

**Improving social connectedness programming for underserved older adults:  
a mixed methods evaluation of PEARLS**

Elsbeth Rensema

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Committee:

Miruna Petrescu-Prahova

Lesley Steinman

Jennifer Bacci

Program Authorized to Offer Degree:

Department of Health Systems and Population Health

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Elspeth Rensema

University of Washington

**Abstract**

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Elsbeth Rensema

Chair of Supervisory Committee:

Miruna Petrescu-Prahova

Department of Health Systems and Population Health

Older adults are at an increased risk for social isolation and loneliness, both concerning public health issues that can lead to poor physical health, late onset depression and early death. Interventions that offer support and tools to alleviate social isolation and loneliness can improve social connectedness among older adults. Recent research has shown that PEARLS, an intervention originally designed to alleviate depression in vulnerable older adults, also helps improve social connectedness. This mixed methods evaluation explores, from the provider perspective, how and why PEARLS works to improve social connectedness. Results identify multiple components and mechanisms to improving social connectedness, pandemic and non-pandemic adaptations, and outside factors to the success and challenges of implementing the program. The program was found to have multiple components to its success, including its use of theory-driven techniques, co-personalized approach, and a focus on improving access to resources. Main mechanisms to social connectedness were that the program enhanced social support and increased opportunities for social interaction. Many providers faced challenges implementing the program, including issues of technology comfort and reformatting program structure to

adapt to client specific needs, and ultimately developed adaptations to better implement PEARLS and suit the organization and older adults. Further evaluation is needed to understand how PEARLS program worked among diverse populations and hard-to-reach clients.

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## Background

By 2040 there will be over 80 million older adults in the United States alone, representing 21.7% of the population (Administration for Community Living & Administration on Aging, 2018). However, as people age, social interactions and social networks are harder to maintain and social isolation and loneliness can occur (Taylor, 2020). Therefore, there is a rising public health concern about how to support the growing number of older adults experiencing social isolation and loneliness.

Social isolation and loneliness are facets of the multi-dimensional concept of social connectedness, which is the variety of ways we can connect to others socially, through physical, behavioral, social-cognitive, and emotional channels (Holt-Lunstad et al., 2017). Social isolation is the objective state of having few social relationships or infrequent social contact with others (National Academies of Sciences, 2020). Loneliness is a subjective feeling about the quality of one's personal relationships and feeling of being isolated (National Academies of Sciences, 2020).

Social isolation across the lifespan can lead to detrimental health issues and impair quality of life, including increased risk for development of cardiovascular disease, cognitive deterioration, and mortality (National Academies of Sciences, 2020; Steptoe et al., 2013). Lonely individuals also have lower odds of engaging in exercise and poorer emotional regulation than those who are not lonely (Cacioppo et al., 2014). When one lacks social connection, the risk factors for mortality and morbidity are comparable to smoking 15 cigarettes a day, obesity, physical inactivity, and air pollution (Holt-Lunstad et al., 2017).

Older adults susceptible to both social isolation and loneliness are at risk for poor physical health, late onset depression and early death. Socially isolated older adults have a higher risk of experiencing behavioral health issues like depression and anxiety, which can then further exacerbate negative health outcomes (National Academies of Sciences, 2020). In 2019, 7.7 million older Americans aged 65 or older experienced social isolation and 1.3 million were severely socially isolated, raising concerns about older adult behavioral health issues (Batsis et al., 2021; Donovan & Blazer, 2020; McBride et al., 2021; Smith et al., 2020). These concerns have been exacerbated by the COVID-19 pandemic, which set off national and state mandates to prevent the spread of coronavirus including, but not limited to, stay-at-home orders

and quarantine restrictions for exposed persons. Due to the length of time many people spent at home or isolated from their social networks, COVID-19 has likely increased psychological distress and likelihood of anxiety and depression across age groups (Panchal et al., 2021). It altered daily life by changing available job opportunities and fiscal stability; it also eliminated typical social supports and frequency of social gatherings (e.g., relying on grandparents for childcare or visiting older family members for special events) (Panchal et al., 2021). Older adults experiencing social isolation have been both harmed and protected by pandemic mandates, a concept recently defined as the COVID-19 Social Connectivity Paradox (Smith et al., 2020). Older persons are more susceptible to hospitalization and death if exposed to the virus, but reduced opportunities for social interactions due to social distancing mandates increase older adults' likelihood of social isolation, loneliness, and disconnectedness (Smith et al., 2020).

Several interventions have been shown to improve social connectedness among older adults. There is a range of intervention types, including interventions that 1) offer activities (social or physical programs), 2) offer support (discussion, counseling), 3) internet training, 4) home visiting, or 5) service provision (Dickens et al., 2011; Fakoya et al., 2020). Interventions that offer social activity and/or support within a group intervention and engage older adults as active participants are the most effective in alleviating social isolation (Dickens et al., 2011). There is no universal intervention that works best for all older adults, so interventions that assess individual needs and flexibly provide support are key to improving social connectedness (Mansfield et al., 2018).

Many organizations implement programs addressing social connectedness for their older population; one program utilized across the country is PEARLS (Program to Encourage Active, Rewarding Lives) (Ciechanowski et al., 2004). PEARLS is a community-based program that uses problem-solving treatment, behavioral activation, and increasing pleasant events to reduce depression in physically impaired and socially isolated older adults. It is delivered by community organizations that serve vulnerable older adults; providers implementing the program come from a wide range of education and experience levels, and can be community health workers, social workers, nurses, and other trained staff. While PEARLS was initially designed and tested as a depression management intervention, recent

research has shown that it is also effective in improving social connectedness among older adults (Steinman et al., 2020). However, little is known about the mechanisms through which the program improved social connectedness, and what program components were most useful. Understanding the mechanisms and components by which programs like PEARLS can address social connectedness can help guide future intervention design and selection to improve program effectiveness and implementation (Lewis et al., 2018). It is also useful to identify what, if any, contextual factors outside the program influenced how and why the program worked or did not work to improve social connectedness, and why the program may work differently in different settings (Nilsen & Bernhardsson, 2019). There may be non-program related factors contributing to program success such as sociopolitical issues, laws and policies, organization culture/vision or individualistic reasons of provider and/or client.

The COVID-19 pandemic altered interventions for older adults such as PEARLS by forcing a swift transition to a telehealth model. While many older adult programs provide services in person to best meet the needs of older adults, there is a range in comfort and familiarity with technology among people 65 and older (National Academies of Sciences, 2020). Older adults reporting lower income, poorer health and low education were associated with more limited access to technology and opportunities for computer skill education (National Academies of Sciences, 2020). With many interventions strategically serving at-risk, hard-to-reach older adults, a drop in the number of older adults served during the COVID-19 pandemic was expected. As a result, it is useful to know what adaptations programs have implemented in order to continue to serve their older adult clients remotely during the pandemic. Adaptations are increasingly called out as an important factor for closing the gap between research and practice and improving intervention fit or effectiveness (Wiltsey Stirman et al., 2017). As a result, considering the context of the COVID-19 pandemic and PEARLS's primary purpose as a depression intervention, identifying adaptations implemented during the pandemic can shed further light on how PEARLS addresses social connectedness.

This study builds on the recent work of Steinman and colleagues (2020) by exploring PEARLS provider perceptions of how the intervention worked: the mechanisms through which PEARLS improved

social connectedness, core program components, adaptations needed both before and during the COVID-19 pandemic, and contextual factors contributing to the program's success and challenges. Our results have the potential to inform future efforts to address older adult social connectedness through community-based programs.

## Methods

### Research Questions

Our research questions were:

- (1) **What components of PEARLS improved older adult social connectedness?** Components refer to the specific ingredients or techniques used to modify social connectedness.
- (2) **What were the mechanisms, or pathways, through which PEARLS improved older adult social connectedness?** To answer this, we assessed how implemented techniques modified social connectedness and identified which were essential to improving it.
- (3) **What adaptations did providers make to improve social connectedness and what other adaptations are needed?** Adaptations refer to what was modified (the program content, format, setting), for whom it was modified, by whom and when it was modified. We also examined the purpose of the adaptation (e.g., increasing adoption, reach, participation, access, and effectiveness).
- (4) **What were the contextual determinants that contributed to effectively improving social connectedness?** Contextual determinants refer to any factors outside of the structure of the program (e.g., organization, staff, funding, client preferences).

### Overall Study Design

This study was cross-sectional and used a concurrent mixed methods design (Palinkas et al., 2011). We simultaneously collected surveys and interviews from organizations implementing PEARLS. We collected qualitative and quantitative data separately, analyzed data independently, and then compared the two sets of data to each other during data analysis.

Cross-sectional, concurrent mixed methods design is the most suitable approach because implementing more than one method can offer a clearer understanding of different types of data, giving equal weight to both quantitative and qualitative data. Qualitative data, i.e. the interviews, provided rich information that emerged from providers themselves on mechanisms, components adaptations, and

determinants; meanwhile, quantitative data, i.e. the survey, provided descriptive data using established frameworks about mechanisms, core components and implementation outcomes, as well as characteristics of the providers ([Table 1](#)) (Creswell & Plano Clark, 2018; Palinkas et al., 2011). This design increased confidence in our findings because of its comprehensiveness; we received multiple outcomes from multiple methods thus giving us detailed insight into how to improve PEARLS programming to connect older adults better socially (Castro et al., 2010; Creswell & Plano Clark, 2007; O’cathain et al., 2008).

