based decision aid, and application help pique patient and provider interest in participating in the study. These technologies also optimize care processes. Specifically, administrators commented that the screening kiosk in the waiting room allows for a more efficient use of both patient and provider time. Additionally, administrators state that the technology used in this study is less expensive than other interventions. The tablet-based decision aid for providers and the screening kiosk in the waiting room proved to be efficient and effective while not causing large administrative costs Table(2).

Table 2 Key quotations: attitudes about technology

Theme	Quote
Screening decreases stigma	People are understanding this [screening question] is part of health, and it is generating the culture of 'I am being asked this not because something is strange in me, but everyone who comes is being asked this because it is important.' I think that the fact that this is becoming routine for patients lowers the stigma a bit
Tool for social change	You can rely on technology to improve or make a social change, but technology on its own is not going to allow you to make that social change that allows you to remove taboos…technology alone is not going to make that change, but it is necessary as a tool to achieve the change
Tablet helps with diagnosis	The fact that it [the tablet] allows you to really know, or that it allows a patient to really know what they have, generates a diagnosis that can help them improve their quality of life
Technology generates interest	That little machine there generated a lot of curiosity, and when people told them [patients] what it was about, they offered to participate, to fill out the questions there in the kiosk so that the patients had a more participatory role in their care
Efficient use of time	The technology that was developed or that was designed for the project was used in order to streamline the processes and optimize the time for both the patient and the doctor
Easy implementation	The other advantage at the level of technology that I see is that the implementation does not require much on a structural or infrastructure level

Successes

From the patient, provider, and administrator perspective, there are numerous successes of the intervention. Patients feel that the intervention helps with their management of depression and/or AUD. Specifically, the Laddr© app provides educational content that helps patients better understand their conditions. It also provides patients with a sense of support and a toolkit for the management of their mental health conditions. Some patients specifically describe clinical improvements in their symptoms since joining the study*: "Not falling into depression, being more animated, like having more energy, thinking about good things too, positive things… That is mainly how it has helped me."*

In addition to the technology, patients appreciate the biweekly follow-up phone calls from the study team. They feel that the phone calls from study staff help them feel accompanied through the process and give them a space to check in about their conditions. One patient described, *"Well, lately I have been calmer, I feel a support on your behalf, and that is the change I feel. Before, I felt that I did not have support…I feel that someone cares about what I feel."* Notably, these weekly calls were not specifically part of the intervention, but rather are part of the research team's effort to track patient outcomes.

For providers, the study is a strengthening process and improves relationships with their patients. Since many physicians did not learn about managing mental health conditions in medical school, they found the training sessions with psychiatrists to be very informative. They enjoyed the sessions and are eager for additional trainings. They also find the diagnostic support tools on the tablet to be very useful. The tools improve their clinical confidence, and as a result, help with holistic care of their patients.

More broadly, providers found that the intervention allows for early detection of cases of depression and AUD. As a result, patients are engaged in the healthcare system earlier in the clinical course. The providers indicate that early engagement helps prevent conditions from progressing to crisis points, making them more treatable and preventing some of the worst outcomes. One interviewee stated, *"Advantages, clearly the detection of mental health problems that are sometimes under-diagnosed and are not visible, sometimes neither for patients nor for the doctors who treat them [the patients]. So, I think they [the patients] win, that's why, and they win because obviously this means a much more comprehensive care of all their health."*

Providers also find that the intervention creates a space to speak about mental health with their patients, helping patients feel heard. As one physician described, *"I have seen that with screening they [patients] open more like they had never spoken in the consultation, because they can talk openly. That seems to me to increase the uptake and detection of patients in the depression part."* By creating the space for patients to discuss their mental health, the patient-provider relationship is strengthened and patient care is improved.

Administrators also have positive feedback about the intervention. They note that the screening is an efficient use of the time patients spend in the waiting room, helping maximize their time spent at the clinic. Additionally, the intervention helps improve communication between different levels of the care team. Specifically, the intervention strengthens networks between primary care providers and mental health specialists, and may also improve follow up with patients.

