ABSTRACT

Title of Thesis:	EXPLORING REMOTE SERVICE PROVISION IN ADULT DAY CENTERS DURING THE COVID-19 PANDEMIC
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The COVID-19 pandemic profoundly impacted the long-term services and supports (LTSS) sector, necessitating a rapid shift from in-person services to remote. Adult day service centers (ADSCs) – a type of LTSS – offer in-person community-based programs comprised of health and wellness services to historically underserved populations, such as communities of color, low-income, and older adults. Based on data collected from 23 semi-structured interviews with 22 providers from eight ADSCs across a Mid-Atlantic state, this thesis explores the experiences of ADSC providers – such as directors, activity staff, and nurses – as they navigated pandemic-related closures.

To ensure uninterrupted services, centers leveraged their existing infrastructure and adapted to a remote service model. An intricate interplay of technical (e.g., access to devices, internet) to non-technical (e.g., digital literacy, sociocultural context, limited staff) variables affected the overall success of remote services. Simultaneously, ADSCs grappled with limited reimbursement for remote services – which directly impacted their operations and the sustainability of remote services. These findings offer insights into the challenges and adaptations providers experienced amidst an unprecedented crisis, shedding light on the systemic issues throughout this period. The study seeks to inform future interventions that promote the sustainability of remote services in ADSCs, with a specific focus on preventing service disruptions for historically underserved populations.

EXPLORING REMOTE SERVICE PROVISION IN ADULT DAY CENTERS DURING THE COVID-19 PANDEMIC

by

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Dedication

This work is dedicated to those whose voices often go unheard in research. Your experiences, stories, and perspectives are profoundly important and must be acknowledged. This is for you – I hope this research contributes to amplifying your voices and bringing about the change and understanding that is needed.

Acknowledgements

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I wish to express my heartfelt appreciation to the participants of this study. Their willingness to share their experiences, knowledge, and time has provided the backbone of this research. Their stories have enriched this work immeasurably, and I hope that this thesis can do justice to their contributions.

Lastly, I would like to acknowledge my best friend, Saransh Grover. Thank you for your unwavering support and friendship throughout this journey.

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List of Abbreviations

ADS – Adult day services

ADSCs – Adult day service centers

COVID-19 – Coronavirus disease

LTSS – Long-term services and supports

NH – Nursing home

PPP – Paycheck Protection Program

Chapter 1: Introduction

The COVID-19 pandemic forced healthcare providers to transition from in-person to remote services to maintain continuity of care for patients [1]–[7]. This paradigm shift, rife with challenges and opportunities alike, was particularly significant for ADSC providers [1], [2], [6], [7]. ADSCs administer community-based long-term care services that predominantly serve historically marginalized and vulnerable populations (i.e., low-income older adults with medical conditions and disabilities) [8]. ADSC providers (i.e., any paid professional directly or indirectly involved with the provision of ADS) implement and facilitate in-person services for their clients, such as transportation, health monitoring and management, nutrition, and activities (e.g., music, fitness, arts, and crafts) [8], [9]. However, with the sudden pandemic-related closure of centers and limited guidance from the local government, providers had to adapt to a new model of service provision.

To shift to a remote service model, providers adapted their existing infrastructure and introduced entirely new technologies (e.g., Zoom, Microsoft Teams). Providers took measures beyond the limited government guidance to remain consistent with in-person services and maintain the safety and stability of their clients. However, according to providers, all stakeholders – themselves, their clients, and their caregivers – experienced challenges that affected successful remote service provision. These barriers – technical and beyond – influenced resource allocation and remote service delivery and accessibility. Simultaneously, ADSCs had to navigate a limited remote service reimbursement structure and decreased revenue streams.

This thesis examines the perspectives and experiences of ADSC providers in navigating the challenges and adaptations to a remote service model. By gathering their perspectives, I demonstrate how providers maintained essential services prior to, during, and after the pandemic-related closures. Ultimately, these insights can steer practice and policy decisions to improve the quality and viability of remote services.

1.1 Motivation

The complex transition to remote services amidst the COVID-19 pandemic has been a subject of much interest in literature in the broader healthcare context [10]–[14]. However, the optimal approach to delivering remote services, specifically to historically marginalized and vulnerable populations (i.e., older adults who are low-income and have comorbidities or disabilities), remains unresolved [15]. Furthermore, there is limited research on how the pandemic has impacted service provision within ADSCs, particularly from the providers' perspective [1], [4], [7]. Specifically, literature has yet to deeply explore the unique challenges of organizations dependent on government funds, such as ADSCs, that serve the aforementioned populations [8]. Extant literature suggests that although healthcare needs and acuity levels of ADSC clients have increased over time, government funding for ADSCs remain inadequate and have led to financial insecurity [8]. The perspectives and experiences of providers who serve these historically marginalized populations warrant further exploration as they are underrepresented in current research [1], [15]. By exploring the interplay of variables that affected the shift to a new service model, this study aims to advance the knowledge of service provision

within ADSCs and further the discourse on the long-term sustainability and viability of remote services in these settings post-pandemic.

1.2 Research Questions

To gain a deeper understanding of this complex environment, I address the following exploratory questions in this thesis:

1) How did ADS shift from a completely in-service model to a remote one?
    a) What in-person services did ADS providers adapt?
    b) How did they accomplish this?
2) How have providers navigated remote service provision in the constraints of a limited reimbursement structure?
3) What socio-technical barriers did providers face during remote service delivery?
    a) How was technology utilized to overcome barriers?
    b) How did ADS providers familiarize clients with technologies used for remote services (e.g., Zoom)?
    c) What were some of the barriers that technology could not resolve?
4) What learnings from the pandemic can be generalized and applied to other potential crises in remote service provision?

1.3 Approach

Given the limited literature on ADSCs' responses to the pandemic, an exploratory qualitative research approach was adopted to analyze the complexities of remote service delivery throughout the pandemic. Data collection entailed 23 semi-

structured interviews with 22 providers from eight ADSCs. The interviewees were chosen based on an established relationship with a coalition of 180+ for-profit and nonprofit centers, and the goal to gather multiple perspectives across the two types of centers.

Thematic analysis was implemented to gather insights from the interview data. This process included the transcription of the interviews, followed by open coding to identify preliminary themes and patterns. As part of this analysis, several factors were explored, such as the initial pandemic response, subsequent changes to work processes and services, and reopening per state guidance; the financial and logistical implications of the pandemic on ADSCs were analyzed as well. The themes identified through this analysis were then validated using inductive and deductive coding, leading to a refined understanding of the factors affecting remote service provision. Overall, this exploratory approach contributed to a holistic understanding of the providers' experiences in the midst of the pandemic and the factors affecting service delivery.

1.4 Contributions

This study makes several significant contributions to our understanding of remote service provision in the context of ADSCs during the pandemic, providing insights on:

- The significant financial stress that such crises can place on government-funded organizations, such as ADSCs, and the strategies used to manage these financial constraints and ensure the continuity of services.

- The unique challenges ADSC providers faced during their closure and how their resources affected their ability to navigate these difficulties.
- How variables beyond technology influence the success of remote service provision.
- The inequities in access to remote services, especially for the populations served by ADSCs, thereby calling attention to an urgent area for improvement.

By illuminating these issues and providing a nuanced understanding of the challenges and strategies of ADSC providers, my study contributes to developing effective policies and practices that can support the sustainability of remote services, particularly during crises.

1.5 Overview

The remaining chapters of my thesis are structured as follows:

- Chapter 2 presents a literature review that helps contextualize the study within the broader field of service provision during crises.
- Chapter 3 details the methodology used in this research, including participant recruitment, data collection, and analysis methods.
- Chapter 4 presents the findings from the data analysis, addressing the research questions and highlighting key themes.
- Chapter 5 discusses the implications of the findings for service provision practices, policy-making, and future research.

- Chapter 6 covers the limitations of the current study, exploring areas where certain constraints may have impacted findings and interpretations.
- Chapter 7 covers the conclusion and the broader implications of the research findings. This includes summarizing key takeaways, reflecting on their potential impact in the field, and suggesting avenues for future research.

Chapter 2: Background and Related Work

In this chapter, the landscape of Long-Term Services and Supports (LTSS) – which includes community-based (e.g., ADS, senior centers) and institutional (e.g., assisted living facilities, nursing homes) settings – is explored. The challenges and opportunities presented by the technology implementation and use in these contexts are presented, examining the provider's and user's experiences. Factors such as network connectivity, technical infrastructure, and technological literacy can influence the acceptance and effectiveness of these technological interventions. The chapter also elucidates the impact of the COVID-19 pandemic on LTSS, underscoring how technology has transformed service delivery and exposed and exacerbated existing disparities among older adults.

2.1 Long-term Services & Supports

Long-term services and supports (LTSS) refer to a range of services and assistance provided to individuals who have functional impairments or chronic illnesses and require help with activities of daily living (ADLs) over an extended period [16]. LTSS aim to support individuals in their daily lives and help them maintain their independence and quality of life. These services can include care within institutional (e.g., assisted living, nursing home) and home-and-community-based settings (e.g., home health care, adult day services) [16]–[18].

