Providers' Perceptions of Artificial Intelligence-Enhanced Chatbots to Support Latino Caregivers of Children with Chronic Diseases

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Abstract

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Latino caregivers of children with chronic diseases carry a significant burden taking care of their families, often taking a mental and physical toll on their health. Artificial intelligence (AI) chatbots have the potential to provide support to caregivers, potentially decreasing caregiver burden. Yet, there is limited research on how the technology needs to be designed to be culturally appropriate for Latino caregivers of children with chronic diseases. The study objective was to gather providers' perceptions on AI-enhanced chatbots being used to support Latino caregivers of children with chronic diseases. We conducted semi-structured interviews with seven providers and one focus group with three providers. The transcripts were coded using inductive and deductive methods. We then conducted a thematic analysis to generate themes regarding providers' perceptions of integrating AI chatbots into caregiving. Four main themes arose from the analysis. Providers noted that many Latino caregivers face barriers like financial, language, and accessibility barriers to healthcare (Theme 1). Providers reported a disconnect between provider and caregiver communication hindering quality of care (Theme 2). Providers noted the mental and physical burden that caregiving places on caregivers and their families (Theme 3). Providers

acknowledged various benefits and drawbacks to the implementation of AI chatbots to support caregivers and voiced their opinions on functionalities the chatbot should have (Theme 4). Providers recognized chatbots are a promising tool to support Latino caregivers by decreasing the burdens to healthcare they face, increasing access to informational resources, and lowering the mental load of caregiving. Providers have a unique perspective on the benefits and drawbacks to AI chatbots being incorporated into the lives of Latino caregivers and how the chatbots can be adapted to best fulfill the needs of Latino caregivers. These findings suggest that AI chatbots have the potential to provide integral support to Latino caregivers by acting as a readily available resource to minimize the burden and responsibility of caregiving and potentially improve the health and wellbeing of Latino caregivers.

1. Introduction:

Nearly one in every four American adults are providing unpaid care to an adult with health needs (AARP, 2025). Caregiving is essential to the financial well-being of many families, annually saving hundreds of billions of dollars on a national scale, money that families would have to spend on costly in-home care (Schulz & Sherwood, 2008). Yet, caregivers of people with chronic diseases or disabilities carry a significant burden of stress, which manifests both physically and psychologically (Schulz & Sherwood, 2008). This chronic stress can lead to detrimental mental health outcomes like depression and low perceived well-being, as well as increased risk of contracting illnesses (Schulz & Sherwood, 2008; Vitaliano et al., 2003).

Latino populations are reported to rely more on caregivers and disabled, older Latinos received more hours of care than their non-Hispanic White and African American counterparts (Weiss, 2005). Hispanic caregivers are also reported to have fewer sources of income and less financial assistance from the care recipient than non-Hispanic White caregivers, stating these factors as additional stressors for the Latino caregivers (Karlin, 2012). Latinas ages 30 to 60 carry a significant burden of caregiving in Latino populations, with many serving as "sandwich caregivers" who simultaneously provide care for minor children and aging parents (Suh, 2016, Fredrick, 2023). By carrying this disproportionate burden of caregiving, Latino populations are particularly susceptible to the mental and physical health consequences that arise as a result.

Latino caregivers need access to readily available and culturally adapted resources that can help manage the mental and physical load of caregiving. However, there is currently a lack of tools that can address the barriers that this population faces, like lack of access to resources, language and health literacy barriers, and financial constraints (Rangel et al., 2026).

To potentially provide support that meets the needs of caregivers, the rapidly evolving field of technology, specifically the development of AI, presents a new frontier for the field of healthcare. Working in conjunction with humans, artificial intelligence has the potential to provide education and medical assistance to caregivers and care recipients and overall reduce healthcare costs (Matheny et al.,

2020). AI is also easily accessible, with most people owning devices that can access the internet and chatbots often being little to no cost to use, making it a convenient tool for care recipients and caregivers (Matheny et al., 2020). The integration of AI with caregiving of those with chronic diseases has the potential to reduce the mental and physical burden on caregivers, overall improving their health, and improving health equity and accessibility (Borna et al., 2024).

While AI chatbots are becoming increasingly readily available, there is limited research on how the technology needs to be designed to be culturally appropriate for Latino caregivers of children with chronic diseases. Even less research exists on the perceptions of providers regarding the impact of AI-enhanced chatbots on caregiving and how the technology can be adapted to better fit the needs of Latino populations. Providers have a unique perspective on the needs of caregivers and the burden they carry as they often see the direct health impact that caregiving has on both caregivers and their families (Sabo, 2022). They are also uniquely positioned to help caregivers by connecting them with relevant resources that can decrease the burdens and barriers they face (Sabo, 2022).

This study focused on "Caring of Caregivers Online" (COCO), a mobile application using AI technology to deliver interventions to Latino caregivers. COCO provides support to caregivers through interactive self- and family-management skill development through automated conversations with chatbots and text-based conversations with nurses (Kearns et al., 2024). Features of COCO are things like daily check ins, automated reminders for self-care, caregiving symptoms tracking, health related question-and-answer functions, and resource recommendations aimed at lowering the boundaries created by social determinants of health. This support that COCO provides may improve symptoms associated with caregiving like stress, anxiety, worry, guilt, or sleep disturbances and can reduce caregiver burnout, overall improving the health of caregivers (AARP, 2025).

The study objective was to understand providers' perceptions of AI chatbots to support Latino caregivers of children with chronic conditions. We conducted a qualitative study of providers who work in close contact and collaboration with Latino caregiver populations. This paper discusses the providers' perceptions of the benefits, drawbacks, and recommendations of AI chatbots to support caregivers.

2. Methods

2.1. Design

This study employed a qualitative descriptive design, which is well suited for research questions that seek to gain insight into a poorly understood area of study. By focusing on participants' perspectives, this approach enables the generation of rich, direct descriptions of experiences and perceptions about the researched topics (Sandelowski, 2010; Ayton, 2023; Hall & Liebenberg, 2024).