On a systems level, the study helps administrators better understand the needs of the patient population. By receiving data on the prevalence of depression and AUD among their patients, administrators are better equipped to develop and justify mental health programs for their health center. One administrator stated, *"For us total advantages, because it is a population that did not have a measurement of mental health pathologies and that now we can quantify it, know how much is the prevalence … and to be able to follow up on the patients is a total advantage."* Not only are administrators better equipped to create infrastructure to support patients with mental health conditions, they now have data to convince government funders and insurers of the importance of providing mental health services for their patients (Table 3).

Challenges

While the study has many successes, there are inevitably challenges as well. Some patients wish that the application was more interactive, suggesting that videos or activities would be better at keeping them engaged. Another challenge from the patient perspective is that some of the older patients in the study experience difficulties with using the technology. It is more difficult for them to use the app, and therefore they are less likely to engage with it.

For providers, the biggest challenge is a lack of time. Primary care providers are only allotted twenty minutes per appointment. When a patient comes in for an unrelated issue, but screens positive for depression or AUD, providers find it challenging to adequately address mental health, in addition to the patient's chief complaint. As one provider described, *"The disadvantages are always going to be what I told you, time, because they are patients who do not come only for a reason of consultation, they come for many reasons."* It is especially challenging for providers when their patients have numerous chronic health conditions, because they are often pressed for time even before exploring mental health concerns.

Other challenges for providers center on issues of support and follow up. Physicians want more training on

Table 3 Key quotations: successes of the intervention

Theme	Quote
Clinical improvement	Not falling into depression, being more animated, like having more energy, thinking about good things too, positive things… That is mainly how it has helped me
Patient feels supported	Well, lately I have been calmer, I feel a support on your behalf, and that is the change I feel. Before, I felt that I did not have support…I feel that someone cares about what I feel
Behavior change	I have tried to change the drinking habits. About three months ago we started with [the intervention], and I already have in my mind doing other things. Friday does not arrive so I can go drinking, no. It is no longer the desire that Friday arrives, now the desire is that Friday comes so I can go with my family
Patient feels heard	It was simply giving him space to let him vent. Sometimes it is what we need, sometimes the problem here is that we are not allowed [to vent], and sometimes that is what a patient needs, more than just filling them with pills
Strengthens practice of medicine	All of this [the intervention] also helped to strengthen their professional and intellectual level
Early detection/improved outcomes	Advantages, clearly the detection of mental health problems that are sometimes under-diagnosed and are not visible, sometimes neither for patients nor for the doctors who treat them [patients]. So, I think they [patients] win, that's why, and they win because obviously this means a much more comprehensive care of all their health
Patient–provider relationship	I have seen that with screening they [patients] open more like they had never spoken in the consultation, because they can talk openly. That seems to me to increase the uptake and detection of patients in the depression part
Improves patient health	So in the long term it [the intervention] is going to have an effect, because it is a patient that will be better, in general, the patient will have well-being … this implies fewer hospitalizations, less mortality, less consumption of resources, since it will be a patient who does not consult so much, for example, in primary care because your real problem is really solved, yes?
Improves mental health network	For us the impact, operationally, has helped to review the issue, to improve our contacts to where we refer in psychiatry,… to say 'Come, we have to strengthen that link with our network of allies'
Data to understand patient needs	For us total advantages, because it is a population that did not have a measurement of mental health pathologies and that now we can quantify it, know how much is the prevalence … and to be able to follow up on the patients is a total advantage

managing mental health conditions. Sometimes, they need more support managing patients with AUD and depression. While the weekly meetings with psychiatrists are helpful, providers would like to have easier and more frequent access to a psychiatrist to ask for advice in real time. Additionally, physicians feel that some of their patients are lost to follow up, and that the standardized technology-supported care process that was implemented does not include a tracking feature to ensure continuity of care.