## **Interview Methods**

### **Design**

We used several frameworks to design this study and form each research question, as detailed below, and summarized in [Table 1](#). We used FRAME (Framework for Reporting Modification and Modification-Enhanced) to develop interview questions and then assess each component (Research Question 1) and mechanism (Research Question 2) of the PEARLS intervention (Wiltsey Stirman et al., 2019). This framework aims to capture all modifications and adaptations across the process of a program, as well as reasons for those modifications and adaptations, thus guiding Research Question 3. It then facilitates the association between such modifications and adaptations and the program’s key outcomes. FRAME was updated in 2019 to include more broad factors, including factors at the recipient, provider, organization, and sociopolitical levels (Wiltsey Stirman et al., 2019). This updated version was used to develop Research Question 4 and understand how other contextual factors could have influenced adaptations to the program; by identifying contextual factors, it can help optimize an intervention adaptation for maximum success (Rabin et al., 2018).

We used the RE-AIM framework to understand when and why modifications were made and their impact to the program (Glasgow et al., 1999). The RE-AIM model seeks to address reach, effectiveness, adoption, implementation, and maintenance of an intervention to understand an intervention’s public health impact beyond traditional measures of clinical effectiveness. A mixed methods approach to RE-AIM provides a deeper understanding of contextual factors, complex perspectives and outcomes (Holtrop

et al., 2018). RE-AIM is one model to conduct translational research (e.g. dissemination and implementation research), including research on the PEARLS program (Steinman et al., 2015).

The study was also informed by the Consolidated Framework for Implementation Research (CFIR). CFIR includes five domains: intervention characteristics, inner and outer implementation settings, characteristics of individuals (such as providers or clients), and implementation process ([Figure 1](#)) (Damschroder et al., 2009). This framework is useful in identifying factors and organizing constructs that appear to influence the process of program implementation (Keith et al., 2017). This framework is flexible and includes the perspectives of multiple stakeholders, making it a good fit to evaluate PEARLS. The framework provided guidance on understanding the factors that make PEARLS function and work. It then influenced Research Question 4 to better understand the outside factors that made PEARLS work in the implementation processes.

#### Setting and Participant Recruitment

This study is part of the larger PEARLS Connect Study, which was a multisite, pre-post single-group evaluation that studied 320 homebound older adults across 16 community-based social service organizations in five U.S. states (Steinman et al., 2020). This study purposively sampled community-based organizations for maximum variation in geographic location, organization, and provider type, that reached traditionally underserved populations.

We conducted key informant, group semi-structured interviews with providers implementing the PEARLS program in December 2020. One researcher conducted the interview; the second researcher took notes throughout the interview. Our notetaking approach was based on the qualitative approach to collecting data; the notetaker summarized notes throughout the interview and relied on Zoom transcripts for full transcription (Creswell & Poth, 2016). After each interview, researchers discussed contextual factors, standout information and emerging themes.

## Data Collection

The interviews lasted 25-40 minutes and elicited information about five topics: 1) How did PEARLS work to improve social connectedness? 2) How did PEARLS not work to improve social connectedness? 3) What modification did you make to the program? 4) What was the impact of your adapted PEARLS? 5) What policies are needed to better support older adults?

We conducted twelve interviews with at least one interviewee per interview. We interviewed eleven organizations, but one organization was represented twice because one participant wanted an individual interview to describe their experience. There were two individual interviews. All interviews were conducted, recorded, and transcribed through Zoom. We reviewed transcripts for accuracy and cross-referenced with video and audio recordings of each interview (Archibald et al., 2019). Interview notes were stored on a Shared OneDrive and accessible only to the research team.

## Data Analysis

To prepare and organize qualitative data, we used thematic content analysis, a method that allows researchers to understand text data through the process of coding and identifying patterns and exploring links between explicit statements and implicit meanings for organizing themes (Akinyode & Khan, 2018; Hsieh & Shannon, 2005). Thematic analysis is useful for its highly modifiable and flexible approach to understanding intersecting themes (Nowell et al., 2017).

Two researchers read the transcripts several times to ensure familiarity with the data. We coded interviews through Dedoose and used a codebook that included deductive codes based on the interview guide and research questions. Inductive codes that we developed were regarding program impact and future policy proposals (e.g., transportation, political/structural issues). Our mechanism and component codes were duplicated in both interviews and survey. The exact wording was used to describe themes in our results.

To make sense of collected data and translate findings to themes, we used rapid analysis. Rapid analysis is an approach used by Gale et al.'s to quickly gather and analyze data timely and efficiently; due

to a shortened timeline, this aspect was an appealing approach (Gale et al., 2019). We developed a template summary Excel table to directly transfer Dedoose interview transcript excerpts to the template. To construct the templated summary table, we created four sheets per each research question in MS Excel. In each sheet, rows were represented by each interview; therefore, there were 11 rows in each table. Columns were represented by pre-determined 'domains' based on interview guides and research questions. Number of columns ranged for each table based on interview guides and research questions. When domains had more than one finding associated it, another column was added to represent the finding.

After identifying key themes, the research team met to discuss and resolve discrepancies. We then made necessary changes to the themes, including editing, removing, or creating new themes. Interview excerpts were edited for clarity.

## Survey Methods

### Design

We designed a survey to assess provider perceptions that could not be captured by the interview. Its purpose was to measure the implementation science outcomes and be able to describe the core components as a social connectedness intervention from the provider's perspective (Proctor et al., 2011). The survey was based on Implementation Outcome Measures that evaluate programming based on Acceptability of Intervention Measure, Intervention Appropriateness Measure, and Feasibility of Intervention Measure (Weiner et al., 2017). Each outcome was asked twice to distinctly assess client and provider perspectives of the intervention.

The survey consisted of four parts:

**In Part One** of the survey, providers were asked ten demographic questions (race, ethnicity, gender, etc.). It then surveyed providers for other pieces of information, such as their organizational position (counselor, program manager, etc.), length of employment with the

organization, educational background (some college, Bachelor's degree, etc.), and professional background (medicine, social work, gerontology, etc.) ([Table 2](#)).

**In Part Two**, we asked providers their opinion about how well the intervention improved social connectedness among their clients, diving into client experience of PEARLS based on providers' judgement. There were thirteen total questions in this section of the survey. Twelve of the questions were on a Likert-scale that ranged from completely disagree to completely agree to assess the acceptability (4 questions per section), appropriateness (4 questions per section), and feasibility (4 questions per section) of PEARLS as an intervention to improve social connectedness ([Appendix](#)). The last question asked participants to grade how well PEARLS worked as an intervention to improve social connectedness among clients.

**Part Three** asked providers whether PEARLS worked for them as a provider and about their satisfaction with PEARLS as an intervention to improve their clients' social connectedness. It asked the same twelve Likert-scale questions as used for Part Two (acceptability, appropriateness, and feasibility ([Appendix](#))).

**Part Four** questioned the providers on how and why the program worked for them by requesting identification of components and mechanisms perceived as most relevant to PEARLS ([Figure 2](#), [Figure 3](#)). It included an open-ended space for additional comments.

### Setting and Participant Recruitment

The survey was sent to all interviewed providers and the PEARLS providers that could not participate in the interview. We emailed providers after the organizational interview. All providers affiliated with the organization received the survey within 48 hours after the interview regardless of participation in the interview. Non-respondents were sent up to three reminder emails every four days.

## Data Collection

For the survey, study data was collected and managed using REDCap electronic data capture tools hosted at the Institute of Translational Health Sciences (Harris et al., 2009). REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies. The survey data was exported from REDCap into a password-protected Microsoft-Office Excel file that only the research team could access.

## Data Analysis

We analyzed the survey data for general themes. Findings were analyzed through basic descriptive statistics and broken down into four Excel sheets per each survey part. We broke down what percentage of providers answered each question by using Excel formulas, and then created graphs to visualize the data. To integrate quantitative and qualitative findings, survey data was summarized and then compared to transcripts (Guetterman et al., 2017; *Mixed Methods Applications*, n.d.).

## Results

### Overall Survey Results

We sent the survey to 60 providers and had a survey response rate of 63%; this included 38 completed surveys, 11 incomplete surveys and 11 unopened surveys. All eleven organizations were represented in survey results. Survey respondents included providers we interviewed and other providers that were unable to participate in group interviews. Respondents came from a range of educational experiences and backgrounds ([Table 2](#)).

### Provider Perception of Client Approval of PEARLS

Most providers reported that PEARLS worked for their clients, and at least 92% of responses agreed or completely agreed with statements on provider's approval of the program for their client, if they welcomed and liked it for their client, its appeal, suitability, fit, applicability, and ease of use for their client.