2.2. Ethical Approval

The institutional review board at the University of Washington determined that the study qualified for Category 2 exempt status (IRB# STUDY00018318). Since the study was classified as exempt research, formal documented informed consent was not required.

2.3. Participant Recruitment

We used a two-pronged recruitment approach. First, practitioners from an autism center in the Pacific Northwest were invited to participate via email distributed by one of the center's directors. Second, participants were recruited using purposive sampling through the research team's established professional networks, specifically targeting providers who had previously collaborated on related studies or projects. Participants were contacted regarding study participation via email. Individuals were eligible to participate in the study if they were 18 years or older and worked as a healthcare provider or staff member of a community-based organization serving Latino families caring for children with autism or asthma.

2.4. Data collection methods

We conducted individual semi-structured interviews with seven providers, and one focus group with three providers. At the beginning of each interview or focus group, participants were provided with

an overview of the study's purpose, what study participation involved, and how involvement is voluntary. They were also given the opportunity to ask questions and seek clarification before proceeding. The interviews and focus group were conducted in English, via Zoom (P.C. & G.A). The Zoom audio recordings were transcribed using an AI-powered transcription platform, Notta AI.

The Cultural Treatment Adaptation Framework (CTAF) was used to develop the focus group and interview guides (Y.W., P.C., G.A., & M.R.). This study focused on COCO, an evidence-based intervention providing caregiving support delivered via AI technology, and how to adapt the technology for Latino caregivers. CTAF is a framework for guiding the cultural adaptation of evidence-based interventions (EBIs) (Chu & Leino, 2017). The types of adaptations to EBIs that CTAF outlines are grouped into two major intervention components: Core components and Peripheral components. The Core components are what the intervention, in this case COCO, does, while the Peripheral components are associated with how the intervention is implemented for a specific population (Chu and Leino, 2017). Peripheral components are divided into two subcategories, Engagement and Treatment Delivery, where Engagement is the ability of the intervention to reach intended audiences and be successfully implemented and Treatment Delivery is how the Core components can be delivered to be more understandable (Chu & Leino, 2017).

The interview guide contained seven sections, each associated with a component of CTAF, six of which were associated with Peripheral components and one of which was associated with the Core components (See Appendix 1). In the section of the interview guide discussing Core treatment components, providers were asked what self-care for caregivers looks like and what self-care goals they recommend caregivers should have. In the first section of Peripheral components, psychoeducation, providers were asked about the most common health concerns and the most pressing needs of Latino family caregivers of children with chronic diseases. In the second section of Peripheral components, cultural examples and themes, providers were asked about Latino caregivers' openness to share their feelings and how the providers respond. In the third section of Peripheral components, provider-client relationship orientation, providers were asked how they engage with their Latino patients and families and

what qualities are important when working with these families. In the fourth section of Peripheral components, treatment access and entry, providers were asked how they make their patients aware of available resources or programs. In the fifth section of Peripheral components, person and place, providers were asked what they thought of COCO and how it could be integrated into this population as well as the benefits or hesitations they have with COCO. In the sixth and final section of Peripheral components, treatment retention and completion, providers were asked what they believe would motivate caregivers to use COCO.

2.5. Data Analysis

A structured coding process was used to analyze the qualitative data. First, using the study objective as a guide, an initial set of codes were determined deductively after an initial read-through of the transcripts. Second, the transcripts were coded using the initial codebook, and the remaining codes were determined inductively. Third, once the codebook was solidified, each transcript was reviewed at a final time to ensure all codes were applied consistently, and the codes and definitions were refined as needed.

To determine themes and subthemes from the coded data, the first author (A.R.) identified a preliminary set of themes based on code co-occurrences as well as commonalities across codes. Second, the themes were reviewed with the senior author (M.R.) and refined collaboratively. Key excerpts from the transcripts were extracted and compiled under their applicable codes to help with analysis. Microsoft Word and Excel were used for the coding and analysis of the transcripts.

3. Results

3.1. Participant characteristics

There were 10 participants enrolled in the study. Three of the participants attended the focus group, while seven participants were interviewed individually. The participant's demographic information is listed in Table 1, though only seven out of the 10 participants completed the demographic survey.

Table 1. Study participant characteristics

Characteristic	Provider (N=7*)
Age** (years), mean (SD)	39.8 (10.6)
Gender	
Male	2 (28.6%)
Female	4 (57.1%)
Non-Binary	1 (14.3%)
Ethnicity	
Hispanic/Latino	3 (42.9%)
Non-Hispanic Latino	4 (57.1%)
Spanish Speaking	
Yes	3 (42.9%)
No	4 (57.1%)
Highest level of education	
Less than college education	0 (0%)
College graduate	1 (14.3%)
Graduate school degree	6 (85.7%)

*Only seven out of ten participants completed the demographic survey
**Missing value because participant(s) preferred not to answer

3.2. Thematic results

Four main themes were identified, with theme 4 consisting of three subthemes (Table 2). Providers identified a multitude of barriers that Latino caregivers face when seeking healthcare, making it difficult and often inaccessible (Theme 1). Providers reported a disconnect between provider and caregiver communication hindering quality of care (Theme 2). Providers noted the mental and physical burden that caregiving places on caregivers and their families (Theme 3). Providers felt that there were both benefits and hesitations with the implementation of AI chatbots to support caregivers and had recommendations for how the chatbots can better serve caregivers (Theme 4).

Table 2. Quotes from study participants, by theme and subthemes.