From the administrative perspective, infrastructure is an often-cited challenge. While some administrators applaud the easy implementation of the technological aspects of the study, others express that even the small changes require a need for administrative adaptation and changes in the flow of the clinic. One administrator described the implementation process*: "Everything, the whole process has to adapt. From training of doctors, from the structural processes, infrastructure…It has not been so easy in the operation or in the day to day of the patient."* Challenges with internet speed and access are another cause of frustration. While the clinics were provided with Wi-Fi access as part of the study, at times the Wi-Fi can be unreliable, which leaves providers without access to their tablets.

Sustainability is the other most common concern among administrators. This sentiment was summed up in the statement, *"My great challenge is to provide continuity. Independent of the results of the program, from my level of action."* Administrators reference frequent staff turnover as a barrier to smooth execution of the study, as new staff members need additional training to be prepared to carry out the study procedures. More broadly, administrators have questions about the long-term sustainability of the study. What will happen after the 5-year study period? Will insurance cover the cost of the program? They also express hope that the project will expand to other clinical sites, as well as to other mental health conditions (Table 4).

Discussion

The objective of this study was to characterize the experiences of patients, providers, and administrators during the initial implementation of a novel, technology-driven intervention that integrates screening and treatment for depression and AUD into the primary care setting in Colombia, to inform future scale-up of this intervention across Colombia

Table 4 Challenges of the intervention

Theme	Quote
Age	Young patients are more easily able to take these technologies, and use them, and handle them, and understand them, but an old person does not, and some of the people who have come here in consultation are elderly
Time	The disadvantages are always going to be what I told you, time, because they are patients who do not come only for a reason of consultation, they come for many reasons
Need for adaptation	Everything, the whole process has to adapt. From training of doctors, from the structural processes, infrastructure…It has not been so easy in the operation or in the day to day of the patient
Sustainability	My great challenge is to provide continuity. Independent of the results of the program, from my level of action

and into other LMICs in Latin America. The implementation of a new clinical intervention within an active clinical site typically comes with many challenges. Despite these challenges, administrators, doctors, and patients expressed broad support of the intervention. This discussion lays out what about the implementation supported its success and what can be learned from the implementation challenges to facilitate and improve future implementations of this intervention.

The CFIR provides a standardized approach to evaluate study findings (Damschroder et al. 2009). This framework is a synthesis of common constructs from published implementation theories. As described above, the CFIR outlines factors that facilitate or inhibit an intervention. These factors are distributed across the domains of: intervention characteristics, outer setting, inner setting, individual characteristics, and process. Based on our findings, key domains relevant to DIADA include intervention characteristics and setting, both outer and inner. These domains can be used to gain insight into which components of the intervention led to the results found in the qualitative interviews and to plan improvements to make future implementations of the intervention more successful.

Within the intervention characteristics domain, the novelty and design of the technology generated excitement among providers and patients, and encouraged their use of these tools. Furthermore, the screening kiosk in the waiting room was a powerful way to engage patients and start a conversation about mental health. Finally, these technological components were viewed favorably largely due to their simplicity. They helped streamline clinical processes without adding a large administrative burden or radically changing the clinical flow of work; however, simplifying even further could increase uptake of this intervention among older populations, who had some challenges with the technology.

The outer setting domain, defined as the social, political, and economic context, also played a large role in the successes of the intervention. Colombia has high rates of depression and AUD, but many patients do not have diagnoses or access to care. In this sense, the intervention addresses a critical need of patients. The intervention improved providers' ability to diagnose and care for their patients, and it helped patients better manage their conditions. Furthermore, from a policy perspective, the Colombian government made mental health a priority in 2013 by passing legislation reiterating the right to mental health care for all Colombians (No 2013), and cemented this priority through the adoption of a National Mental Health Policy (2018) and a Policy for the Promotion of Mental Health in Colombia (2020). The DIADA intervention aligns with that priority, which creates an incentive for stakeholders to address the issue. Specifically, the intervention helps administrators understand the needs of the population by quantifying the prevalence of depression and AUD. By leveraging this data, clinics are better equipped to create mental health programs for patients and advocate for more government funding and physician time to address these conditions.