2.1.1 Adult Day Services

Adult day services (ADS) are home-and-community-based LTSS that provide health and social services to older adults and those with complex health needs [16]. As of 2016, an estimated 286,300 [19] participants were enrolled in about 4,800 adult day service centers (ADSCs) throughout the U.S. [19], [20]. ADS are primarily funded through Medicaid's Home and Community-Based Waiver Programs and the Veterans Administration (VA) [8]. Regarding clientele, older adults (i.e., 65 and over) represent 69% of ADS users, 21% fall within the age bracket of 41 to 64, and 9% are 40 years or younger [21]. Nearly 60% identify as members of racial/ethnic minority groups, highlighting the racial diversity of ADS clients. Many individuals live below the federal poverty guidelines, with 65.8% being Medicaid beneficiaries [19]. Most clients have diverse medical needs and comorbidities: 69.2% have Alzheimer's disease, Alzheimer's-related dementia, diabetes, depression, or heart disease. Although ADS clients' health standing would typically make them eligible for institutional care, most prefer to choose community-based care instead so they can age in place [19].

ADS include a wide range of services to meet the needs of participants and their caregivers. They typically help with ADLs, nursing and other health care needs, psychological support, meals, and caregiver wellness and support programs [9], [19], [21]. For instance, ambulation, toileting, and meal provision assistance are provided in more than 90% of ADSCs, while over half of these centers also offer bathing assistance. Almost half of ADSCs provide physical, occupational, and speech therapies; many centers offer specific interventions for chronic conditions, such as

diabetes. Recreational and social programming is another essential feature in ADS, with over 75% offering music, art, and pet therapies and over 70% offering intergenerational programming [22].

ADSCs are staffed by interdisciplinary professionals, including registered nurses, social workers, and occupational therapists, who provide clients with culturally congruent care, health monitoring, socialization opportunities, and assistance with ADLs for up to 8 hours per day [23]. About 80% of ADSCs employ a registered nurse or licensed practical nurse as part of their routine staff. More than 80% of centers provide blood pressure and weight monitoring, medication management, and diabetes monitoring, and around 50% offer medication injections, wound care, catheter and colostomy care, and tube feeding [21].

Several studies examining the impact of ADS on participants' overall well-being suggest that opting into ADS is linked to positive outcomes [24]–[26]. ADS environments allow older adults to socialize and engage in planned activities within a peer group setting while receiving necessary health and social services. Studies suggest that ADS attendance is associated with enhancements in physical and emotional well-being [27], [28], perceived psychosocial welfare [28], and favorable changes in social support and quality of life [27], [29], [30]. An integrative review conducted by Sadanrangi and Murali demonstrated ADSCs as an effective form of long-term care, especially for racial/ethnic minority groups, including immigrants [23]. These centers incorporate elements of immigrants' ethnic backgrounds and languages into activities and programs, facilitating social connectedness, improving physical health and function, and promoting independence. The review also

emphasized the crucial role bilingual and bicultural staff, particularly nurses play in bridging the cultural gap between older immigrants and the healthcare system.

Despite some studies indicating positive impacts of ADS, systematic reviews suggest mixed or negligible effects on client functionality, nursing home admissions, caregiver well-being, and costs [22], [31], [32]. There remains a lack of understanding of how these services benefit clients and how to measure these benefits. Reviews underscore the scarcity of rigorous empirical evaluations of ADS due to challenges including diverse focus, design, and client populations [33]. The effectiveness of ADS has been difficult to document due to several methodological issues, such as the lack of a standardized definition, variability in individual experiences and attendance, an individualized care philosophy, and a scarcity of studies using randomized controlled designs [22]. Recognizing these gaps and challenges, I aim to provide a deeper, more nuanced understanding of ADS's functioning, impacts, and potential benefits [2].

2.2. Technology in Long-Term Services & Supports

This section examines the role of technology in the LTSS sector, focusing on its implementation and adoption among providers and users. I begin by discussing traditional methods of service delivery and the factors influencing the transition towards technology-enabled services, such as telehealth. Then, I explore provider and user experiences with technology and the challenges that have surfaced, such as readiness for digital innovation. As I delve into these topics, I examine the disparities and obstacles older adults and other vulnerable populations face. This comprehensive

review offers insights into technology adoption in LTSS and potential focus areas for future research and policymaking.

2.1.1 Traditional Service Provision and Technology Adoption

Traditionally, face-to-face interactions have been the predominant method of delivering services in the senior living and social service sectors due to factors such as the lack of insurance reimbursement for remote services [34], [35] preference for in-person communication among older adults [36], [37], and the limited technological infrastructure for digital solutions [38]. In senior living facilities, numerous factors contribute to the slow adoption of technology in senior housing. These include the assessment of building infrastructure and geographic location, determining the most suitable tech devices and platforms for residents and staff, software requirements for specific functions like electronic health records (EHRs), implementing privacy measures for clients' financial and health data, and costs associated with acquiring, implementing, and maintaining devices and software [39].

By examining how traditional methods are changing in response to new technology, this thesis aims to showcase how LTSS professionals, such as ADSC providers, overcome hurdles in adopting technology and contribute new findings on how facilities address the issue.

2.2.2 Implementation of Healthcare Technology in the U.S.

Healthcare technology implementation is experiencing growth in the United States, particularly within long-term care settings where technologies like EHRs,

wireless data communication, and telemedicine are being adopted [40]–[42]. However, how these factors manifest within long-term care settings remains unclear [42]. Studies have shown that both quick and inadequate implementation of health information technology (HIT) systems can negatively affect their success[43], [44]. A comprehensive literature review supports the observation that nursing homes often lack a systematic approach toward HIT implementation, which is critical to effectively integrating these technologies in care delivery [45]. It was found that nursing homes tend to underinvest in staff training, which is integral to the successful implementation of these new tools.

Various factors throughout the healthcare system influence the successful implementation of HIT. User satisfaction with technology is largely influenced by the perceived ease of use and efficiency. Some research studies demonstrate that nursing home nurses and remote healthcare providers reported average to high levels of user satisfaction regarding the ease and usability of the equipment [46]. For example, Bereznicki et al. observed that transmitting medical reports and laboratory results was efficient [46]. In another study, the quality of communication between healthcare providers was perceived as clear [47]. The high user satisfaction with the telemedicine service was attributed to the provider's provision of technical support and prompt response time [48]. Through gathering providers' insights, my research aims to contribute to the knowledge of what factors may affect technology implementation in ADSCs.

2.2.3 Provider and User Experiences with Technology

Qualitative evaluations revealed healthcare providers' dissatisfaction during teleconsultations or remote monitoring due to various issues [49], [50]. Poor network connectivity and inadequate technical infrastructure resulted in delays in data transmission and access to resident information and reduced audio and visual quality [38], [51]. Overall, these factors impeded effective communication during teleconsultations [52]. Nursing home (NH) nurses encountered challenges such as "signal problems" and camera issues, which required troubleshooting and disrupted their regular workflow, adding to their workload [53]. The severity of technical problems was exacerbated by the low technological literacy of NH nurses and the lack of on-site technical support, contributing to resistance towards adopting telemedicine [54].

While telemedicine improved the quality of care, it was perceived to increase workload due to disruptions in work processes [52], [55]. For example, in one study, four out of five care staff expressed difficulties in integrating video consultations into their busy schedules [52]. Tasks like physical assessments of residents and case presentations were integrated into video consultation workflows, requiring additional preparation by NH nurses beyond their regular work routines [56]. These technical difficulties faced by healthcare providers are just one side of the coin. Along with them, the transition to these new service delivery mechanisms has also presented a significant learning curve for the recipients of these services, particularly older adults.

The transition to remote services posed a considerable challenge to older adults, requiring them to navigate unfamiliar digital platforms and technologies [11],

[57]. Despite an increasing number of older adults utilizing online platforms [58], [59], many still require assistance in navigating these technologies effectively (e.g., accessing information online) [58]. When assessing these trends, it is important to acknowledge the heterogeneity within the older adult population. Socioeconomic status, geographic disparities, education, cognitive abilities, and physical health condition influence individuals' capacity to engage with digital technologies [5], [60], [61]. My findings aim to provide a more nuanced understanding of provider experiences with technology, including challenges, adaptive strategies, and successful outcomes.

2.2.4 Barriers to and Readiness for Technology

Despite efforts to promote online technology in aging-related services, the adoption has been slow in in-home care and senior living facilities [62]. Although research has demonstrated improved outcomes for older adults in areas such as social skills and quality of life [3], barriers related to socioeconomic disparities, reliable internet access, and technology literacy have posed significant challenges, often affecting individuals with the greatest need for such services [3], [63]–[66]. Pew Research indicates that 71% of adults aged 65 to 74 claim to own a smartphone. However, this percentage drops to 43% among individuals aged 75 and older. Furthermore, less than half of people aged 80 and older use the internet daily, and for those with incomes under $30,000, only 27% routinely access the internet [67]. Even with access, Sarkar et al. found that these populations are less inclined to use technology for health management [68].

The most vulnerable, such as low-income elderly housing residents facing racial disparities, may lack access to internet resources or the necessary digital skills [58], [69], further aggravated by the high cost of technology, low literacy levels, lack of self-confidence, and skepticism towards technology [70]. This situation has widened the digital divide among older adults, further limiting their access to essential services and social contacts during the pandemic [71]. Many organizations needed to offer this demographic technical support when shifting to online platforms and teleconferencing tools like Zoom [72], [73].