Theme 1: Providers noted that many Latino caregivers face barriers like financial, language, and accessibility barriers to healthcare	
Many Latino caregivers face barriers to receiving healthcare, varying from financial, language, or accessibility barriers and other types of barriers	…Language is the biggest barrier, you know, do we have interpreters and, you know, there's a system where, the doctors directly talk and they get the interpreter to translate. But there's sometimes where parents aren't like too comfortable talking to the interpreter, or they don't, you know, sometimes they feel like, there's not time to like sit down and kind of just think and like talk

	comfortably, which, you know, it's, it's unfortunate, but that's kind of what we have as interpreters. *Provider 2* I would say some of the challenges are financial or there could be housing, could be job, finding a job that's flexible enough, or finding childcare that will allow their child who has developmental disability, you know. So those are the barriers, that they want to be able to work and they can't because their child can't be in a neurotypical daycare or their child has a hard time being away from them and so they're not able to work, you know. So it's that kind of intermingled with their finances. *Provider 8* We have a lot of undocumented immigrants and they don't feel safe to leave work. They don't feel safe to advocate for themselves or their families. *Provider 1*
Theme 2: Providers report disconnect in provider and caregiver communication hindering quality of care	
Providers and caregivers often experience communication challenges, where providers may lack cultural understanding and competency and healthcare systems are not designed to accommodate patients with varying language preferences and health literacy levels	I think parents are going to be the best experts in where the gaps are in the system and like what's broken because they're confronted with it every day, trying to personally advocate for their kids. And I think being able to give them a voice so that it's like a source of hope, I guess the advocacy can be. It means that things could get changed, even if not for your child, maybe for generations after. *Provider 6* The biggest challenge I would say is one is that sometimes they have health literacy that is not the same as some other patients potentially because there's some language barrier and a lot of the materials that they read are not in the language that they speak which is usually Spanish. *Provider 3* I guess important for all patients but I think sometimes especially with Latino patients where there can be some misunderstanding on some terminology that doctors might use in the healthcare setting um just making sure that they really understand what's going on um I feel like sometimes Latino families may also you know trust the doctor because they're t hey've you know they seem as the expert but they may not fully understand what is going on with their disease so just making sure that they understand for themselves what's going on. *Provider 3*
Theme 3: Providers note the mental and physical burden of caregiving	
Caregivers can often carry a significant burden managing the chronic diseases of their children along with other familial or professional responsibilities	I think with a lot of chronic health conditions, you're going to have periods where things are a little bit more stable feeling, and times where things feel more chaotic, there could be flare ups, there could be a whole slew of issues that come up, financial stress. And I think having a tool that can be there, especially during those stressful times, to me could be really powerful and helpful. *Provider 6* And then, yeah, so I think I've had conversations around like how challenging it can be and how hard it can be on mental health for

	families to do their own processing around an autism diagnosis especially because if I'm seeing them that also might mean there's like a language delay or disorder. And so a lot of that processing with themselves but then also supporting people around them process it which seems like to be like a really big load. *Provider 7* It can lead to disharmony in the house where the mother yells at the children, where the mother yells at the spouse, or the spouse gets upset and goes and drinks too much, comes home and hits the wife. The child sees these things, you see, it can, it can really spiral down. If we don't get the child, the help in our, in our, in a reasonable amount of time, there can be a lot of disharmony in the home. *Provider 1* But, you know, it's hard. It's hard to, I think it's hard for them to feel like they can take care of themselves, like mentally, like if they're going through a lot. It's a lot for them. I think the most that I've noticed was parents saying like, yeah, this is a lot of stress. You know, like I'm really tired. I don't sleep too well at night. *Provider 2* Chronic stress in general, I would say, is something that I've heard about a lot professionally. A lot of health care providers talking about toxic stress to the point where it just feels like your body is breaking down and there's not much you can do or it doesn't feel like there's much you can do when it gets into a point where like those mechanisms are kind of broken. *Provider 6* And then, yeah, so I think I've had conversations around like how challenging it can be and how hard it can be on mental health for families to do their own processing around an autism diagnosis especially because if I'm seeing them that also might mean there's like a language delay or disorder. And so a lot of that processing with themselves but then also supporting people around them process it which seems like to be like a really big load. *Provider 7*
Theme 4: Providers perceive AI chatbots as a promising tool with both benefits and hesitations to implementation	
Subtheme 4.1: Providers stated that AI chatbots could benefit caregivers by increasing accessibility to informational resources, overcoming language barriers, and triaging the needs of caregivers	No matter what situation our patients are in, whether they be very rich or very poor, they all have a cell phone. So I think that's number one. And I use that cell phone so much more these days to help communicate with my patients and get them what they need. So I think that's a good idea. *Provider 1* I think for some people, the chatbot might be nice because you don't have to look through the resources yourself. You could just sort of type something in really quickly and have the chatbot help with that. I think that yeah, that might work, like I said, especially for adolescents and some of the younger, I think younger parent patients, but yeah, for maybe, yeah, the resources would also be helpful. *Provider 3*

	I think if it could easily point someone to a resource within the app or somewhere else, I think that could be really helpful. Yeah, if we're talking about asthma, then if it could help show a patient a resource or a video, for example, on how to use an inhaler, that could be helpful. So I think there's ways where it could help. *Provider 3* I think in terms of access to care and triaging, so if someone needs care themselves, it can be a wonderful tool to connect them with other sources. So I think, um, from the triaging perspective, it is something that I think has a lot of promise. *Provider 6* I think the resources, I think like a sounding board, like I think it's nice if there's some question that comes up to have sort of somebody who can immediately, you know, sort of offer that. It's a little better than like going to Google, you know. It's like, it's a little bit of an immediate feedback. I think that part of it seems like it'd be good. *Provider 8* I also think if there is some function where like there's some triaging and you have so many, so many resources when you're a caregiver for chronic health conditions and sometimes it can be really hard to know what resource is most appropriate to go to. Um, so a little bit of guidance on like that triaging can be really helpful and also maybe save people money. *Provider 6* I think the chatbot would be useful for mental or behavioral health. *Provider 3* ...Giving [caregivers] answers to, like, some simple, everyday, maybe, questions that pop up. Let's say they needed somewhere to take the child for a haircut, you know, where, you know, they had experience with autism and they say, kind of, in this geographical region, is there a place you could suggest, you know, where I could take my child? You know, things like that would be super helpful and valuable. *Provider 5*
Subtheme 4.2: Providers believe AI chatbots will be insufficient in replacing human interactions and AI use raises data safety concerns	Usually, the ones I've interacted with have been when I, and, you know, it's a website I'm looking to buy something and sort of just using customer service. Sometimes I feel like they could be a little bit frustrating if it takes a lot to get the answer that I need using the chatbot. I usually feel like I would prefer to talk to a real person. *Provider* I think sometimes it's just like a knee jerk, like you can't explain necessarily why you don't trust it. But there's something like a little bit in the pit of your stomach where you're like, yeah, but doesn't mean it's not trustworthy. *Provider 6* I work really hard to educate our patients about what resources are, what I say, what can you really trust? And there's people who trust