There was slight variability in responses on whether PEARLS seems **implementable** for their clients (86% agreed/completely agreed; 5.25% neither agreed nor disagreed; 5.25% disagreed; 2.6% did not answer), **possible** for their clients (89% agreed/completely agreed; 7.89% neither agreed nor disagreed; 2.63% disagreed), **easy to use** for their clients (87% completely agreed/agreed; 15.8% neither agreed nor disagreed), and **doable for clients** (84% completely agreed/agreed; 13.16% neither agreed nor disagreed) ([Table 3](#)).

Of all survey respondents, 86.84% (33 respondents) believed PEARLS to work at least 70% of the time to improve social connectedness. Of the remaining respondents, 2.63% (1 respondent) said it worked 50-59% of the time; 7.89% (3 respondents) said it worked 60-69% of the time; 2.63% (1 respondent) did not answer.

### Provider Approval of PEARLS

When assessing PEARLS ease for providers, most providers agreed to all twelve statements (at least 94% of responses agreed or completely agreed).

## Overall Interview Results

A total of thirty-two respondents participated in the group interviews, representing 11 organizations. Eight were PEARLS managers; twenty-four were PEARLS counselors. The eleven organizations were based in five states: Washington (2), New York (4), Florida (2), Maryland (2), and Texas (1).

Three organizations served rural communities; eight served urban and suburban communities. Four organizations served exclusively older adults; seven organizations served clients from all age groups. Almost all organizations switched to a telehealth model at the start of the COVID-19 pandemic in March 2020. One organization continued in-person sessions while still following pandemic mandates for their state.

In the remainder of this section, we report and compare survey and qualitative analysis results for each research question.

### RQ1: Components of the PEARLS Intervention

We learned from providers about what PEARLS components (i.e., active ingredients or elements of the program) helped increase social connectedness. We had seven inductive codes, also used as survey responses, including that PEARLS was *designed to reach socially isolated older adults, theory-driven, engaged older adults as active participants, participants understood the nature of their disconnection, participants co-created a personalized approach and accessed additional supports and services.*

From both sets of data, we learned that providers believed that all seven program components improved social connectedness for clients. Survey results indicated that most effective components were that the program allowed clients to **co-create their plan** and be **active participants**. In interviews, providers notably discussed **use of theory-backed techniques**, how PEARLS helped clients **understand the nature of their social isolation** and **increased access to resources**. Providers noted use of other components in interviews, but from thematic analysis, the most illustrative components are described in our results.

## Survey Findings

Survey results showed that providers believed that program components most helpful in improving social connectedness were ‘PEARLS **engages older adults as active participants**’ (35 responses, 23% of responses), ‘PEARLS participants **co-create a personalized approach** to being or feeling more connected’ (33 responses, 21% of responses), and ‘**PEARLS participants have access to additional supports and services**’ (29 responses, 19% of responses). Less common noted components were that it was ‘designed to reach socially isolated lonely adults’ (24 responses, 15% of responses), ‘participants learn to understand the nature of their isolation or loneliness’ (22 responses, 14% of responses), and ‘PEARLS is theory-driven’ (8 responses, 5% of responses). In the interviews, respondents identified program components that improved program as that it engaged older adults as active program partakers and utilizing a theory-driven program. Survey results showed similar findings; respondents checked off these components as most impactful components to the program ([Figure 2](#)).

## Interview Findings

This program helps **clients understand the nature of their social isolation** by means of program structure. PEARLS was structured in a way that let providers implement it in a flexible way and utilized behavioral activation. Providers discussed how the program structure worked well for clients and led to behavioral activation, which encouraged social engagement. Providers improved behavioral activation among clients through creative, problem-solving means. They used methods from their own experiences and own values to best walk clients through each step of the sessions, and then built trust and rapport with clients. This helped clients understand the nature of their disconnect and then work on finding solutions. Providers noted that clients had to understand how isolated they were before experiencing any impacts.

*I think for the most part people can't see the forest for the trees, they're so overwhelmed by what they're going through. That's why we pick apart their issue. And say, okay, what do you want to start with let's get little victories, baby steps.*

(Agency 1, Provider 1 – Rural region)

*[Clients have told me] 'I had not realized how I had isolated myself so much but talking it through with you, I realize I'm really, really isolated.' So just that realization of how much they had changed and were in this little bubble that they hadn't realized.*

(Agency 2, Provider 1 – Urban/suburban region)

PEARLS is **backed by theory**, which worked well for providers in implementing the program.

Theory backing refers to providers using evidence-based practice tactics such as problem solving and behavioral activation. The problem-solving approach empowered clients to accomplish small goals.

Looking at problem lists to understand the nature of their disconnect came up as a significant theme.

Additionally, the flexibility and structure of the program allowed providers to try different tactics at creating problem lists with clients.

*I do have some clients who are just like, 'I don't want to do the problem solving' so I say 'let's go into behavioral activation, look at some social pleasant and physical activities that [the client] can engage in'... I [ask] 'What works for you? What's your goal as far as physical activities or social activities?' They don't really know that they're doing the problem solving. I think that it's not lying to them. It's more of just engaging in [in the problem solving] and maybe you felt a little bit pressure from it. ... I kind of just get out my bag of tricks and find out what can work for them.*

(Agency 3, Provider 1 (individual) – Urban/suburban region)

*I tell them I will not tell you what to do. It's your life, you pick the problem... [I tell them to ask] 'I'm going to take this problem [and] list the pros and cons. And that's how I'm going to move forward when I have to make a decision. A lot of people have never heard that.*

(Agency 1, Provider 1 – Rural region)

**Access to resources** was a core component to the program's success. Providers frequently noted sharing as many resources as possible to increase clients' likelihood of increasing goals and opportunities for social connectedness. Some providers educated clients about local programs that they could easily participate in, such as at assisted living homes, senior centers, or local community centers.

PEARLS was mutually beneficial for both clients and providers. The structure of the program allowed providers in the community to build rapport and engage with other social services and community members to best set up clients for success after the program. Partnering with community groups also expanded PEARLS outreach and led to increased participation in programming. Providers wanted to see clients continue to build on program techniques after graduating from PEARLS and then connect to other resources, prompting continued engagement in social opportunities.

*We're kind of doing baby steps and connecting them to other programs or other types of resources on the phone if they're unable to go out into their community. We're that first step [to get] them socializing with others.*

(Agency 4, Provider 1 – Urban/suburban region)

*The word of mouth is helping. For example, we know our senior centers have switched to food delivery. We put together a flyer that we were able to get out to the folks that are driving by to pick up their foods so that PEARLS as mentioned in their bag and we're hoping to get some results from that. So we're trying to be as creative as we can.*

(Agency 3, Provider 2 – Urban/suburban region)

## RQ 2: Mechanisms of the PEARLS Intervention

We learned from providers about mechanisms through which PEARLS was most effective in supporting clients improve social connectedness. We started our research with four mechanisms from the literature that we expected to hear about from providers, which we used as survey response choices and inductive codes. These mechanisms were: improving social skills, enhancing social support, increasing (opportunities for) social interactions, and decreasing maladaptive social cognition.

From both data sets, we learned that primary mechanisms to increase social connectedness were that PEARLS increased opportunities for social interaction, enhanced social support, and decreased negative thoughts (i.e., maladaptive social cognition). Few respondents reported that PEARLS improved social skills.

## Survey Findings

In the survey, most stated mechanisms were **increasing opportunities for social interaction** (33 responses, 27% of responses), **enhancing social support** (31 responses, 26% of responses), and **reducing negative thoughts about self-worth** (29 responses, 24% of responses) ([Figure 3](#)). Only eighteen respondents chose 'social skills' as a mechanism (18 responses, 15% of responses). No respondents reported that PEARLS did not improve social connectedness of clients, indicating that there is a

consensus among providers across all sites that the program did improve social connectedness among clients.

## Interview Findings

During interviews, several providers discussed enhancing social support, increasing clients' opportunities for social connection, and decreasing maladaptive social cognition as primary mechanisms for increasing social connectedness.

**Enhancing social support**, or receiving emotional, instrumental, informational and appraisal support, was mentioned throughout interviews. Most frequently, providers described clients receiving emotional support from friends and family in their social network through words of encouragement and expressions of love. Interviews demonstrated that many counselors themselves provided emotional support to clients.

*I [encouraged my client to] move on from where she was stuck [and] to get out more. She lived with a husband who helped her a lot in terms of getting out. He started to play a more active role and being able to do that. She actually got to the point where she really engaged at church in the way that she did before her decline.*

(Agency 5, Provider 1 – Urban/suburban region)

*Just listening is big. A lot of psychiatrists just prescribe medication. They don't do talk therapy and that's what [clients] want, is somebody just to listen to them.*

(Agency 1, Provider 1 – Rural region)

Providers encouraged clients to reach out to their social network and lean onto their family and friends. As a result, clients received forms of instrumental support, or tangible aid that supported them, and actually ended up helping mend social relationships. Some clients felt burdened by familial conflict and issues within their social networks, and the program helped clients sort through those deep issues.