Having internet access does not guarantee its adoption for certain purposes. When norms and laws impose new technology, the population may not be prepared to receive such technologies, especially people who are older or of low socioeconomic standing [74]. A recent cross-sectional study involving 4,525 community-dwelling adults found that 38% of seniors over 65 and 72% of those over 85 could not engage in video consultations for clinic visits. The lack of readiness for video consultations was more prevalent among older single men, non-White individuals, those with lower levels of education, and those residing in nonurban areas [75], [76]. Barriers to video visits included unfamiliarity with the technology, unreliable internet connections, difficulties with hearing or seeing, handling the device, and language barriers [75].

When examining the factors influencing technology adoption in healthcare facilities, it is crucial to consider various elements such as the physical setting, types of providers, team skills, education level, technology experience, workload, support staff, and effective communication throughout the implementation process. Taking these considerations into account is essential for developing successful technology

implementation strategies. My study aims to elucidate new strategies for overcoming barriers and improving readiness for technology adoption, especially among older adults.

2.3 Impact of the Pandemic

This section delves into the consequences of the COVID-19 pandemic on LTSS and its effects on older adults with diverse characteristics. It discusses how the healthcare landscape was drastically altered due to the pandemic, which forced many organizations to shift towards alternative methods of service delivery. The adaptations and challenges these organizations encountered are explored, along with the impact of such changes on the quality of their services. I further delve into the disparities and vulnerabilities heightened among older adults from diverse racial and ethnic backgrounds due to the pandemic. Overall, I seek to provide insights into the broader implications of the pandemic on community-based care for older adults.

2.3.1 On Long-Term Services and Supports

The pandemic profoundly affected global public health and healthcare systems. Its effects have been particularly pronounced on LTSS in the United States, including nursing homes, assisted living facilities, and adult day care services [2], [77], [78]. Community-based services and organizations were forced to pivot to alternative service delivery methods [3], [79]–[81]. When organizations shifted to remote services, it changed how older adults and people with disabilities received essential services.

Adaptations varied widely across organizations, and several modalities were implemented, such as – home deliveries [1], [82]–[84], telephone [1], [5], [82], [83], [85]–[87], online platforms, combination (i.e., telephone and videoconferencing;) [5], [85], or a hybrid model of online and in-person services [88]. These sudden adaptations were necessitated by closing or limiting the hours of various organizations and centers offering LTSS. In the context of ADSCs, the National Center for Health Statistics reported that 72% of centers in the US limited their hours or temporarily closed between January 2020 and March 2021.

The pandemic-induced adaptations not only affected the services and resources, but also impacted the structural and operational aspects of the organizations themselves. Changes included increased team meetings, workload, and the adoption of remote work practices [89], [90]. Organizations found ways to facilitate the process, such as flexibility and planning, but there was a lack of information regarding the cost of these adaptations, which remains an issue [3].

The quality of online services may not match that of in-person services due to potential difficulties in communication and activity provision. Emotional, sensory, and social experiences could be more challenging or impossible to develop and sustain over time in an online setting [91]. However, given the inability to provide in-person services due to the pandemic, some organizations developed and offered virtual services to clients and caregivers to address the unintended social isolation caused by stay-at-home measures [92].

Existing studies underscore the increase in online service delivery following the outbreak of the COVID-19 pandemic [15], [34], [76], [93]–[95]. However, there

is a need for more in-depth research to thoroughly understand the obstacles, facilitators, and outcomes of remote services in community-based care [90]. Additionally, there is limited literature documenting the experiences and perspectives of ADSC providers. However, they are the key stakeholders navigating the interface of service delivery, technology adoption, and client well-being [7]. My research addresses these gaps by qualitatively analyzing the adaptations to community-based services for older adults and people with disabilities that were put in place in response to COVID. By exploring how providers have navigated the challenges of service disruption, technology adoption, and meeting the needs of their clients, this research extends current knowledge in the field, highlighting the decision-making process within an under-researched community-based care setting and providing insights for policy and practice in a post-pandemic world. This understanding may be important in effectively managing future large-scale crises akin to the COVID-19 pandemic and providing support for individuals unable to access in-person services.

2.3.2 On Older Adults with Diverse Characteristics

While necessary for safety, this sudden suspension of in-person services resulted in a significant service gap for older adults served by LTSS [7]. As ADSCs nationwide ceased congregate operations, vulnerable clients lost daily support such as meal preparation, health monitoring, and socialization [2], [4], [82]. The pre-existing conditions of this population, characterized by higher incidences of chronic illnesses, frequent medical appointments, and continued medication regimes, have been further complicated by the disruption of non-emergency health services [96]. Moreover, the compounded effects of extended family quarantine, closure of senior centers, and

limited access to support services may have heightened risks of physical or emotional abuse and financial exploitation [96]. Furthermore, the disruption of these services removed a source of respite for their care partners [2].

The COVID-19 pandemic further highlighted existing disparities among older adults from diverse racial and ethnic backgrounds. Factors such as racism, discrimination, language barriers, and limited social networks already contribute to a higher susceptibility to social isolation among these individuals [97]. Certain subgroups, such as historically marginalized communities, those with a history of mental health conditions, physical multimorbidity, and residents in long-term care facilities, were more susceptible to the pandemic's impacts than their counterparts in the general population [98], [99]. Thus, the effect of the pandemic on these diverse communities extended beyond increased mortality rates to heightened social vulnerabilities.

Building on these observations, I hope to elucidate the specific experiences and challenges in serving older adults with diverse characteristics during the pandemic, providing evidence for how to support these groups better in future crises.

2.4 Summary

This research elucidates the intersection of long-term services and supports, technology adoption, and the COVID-19 pandemic's impact on healthcare provision for older adults. The reviewed literature reveals the growing relevance of LTSS for diverse older adults, the potential of technology to improve healthcare access and quality, and the significant challenges preventing its successful adoption. Poor

network connectivity, socio-economic disparities, and low technological literacy are among the identified barriers. The COVID-19 pandemic necessitated a swift transition to remote services, further spotlighting and exacerbating inequities among older adults. The research underscores the urgent need to address these challenges for enhancing healthcare services in a post-pandemic world. Overcoming these challenges necessitates a comprehensive approach, encompassing technological, social, and policy changes, to ensure that the benefits of telemedicine are accessible to all individuals. It also emphasizes the need for further research to delve into these issues and generate actionable insights to guide policy and practice decisions related to technology adoption in healthcare.

Chapter 3: Methods

3.1 Participants

The initial inclusion criteria were practitioners and service providers indirectly or directly administering services to individuals with dementia and memory concerns from historically underrepresented groups (i.e., low-income, communities of color). Since Medicaid recipients typically meet the aforementioned criteria of being from historically underrepresented groups [100], I searched for organizations that provided services covered by Medicaid. Using a Boolean search (e.g., "dementia AND "Medicaid" AND "older adults), I discovered home-and-community-based services (HCBS), which are programs funded by Medicare and Medicaid. I focused on organizations serving a state in the Mid-Atlantic region to allow flexibility for in-person or virtual meetings. Through the HCBS website, I learned of "adult daycares" (i.e., ADSCs) and the populations they serve. As mentioned in Section 2.1.1, around 40% of ADS clients are individuals with dementia or memory concerns; 69.8% are low-income; 59.8% are from racial/ethnic minority groups.

Through web searching for ADSCs serving a Mid-Atlantic state, I found a nonprofit that was a coalition of over 180 statewide ADSCs (hereafter referred to as COADS). Although each ADSC that is a part of COADS operates independently, the coalition provides a unified entity for lobbying statewide policy changes. I proceeded to cold-call and cold-email ADSCs that are a part of COADS, informing individuals of the research areas and goals. Once I connected with COADS leadership, I fostered

relationships through initial communications and meetings to understand their needs and concerns.

Purposive and snowball sampling techniques [101] were used to recruit participants within COADS and each ADSC, drawing on the participants' professional networks. I employed purposive sampling to target organizations that fit the inclusion criteria. I connected with organizations that serve vulnerable populations to shed light on perspectives underrepresented or overlooked in research. Participants were recruited from COADS via word-of-mouth and email. The inclusion criteria encompassed participants 18 or older and were directly or indirectly involved in providing remote synchronous (i.e., live) services to clients with memory concerns. Their eligibility for the study was confirmed over e-mail or phone, and an interview was scheduled. Recruitment and interviews occurred between March 2021 to October 2021. I maintained a continuous recruitment process to ensure a broad representation of roles from each organization and achieve a holistic understanding of remote service delivery.

The participants included providers from 8 centers from COADS, holding various positions. They ranged from executive roles such as CEOs and Directors to coordinators to staff members like activity personnel and nurses. Despite the clearly defined roles, participants reported considerable overlap and the assumption of responsibilities beyond their official job description. Participant demographics were collected from the optional demographics form and semi-structured interviews. Ultimately, my study included 22 participants from eight organizations, encompassing five types of roles: executive management (e.g., CEO), directors (e.g.,

Center Director), activities management (e.g., activity leader), healthcare and service (e.g., nurse), and operations (e.g., drivers).