	certain sources that are not scientific at all. But so you need to be trustworthy, and you need to be scientific. *Provider 1* Like if there's ways to interact with it without giving any of your information, like I imagine that might be an option. Cause I think particularly with the idea of a chatbot with like the current like administration climate around like deportations, I can only imagine that that would be like a really big thing of concern about having to provide like information about yourself in order to get information back, which I imagine is probably not what you're doing, but even just like explaining that like, no, you don't have to give any information. I think that would make it more likely for the few families that I see to use it. *Provider 7* I think making sure this might sound silly, but like making sure it stays within the bounds, like everything you've described that it would do to me sounds appropriate. I think making sure it stays within those bounds and is not asking for information that it's not clear why it's requesting. And if it needs to ask more information, make sure there's always like a little info blurb on like, here's why we're requesting this. *Provider 6*
Subtheme 4.3: Providers recommended the chatbots have language options for the users and chatbots should only ask for necessary information	...From referrals from the healthcare providers. Again, they were kind of the ones that would, because they really do like appreciate like any suggestions. And I think like anything that we would like recommend, they would take like, okay, this is going to be really helpful. But then there's also like the family rooms. I feel like, you know, whether it's like putting flyers in the family room, that they would be able to see, or we have like, or just, we, in our admission, we have like a pack of like papers that we give them, like, that include like the, like a map of the hospital. We include like services that we offer. You know, we have like the, like our cafeteria, flyers, like if they need food. I feel like that would be also appropriate to have that included in there, because it's included with everything else, like all the other resources that we have. *Provider 2* I would also say it could help with just translation services. *Provider 6* But like, yeah, having it be able to switch really easily between languages as needed, or provide those translations about something like if you're able to kind of like, text something in English, and then be able to ask for translation of that. Making it relatable. *Provider 7* But I think that some ability for actual connection with people, like if there was a way for this Coco to offer a Zoom forum every now and then for the people that are using it, or the people that have children that are... I think parents really benefit from connecting with each other, and I think any way that we can facilitate them connecting with each other would be nice. And I think people might be motivated to start with this thing which is kind of anonymous,

	and is just offering support, and then maybe becomes a little bit more personal and enables them to find a community. *Provider 8*

Theme 1: Providers identified a multitude of barriers that limit Latino caregiver's access to care

According to providers, many caregivers, especially Latino caregivers, face barriers to receiving healthcare, either language, financial, or accessibility barriers. For caregivers' children with chronic diseases, this can often be exacerbated, as care can be time consuming, financially demanding, and stressful for both parents and families. Providers often witness how these barriers affect families' access to care. Language barriers can be difficult to navigate, and families may not be as likely to understand or comprehend the care they are receiving if there is a language barrier between the patient and provider. One provider reported that "...language is the biggest barrier, you know, do we have interpreters and, you know, there's a system where, the doctors directly talk and they get the interpreter to translate. But there's sometimes where parents aren't like too comfortable talking to the interpreter, or they don't, you know, sometimes they feel like, there's no time to like sit down and kind of just think and like talk comfortably, which, you know, it's, it's unfortunate, but that's kind of what we have as interpreters."

Providers also have firsthand experience witnessing how social determinants of health affect their patients' ability to access care. Many providers reported that their patients and their caregivers are affected by a variety of social determinants of health, such as transportation difficulties, high cost of care, inflexible employment, and lack of childcare as social determinants that affect the overall health of the caregivers and their families. One provider stated that "...Some of the challenges are financial or there could be housing, could be job, finding a job that's flexible enough, or finding childcare that will allow their child who has developmental disability, you know. So those are the barriers." According to providers, Latino populations also face heightened daily stressors and safety concerns within the current political climate, further threatening their health and safety. Latino caregivers of children with chronic disease face a multitude of barriers to receiving healthcare, like language, financial, and accessibility barriers, which can be exacerbated by the time consuming, financially demanding, and potentially stressful nature of caring for children with chronic diseases.

Theme 2: Providers report a disconnect in provider and caregiver communication that hinders quality of care

Even when receiving the necessary healthcare, providers and caregivers often experience an information gap, where providers may lack cultural understanding and competency and healthcare systems are not designed to accommodate patients with varying language preferences and health literacy levels. Providers reported having a lack of understanding of cultural norms and patient circumstances, or a reluctance on the part of the caregiver to divulge information. In addition, caregivers with low health literacy and lack of access to informational resources all widen the disconnect between the providers and the caregivers. Providers felt that they were often providing education to patients and caregivers regarding health insights or resources, but thorough education was made difficult given time constraints. As a result, potentially leaving families with an insufficient understanding of their disease and treatments. One provider stated, "I guess [patients understanding medication instructions and how to use medications] is important for all patients, but I think sometimes especially with Latino patients where there can be some misunderstanding on some terminology that doctors might use in the healthcare setting um just making sure that they really understand what's going on." Providers reported that generally they are considered trusted informational sources by their patients, but that their methods of providing information can often be unsuccessful, one provider stating that they send letters to patients' families providing the resources, recommended visits, and recommended vaccines and tests, but that that information can get lost or disregarded.