*One client, she and her daughter had these issues about the daughter always wanting to blame [her mother] for making her feel guilty. The client was moving, and she was a little hesitant about asking [her] daughter to come and help her. I said, 'that's what we do as families, we reach out we lean on each other.' And [my client] said, 'we're going to argue the whole time.' I said, 'when she walks in the door, if she starts [to argue with you], give it a moment and say, 'Honey, I'm so happy that you're here.' The daughter came, was two hours late and told [the client], 'I'm late, it's over, you want me to go, you don't want me to stay here.' [My client] said, 'Honey, it is so good*

*that you're here. We have all this unpacking to do; you can help me organize and look how lovely you are.' They then had a wonderful time unpacking; they were able to put pictures on the wall.*

(Agency 6, Provider 1 (individual) – Urban/suburban region)

Clients also received appraisal support from providers in the form of problem-solving treatment where they helped guide clients towards concentrating on central concerns and talking through solutions. However, appraisal did not come up as a form of social support from the clients' social network.

PEARLS also **increased opportunities for social interaction** for clients. Providers frequently mentioned how the program allowed clients to re-access their network of friends and family. By meeting with their PEARLS provider, clients recognized that although they were disconnected, their support groups were within reach. They then learned from PEARLS sessions the tools to reach out and reconnect. Clients had the opportunity to talk through issues related to participating in social activities, build confidence in making social connections, and understand the value of increasing the frequency of interactions. Sessions also helped clients plan and strategize their social connections that were meaningful to them. Session discussions were the first opportunity for clients to realize that they had minimal social experiences. Providers shared personal anecdotes with clients to demonstrate feelings of isolation and reconnecting with those in their network to build rapport and provide examples of connecting.

*It was an added benefit that they started to realize the benefit of not socially isolating themselves and actually making the effort to do that small social goal every week.*

(Agency 2, Provider 2 – Urban/suburban region)

*They don't realize that they could still connect with their friends...some of my clients are sitting at home and feeling lonely. It really, really helps them to realize that they really don't have to be alone.*

(Agency 7, Provider 1 – Urban/suburban region)

Some providers reported that clients recognized their lack of social connectedness through the lens of social media and news outlets during the early stages of the COVID-19 pandemic. By seeing other people cope with loneliness during the early stages of COVID-19, clients realized the impact of isolation in a larger scope.

*I've seen some good changes for clients to say okay I didn't realize [I was so isolated]. I think the pandemic is kind of help them realize, wow, I wasn't social before this.*

(Agency 3, Provider 1 (individual) – Urban/suburban region)

The third theme was the focus on **reducing negative thoughts and improving maladaptive social cognition**. Providers distinctly mentioned PEARLS building confidence among clients, creating a model for clients, and helping them tackle life's problems. Some providers noted that reducing their negative and self-defeating thoughts also decreased depression symptom severity for some of their clients (as measured through the Patient Health Questionnaire-9 (PHQ-9)). It showed clients that social resources are more readily available and accessible than they originally thought and even encouraged clients to engage more in their community.

While many clients benefited from the PEARLS program and were able to improve social connectedness, the program was not impactful for everyone. Certain mechanisms were not activated among some clients; client-specific circumstances and lack of motivation sometimes prevented the program from reducing negative thoughts initially. Among some client-provider relationships, session impact was delayed, and clients initiated and utilized techniques after the program was completed. Providers discussed hearing back from some graduated clients on their progress, and those who seemed unsatisfied during the program actually ended up using tools to address challenging problems in their life. Thus, PEARLS planted seeds among clients who were not ready to work on problem-solving solutions during program enrollment. To reduce negative thoughts and improve feelings of self-worth and connection, the program still benefits those not engaged with the program during its duration by providing the tools that clients can activate when they are ready.

*I think we're planting seeds in people's minds. [Clients] may not be ready because timing is everything... [one of my clients] was able to take that idea [and apply it later] ... she felt empowered.*

(Agency 7, Provider 2 – Urban/suburban region)

*Not just the PHQ-9, but the program itself just day to day, it has really given [my client] an opportunity to make a decision rethink her choices for opportunities and how she can handle life.*

(Agency 8, Provider 1 – Rural region)

Some clients needed long-term support beyond PEARLS's eight session program. Many isolated clients who had no services to start with realized they lacked resources. Thus, PEARLS planted seeds in clients and help connect them to longer term and more comprehensive services.

### RQ3: Adaptations to PEARLS to Improve Social Connectedness

In this section we discuss the adaptations used by providers to make the program work better for clients. Providers utilized several program adaptations to help PEARLS work to improve social connectedness. In interviews, we asked providers to describe both pandemic-related and non-pandemic-related program adaptations, and we identified several themes for both. Providers also noted several challenges to implementing these adaptations and future adaptations needed to better serve clients.

#### *Pandemic Adaptations & Impact*

At the start of the pandemic, organizations had to incorporate a telehealth model into their sessions. The format of the program changed dramatically from in-person visits to phone or video calls based on regional state mandates. Only one organization continued in-person visits in client homes, but some providers found creative ways to still meet in person with their clients by having socially distanced sessions outside. Many providers reported that some clients who switched to phone sessions later dropped out of the program. For other clients, phone sessions actually improved the efficiency of the sessions because clients felt more comfortable talking to providers over virtual or phone meetings in their own home.

*We stay on top of situations, but we do miss that human connection. Our staff has been unbelievably creative and good about front-yard visits and backyard visits and stand-at-the-doorway visits and we'll-take-two-steps-into-the-lobby visits.*

(Agency 7, Provider 2 – Urban/suburban region)

*For some of them, I noticed that [telehealth] is easier for them. To share more. I don't know if it's because they're within their own space and we're not important. Maybe for these specific clients, maybe they feel like they have the opportunity to speak more about what's going on.*

(Agency 4, Provider 2 – Urban/suburban region)

*I'm thinking of the people [who I completed sessions via phone] I had over the last year or nine months, who dropped out...I think they wouldn't have dropped out if I had been able to see them in person. I know one person in particular said point blank 'I just don't like doing conversations on the phone, I'm just not a phone person.'*

(Agency 3, Provider 3 – Urban/suburban region)

Providers used problem-solving sessions to tackle clients' new circumstances due to the pandemic. Many clients used sessions to talk through difficult issues in a talk therapy format. Consequently, sessions could extend beyond typical 30–60-minute sessions, adding strain to provider time and resources. However, providers felt strongly about continuing to serve and connect with their community and clients. Populations hit hardest by the pandemic concerned providers, as the telehealth model prevents hard-to-reach groups from participating in the program. Groups with cultural differences or lacking the technological resources were especially hit hardest by the telehealth model, and a concern of providers.

**Provider 3:** *The challenge of the follow-up phone calls is that now all the work is on my phone. You are seeing people in person and maybe the follow up phone calls, that's a totally different dynamic. Maybe they took less time?* **Provider 1:** *Yes, you're totally right. It's a very good analogy because before you know we just spoke for 45 minutes last month, why can we speak now for another 45 minutes or an hour. And 'Oh, I always have tried to have one relationship with my clients.' I always tell them always call me if you need any referrals or anything, but this is not really a session. It does turn up at least half an hour. It is a problem you might esteem because of that boundary, because before that was a session.*

(Agency 7, Provider 3 and Provider 1 – Urban/suburban region)

*I see everyone has had the opportunity to connect with our clients either using their cell phones and their laptops or tablets. My preference would be that they all would be using Zoom. But some of the clients aren't comfortable with that, so some people are still having theirs just over the phone. But it's been better than nothing. And we didn't have to abandon them in the process in the midst of a pandemic when they are going to become even more isolated. I think all of them have done a really good job of that.*

(Agency 2, Provider 3 – Urban/suburban region)

Overwhelmingly, providers expressed the preference for an in-person model to best serve the needs of a largely underserved population. The format of the sessions worked better in-person for providers, and providers missed collaborating with other providers in person to discuss client case management.

### *Non-Pandemic Specific Adaptations*

PEARLS is client-driven, and thus adaptations to program format were typically implemented on a case-by-case basis. Counselors had to be creative and flexible to work with clients with more challenging needs. Examples of format changes included increasing length of sessions, spending more time working through the problem-solving list or spending more time discussing resources. Providers cited switching from a scripted format to a more casual conversation to better build rapport and trust with clients throughout sessions. This could include both phrasing of the PHQ—9 depression symptom questions and the session script. This was especially true working with specific communities where the format needed to fit the culture of the population. The purpose of adaptations was to improve outreach and to increase social connectedness among the entire community.

*The more conversational approach works for my Hispanic or Latino clients, [the usual PEARLS approach] doesn't really work that well with them. You had to make it more as a conversation versus our white clients. And one thing is also with the Caucasian\* community, they'll challenge you.*

\* While not confirmed with the provider, this organization mainly works with Caucasian population who are first generation Russian or eastern European.

(Agency 9, Provider 1 – Urban/suburban region)

*As far as the social [PHQ-9 baseline] questions, well, I kind of changed them on my own. But I think that those questions are having our audience a little bit taken aback.*

(Agency 3, Provider 1 (individual) – Urban/suburban region)

One organization created a flagship post-PEARLS program called “PEARLS Connect” to support the needs of clients after program graduation. The social support group was developed to meet the gap in social connection and connect older adults to other older adults. The same organization also developed a newsletter for graduates of the program with uplifting material.