ADSCs within COADS were not uniform, with variations in operational and financial structure, as detailed in Section 2.1.1. These centers followed a non-profit or for-profit model and could be categorized as single-site or multi-site facilities. The latter ranged from having two or more locations within the state to sites nationwide. Among the participating centers, two were non-profit, while six operated on a for-profit basis. There were 11 participants from non-profit centers and 12 from for-profit centers. Two centers were single-site facilities, while six were multi-site.

Regarding the characteristics of the ADSCs participants directed, three centers were a part of ADSCs nested within larger organizations. Most centers (N= 7) directed integrated programs (i.e., a mix of client conditions), while one directed dementia-specific ADS. Before the pandemic, the number of clients served daily ranged from approximately 80-110 across different ADSCs. Most information regarding center demographics was gathered from interviews. A search engine and brief phone call were utilized to gather missing information about a center's nonprofit or for-profit status. For example, a Boolean search that included "'name of ADSC' AND ("nonprofit" OR "not-for-profit") was used to verify the nonprofit status. Information was typically found on the ADSC's website or the COADS directory. Afterward, a phone call was made to the front desk personnel to confirm this information.

Securing an equal number and diversity of participant roles across participating centers proved challenging due to reported staff turnover, limited

capacity, and focus on reopening efforts, which may have constrained their ability to participate in interviews. Notably, the onset of data collection coincided with centers beginning to reopen, which could have influenced participation.

Initially, participants were also informed that their clients, specifically those with mild dementia or memory-related concerns, were encouraged to participate. This approach aimed to capture the perspectives of service recipients. However, due to apprehensions expressed by providers and potential concerns about clients' safety and privacy from caregivers, I refrained from directly recruiting clients.

3.2 Procedures

The Institutional Review Board (IRB) at the University of Maryland approved the study procedures. I developed an optional demographics form (Appendix A), an interview protocol for semi-structured interviews (Appendix B), and verbal and written consent forms. Consent was given by each participant, either written or verbal, prior to the interview. The consent method depended on the interview modality. After providing informed consent, participants were given the option to complete a demographics form. 17 participants filled out the demographics form. The remaining participants (N= 6) did not explain their reasons for not filling out the form. The demographics form included: age, gender, race/ethnicity, position title, time at the organization, technological confidence, and education.

After the consent and demographics forms were completed, I conducted semi-structured interviews. The interview length was outlined as five minutes - an hour to

allow for flexibility and consideration of participants' commitments outside of the study. However, the actual interview length ranged from 26 – 72 minutes long.

The interviews took place via a convenient modality for participants, such as in person, over the phone, and via Zoom. The Zoom interviews were video recorded, and the in-person and telephone interviews were audio recorded. Notes were taken during the entire interview. Almost all participants consented to be recorded, apart from one participant who opted out. At the end of the interview, participants were offered compensation of $20. They provided reasons such as perceiving the importance of the study itself, rather than any financial incentive, as their primary motivation for participating. It should be noted that this decision was made voluntarily, and all participants were informed of their right to compensation.

Participants provided artifacts showcasing the services offered before, during, and after the pandemic-related closures. Some participants consented to photographs, and pictures were taken of items, services, or contexts relevant to the study. For example, with the consent of the participants, I took pictures of the activity calendars that demonstrated the breadth of offerings at each center.

3.3 Analysis

Interviews were audio or video recorded and transcribed for analysis. At the start of the process, four interviews were conducted, transcribed, and qualitatively coded using a thematic approach incorporating inductive and deductive methods [102]. This process was executed collaboratively by two researchers to ensure reliability and enhance the robustness of the thematic analysis. The two researchers

collaborated on the preparation of a preliminary codebook. This process entailed reviewing four transcripts by the first researcher, followed by discussions with the second researcher to add, delete, and merge codes. Following the development of this preliminary codebook, the first researcher applied these codes to three separate interview transcripts, each chosen from a different organization. This approach facilitated identifying themes across ADSCs. Notable open codes at this analysis stage included *"maintaining continuity of care", "staying afloat,"* and "*barriers to accessing technology"* The second researcher reviewed these codes to validate the coding process and verify the identified themes.

As we discussed the evolving themes and patterns, it became evident that the ADSCs' resources and infrastructure significantly influenced their service provision adaptations and strategies. By resources and infrastructure, I refer to aspects such as access to digital tools and platforms, staffing levels, and the financial capabilities of the centers. Centers better equipped in these areas seemed to pivot more smoothly towards remote service delivery, demonstrating a key interplay between resource availability and adaptive capacity. Recognizing these influential factors prompted our team to delve deeper into these areas in subsequent interviews.

While the initial questions were tailored toward adaptations and strategies for clients with dementia and memory concerns, we soon recognized that a broader perspective was emerging. Participants stated that the challenges, strategies, and adaptations identified were not specific to their clients with dementia or memory

concerns but applied broadly to their client population.[1] The challenges, strategies, and adaptations related to aspects of basic service provision, such as access, communication, and support. By widening the scope of the study, I was able to capture these broader patterns, providing a more comprehensive understanding of the impact of the pandemic on remote service provision and the adaptations made by ADS providers.

As the focus shifted, I responded by adjusting the analytical approach. New codes, themes, and memos were generated, and existing codes were revised to align with the evolving understanding of the data. I open-coded the interviews while engaging in constant memoing and theorizing with my advisor. We then proceeded with focused coding to analyze the remaining interviews (n=10), wherein we applied the codes that had already been formulated. To ensure the validity and consistency of the refined codebook, we implemented a peer debriefing method. This process involved an independent coding of a sample interview transcript by the first and another researcher, who was not involved in the initial codebook preparation. We then convened to discuss and reconcile discrepancies in our coding, fine-tuning the understanding of the codes.

3.4 Ethical Considerations

This study followed the ethical guidelines approved by the University of Maryland's Institutional Review Board (IRB). Rigorous measures were undertaken to

[1] The client demographics of the participating ADSCs were not collected due to time and resource constraints. However, existing literature indicates that nationally, 63% of ADSC clients are older adults (i.e., 65 and older) and 69.2% have some combination of Alzheimer's disease, Alzheimer's-related dementias, diabetes, depression, or heart disease [19].

protect the privacy and confidentiality of the participants. All identifiable data, such as names and locations, were replaced with participant identifications numbers (PIDs), acronyms, and general regional information to anonymize the data. PIDs ensured that any quotes or insights derived from the interviews could not be traced back to the individual participants.

Chapter 4: Findings

Through this detailed account of the providers' experiences, this chapter aims to uncover the realities and implications of rapidly pivoting to remote service provision in the face of the pandemic. The advent of the pandemic created an unprecedented crisis in the ADS landscape. In-person ADS extended beyond basic needs, aiming to foster social connections and community engagement. However, due to health and safety restrictions, their traditional in-person service model was curtailed, disrupting the foundation of their program offerings. This chapter discusses ADSCs pre-pandemic, the loss of in-person services, the shift to a remote model, and the challenges providers navigated while maintaining their commitment to their clients.

4.1 Pre-pandemic Service Provision

In this section, I describe how ADSCs organized essential services and made social engagement happen before the pandemic, both in terms of administration and financial management.

Prior to the pandemic, the infrastructure of ADSCs was largely designed to support in-person services, focusing on community-centered experiences and providing on-site services, as mentioned in Section 2.1.1, these services include meal preparation and serving, medication distribution, and physical, occupational, and speech therapy. The overarching goal of these services was to *"keep people engaged, [keep] people in the community, rather than nursing homes or hospitals…."* not just through access to services essential to the quality of everyday life but also by creating

opportunities for passive and active social engagement; *"...we [the ADS provider] are like their family, we are…their source of all socialization (P12).*

As discussed in Section 2.1.1, centers offered various activities designed for clients' physical and psychological health. The interviewed centers provided community outings, arts and crafts, music, exercise, and education, delivered by internal (e.g., center staff, activity leaders) or external workers (e.g., local organizations, musicians) and volunteers. Detailed monthly activity calendars revealed the meticulous planning that went into such programming; as P13 noted, *"We dedicate substantial time and energy to designing our activity program for both centers to ensure it is engaging and beneficial."*

Staffing diverse personnel was important in ensuring the provision of high-quality health and social engagement services. Roles varied widely depending on the specific provisions of each center. For example, each center invariably employed at least one nurse to cater to the health needs of their clients. Centers with onsite cooking facilities maintained a staff of cooks. All centers employed drivers to facilitate client transportation. Moreover, each center had personnel dedicated to organizing and coordinating activities, though the scale and structure of these roles differed significantly across centers. In one center (i.e., C1), there was an entire department solely dedicated to designing and implementing activities, while other centers (i.e., C4, C7) operated with only 1-2 staff members taking on the same responsibilities. Further diversifying the roles within these centers, senior leadership took on multiple responsibilities, as expressed by P6, *"I am the executive*

director…[Also] I do everything from billing to paying the bills, I'm accounts receivable, I'm HR, I'm maintenance…"

According to providers, the financial nature of ADS, however, posed significant challenges. The main source of revenue for providers came from client attendance, – meaning reimbursement was contingent on a client's presence in the facility and the receipt of services. P13 expressed how the *"nature of the financial structure of adult daycares"* and *"the amounts that [they're] reimbursed"* resulted in *"a limited amount of funds that we can afford to pay somebody per hour as a caregiver…." It thus restricted* their ability to have sufficient staff. These challenges were present in both for-profit and nonprofit centers. Providers at for-profit centers, which operated like small businesses, mentioned how they relied on revenue from client attendance and government-sponsored food programs. Non-profit ADSCs interviewed, on the other hand, discussed additional sources of support, including grant applications, partnerships with local organizations, and receiving community donations.