Theme 3: Providers note the mental and physical burden of caregiving

Providers described how caregivers can carry a significant burden managing the chronic diseases of their children, which reaches far past the medical needs of one child. According to providers, they witness how caregivers are often juggling their other children, familial responsibilities, their job, their mental and physical health, chronic stress, as well as other burdens, like financial issues. Providers

discuss the unpredictability and stress associated with caregiving of children with chronic diseases, “I think with a lot of chronic health conditions, you're going to have periods where things are a little bit more stable feeling, and times where things feel more chaotic, there could be flare ups, there could be a whole slew of issues that come up, financial stress.” Providers reported having conversations with caregivers about the mental health load of dealing with autism diagnoses, where caregivers are often tasked with processing the diagnosis themselves but then also having to support the people around them. Providers stated how many caregivers do not have time for themselves due to the time commitments of caregiving for a child with a chronic disease, further exacerbating the effects of the chronic stress.

Providers also explained how the burden of caregiving stretches past a mental load, as caregivers tasked with the chronic disease management of their children. Caregivers can oftentimes experience long term side effects due to increased and prolonged stress and de-prioritization of their own health needs and concerns, either due to time constraints, financial constraints, or other situational burdens. Providers stated that the long-term effects of caregiving can lead to “disharmony” in a household and can lead to spiraling effects on both the caregivers and their families.

Providers also touched on how families and caregivers of children with chronic diseases often find support in various ways, including but not limited to, other family members, community members, and healthcare providers. Yet, these support systems can fall short of providing the necessary respite from the mental and physical load of taking care of children with chronic diseases.

Theme 4: Providers perceive AI chatbots as a promising tool with both benefits and hesitations to implementation.

All providers believed that AI chatbot technology provides a promising new frontier to supporting caregivers by providing emotional support, connecting caregivers to informational resources, and streamlining daily tasks to minimize the burden on caregivers. However, providers also mentioned hesitations regarding the integration of AI chatbots to support caregivers, as it raises privacy concerns with sensitive healthcare data and information potentially being at risk of exposure. Providers also

recommended certain functionalities of an AI chatbot that they deemed important to cater to the needs of Latino caregivers.

Subtheme 4.1: Providers stated that AI chatbots could benefit caregivers by increasing accessibility to informational resources, overcoming language barriers, and triaging the needs of caregivers

Providers perceived that AI chatbots could benefit caregivers by increasing accessibility to informational resources, overcoming language barriers, and triaging the needs of caregivers. Providers discussed how AI chatbots can provide access to additional informational resources efficiently and successfully, especially if the chatbot provides support in the user's preferred language. Providers stated that since most, if not all, of the caregivers they serve have access to a device with internet capabilities, and therefore chatbot capabilities, they would be able to access the support resources. Providers also discussed how AI chatbot technologies can help streamline access to basic needs and resources, like where a caregiver can find a place for their child with autism to get a haircut or how to administer their child's asthma inhaler, further decreasing the stress and burden around daily tasks that caregivers are responsible for.

Providers also mentioned how language barriers can be difficult to overcome in healthcare settings due to time constraints and limited trust between the provider and caregivers, but AI chatbot technology can translate information into the user's native language, which can increase the user's comfort with the informational resources. For example, caregivers can use the chatbot to find a "how to" video for using an asthma inhaler in the caregiver's native language, which is more useful and effective than a video in another language that the caregiver would have to translate. Providers mentioned the time constraints that caregivers face because of competing responsibilities and how chatbot technology has the potential to streamline access to helpful resources for the caregivers and decrease the burden of time, or lack thereof.

To further minimize the burdens to care, providers discussed how AI chatbots can triage the needs of caregivers, by simplifying access to informational resources and augmenting the information

given by providers, which can often be difficult to access, time consuming, and financially taxing. Caregivers can use AI chatbots as an initial resource to address questions and concerns and then escalate to a provider if necessary.

Subtheme 4.2: Providers believe AI chatbots will be insufficient in replacing human interactions and AI use raises data safety concerns

Though chatbots have the potential to support caregivers and provide them with informational resources, providers mentioned two main hesitations regarding the use of chatbots for caregivers' support. First, providers state that chatbot technology may not suffice when compared to human interaction, especially when dealing with time sensitive or medically emergent situations. Second, providers also stated concerns regarding data safety with AI chatbots and concerns with patients' and caregivers' privacy. Providers discussed how AI poses privacy risks with models being trained on data that may have been gathered either non-consensually or from sources that violate users' privacy. As mutual trust between providers and their patients is essential to providing appropriate care, providers believe that the integration of AI technology in a healthcare setting may undercut that trust.

Subtheme 4.3: Providers recommended the chatbots have language options for the users and chatbots should only ask for necessary information

Being in direct contact with caregivers of children with chronic diseases gives healthcare providers a unique perspective into the gaps in healthcare that chatbot technologies can fill. Providers mentioned that having the chatbot be able to speak the caregiver's native language is incredibly useful and beneficial for the caregiver and may increase the user's uptake of the chatbot. Furthermore, providers emphasized the importance of the AI chatbot technology knowing its bounds and "not asking for information that it's not clear why it's requesting." According to providers, ensuring the chatbots only ask for necessary information from the caregivers can maintain the trust and comfortability between caregivers and the chatbots, and not feeling like the technology is overreaching.

4. Discussion

The study aimed to examine providers' perceptions of AI chatbots to support Latino caregivers of children with chronic diseases. The analysis uncovered four prominent themes that highlight gaps in care and opportunities for innovation to address these care gaps. First, providers noted significant barriers that limit Latino caregivers' access to care. Second, providers described a disconnect in provider and caregiver communication. Third, providers mentioned the significant burden on caregivers who manage the chronic diseases of their children, often taking a mental and physical toll. Fourth, while providers acknowledge various benefits and drawbacks to the use of AI chatbots to support caregivers, they recommend various design considerations for chatbot-based caregiving support.