*PEARLS Connect is a monthly event where graduated clients are invited to [join]. I am just having everyone...socialize and talk. There's always some kind of talking point and then an activity like playing a game, doing a craft or something that we can all do socially distant through the computer.*

(Agency 2, Provider 4 – Urban/suburban region)

*[We] send a newsletter out every month, even to those who have never come to a [PEARLS] Connect event. They still get the newsletter with uplifting content. There's usually a little cartoon*

*in it or something. So, if they've ever been approached as a PEARLS client ...they get something from [us]...my clients [have] been loving [the] encouraging words.*

(Agency 2, Provider 3 – Urban/suburban region)

### *Future Adaptations*

A key theme we heard from providers was a desire to modify the tail end of the program and create social connectedness opportunities for graduates of the program. Some providers expressed concern over discharge planning and hope to increase the number of sessions to better support clients. Providers also described wanting to modify session materials, such as changing the program session workbook to simplify it for clients and creating more virtual materials.

*I would like to see more work or development of discharge planning. And for me that is important for sustainability in terms of even just having a real impact on people's lives and monitoring what PEARLS has actually done in a long-term picture.*

(Agency 10, Provider 1 – Urban/suburban region)

Providers expressed wanting to implement an adaptation where graduated clients were placed into support groups. Post-PEARLS clients could be matched with other graduated clients based on similar interests. It would allow clients to continue utilizing techniques and widening and enriching their social circle. One organization had created this kind of program, but other organizations who expressed interest in creating a program for graduates did note their concerns about confidentiality and resources.

*I really wish I could set up groups. So often I have a client who says, 'I've got a car and I can drive. But where am I going to go, there is nothing to do.' And then I have another person who says, 'Oh, I just wish I could get in a car ride with somebody for a little while' and I'm always tempted to say 'I know another person. If I talked to them, are you interested?' But I have not done that yet.*

(Agency 11, Provider 1 – Rural region)

*I think [a PEARLS support group is] something for us to look at and see if we can bring to fruition to materialize. I hear that a lot from clients and there's certain ones, I'm like, if I could just let you guys become friends, you'd be perfect. But there's obviously a lot of HIPAA barriers to that. But I like that idea, down the line of having some sort of group support.*

(Agency 4, Provider 3 – Urban/suburban region)

### *Challenges to Implementing Adaptations*

Providers experienced setbacks in implementing adaptations to the PEARLS program. Many providers spent time in sessions explaining the new telehealth format to clients, taking time away from

typical session material. Many providers noted that clients preferred either in-person sessions or phone calls and not video chats, noting technology challenges as a reason for avoiding virtual meeting platforms.

*I've been trying to get them to do PEARLS Connect\*\* but it's just seemed like a lot of them have been resistant towards the technology and it's most of my clients I see either in person or I'm doing over the phone. They don't want to do it over Zoom... They're not really into technology. Or they rather do it in person.*

\*\* "PEARLS Connect" refers to the support group created by the organization  
(Agency 2, Provider 5 – Urban/suburban region)

Pandemic-related adaptations impacted typical outreach efforts and forming partnerships with other adult service groups. Many organizations partnered with other older adult serving organizations to reach more clients and improve word-of-mouth. Examples prior to COVID-19 were meeting clients at senior centers, community centers or attending health fairs.

*The outreach numbers have gone down because there are no health fairs. There are no community activities going on. So how do we adjust to these changes and it's an ever-evolving situation.*

(Agency 5, Provider 1 – Urban/suburban region)

#### RQ4: Determinants of Program Effectiveness

In this section we discuss the contextual determinants outside of the PEARLS intervention; only the interview portion of the study informed these results. We discovered themes related to the provider, client-level, organization, and structural circumstances (socio-political aspects such as policies, wealth distribution, etc.).

##### Client-Level Determinants

Client willingness to participate in the program was a key theme discussed by providers. Clients needed to be self-motivated to be successful in the program and understand the expectations on them as a participant in the program. Clients needed to be the ones willing to put in the work assigned by providers for the program to successfully work for the client. This also applied to willingness to work organizationally supplemented technology and working together in a virtual setting.

*When I sat down to do the problem list, [it] would be the client's job to do the problem... to get an older adult to say hello to somebody who may be speaking Spanish in the elevator, in your building. That takes a leap for them. Some are willing and some aren't.*

(Agency 10, Provider 2 – Urban/suburban region)

*I've been trying to get them to do PEARLS Connect\*\* but it's just seemed like a lot of them have been resistant towards the technology and most of my all of my clients I see either in person or I'm doing over the phone. They don't want it to Zoom, or they just prefer some way in person. It's been really good and challenge at the same time.*

(Agency 7, Provider 4 – Urban/suburban region)

Another key theme was clients' pre-established support from the community. Cultural beliefs were utilized by providers to increase social connectedness, but it did help the process of implementing the program to already have a jumping off point for clients. For many, this was a religious affiliation or a senior center community.

*I know a lot of the folks that have had success [who are] involved with a church because they have that support. That's what I found anyway regardless of where they live, especially in the rural areas, if they've got a church family that they can depend on and they all support each other.*

(Agency 1, Provider 1 – Rural region)

#### Provider-level Determinants

Providers used a very client-specific approach and focused on making the program flexible for their clients given the barriers many clients experienced, including, but not limited to, client living arrangements, access to technology, and behaviors associated with certain populations. Providers also mentioned stigma as a barrier to reaching hard to reach groups, such Hispanic populations. Providers catered the program to clients' cultural beliefs and especially applied a community-based approach to implementing PEARLS to their clients. Many providers had working relationships with other programs supporting older adults. It was largely up to providers to connect clients to regional resources.

*I have to get creative in my own mind and say, 'Okay, maybe I need to not take out the social activity, but maybe more focus more on say pleasant activities and physical activities' because the social part is very hard right now for them to do.*

(Agency 3, Provider 1 (individual) – Urban/suburban region)

*We are working with [various] population, especially veterans, who are 'I'm socially engaged, but only with other veterans.' We're looking at a population that can be pretty stubborn.*

(Agency 3, Provider 1 (individual) – Urban/suburban region)

*Sometimes clients don't like the word depression... they don't identify the loneliness with depression. So that's why we phrase it different.*

(Agency 9, Provider 2 – Urban/suburban region)

Other determinants to program success were providers implementing creative solutions based off their own personal values and beliefs. Providers brought their own experiences and background to their work, and thus had their own mantra to implementing the program with clients.

*I always start my sessions with 'let's have something to drink and toast.' It has to be positive. Once we've done with all the venting and the negative, I say, 'take a breath. And let's take on a positive hat of role here, and...Let's deal with the present. What can we do to feel better? Do you want, joy, peace? Let's create that because we can be kind of our own superheroes.'*

(Agency 6, Provider 1 (individual) – Urban/suburban region)

*Our position is not to be their friend and jump on the bandwagon of 'poor pitiful I can't believe they're doing this to you.' Because they want that, and that's not what PEARLS is all about. You have to guard against that I have found.*

(Agency 1, Provider 1 – Rural region)

#### Organizational-level Determinants

Organizations had affiliations and partnerships with other organizations to increase reach among their clients. Organizational culture around supporting providers in their work was also helpful to implementing PEARLS.

*As far as the resources that we have in the community, it's up to workers at [our organization to disseminate resources] because there are a lot of our programs there and even though we're doing PEARLS, we always provide that information to anybody that's struggling.*

(Agency 1, Provider 2 – Urban/suburban region)

*We try also to connect with other programs. We could work together because that's one of the main important things, especially when the client is being referred by another program. We want to stay connected with them.*

(Agency 9, Provider 2 – Urban/suburban region)

Organizational resources, such provider staffing, time, and technology resources, were also cited as a method to implement PEARLS. To connect new resources to clients, organizations needed the funds to best implement it as well as technological resources to provide to clients.

*We've been looking at access to technology as being one of the social determinants of health... we [may] have two tablets that we can give to somebody for the time that they're doing PEARLS, but they may not have a data plan. [They] may not have Wi-Fi. People don't have access to [the internet] and that's a huge barrier.*

(Agency 4, Provider 4 – Urban/suburban region)

*We had some tablets that we were able to disperse to clients as long as they were participating at least couple of our programs...whatever way we can, we're trying to get technology out to them.*

(Agency 1, Provider 1 – Rural region)

### Structural-level Determinants

We heard from providers that there is only so much that the program can do to improve social connectedness among clients, and that structural determinants can drive health outcomes and program effectiveness. Determinants included wealth disparity, access to technology and financial literacy; a key theme was wealth disparity among older adults as many older adults enrolled in the program are likely to be low-income. Some organizations discussed how serving low-income older adults in high income regions meant a lack of community building and improvement.