With a traditionally in-person service model, ADSCs were initially unprepared to pivot in the face of pandemic-related closures. However, as all providers I interviewed prioritized the health and well-being of their clients, they took several measures to maintain service provision and developed a new model – remote.

4.2 Pandemic Response and Subsequent Changes

As COVID-19 was garnering increased media attention and attendance was becoming *"extremely low"* at centers [P4], two providers recognized the escalating

danger of COVID-19 *"We started reading things in the news about COVID, and we're like, 'This seems bad. Things are starting to get bad"* Although centers were financially dependent on client attendance for reimbursement, they decided it was *"very risky to keep open,"* so they preemptively shut down. As P2 explained, *"We are going to protect our residents and close our day program."* However, this decision left the financial sustainability of their organization unknown, leading to feelings of fear and uncertainty from providers, as P8 "*It was a very, very scary time because our main revenue came from our day participants."* [P8].

Soon after the two centers decided to close, the state directed the centers to cease in-person services; the governor provided guidance for remote services and a reimbursement structure – though this was deemed insufficient and limited by the providers interviewed. The state defined remote services as a daily wellness check phone call that provided only 85% reimbursement for Medicaid clients vs. 100% for in-person services. The providers interviewed did not mention a reimbursement structure for providing remote services to private pay or VA clients. With a decrease in attendance and a 15% loss in their primary revenue source, leadership was *"working morning, noon, and night to make sure some kind of revenue was coming in to keep us going" (P8)* and figure out how to *"keep their business afloat," (P5, P12, P16)* while simultaneously adapting to a new service model. The onset and continuation of the pandemic thus marked a turning point in the operations of ADSCs, ushering in a period of adaptation and transformation in service provision for some (including those studied) and closure for others.

The emergence of the COVID-19 pandemic necessitated a seismic shift in the operational dynamics of ADS providers, impacting the essential on-site services and social activities, staffing, and finances described in Section 4.1. In response to the challenges, providers collaboratively and individually brainstormed and implemented strategies to adapt their in-person services to remote while keeping their businesses afloat. With the center closures, providers feared clients being "*completely cut off,"* believing that their cease of operations would precipitate a swift decline in clients' health and well-being, undoing all the progress they had achieved, *"We are trained that if seniors are isolated and not engaged, they decline – so that was the basis of everything we try [sic] to figure out what to do" (P14).* Therefore, all providers were compelled to find ways to maintain their clients' *"continuity of care*" and promptly convened to devise an action plan to navigate the state's guidance, adapt their infrastructure, and continue serving their populations. P5 shared her experience with the proactive planning process she and her organization's staff embarked upon, *"Going into the second week of the shutdown, the administration came in... all the supervisors, management came together to figure out how we could do this…continue to operate during the shutdown…we came up with the plan" (P5)*. However, in the face of sudden closures and diminished revenue streams, ADS providers were simultaneously confronted with the realities of the pandemic's economic impact.

While adapting to an unprecedented crisis, their main goal was to keep their businesses operational to ensure their clients' continuity and quality of services. With the efforts described below, every provider interviewed remained active throughout the pandemic despite the shift in finances, staff, and the organization's capacities.

4.2.1 Infrastructure Changes

With significantly decreased overall revenue, all eight centers resorted to various measures to keep their businesses afloat, including hour reduction and layoffs of staff whose roles were tied to in-person services (e.g., client pickups & drop-offs and activities) and securing paycheck protection program (PPP) loans. Despite the reduced staff numbers, they aimed to maintain the continuity and quality of services by reorienting and adapting their workforce. For example, P13 described restructuring their workforce, which included layoffs, "*There was no way for us to keep all of our staff. We didn't have things for them to do... the rest of the staff, we had to let go."* Three centers cross-trained their remaining staff to take on additional tasks beyond their initial job description, some of which were new due to the transition to remote services. For example, P13 described how in addition to preparing meals, their chef was also responsible for shopping and packaging items for clients. P16, a senior ADSC director, described how he and activity personnel had to be cross-trained as drivers, *"We had to cross-train our drivers…a lot of activity leaders ended up cross-training as drivers. I myself, was trained as a driver…"* Similarly, At C3, the drivers were instructed to perform daily phone calls and delivery services.

Taken together, the impact of the pandemic on ADS operations required providers to rapidly adapt and redefine service provision amid a global health crisis. Providers had to navigate numerous challenges, from workforce reductions to financial impacts while maintaining their commitment to clients' continuity of care, safety, and stability.

4.2.2 Service Changes

With the remaining staff, ADSCs adapted their services to try and maintain their clients' safety and stability. To accomplish this, providers first established essential services (e.g., wellness checks, medication distribution, meals), which were sometimes, but not always, government reimbursable. However, as the pandemic continued, providers realized these services would not be enough to ensure long-term client stability. Thus, the challenge evolved into delivering high-quality care and preserving the dynamic in-person pre-pandemic programming, but now via a remote service model.

Staying Connected: Wellness Checks and Daily Care Connection

To receive reimbursement for Medicaid clients, all ADSCs had to conduct the Daily Care Connection – or wellness checks – with a structured format that included four yes-or-no questions related to food and fluid intake, medication adherence, and essential supply needs. Providers would only receive compensation if a) they established communication with the client and b) on the days they would typically be present in the center. As P5 pointed out, *"We had a certain number of days and times that we had to call so we could bill to keep this business afloat."*

Though the calls were essential to keep their businesses afloat, 75% of ADSCs (n=6) found themselves limited by the minimalistic nature of the call structure. Providers were not legally obligated to help clients further if a client answered "No" to a question; the state's instructions were only to document this response; as P4 explained, *"We [were] told that the only thing we need to do by requirement is [to] reach them and ask those four questions. And then if they do*

report to you, 'I don't have food,' it's not our duty to provide food." However, providers reported that the realities of their clients' situations demanded more than wellness checks. Although C6 pointed their clients towards resources such as food bank information, if they responded no to a question, C2 explained that this approach would not work for their client base. As these resources were primarily in English, 99%" of P4's clients were not native English speakers and thus *"[The clients] can't find any help outside"* Compelled by the responsibility they felt towards their clients and seeing themselves as their clients' *"family"* and *"only resource,* providers took additional measures beyond the wellness checks. They delved into meaningful conversations, trying to *"remain connected"* and *"see [if] they needed anything" (P2),* keeping clients engaged and, for some, from being all alone. Once the Daily Care Connection requirements were complete, *"it was very much like a personal conversation" (P13),* and providers gained insights from the wellness checks.

As providers spoke with their clients to ascertain their situations, they reported hearing from clients about difficulties securing essential resources, such as food and medication. With this understanding, providers adjusted their responsibilities, restructured their work processes, and organized the delivery of food, medication, and other essential supplies to address their clients' needs.

Providers felt that the importance of these calls extended beyond their original intent of reimbursement and related the seemingly simple wellness checks to "a lifeline" that bridged their centers' financial needs and the well-being of their clients. Despite there not being a legal obligation or financial support to provide services beyond the wellness checks, providers were motivated to thoroughly support evolving

needs of their clients amid the challenges of the pandemic. In summary, providers observed that these wellness checks served a dual purpose – they provided the necessary funding for ADSCs while offering providers an opportunity to ascertain their clients' well-being and respond accordingly.

Addressing Basic Needs: Providing Essential Items and Services

Through wellness calls, providers could assess their clients' immediate needs. To address their needs, providers began to facilitate the delivery of or directly supplying essential items and services such as medication, household supplies like toilet paper, safety equipment such as personal protective equipment (PPE), and, in extreme cases, contacting emergency services. Despite the absence of additional compensation for these efforts, providers' actions were guided by a primary focus - maintaining their clients' well-being and stability.

Prior to the pandemic, all centers facilitated the majority of clients' daily nutritional intake, which included two meals and a snack. This service was offered either by on-site cooks or through external catering services, and it was typically catered to specific dietary restrictions due to health or religious considerations. For some clients, these meals were a daily highlight (P14), while for others, they were a crucial necessity, as some clients *"lack[ed] food at home" (*P4). Perceiving the vital role of these meals to ensure clients' health and well-being, every organization except for C6 pivoted to purchasing, cooking, packaging, and distributing food; in contrast, C6 providers directed clients to relevant resources.

Responding to client reports of medication shortages heard through wellness checks, providers adopted facilitation and direct delivery strategies. The aim was to

ensure that their clients had uninterrupted access to necessary medications, as providers noted that clients were facing challenges in obtaining their prescribed medications.