Previous studies have evaluated the barriers that Latino caregivers face when seeking healthcare, the burdens of caregiving, and providers' perceptions of the integration of AI in healthcare. One study noted the financial instability, transportation issues, and work interferences that caregivers faced when seeking healthcare, leading to increased stress (Ochoa et al., 2023). Furthermore, primary caregivers often relied on other family members or friends to relieve some of the burden of caregiving. Our study found similar results, with financial and occupational burdens causing increasing mental health issues, as well as caregivers' reliance on other family members or friends for support. Another study discussed how language barriers can exacerbate the healthcare barriers that Latino caregivers face because caregivers may not feel empowered to request health related information leading to inadequate knowledge or understanding (Desai et al., 2016). Our study had concurrent findings, with language barriers causing a disconnect between providers and caregivers.

Lack of health literacy and lack of access to informational resources can further the disconnect between providers and Latino patients. One study found that Spanish-speaking Latinos reported significantly lower likelihoods of being able to manage their health and had worse health outcomes compared to their bilingual counterparts (Alegría et al., 2009). They concluded that interventions that can increase Latino's agency with their own health can increase the communication between providers and

their patients and potentially decrease the health disparities that Latinos face. The providers that were interviewed for our study reported that streamlining access to informational resources can bridge the health literacy gap that Latinos face. Furthermore, they discussed how AI-enhanced interventions, like COCO, can be an accessible resource for caregivers to access when they need information. Another study found that those with lower informational support to help navigate chronic illnesses through guidance and knowledge reported more chronic illnesses (Hebdon et al., 2021). The providers from our study reported that they often provide resources to caregivers, but the caregivers often don't understand why they need the information. Providers reported that creating an AI platform where caregivers can seek informational resources and assistance can increase the support that caregivers receive.

An increasing number of studies have evaluated how AI can be integrated into caregiving to reduce the burdens that they face. One paper emphasized the mental and physical burden that caregivers face and how AI chatbots can be integrated into caregiving by being a support system, directly aligning with our findings and how AI chatbots have the potential to reduce those burdens (Borna et al., 2024). Our findings are consistent with Huang & Ho (2025), where they concluded that caregivers felt that AI chatbots can assist with informational and practical caregiving tasks. The providers from our study noted that AI chatbots can be used to solve everyday tasks that caregivers were burdened with, like finding a barber for their child with autism. However, Huang & Ho (2025) also concluded that participants of their study were skeptical of chatbots' ability to provide medical advice and address more complex health issues, as well as having privacy concerns regarding chatbot technology. The providers from our study had the same conclusions, that medically emergent issues may be beyond AI's capabilities, and that users might have concerns regarding the privacy of AI chatbots.

This study has limitations worth noting. The small sample size may have limited the inclusion of diverse perspectives. Because the providers did not directly use the COCO app, they were not able to evaluate important practical aspects such as ease of use, accessibility in different situations, quality and clarity of the information, cultural appropriateness, cognitive load, and perceived privacy and data safety, among other features. Therefore, their opinions reflect expected usefulness rather than experiences based

on actual use. However, given the limited research on providers' perceptions of AI use to support Latino caregivers of children with chronic conditions, the conclusions drawn from the individual interviews and focus groups are important and relevant for understanding providers' perceptions of the integration of chatbots in caregiving.

Our study gives insight into providers' perceptions of AI chatbot technology to support Latino caregivers of children with chronic diseases. Providers noted structural barriers to care, disconnects in provider and caregiver knowledge, the burden that caregivers carry, and their own perceptions of chatbot technology and the benefits and drawbacks to its implementation. Previous studies have evaluated perceptions of providers on the mental health burdens of caregivers and the impact of AI on caregiving, but our study provides a new perspective of evaluating providers' perceptions of the implementation of AI to support Latino caregivers. Future research can study this evolving technology and how it can bridge the gaps and disparities that Latino populations face.

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References:

AARP. (2025). *Caregiving in the US 2025* [Research Report]. AARP. https://doi.org/10.26419/ppi.00373.001

Alegría, M., Sribney, W., Perez, D., Laderman, M., & Keefe, K. (2009). The Role of Patient Activation on Patient–Provider Communication and Quality of Care for US and Foreign Born Latino Patients. *Journal of General Internal Medicine*, *24*(S3), 534–541. https://doi.org/10.1007/s11606-009-1074-x

Ayton, D., Tsindos, T., & Berkovic, D. (2023). *Qualitative Research: A practical guide for health and social care researchers and practitioners*. Monash University. https://doi.org/10.60754/CHQR-DN78

Borna, S., Maniaci, M. J., Haider, C. R., Gomez-Cabello, C. A., Pressman, S. M., Haider, S. A., Demaerschalk, B. M., Cowart, J. B., & Forte, A. J. (2024). Artificial Intelligence Support for Informal Patient Caregivers: A Systematic Review. *Bioengineering*, *11*(5), 483. https://doi.org/10.3390/bioengineering11050483

Chu, J., & Leino, A. (2017). Advancement in the maturing science of cultural adaptations of evidence-based interventions. *Journal of Consulting and Clinical Psychology*, *85*(1), 45–57. https://doi.org/10.1037/ccp0000145

Desai, P. P., Rivera, A. T., & Backes, E. M. (2016). Latino Caregiver Coping With Children's Chronic Health Conditions: An Integrative Literature Review. *Journal of Pediatric Health Care*, *30*(2), 108–120. https://doi.org/10.1016/j.pedhc.2015.06.001

Fredrick, J. L. (2023, August 31). *Caregiving a concern as Hispanic community in U.S. ages faster*. American Heart Association News. https://www.heart.org/en/news/2023/08/31/caregiving-a-concern-as-hispanic-community-in-us-ages-faster

Hall, S., & Liebenberg, L. (2024). Qualitative Description as an Introductory Method to Qualitative Research for Master's-Level Students and Research Trainees. *International Journal of Qualitative Methods*, *23*, 16094069241242264. https://doi.org/10.1177/16094069241242264

Hebdon, M., Badger, T. A., Segrin, C., & Pasvogel, A. (2021). Social support and healthcare utilization of caregivers of Latinas with breast cancer. *Supportive Care in Cancer*, *29*(8), 4395–4404. https://doi.org/10.1007/s00520-020-05983-z

Huang, N. M., & Ho, S. S. (2025). *The Future of AI Support in Health Care: Understanding Informal Caregivers' Multidimensional Expectations of AI Chatbots*. https://doi.org/10.1177/10755470251398722

Karlin, N. J., Weil, J., & Gould, J. (2012). Comparisons Between Hispanic and Non-Hispanic White Informal Caregivers. *Sage Open*, *2*(4), 2158244012470108. https://doi.org/10.1177/2158244012470108

Kearns, W. R., Wang, Y., Marin, A., & Yuwen, W. (2024). *Bridging the Skills Gap: Evaluating an AI-Assisted Provider Platform to Support Care Providers with Empathetic Delivery of Protocolized Therapy*. 436–445.