*There is huge wealth disparity in the county. You have people that are living in these luxurious estates right off the water right down the road from people that are living a very different lifestyle. There doesn't seem... to be a lot of camaraderie and working together for the greater good [in our county].*

(Agency 8, Provider 1 – Rural region)

*We're a rural area. We do have resources, but it's frustrating when there's resources in place and we just can't get people [in] ... We have a lot of wealth in our county, but it's people who have second homes on the water, [many who are healthcare] providers, unfortunately. It's like they come to work part time here to be halfway on vacation. It's a very strange dynamic that's unique to our area.*

(Agency 8, Provider 2 – Rural region)

Providers brought up client issues such as lack of income and budgeting concerns, and worried about the sustainability of PEARLS when clients could not afford health services. While social service programs provide some financial relief to clients, there was still limitations to access, and especially dependent on local and state policies.

*It's finances for older people...figuring out how they're going to pay for their expenses. You don't have the opportunity to go back to work when you're when you're 60, 70,80, 90 years old and struggling with a lot of medical issues or if you have a \$300 copay and copayment for your medication. Medicaid is great for older people, but it varies by state.*

(Agency 5, Provider 2 – Urban/suburban region)

*If we refer a client to another to another program, for longer term, [clients] say 'The copayments are high,' and some of them say, 'I can't afford that. That's too much for me. I'm on a budget.' They are limited in their finances.*

(Agency 9, Provider 2 – Urban/suburban region)

### Challenges with Implementing PEARLS

We identified several challenges to program success and impact. Some providers noted that the program worked well for some clients but did not work as well for others; success was largely on a case-by-case basis. In some instances, providers noted certain groups as experiencing barriers to implementing the program. For example, adults with complex health issues, comorbidities and/or significantly older adults (specific age range not specified in interviews) were less likely to experience benefits from the program. Providers were conflicted on whether the program should continue to be marketed toward these populations.

*Our people who are quite significantly older and have a lot of comorbid health situations, social situations, and financial situations... [they are] more prone to wanting to shut down. It is a choice that they make that they just don't want to engage in.*

(Agency 8, Provider 2 – Rural region)

Readiness and attitudes to enroll in PEARLS emerged as a challenge to implementing the program. A key theme was that clients who were not ready for change or who had differing expectations of the program goals did not always complete the program. Some clients who enrolled in the program after receiving an introduction still did not have accurate expectations of the work they would need to do to participate in the program. After initial enrollment and receiving feedback from the provider, clients dropped out or were passed on to other resources by the PEARLS provider. Negative attitudes toward resources such as community centers and local means of connecting were also perceived as a barrier for program effectiveness. Providers tried to work through these issues with clients, but sometimes attitudes would not change, and clients dropped out of the program.

*People have very strong opinions about the senior centers. They're either too cliquey or they're too old or too this...sometimes feel like we're kind of pulling for straws...so when it's something they've already decided 'no way, not at all'... it becomes a challenge.*

(Agency 4, Provider 3 – Urban/suburban region)

PEARLS was still important in effectively improving social connectedness despite the challenges. Clients experienced benefit from participating in the PEARLS program even if they were not initially ready to participate in it. PEARLS plants seeds so that when clients are ready, they have the tools available to them to activate behavior modification.

*I think that especially right now PEARLS is very, very important for all the elderly people, even more so I feel than before because they're really grateful that there's somebody who's calling them.*

(Agency 7, Provider 1 – Urban/suburban region)

## Discussion

This study explored PEARLS provider perspectives on what components of the program helped improve social connectedness, the mechanisms through which PEARLS improved social connectedness, what adaptations were needed both before and during the COVID-19 pandemic, and what contextual factors contributed to the program's success in improving social connectedness. We summarize our findings in each of these areas below, and outline implications for future research, practice, and policy.

First, providers identified all six core components of social connectedness interventions as contributing to improving social connectedness for PEARLS clients: PEARLS is backed in theory, designed to reach socially isolated older adults, engages older adults as active participants, has clients co-create a personalized approach, helps clients understand the nature of their social isolation and gives access to additional support and services. These findings are consistent with existing literature showing that social connectedness programming employs components in line with PEARLS, most frequently incorporating access to resources and utilizing theory-backed tools like motivational interviewing (Cattan et al., 2010; Ibarra et al., 2020; Tomasino et al., 2017). However, the term 'theory backing' was an uncommon component chosen in the provider survey; this term could be misunderstood by providers. Theory-backing refers to the techniques used by providers, which were regularly described throughout interviews. Providers are trained in these techniques and likely would have noted it as a component in the survey if defined more explicitly.

Second, we found that PEARLS improved social connectedness by enhancing social support, increasing clients' opportunities for social connection, and decreasing maladaptive social cognition. This is in line with previous research showing that programs employing mechanisms of enhancing social support and reducing negative thoughts have improved social connectedness among clients (Banbury et al., 2017; Jarvis et al., 2019). Many interventions achieve social connectedness through tapping into social skill training, socialization and other emerging tactics to improve social relationships among older adults (Mann et al., 2017).

Our third purpose was to identify adaptations implemented by providers to make the program work better for clients. We identified both pandemic-related and non-pandemic related adaptations and found that use of technology was instrumental to implementing PEARLS. Providers experienced challenges with connecting with technology-wary clients; technology can improve social connectedness but not all older adults can adjust to adaptations (Ibarra et al., 2020). There are many reasons this occurs, due to lack of computer literacy, lack of access to technology due to location or income, or lack of support from family to pursue either (National Academies of Sciences, 2020).

We also identified other adaptations to the program, including a post-PEARLS program to enable social connection with other graduates. This is a promising adaptation that future organizations can incorporate into programming pending available funding and resources. Providing future social opportunities would allow PEARLS graduates to practice and reinforce program techniques and continue enriching their network.

Fourthly, we identified contextual determinants outside of the program that facilitated or impeded its effectiveness. We learned that many of these determinants were beyond the control of PEARLS providers, including clients' willingness to participate or the severity of mental health issues, the organizations' access to local resources and the socioeconomic circumstances of the region. Identifying influential outside determinants prepares practitioners for working with diverse and hard-to-reach populations. Previous research on the PEARLS program has also identified barriers to implementation of the program in line with our findings, including the intervention itself being too rigid, not acceptable to clients and more pressing issues in clients' lives (Steinman et al., 2015). Implementing the program among hard-to-reach populations is an important goal of organizations utilizing of PEARLS and continuing to identify outside determinants hindering (and supporting) its implementation can improve program effectiveness.

While this program has been found to be effective at increasing social connectedness, there are aspects of PEARLS that do not work for everyone. Some providers faced challenges implementing the program during the pandemic due to limited resources and funding, especially among hard-to-reach

clients. Adapting to these challenges, providers were creative, team oriented and collaborative in their approach to implementing the program. This finding is supported by previous literature showing that providers implementing behavioral health programs often need to adapt to fit the needs of clients and build rapport (Mignogna et al., 2018; Steinman et al., 2015). Providers collaborated with one another to adapt the program for more complex clients and develop adaptations that would work for more clients. They adapted to their respective state mandates to continue to implement the program to the best of their ability.

Additionally, there were certain populations of note that providers had to adapt to better implement the program due to cultural experiences. However, we did not learn if there were differences in program components or mechanisms for certain populations. To implement PEARLS among Hispanic or Eastern European clients, providers needed to adjust phrasing of PHQ-9 questions to accurately assess clients' depression status.

#### *Strengths and Limitations*

We believe this study contributes to a knowledge gap in understanding what made PEARLS impactful for its participants. By using a mixed methods concurrent design, we were able to acquire richer knowledge on provider perspectives. However, there were limits to our design. The survey gathered only demographic information and responses to two out of our four research questions. We could have lengthened our survey to better understand perspectives on all four questions but decided that the group interviews adequately answered RQ3 and RQ4.

We decided to conduct group interviews instead of focus groups or individual interviews to minimize the demands on provider time. By conducting group, organization-centered interviews, we learned valuable information about the organization's approach to implementing PEARLS and heard from multiple providers. This also meant that we were unable to hear from each provider individually and may have lost valuable insight due to more opinionated providers. However, a member of the research team had long standing professional relationships with many of participating organizations and believed that many providers had open communication with their team, both fellow providers and managers, and would

feel comfortable sharing insights in a group dynamic. For providers not comfortable in a group setting, we offered to conduct an individual interview.

Our use of rapid analysis to analyze data, a still-developing and novel implementation science tool, helped us complete analysis in a compressed timeline while still discovering rich information (Gale et al., 2019). More research is needed to better understand its use and effectiveness, and the extent to which it is able to capture all relevant content.

If there were certain program aspects that worked better for certain groups, we did not analyze for that data due to a lack of population specific information. This result is consistent with existing research showing that certain populations require different approaches to implementing social connectedness programming, especially pertaining to stigma of mental health illness and associated terminology (Brown et al., 2010).

Lastly, the entirety of the study was conducted during the COVID-19 pandemic. All research team meetings and study interviews were conducted through Zoom or phone. This method allowed us to interview eleven organizations spanning five states. We also gained valuable insight into organizational use of technology during a pandemic, a tool that many organizations will continue to use after restrictions are lifted.