In facilitation, providers acted as a conduit between clients and their healthcare providers. They reached out to physicians or pharmacies, as recounted by P10: *"We would contact the physician or talk to the pharmacy and see if there was any way we can help to expedite their medication delivery….."* However, this approach was not without obstacles. P13, for instance, spent considerable time and effort calling a client's doctor multiple times to secure a refill: *"I've probably easily spent…80 hours, helping [the client] get set up…calling his doctor, calling his doctor, calling his doctor! I can't even tell you how many times I called his doctor because his doctor was not refilling what he needed…."*

Going a step further, certain providers leveraged their transportation resources for direct medication delivery. As exemplified by P4 and P5, they used their vans and drivers to collect medications from pharmacies and distribute them to the clients' homes. P5 elaborated, *"We had to make a plan to send medications home…we have a fleet of vans and drivers, so our drivers were able to distribute medications."* Providers utilized their clients' original pick-up and drop-off routes, previously used for transporting clients to the day program, to perform the deliveries. As P13 explained, *"We continued to cook every day and deliver the food home."* Even when layoffs had reduced their workforce, five ADSCs (i.e., 62.5%) utilized their cross-trained staff to handle deliveries and ensure clients received what they needed.

However, this pivot had its difficulties. Three centers that were enrolled in a government food program had to adhere to specific guidelines that proved challenging given the food shortages. To meet these guidelines, P4 explained, "*Our drivers [had to] visit a different grocery store to buy [a] few gallons of milk…[for] the 300 meals [delivered] to our clients…."* Providers sometimes had to go to great lengths, like visiting different grocery stores to purchase the items outlined in the food program. Despite these challenges, their primary focus remained to ensure their clients received the care and support they needed.

Providers also distributed masks to their clients, sometimes upon request. P10 recalled, *"They liked getting their masks…they often asked for that."* P4 wanted to keep their clients safe and prevent them from venturing out during the pandemic to try and secure these items themselves. It was important to keep their clients safe, so despite the global mask shortage, P4 acquired these resources by making an international purchase of *"5000...masks from China" for their clients."* Due to the scarcity of these items, P4 continued, *"We spent quite a lot of money because you cannot find [these items] anywhere."*

Additionally, one center facilitated telehealth appointments for clients who did not have the ability or equipment to get online. Despite limited staff, C3 developed comprehensive systems to facilitate their clients' medical appointments. As P5 described, "*You would call to schedule the doctor's appointment, let the [care] provider know that [the client] [has] the appointment this day, what time you will be picking them up, and approximately what time you'll be bringing them back."* While their clients were waiting for their telehealth appointments to begin, the staff attended

to clients' basic needs, such as food and overall physical health. *"We also made sure that they have food and there was nothing else physical going on with them while they were here in the building… our nursing staff [would] also come in periodically just to make sure that everything with that client was okay" (P5)*.

Providers would contact emergency services if the client was in a dire situation or needed immediate medical assistance. As P10 noted, *"If they sounded like they were in physical distress, we would talk to someone in the home, or we've even had to call 911 If we felt that they were in that much distress when talking to them…."*

As the pandemic and the ensuing lockdown began to extend far beyond what most had anticipated, providers realized that these services meeting essential needs were not sufficient compared to the comprehensive services they provided in the center before the pandemic. As P16 explained, *"We can't do the minimum of just making phone calls. We have to…interface with them, and…provide quality service."* Consequently, providers discerned the next course of action – implementing remote activities.

Addressing Socioemotional & Cognitive Needs through Activity Delivery

According to providers, activities were a core part of in-person ADS and a highlight for clients pre-pandemic. One provider revealed the meticulous planning that went into such programming; P13 noted, *"We dedicate substantial time and energy to designing our activity program for both centers to ensure it is engaging and beneficial."* In each center, there were detailed activity calendars offering arts and crafts, music, exercise, and education designed for maintenance and improvement of physical health and psychological well-being and activities were delivered by internal

(e.g., center staff, activity leaders) or external workers (e.g., local organizations, musicians, volunteers).

However, with the cessation of in-person activities due to the lockdown, providers began to observe the negative impact of the pandemic and subsequent isolation on their clients. P4 noted her clients' increasing mental health issues due to isolation; *"After three or four months…people being quarantined at home for a very long time, a lot of them are liv[ing] alone, they are isolated, they are not actively [reaching out] to people…"* Providers felt that wellness checks and delivery services were insufficient compared to their comprehensive in-person services and expressed e desire to maintain their clients' cognitive stability; *"We wanted to keep their brains busy and keep them…at a high cognitive level that they were at when they left" (P11).* In response, all centers but C6 decided to implement remote activities – even though they were not reimbursed for these services. The one organization that did not pursue additional measures explained this decision by their limited staff capacity, as P10 noted, *"I just had enough staff to support… the calls…and that kept us engaged the whole day…."*

As the US saw a complete shift to teleconferencing (e.g., Zoom, Google Meet) and other internet-based tools for personal (e.g., entertainment, leisure), academic (e.g., online classes), professional (e.g., Zoom meetings, Slack communication) and health purposes (e.g., telehealth), all centers except for C6 attempted to utilize these platforms to continue serving their clients. Providers introduced both synchronous (i.e., live) and asynchronous (i.e., recorded) activities to engage clients remotely. Activities included cooking classes, music sessions, tablet games, and exercise

classes hosted on various digital platforms like Zoom, Facetime, Google Meet, Facebook, YouTube, and the App Store. For instance, one provider mentioned, *"In general, we had about…one to two Zoom calls a week, to which [the clients] did different things from they did like cooking classes where they bake stuff together to different like word games" (P7)*. Another provider arranged for activity instructors to record themselves so clients could follow along in real-time on Zoom or at their convenience on YouTube.

As providers implemented remote activities, they realized adapting in-person services to remote using digital platforms for remote services was more complex and universally effective than they thought. Providers reported that client engagement – both in synchronous and asynchronous activities – was unevenly distributed; in some centers, participation was notably lower when compared to in-person attendance. Although exact participation rates were not collected, P4 estimated a maximum virtual attendance of only about 20-50% of the expected in-person turnout. *"For the same [class online] ...15-20 people **at most**... [if] we [were] at the center, [the same class would have] 30 people…and the [music] class…5-6 people [in attendance virtually] ... [When] we have that class at [the] center, 20 people [are] on the list."* Providers suggested that this disparity in participation could be due to the challenges faced by them, their clients, and caregivers when navigating the digital landscape.

4.3 Challenges to Remote Service Provision

In this section, I delve into the remote services challenges that ADS providers experienced, their perception of their clients' barriers, and how these perceptions

influenced their decisions to adapt their remote activities. Providers considered and implemented various high-tech, low-tech, or no-tech alternatives, typically at their own expense, to address existing inequities.

4.3.1 Technology Infrastructure and Access

"Access to technology" was their clients' most significant barrier to participation in remote activities. According to all providers, most of their clients could not access smartphones, personal computers, or even a landline. Internet infrastructure proved to be a significant barrier. For example, P4 presumed that since their clients had some kind of [smart]phone that had, they *"should be able to get online and watch those things."* However, P4 indicated that many of their clients did not have the high-speed internet connectivity necessary to engage in teleconferencing and video streaming-based activities. *"Some of them are using the very slow internet…it creates a problem for them to get online to watch the videos or do the same kind of stuff [as the other clients] …."*

The centers with a predominantly Medicaid client attributed their clients' lack of technical infrastructure to their low-income status and limited resources. "*The majority of my members or individuals live in the city, they're low income, or they live in group homes, and they don't necessarily have access to a laptop or cell phone that has…Wi-Fi or Zoom…they don't have those type of resources." (P11)*. Similarly, P4 reported, *"With Medicaid…they cannot afford the fast internet...."*

To mitigate the barriers to technology access, seven out of eight centers implemented high-tech (distributing devices they acquired through partnerships with

technology companies, out-of-pocket purchases, or community donations), low-tech (activity packets; phone calls), or no-tech solutions.

The experiences shared by different providers highlight the complexities inherent in implementing technology-based solutions within ADSCs. For instance, P16 discussed the initiative of the tablet company designed to foster user-friendly access to remote services for older adults. Although the P16 claimed the technology established an internal network, created schedules and class alerts for clients, and facilitated teleconferencing meetings, the adoption rate was low. P16's clients attributed this to factors such as Zoom fatigue and a keenness to return to in-person services. P16 noted that those most likely to utilize such a service were the ones who returned to in-person activities. Although the devices remained with clients who did not return in person, P16 perceived that these clients originally showed no interest in virtual activities and were therefore, not actively utilizing the device. Ultimately, the tablet was abandoned after six months.

Similarly, P6 experimented with the same technology solution but *"ran into the problem where a lot of [their clients] didn't have access to Wi-Fi,"* and thus claimed that their clients didn't have internet infrastructure in place. Though considering a cellular plan as an alternative, P6 found clients showing reluctance towards utilizing these devices *"The more we asked the clients about the [devices], a lot of them did not want to participate."* believed it stemmed from their clients' fear and lack of experience with similar technology, "*I think that was more about fear of not knowing how to use it…A lot of people also are afraid of privacy issues."* Ultimately, P6 decided against it due to their perceived clients' concerns.