Michael E. Matheny, Danielle Whicher, & Sonoo Thadaney Israni. (2020). Artificial Intelligence in Health Care A Report From the National Academy of Medicine. *The Journal of the American Medical Association*, *323*(6), 509–510. https://doi.org/10.1001/jama.2019.21579

Ochoa, C. Y., Chan, R. Y., Cervantes, L., Baezconde-Garbanati, L., Farias, A. J., Milam, J. E., Cho, J., & Miller, K. A. (2023). Barriers and facilitators of Hispanic/Latino parents caregiving for a childhood cancer survivor: A qualitative study. *Cancer Causes & Control*, *34*(2), 151–160. https://doi.org/10.1007/s10552-022-01651-1

Rangel, M. L., Stelzig, D., Martinez Enriquez, C., & Badr, H. (2026). Multi-Stakeholder Perspectives on Barriers to Mental Health Support for Informal Caregivers. *International Journal of Environmental Research and Public Health*, *23*(3), 325. https://doi.org/10.3390/ijerph23030325

Sabo, K. K., Chin, E. D., Sethares, K. A., Hunter Revell, S. M., & Nicholas, P. K. (2022). Knowledge, attitudes, and practices of primary healthcare providers with assessing and supporting older informal caregivers. *Geriatric Nursing*, *44*, 159–166. https://doi.org/10.1016/j.gerinurse.2022.02.004

Sandelowski, M. (2010). What's in a name? Qualitative description revisited. *Research in Nursing & Health*, *33*(1), 77–84. https://doi.org/10.1002/nur.20362

Schulz, R., & Sherwood, P. R. (2008). Physical and Mental Health Effects of Family Caregiving. *Journal of Social Work Education*, *44*(sup3), 105–113. https://doi.org/10.5175/JSWE.2008.773247702

Suh, J. (2016). Measuring the "Sandwich": Care for Children and Adults in the American Time Use Survey 2003–2012. *Journal of Family and Economic Issues*, *37*(2), 197–211. https://doi.org/10.1007/s10834-016-9483-6

Vitaliano, P. P., Zhang, J., & Scanlan, J. M. (2003). Is Caregiving Hazardous to One's Physical Health? A Meta-Analysis. *Psychological Bulletin*, *129*(6), 946–972. https://doi.org/10.1037/0033-2909.129.6.946

Weiss, C. O., González, H. M., Kabeto, M. U., & Langa, K. M. (2005). Differences in Amount of Informal Care Received by Non-Hispanic Whites and Latinos in a Nationally Representative Sample of Older Americans. *Journal of the American Geriatrics Society*, *53*(1), 146–151. https://doi.org/10.1111/j.1532-5415.2005.53027.x

Appendix

1. Provider Interview and Focus Group Guide

Study context:

Thank you for meeting with me.

Before starting the interview, I would like to share that our research is categorized as exempt from IRB review, meaning standard written informed consent process doesn't directly apply. However, it's crucial to understand that we still prioritize the rights and well-being of our participants and ensure they receive comprehensive information before agreeing to participate. If you have any questions related to our study before or during the interview, please feel free to ask me.

I am here to talk about your experiences as a health care or social service provider. I will be asking you about your experiences serving Latino family caregivers/parents of children with chronic health conditions. We would like to ask for your permission to record the interview. We are only keeping the audio recording.

General **Background Questions** 1. Where do you work? What is your title? 2. What kinds of work do you do/services do you provide as part of your job? (typical day) 3. How long have you worked in the area of xx? 4. What kinds of populations do you work with? *Examples: children, parents, Latinos only (How often w/Latinos?)* 5. Of all of the work that you and your organization do, what do you think has the biggest impact (positive) on *Latino families*? (probe about parents) 6. What are some of the challenges you face in the work you do to support these families?	1. ¿Dónde trabaja? ¿Cuál es su puesto? 2. ¿Qué tipo de trabajo realiza o qué servicios ofrece como parte de su empleo? (Describa un día típico) 3. ¿Cuánto tiempo ha trabajado en el área de xx? 4. ¿Con qué poblaciones trabaja? Por ejemplo: niños, padres, solo latinos (¿con qué frecuencia trabaja con personas latinas?) 5. De todo el trabajo que usted y su organización realizan, ¿quéconsidera que tiene el mayor impacto en los cuidadores familiareslatinos o padres de niños con condiciones crónicas de salud? 6. ¿Cuáles son algunos de los desafíos que enfrenta en su trabajo? (Por ejemplo, alta demanda y tener que rechazar a personas, desafíos organizativos o falta de capacidad para cumplir con sulabor)

Transition: First, now I'm going to ask you some questions about family caregivers, including parents caring for children with xxx (relate to their practice experience) **[Component: Engagement- Psychoeducation]** 1. In general, what do you think are the most pressing needs of Latino family caregivers of children with chronic health conditions (or a specific condition)? 2. What have caregivers shared with you about their own health challenges or problems? a. What do they do to help with it? b. What would be helpful, but they are not able to do? c. Who do they go to for help? How do they help?	*Canva site (group 1)* - *Needs of Latino family caregivers* - *Latino caregivers' own concerns* - *Self-care*