#### *Implications for Research, Practice, and Policy*

Adaptations used by providers offer valuable insights into improving PEARLS program implementation in the future, as well as other programs to improve social connectedness. By identifying what providers on the ground level are changing, future versions of the program can incorporate findings to better serve both providers and clients. Future programming could incorporate provider skill development in outreach and enrollment to engage more diverse populations. For clients, programming could incorporate intergenerational programming or networking between PEARLS graduates. More research is needed to understand how these adaptations could improve the impact of PEARLS and social connectedness.

However, to continue to serve older adults on a broader scale, it is vital to identify and implement better policies to support older adults. While one-on-one interventions are beneficial on a larger scale, policies addressing social determinants of health will better support older adults, especially those in vulnerable groups. Policies that incorporate more substantial opportunities for social interaction between older adults, community-building spaces and streamlining access to services are critical to support the growing number of isolated older adults. Incorporation of telehealth, increased access to technology, and availability of technology education classes are examples of essential services. Streamlining resources such as transportation, library services and hearing-impairment supports would also help increase social connectedness of older adults.

## **Conclusion**

Our study identified the reasons for PEARLS success, and what future adaptations PEARLS practitioners can incorporate into the program. In addition, it expands knowledge on social connectedness programming and identifies adaptations to incorporate to better serve older adults, a growing yet underserved population. As public infrastructure and health systems expand to meet the older adult population growth, programs providing socioemotional support need to follow suit, especially among low income and diverse racial and ethnic groups. Without programs helping older adults find social connection, the cost to our communities will be great and older adults will experience worsening levels of loneliness and social isolation.

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## Tables & Figures

Table 1: Conceptual models influencing Research Questions

Research Question	Focus	Method	Literature	Frameworks
RQ1 – Components to PEARLS programming	Specific methods and techniques used to modify social connectedness	Interviews & Survey	(Perissinotto et al., 2012; Umberson et al., 2010; Wiltsey Stirman et al., 2019)	FRAME, RE-AIM
RQ2 – Mechanisms to PEARLS programming	Pathways to social connectedness	Interviews & Survey	(Fakoya et al., 2020; National Academies of Sciences, 2020; Wiltsey Stirman et al., 2019) 2020)	FRAME, RE-AIM
RQ3 – Adaptations to PEARLS programming	Adaptations to program to better support older adults	Interviews	(Wiltsey Stirman et al., 2019)	FRAME
RQ4 – Contextual Determinants to PEARL program	Factors outside of program that improved social connectedness	Interviews	(Damschroder et al., 2009; Rabin et al., 2018)	CFIR

Table 2. Survey results: Characteristics of providers (n=38)

Characteristic	N (%)
<b>Age</b>	
Mean	53.6
<b>Gender</b>	
Male	4 (11%)
Female	33 (87%)
Trans, gender-non-conforming, or other	0 (0%)
Not answered	1 (2%)
<b>Race*</b>	41
American Indian/Alaskan Native	2 (5%)
Asian	1 (3%)
Black/African American	11 (29%)
Native Hawaiian/Pacific Islander	0 (0%)
White/Caucasian	22 (58%)
Other	5 (13%)
<b>Ethnicity</b>	
Hispanic/Latino	6 (16%)
Not Hispanic/Latino	31 (82%)
Not answered	1 (2%)
<b>Occupation*</b>	48
Medicine	3 (8%)
Social Work	20 (53%)
Mental Health	10 (26%)

Public Health	4 (10%)
Aging	5 (13%)
Other	6 (16%)
<b>Experience level</b>	38
Less than 1 year	5 (13%)
1-3 years	13 (34%)
4 to 6 years	17 (45%)
7 or more	3 (8%)
<b>Time spent doing PEARLS</b>	
8 hours or less	11 (29%)
9-16 hours per week	10 (26%)
17-24 hours per week	1 (3%)
25-32 hours per week	4 (10%)
40 hours per week	12 (32%)
<b>Role with PEARLS*</b>	
Counselor	26 (68%)
Program Counselor	12 (32%)
Clinical Supervisor	1 (3%)
Data Manager	2 (5%)
Other	8 (21%)
<b>Preferred Role Title*</b>	
Counselor	14 (37%)
Coach	8 (21%)
Therapist	5 (13%)
Provider	1 (3%)
Other	0 (0%)

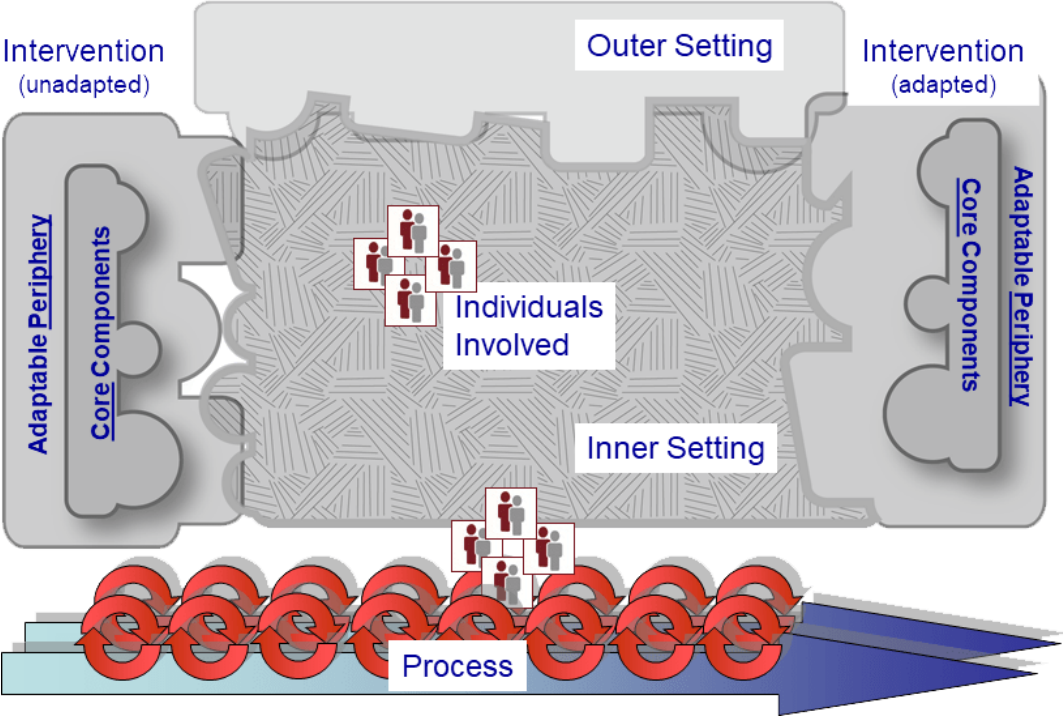
\*Indicates that respondents could select several options

Table 3. Percentage of PEARL satisfaction among clients

	Agreed/completely agreed	Neither agree nor disagree	Disagree/Completely disagree	Did not answer
1. PEARLS meets my approval for my clients.	100	0	0	0
2. PEARLS is appealing to me for my clients.	100	0	0	0
3. I like PEARLS for my clients.	100	0	0	0
4. I welcome PEARLS for my clients.	100	0	0	0
5. PEARLS seems fitting for my clients.	97.74	5.26	0	0
6. PEARLS seems suitable for my clients.	92	5.26	2.63	0
7. PEARLS seems applicable for my clients.	92.1	7.9	0	0
8. PEARLS seems like a good match for my clients.	92.1	7.9	0	0

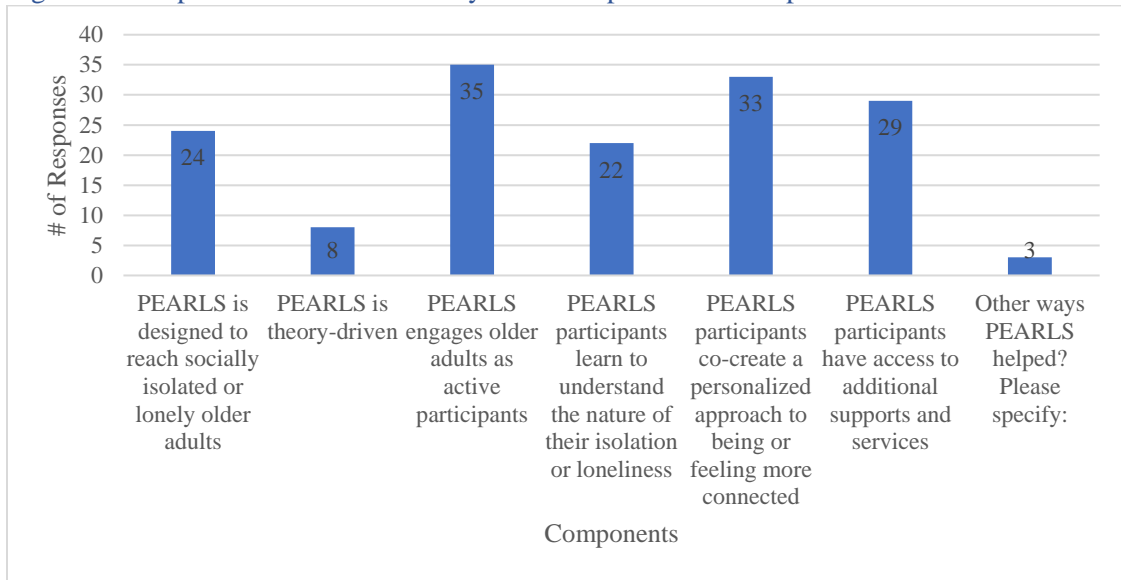
9. PEARLS seems implementable for my clients.	86	5.26	5.26	2.63
10. PEARLS seems possible for my clients.	89.85	7.89	2.63	0
11. PEARLS seems doable for my clients.	84.2	15.8	0	0
12. PEARLS seems easy to use for my clients.	86.85	13.16	0	0