Another response to the lack of technical infrastructure was device distribution. Two ADS providers distributed devices, such as iPads or Android tablets, to clients. Providers obtained these items through donations, as P1 described, or purchased them themselves, as explained by P7. Both providers set up a lending system to enable remote engagement in activities. However, the success of this initiative varied, according to one provider, as some clients and caregivers had limited exposure to and proficiency with such technology, and *"they couldn't figure out how to do it…" (P7).* Consequently, the tablets they delivered to the clients' residences needed to be pre-configured and pre-loaded with applications. The applications downloaded to the devices were based on conversations with caregivers via wellness checks *"As we're calling the check-in daily… [we saw] what they would be interested in doing"* and the providers' perception of *"what their ability levels of what they can do…."* With this information, they *"would set up different games and download stuff…Candy Crush was a big one…coloring apps…solitaire, word searches…"* However, even with the technical infrastructure in place, it was evident that this was not sufficient for successful remote service implementation in adult day centers; providing the technical infrastructure was not a simple solution. Interestingly, P7 mentioned that the devices were only rotated once because many of their clients already had the resources at home (e.g., devices) to participate remotely. In contrast, P12's organization did not invest in purchasing the necessary equipment for teleconferencing-based remote activities because there wasn't a financial incentive; the costs involved and the lack of funding from the state prevented them from doing

so, "*let's say the state was willing to partially fund then maybe that would…be an incentive to do [remote activities].*"

As in-person doctor's appointments pivoted towards telehealth services, this shift, P5 explained, posed a significant hurdle for their clients who did not have access to requisite technology. *"Initially starting out…the doctors' offices had shut down as well… [appointments were] telehealth. [The clients] didn't have access to technology." (P5).* To combat this issue and ensure the continuity of care, P5 communicated the appointment information to the client and their care provider, often via email or regular mail, to ensure everyone involved was informed, *"We would generate a document – upcoming appointments, dates, times, whether it was going to be in-person, telehealth or if they needed to be brought [to the center]. We would map that out and put it in writing, and give it to them and…send an email or put something in the mail to the care provider…"* Upon arrival at their center, the facility was equipped with the technology necessary to participate in telehealth appointments, such as computers and iPads connected to Wi-Fi. However, successful participation required staff facilitation when onboarding to the platform.

4.3.2 Challenges Beyond Technology

In this section, the challenges providers faced in ensuring equitable participation among their clients are examined. These obstacles extended beyond just the technical infrastructure, touching upon factors like comfort & familiarity (i.e., receptiveness), digital literacy, and the sociocultural context, including the presence or absence of a facilitator. Providers claimed that not only were these issues encountered by clients and their caregivers but were also experienced amongst

themselves. Additionally, the availability of resources such as staff, finances, and technology varied among ADSCs, and these disparities affected the successful delivery of remote activities to clients. Although providers tried to overcome the recurring obstacles during their service adaption, there was an intricate interplay of variables and limited resources. Without a solution that could increase accessibility for everyone, *"The ones who [were] able to benefit did and…those who couldn't, they just couldn't…" (P2).*

Knowledge and Experience

Providers reported that one of the primary challenges in their transition to digital platforms was the lack of familiarity and experience with technology among their staff, clients, and caregivers. Pre-pandemic, P1 noted providing technical assistance in response to their clients' inability to turn their cellular devices on and off. According to providers, this created a learning curve for all parties involved, and navigating more complex platforms like Zoom appeared a daunting task; downloading and installing Zoom presented a considerable barrier for many, as the provider noted, *"but what we found is that a lot of people didn't know how to download Zoom to whatever they were using.*" 21 providers indicated that most of their clients had limited exposure and experience with such technologies, which they attributed to age, generational divide, and lack of access. As one provider said, "*Most of [our clients] are…elderly, so they're not computer savvy. They never grew up with computers… they don't have that…it's not part of their…lifestyle." (P12)*

Additionally, P6 explained that although Zoom was a widely used platform, it wasn't necessarily user-friendly, *"The problem with Zoom is that a lot of people don't*

know how to use it." 10 providers claimed a correlation between attendance and younger clients because the *"younger people were the ones who were more able to use Zoom"* and claimed that *"the older people just couldn't figure it out."*

To address client barriers, 50% of centers spent time and effort supporting their clients and caregivers in adapting to the new system. Providers offered instructions and guidance, such as P11 *"send[ing] out directions"* and "*walk[ing] them through it"* over the phone. The provider began this process by offering guidance on basic phone functionalities, recalling, *"We would tell them 'Put your phone on speaker'...."* Then, the provider would move on to more complex operations related to Zoom, reciting the link over the phone *"because [their clients] don't have email addresses."* However, even with this provision of technical support, P11 pointed out that remote activities leveraging teleconferencing platforms, such as Zoom, *"weren't very successful,"* since many clients *"just didn't have the ability to get on anything,"* leading her center to abandon the technology entirely.

When assisting caregivers, P1 and P2 perceived that some caregivers had difficulties navigating teleconferencing activities. The providers employed a few strategies to ensure their clients' successful onboarding and use of the Zoom platform. For example, they kept track of the devices in circulation and their respective logins. Additionally, given some families' unfamiliarity with the technology, another strategy P1's organization implemented was *"making sure that families logged on at the same time,"* and *"if [we're] doing a Zoom, [the families] were using Zoom and not Skype on the other end…."* However, six out of eight

centers perceived that the ability of clients to participate and take that advantage of their offerings was contingent on the caregiver's familiarity with technology.

Similarly, providers found their staff members grappling with these technological challenges. P1 mentioned a pain point in remote service implementation was *"staff learning how to use Zoom and Skype."* These systems were not introduced before the pandemic, so staff were unfamiliar with the technology, as explained by P12 "*All things…were…new for me…I've never heard of Zoom before COVID."* Implementing novel systems like Zoom and Skype left staff members feeling overwhelmed; not all staff members possessed the technical expertise or exposure, and one provider felt *"uncomfortable with [Zoom]."*

With some staff lacking the experience to navigate the platforms and implement the remote activities seamlessly, staff members with a stronger grasp of technology stepped in to guide their colleagues. C1's staff members supported each other by developing and distributing simplified instructions to ensure everyone acquired the necessary skills to operate the new technology effectively. P15, a volunteer coordinator at C1, shared her experience reaching out to a fellow staff member for assistance, *"I just ended up calling a work coworker here and she walked me through it…she just went through it…step by step, she was very patient with me because I'm not good at technology."* With this informal training, support, and working collaboratively, C1's staff were better equipped with the skills needed to use the technology effectively.

Pandemic Restrictions

These challenges were further compounded by the pandemic's restrictions, which limited providers' capacity to offer in-person assistance. Quarantine regulations, lack of personal protective equipment (PPE) for employees, and restrictions on visits to clients' living facilities added a layer of complexity. P4 explained these barriers made it virtually impossible to provide in-person support to clients, *"at the time, it's really hard for us to help them we – by the time – everybody's quarantined."* Even though they received complaints, they could not assist, *"There's no way we can arrange for the employee to go to their apartment and help them solve the problem and get out…we received the complaint, but we cannot help."* The pandemic, therefore, amplified the challenges in the transition to digital platforms, making an already difficult situation even more complex.

Comfort & Safety

During the telehealth facilitation described in Section 4.2.4, P5 observed that technology provision was challenging. P5 claimed that their clients were hesitant and distrustful of using unfamiliar technology, especially when sharing sensitive personal information in a medium they were not accustomed to. To alleviate these concerns, P5 and their staff reassured clients about the safety and security of their information and offered support throughout the entire process, *"So we would just say, you know, you're here with us… we're going to keep you safe. You know, we're not going to let anybody hurt you" (P5).* P5 reported that most doctors also took measures to create a sense of trust and confidence by *"reading the [confidentiality and privacy statements] [to] clients."*

Sociocultural Context & Facilitation

Providers observed a correlation between the client's housing arrangement (e.g., with family, independently, group home, nursing home) and social context (i.e., whom they live with) and clients' participation in remote activities and wellness checks. For example, 62.5% of centers (n=5) claimed clients needed a facilitator to configure their devices for remote activities. The presence of a facilitator—someone in the client's home who could provide on-the-spot assistance— appeared to enable the client's participation in activities. 75% of centers (n=6) reported that without someone to troubleshoot technology issues or guide clients through the steps of accessing services, clients were unable to participate. For example, P11 noted, "*If someone was there helping them, they could get on."* Facilitators could be caregivers, providers (e.g., center staff), or family members who assist clients in onboarding onto the platform, ***"****either myself, [staff member] or another staff had to be instructing them how to do it" (P11) and* provided a kind of one-to-one tech support. When discussing telehealth appointments, P5 explained that if clients lacked the necessary equipment and had to visit the center, the staff would step in and facilitate; the staff would *"connect [the] client, set them up through the Zoom link that was sent or the Team's link that was sent and log them in for their appointment."* Similarly, P12 stated, *"...if somebody would open up Zoom or put a video on for them, [the client] would be…able to…interact on a Zoom call.*"

P4, P5, and P11 noticed that if a client could participate remotely, it was often due to facilitation in setting up the devices – typically by family. P2 specifically noted that *"it was mostly people living with families [that were participating in remote*

activities…for the folks who lived with children, they were more likely…to sign on and access stuff." However, the family variable was complex, as providers noted a difference in participation between clients who lived with spouses versus children. For example, P2 mentioned that *"if [clients] lived with their spouse who's older, they were less likely to be able to sign on and access stuff…],* evidently attributing age with the ability to facilitate the remote activity for the client. Conversely, two centers mentioned that those living with their children most often engaged in remote services, with P4 specifically stating, *"the people who can enjoy those services, first, they have kids… they have a helper to help them to set up everything.*"

Although this one-to-one support appeared important for successfully providing remote services, 50% of centers explained that there were not enough staff or caregivers to provide this kind of assistance. The dependence on the organizations for support presented a unique set of challenges. Providers noted that their organizations were often stretched thin due to a low staff-to-client ratio. P11 described how their organization was outnumbered, "*There's only 3 of us, and there's 70 of them…."* This limitation made it challenging to consistently supply every client with all the resources they required. P4 expressed a similar sentiment about the challenges catering to technical issues for each client, "*There's no way we can provide any technical help for them to like set up the… Zoom account…" (P4)*.