3. In your practice/interactions with the caregivers, what common concerns do caregivers share with you? a. Probe to more health-specific ones if needed **[Core Treatment Components: PST]** 4. What does self-care look like for caregivers? a. Examples of good health goals **[Component: Treatment delivery -Cultural examples and themes]** 5. Do caregivers ever share about how they are feeling—like being tired, stressed, upset, angry or sad? 6. If so, how do you respond? a. Also ask about what they do as a follow up **[Component: Treatment delivery -Provider-client relationship orientation]** 7. When you first meet with a caregiver, what do you do to make them feel comfortable (i.e. good rapport-building)?	*Canva site (group 2)* - *Things you do to make the families comfortable* - *Qualities of a provider important when working with Latino populations?*

8. What qualities of a provider are important when working with Latino populations? a. e.g., direct, empathetic, patient, etc. **[Component: Engagement -Treatment access & entry]** 9. If there's a program to support caregivers, what are some ways to make caregivers aware of the program? (notes) *Transition: we are designing a program to support caregivers that utilize chatbot technology...* *Do you know what a chatbot is? Explain: Chatbot is a chat robot that can make real-time conversations with you like a human. It's designed to answer your questions and help you with things, just like a friend or a doctor would.*	

10. What do you think of chatbots? *Transition: The specific program using chatbot we are designing is called COCO. COCO is a health coach that can talk to caregivers through text messaging. It's not a human. It's a chatbot. It can ask caregivers how caregivers are doing every day, remind caregivers to take care of themselves, help caregivers learn actionable problem-solving skills and adopt an optimistic attitude of coping with stressful life experiences.* [**Component: Treatment delivery -Person & place]** 11. What do you think of COCO? a. Do you think Latino *caregivers would* be interested in using COCO? Why helpful and why not?	

i. What do you think would be the most helpful part of COCO for caregivers? ii. What specific situations or use cases where you think the chatbot would be helpful? 12. COCO is a chatbot. Do you think Latino *caregivers are* open to chatting with a chatbot, or would *caregivers* prefer to talk to a real person? a. What would make chatbot relatable? What would make the chatbot culturally relevant? What would make the chatbot engaging? What would make chatbot trustworthy? b. What concerns might you have about interacting with a chatbot health coach? are there any specific situations where you think the chatbot might not be able to meet caregivers' needs?	

Transition: right now, we are designing COCO such that COCO only involves a chatbot talking to caregivers, but there could be more... 13. What would make COCO more useful for supporting caregivers? Prompt: What could others do to encourage *caregivers* to use COCO? e.g. family members, healthcare providers, or peer parents **[Component: Treatment delivery -Treatment retention and completion]** 14. What would motivate *caregivers* to chat with the COCO chatbot on a regular basis (e.g., 2 or 3 times a week)?	

Interview Codebook

Shorthand	Code	Code Definition	Notes

LB	Language barrier	This refers to the language barrier that patients and caregivers face when seeking healthcare or dealing with cases of chronic disease. This also refers to the language barrier that caregivers face when addressing their needs in a workplace or trying to advocate for themselves (usually in the context of managing the chronic disease of the patient).	
SDOH	Social Determinants of Health	This can include environmental injustice, socioeconomic issues, etc.	
PE	Patient and caregiver education/information	Referring to the education that healthcare providers provide for their patients/caregivers of patients. This can refer to medical or health advice, as well as any other advice.	For the resources that supplement the education of the patients or caregivers, see "Informational Resources" (IR)
PI	Political Influence	This can involve lobbying or the inclusion of any legislation influencing on the part of the providers.	

CDM	Chronic disease management	How providers are currently managing chronic disease in their patients and the programs in clinics surrounding the management of chronic diseases.	This is just referring to the ways that providers deal with chronic disease management. For challenges and barriers associated with the management, see "Barriers to care"
BTC	Barriers to care	Refers to the barriers to care for patients and caregivers of patients from the perspective of a provider. This can also refer to the challenges that may arise when dealing with chronic diseases.	
CIG	Caregiver information gaps	The lack of information that caregivers have that affects their ability to care for the patient.	
PIG	Provider information gaps	The gaps in information that providers have when addressing the needs of their patients or about the programs available to their patients.	
LTI	Long term impacts	The long-term impacts of chronic disease management for children.	

FC	Familial circumstances	The circumstances of families dealing with children with chronic diseases.	
ED	Education	The education of children and the impacts of parental/caregiver buy-in on their education.	
CS	Caregiving Stress	Refers to the stress that parents and caregivers face/feel when caregiving for children with chronic diseases. This can be stress directly induced by the child but can also refer to the stress they feel from their own life that can be exacerbated by the child.	
SU	Support	The support that is provided to caregivers either from their friends, families, or communities. This can also refer to the support caregivers provide themselves through self-care practices. This can also refer to the support that parents and caregivers may receive from healthcare providers. Open lines of communication between the providers and the caregivers, where the caregivers feel comfortable discussing emotions.	From the perspective of the provider.

		This can also refer to supporting caregivers to navigate information gaps.	
IR	Information Resources	The informational resources that are available for parents and caregivers. This can refer to resources that the parent/caregiver sought out, or resources provided to them from healthcare providers.	From the perspective of the provider.
CH	Chatbot hesitations	Provider's hesitations regarding the use of a chatbot for caregiver support. Provider's assumed hesitations that caregivers may have when using chatbots for support.	
CB	Chatbot benefits	Provider's perceived benefits of the use of a chatbot for caregiver support. Gaps in caregiver support and healthcare that the providers think the chatbots can fill. Provider's assumed hesitations that caregivers may have when using chatbots for support.	
TR	Trust	The provider's perceptions of where the trust of caregivers and parents lies. This can refer to trust in medical	

		professionals, technology, or their own knowledge.	
CR	Chatbot recommendations	Provider's recommendations for the chatbot technology. Provider's perceptions of what features the chatbot technology should include. Provider's perceptions of best practices for implementation of the chatbot technology.	