Figure 1: CFIR Model



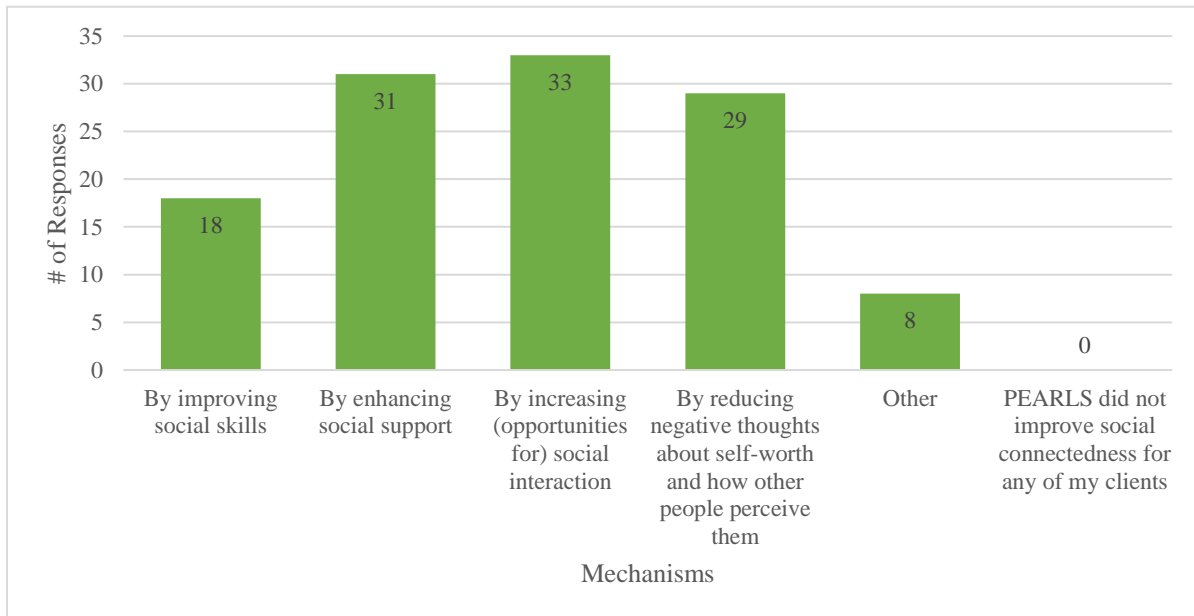
(Center for Clinical Management Research, 2014)

Figure 2. Components most endorsed by PEARLS providers to improve social connectedness\*



\*Indicates that respondents could select several options

Figure 3. Mechanisms most endorsed by PEARLS providers to improve social connectedness\*



\*Indicates that respondents could select several options

## Appendix

### Survey for PEARLS Providers

NAME:

EMAIL:

ORGANIZATION:

1. What is your role with PEARLS (*check all that apply*)?
- a. Counselor / Coach
  - b. Program manager
  - c. Clinical supervisor
  - d. Data Manager
  - e. Other (please specify): \_\_\_\_\_

If answer “a”, what word do you prefer to describe your role as a PEARLS provider?

- a. Counselor
  - b. Coach
  - c. Therapist
  - d. Provider
  - e. Other (please specify): \_\_\_\_\_
2. For how many years have you been doing PEARLS?
- a. Less than 1 year
  - b. 1 - 3 years
  - c. 4 - 6years
  - d. Over 7 years
3. Approximately how much of your work time is spent doing PEARLS?
- a. 8 hours or less per week (or, about 1 day or less per week)
  - b. 9 – 16 hours per week (or, about 2 days per week)
  - c. 17 – 24 hours per week (or, about 3 days per week)
  - d. 25 – 32 hours per week (or, about 4 days per week)
  - e. 40 hours per week (or, about 5 days per week)

4. What is the highest level of education you have completed?
- a. Less than high school
  - b. High school diploma/GED
  - c. Some college
  - d. 2-year College Degree (Associates)
  - e. 4-year College Degree (BA/BS)
  - f. Master’s degree
  - g. Doctoral Degree
  - h. Professional Degree (e.g. MD, JD)
  - i. Other (*please specify*): \_\_\_\_\_

5. In what area is your professional / educational background? (*circle all that apply*)
- a. Medicine
  - b. Social Work
  - c. Mental Health (e.g. Psychology / Counseling)
  - d. Public Health
  - e. Aging (e.g. Gerontology)
  - d. Other (*please specify*): \_\_\_\_\_

6. Which category best describes your age?  
 a. 18 – 29                      b. 30 – 39                      c. 40 – 49                      d. 50 – 59                      e. 60-69                      f. 70 or above
7. Which category do you feel best describes your gender?  
 a. female  
 b. male  
 c. trans, gender-non-conforming, or another gender identity (please specify if you wish): \_\_\_\_\_
8. What is your ethnicity (check one): a. Hispanic/Latino                      b. not Hispanic/Latino
9. Which category do you feel best describes your race? (check all that apply)  
 a. Black/African American  
 b. Asian  
 c. Native Hawaiian/Pacific Islander  
 d. White/Caucasian  
 d. American Indian/Alaskan Native  
 e. Other (specify) \_\_\_\_\_
10. Overall, how well did PEARLS work as an intervention to improve social connectedness among your clients?
11. The next set of questions ask about PEARLS acceptability, appropriateness, and feasibility as an intervention to improve social connectedness.
- a. First, think about **your clients** and whether they were satisfied with PEARLS as an intervention to improve social connectedness.

**Acceptability**

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. PEARLS meets my client's approval.	①	②	③	④	⑤
2. PEARLS is appealing to my clients.	①	②	③	④	⑤
3. My clients like PEARLS.	①	②	③	④	⑤
4. My clients welcome PEARLS.	①	②	③	④	⑤

**Appropriateness**

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. PEARLS seems fitting for my clients.	①	②	③	④	⑤
2. PEARLS seems suitable for my clients.	①	②	③	④	⑤
3. PEARLS seems applicable for my clients.	①	②	③	④	⑤
4. PEARLS seems like a good match for my clients.	①	②	③	④	⑤

**Feasibility (FIM)**

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. PEARLS seems implementable for my clients.	①	②	③	④	⑤
2. PEARLS seems possible for my clients.	①	②	③	④	⑤
3. PEARLS seems doable for my clients.	①	②	③	④	⑤
4. PEARLS seems easy to use for my clients.	①	②	③	④	⑤

- b. Next, think about **you as a PEARLS provider** and whether you were satisfied with PEARLS fit as an intervention to improve social connectedness.

**Acceptability**

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. PEARLS meets my approval.	①	②	③	④	⑤
2. PEARLS is appealing to me.	①	②	③	④	⑤
3. I like PEARLS.	①	②	③	④	⑤
4. I welcome PEARLS.	①	②	③	④	⑤

**Appropriateness**

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. PEARLS seems fitting.	①	②	③	④	⑤
2. PEARLS seems suitable.	①	②	③	④	⑤

3. PEARLS seems applicable.	①	②	③	④	⑤
4. PEARLS seems like a good match.	①	②	③	④	⑤

**Feasibility (FIM)**

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. PEARLS seems implementable.	①	②	③	④	⑤
2. PEARLS seems possible.	①	②	③	④	⑤
3. PEARLS seems doable.	①	②	③	④	⑤
4. PEARLS seems easy to use.	①	②	③	④	⑤

12. The last set of questions ask about how and why PEARLS may have improved social connectedness.

- a. Over the course of PEARLS, what were the pathways (mechanisms) by which your PEARLS clients may have improved their social connectedness? (*check all that apply*)
- By improving social skills
  - By enhancing social support
  - By increasing (opportunities for) social interactions
  - By reducing negative thoughts about self-worth and how other people perceive them
  - By other pathways? Please specify: \_\_\_\_\_
- b. In your experience, what were some of the active ingredients by which PEARLS may have improved social connectedness for older adults? (*check all that apply*)
- PEARLS is designed to reach socially isolated or lonely older adults
  - PEARLS is theory-driven
  - PEARLS engages older adults as active participants
  - PEARLS participants learn to understand the nature of their isolation or loneliness
  - PEARLS participants co-create a personalized approach to being or feeling more connected
  - PEARLS participants have access to additional supports and services
  - Other active ingredients? Please specify: \_\_\_\_\_

13. Please use the space below for any additional information that you would like us to know about your experience as a PEARLS provider:

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**Thank you for completing this survey!**