The outer setting domain also contributed to one of the challenges faced by the intervention. The clinic lacked a strong network of mental health professionals or other primary care clinics offering depression and AUD care. This made it more challenging for providers to consult with peers when they had questions, and more difficult for them to follow up on their patients' care if they were referred to a mental health specialist. A stronger network of mental health providers would have the potential to work together to improve access to mental health services and de-stigmatize mental health conditions.

The inner setting domain, defined as structural and cultural context, was also important. One barrier to success of the intervention was the high level of stigma around depression and AUD found in Colombian culture. In particular, patients found it more difficult to accept, and providers had a harder time addressing, AUD than depression. However, many interviewees expressed that the study helps to eliminate some of the stigma around discussing AUD, making the new model of care a valuable tool for creating social change. Although stigma around mental health presents a challenge for the intervention, the intervention creates an opportunity to address this challenge.

All of these factors impact the sustainability of this intervention within the clinical setting. The implementation was well-received by all stakeholders and was seen as a care improvement at the three-month mark, supporting the overall design of the DIADA intervention. The

intervention addresses patient needs that were viewed as critical by stakeholders in the clinic, and the external policy environment incentivized the intervention. Data from the study may be helpful in advocacy work with policy makers to secure more funding for mental health provider training and patient care. Moving forward, patients, providers, and administrators hoped that the intervention could be adapted, after the official study had ended, to address mental health conditions beyond depression and AUD. Local adaptations of the intervention may help sites experience more direct ownership of the intervention, which could support sustainability of the project.

The barriers to implementation identified in this qualitative study point to opportunities for improvement. One of the challenges discovered was stigma towards depression and AUD in Colombia. While the study screening itself was seen as helpful for reducing stigma, this finding points to ways in which DIADA can improve the intervention through developing culturally appropriate and adapted educational material aimed at providers and patients, which may increase receptiveness and participation in the intervention, ultimately improving health outcomes and reducing inequalities. Over the last few months, the DIADA team has created posters and waiting room videos about alcohol use and depression for patients and providers to enhance understanding of these common difficulties and to frame them as health concerns that can be addressed with treatment. For example, the team found a sophisticated video created by Kaiser Permanente Researchers, using the Reframe Health Lab, called "A ReThink of the Way We Drink," and worked with Kaiser researchers to translate and record the video into Spanish (Evans 2020a,b). The video is now used for provider and patient education about the health risks of alcohol use. However, there is much more work to be done to further address and de-stigmatize mental health disorders across the globe, requiring creative thought and action.

The primary limitation to this study is that the data were taken from only one site, which is an urban, fairly well-resourced clinic, with a strong connection to a university, and which has previous experience in research participation. While the results point to key factors that are important in future iterations of the project, these findings may not be generalizable to all primary care clinics in Colombia. An analysis of other sites with different barriers and facilitators to implementation would add depth and variety to these findings. Additionally, there may be a selection bias in the individuals who agreed to participate in the interviews. Subjects may have stronger opinions about the study, or may have had specific experiences, that led them to participate in the interview. Finally, the biweekly phone calls were viewed as a success of the intervention by many patients, when they were instead part of the research design. This component of the study may be worth integrating in future interventions to avoid potentially confounding results.

Overall, this study highlights successes and challenges in the implementation of a technology-supported mental health intervention in primary care in an international setting. More broadly, the study contributes to existing implementation research by using qualitative analysis to highlight the importance of intervention characteristics and intervention setting, and situating these findings within the CFIR. From the intervention characteristics side, technology allows for the intervention to engage participants, teach patients and providers about the disorders in a standardized fashion, and streamline processes. On the setting side, the intervention aligns with a critical patient need: improving access to mental health care. It also demonstrates the importance of external policy and cultural context in project implementation. The facilitators and impediments to implementation in Colombia are similar to those found in other settings, reinforcing the need to pay attention to the specific intervention characteristics and setting throughout the implementation of novel mental health interventions.

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Compliance with Ethical Standards

Conflict of interest Dr. Lisa Marsch, one of the principal investigators on this project, is affiliated with the business that developed the mobile intervention platform that is being used in this research. This relationship is extensively managed by Dr. Marsch and her academic institution.

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