One center, C1, provided personalized one-to-one remote activities successfully with their resident clients. Compared to the centers interviewed, C1 had a resident division, devices on-site for their residents to use, and staff present to configure and facilitate the activity. Compared to other centers with only one activity

staff member or staff that wore multiple hats (e.g., a nurse who oversaw activity provision), this center had a dedicated activity department, with several activity leaders divided amongst the enrolled clients, both ADS and resident clients.

Two centers noted that the ability of clients to own devices correlated with family support. For instance, some of P2's clients had smartphones, primarily provided by their families. However, clients of P4 and P5 often lived alone, in group homes, or with caregivers – not with family. P4 highlighted that they had 90 clients who "*lived at [an] apartment alone"* and did not *"speak with their families"* or have *"family members…to provide their things."* The correlation between familial support with device access was reinforced by P11, who stated, *"Unless their family gave them those items [referring to iPad, iPhone], [clients] don't have them."*

If a client lived in a group home or assisted living facility, three centers noted that this context posed challenges to remote service provisions as clients were subject to sharing a single device amongst six or seven people in their facility or home. As P11 mentioned, *"I'd say 99.9% of my people live in like group homes or assisted living[s]…*" and if the group home had a computer, the individuals would have to "*take turns because they live with six other people in the house, and they wanted to get on my computer…"* (P11). In these cases, access to the device had to be negotiated with others, resulting in inconsistent availability. P5 also perceived a correlation between the clients who *"lived in group homes or with care providers…not with their family members"* and their attendance in remote activities using teleconferencing software.

Gatekeeping

While the presence of a facilitator enabled access to remote services and activities, there were instances where individuals in the clients' environment inadvertently obstructed access or acted as gatekeepers. Providers claimed that proxies, such as caregivers or family members, would sometimes be barriers to direct communication with clients.

"We would try to talk to the clients. You know, normally, I would say most of the time, family or caregivers would be the ones to answer the phone. Most of our clients don't have their own phone, so it's the house phone that we're calling or like for those that live with a family, it might be the daughters or whomever they're living with; it tends to be their phone…." (P13)

Proxies would often answer questions on the client's behalf and prevented providers from gathering an accurate understanding of the health status. This interference led to distrust among providers, as they could not be certain whether the information received was accurate or genuinely representative of clients' experiences, *"A lot of times…we'd have to talk to their caregivers or the assisted living staff and they would tell us, but I mean, I'm not sure if they…told the truth." (P11)*

4.4 Low-Tech Solutions

When technology-based strategies failed and providers observed low participation in high-tech remote activities, they relied on wellness checks and activity packets for engagement and maintenance of clients' health and stability.

Providers responded to the lack of technical infrastructure by adapting their existing services (e.g., food delivery) to include physical activity packages. As P13 stated, "*Most of our clients did not have access to computers or weren't gonna [sic] get on to Zoom or things like that, so we were just sending things home periodically with the food."* The process of assembling these packages was not uniform or standardized. Instead, it was a thoughtful and deliberative process. The contents of the packages were typically tailored to the individual client's interests, ensuring that each recipient received relevant and enjoyable materials. As P12 explained, *"So we would send each client a personalized activity package of what they would like. There was one client who really liked puzzles; we ordered puzzles on Amazon and sent her some puzzles…."* P13 described how they would *"raid the dollar store"* and consider clients' unique needs and preferences, *"'Would this be interesting to this person? Would this be interesting to that person?' so it wasn't a fixed type of package. It was unique to each individual person."* The packages included games, arts and crafts materials, and crossword puzzles. In addition to personality and interests, providers described how activity packets were tailored to the client's perceived cognitive ability and included materials that "*everyone can do*," such as "coloring pages." P11 mentioned, *"If [the client] sees like…a coloring page and a packet of crayons or a thing of markers…they're going to know, 'I should color'... 'this is what I'm supposed to do with this.'"* One ADS provider utilized the activity packets to complement their offered teleconferencing activities.

Five providers perceived that wellness checks were some clients' only link to the external world. One organization adapted these wellness checks into a platform

for fostering not just provider-client connections but also peer-to-peer interactions among clients, *"We did…phone banks, where if the clients had a friend that they wanted to talk to… we would connect them and exchange the numbers just for socialization."* This approach allowed them to create a social network among their clients, enabling them to maintain connections in the face of physical distancing. In lieu of technical infrastructure, the provider was creative in designing and implementing low-tech activities that provided engagement and support to their clients. This solution utilized existing resources to maintain social connections without relying on advanced technology.

4.4 Reopening ADSCs and Shifting to In-Person Services

Reopening ADSCs and the consequential return to in-person service provision brought about a new set of challenges. Providers needed to navigate an intricate landscape of public health measures, client needs and preferences, as well as financial viability. As the reimbursement rate for wellness checks fell to 25% by the end of the interview period, these challenges impaired providers' capacity to serve every client and sustain remote services long-term.

4.4.1 Managing Remote Service with a Wavering Funding Structure

In the wake of the pandemic, providers faced significant financial challenges as the government's compensation for remote services underwent several changes. Initially, centers received an 85% reimbursement for their daily Care Connect phone calls with Medicaid recipients. However, as the situation evolved, the reimbursement rate progressively decreased to a fraction of the initial rate (i.e., 25%). Providers

attributed this decrease to the state allowing centers to reopen under strict COVID protocols, including reduced capacity and social distancing.

"[The state] said you can open the facilities, but opening the facilities takes…a lot of effort, because you had to now come up with how to operate post COVID. So, we had to go through policy procedures and change all of those." (P9)

Despite the centers reopening, providers found that many clients and their caregivers were reluctant to return due to the heightened risk of contracting COVID, especially given the prevalence of preexisting conditions among clients. Upon reopening, a significant drop in attendance was noted, attributed to factors such as COVID-related or other deaths among clients, safety concerns, and administrative complications like incomplete re-enrollment paperwork. As providers navigated the reduced revenues, there was concern regarding the impact on their centers' operational viability compared to the pre-pandemic period.

While the reopening of centers allowed providers to bill clients for the full-day rate, the reality was more complex due to capacity restrictions and client reluctance to return due to safety concerns. Although centers could bill for clients who remained enrolled but did not attend in person, the reimbursement was a fraction of the in-person rate (i.e., 25%). The reimbursement rates for in-person versus remote clients, coupled with overall lower attendance, compelled 87.5% (n=8) of centers to scale back or discontinue the additional remote services they had been providing along with the Daily Care Connection. With diminished revenue and staffing,

operating two distinct programs – one for at-home clients and another for in-person clients – presented considerable challenges.

While providers ultimately went back to in-person, three centers expressed the negative consequences of losing remote or hybrid service options, especially for clients who had benefited from these models. P4, for instance, highlighted a scenario where clients would request a specific service, such as a doctor visit facilitation, rather than attend in person for full services, *"Sometimes they don't feel like coming to the center, but they may still need to have some kind of service…like the medical service… [the clients] ask 'Can I only go to the doctor? After the doctor, I want to go back to home.'"* However, given the short duration of this visit, it was not billable under the in-person reimbursement structure, *"…we cannot get any money for that service because it doesn't meet the four-hour [in-person] requirement."* While P4's center continued to facilitate doctor visits upon reopening, it was limited due to the absence of reimbursement, *"If [the visits] happen only once a while, it's okay, but if people require a lot of times, no, sorry…we cannot sustain a lot of that."* P4 proposed that if they were able to bill for these short visits as remote services, it would promote both flexibility and sustainability, *"so if we have the remote service [reimbursement], we can consider [facilitating a doctor's visit] as a [remote] service…that helps and that gives the flexibility of providing the service [the clients] need."* Without flexible policies in place, P4 experienced a forced trade-off between client well-being and operational constraints.

Furthermore, the financial pressures were not distributed evenly among providers. While nonprofit centers (i.e., C1, C6, and C8) could secure additional

resources through donations and partnerships with local organizations and corporations, for-profit centers which heavily relied on client attendance for revenue, did not report receiving any extra support. This disparity created an uneven landscape in providing these services, further exacerbating the challenges faced during this difficult period.

Although there was perceived benefit of remote services, providers were concern about the dual challenge of providing essential services to their clients while maintaining financial stability, as P9 explained, *"So, the focus came away from the remote devices …. But then again, there's cost associated with these costs associated with maintaining, monitoring them."* Therefore, every remote service outside of wellness checks, was ultimately abandoned by all ADSCs.

Chapter 5: Discussion

The following discussion analyzes how ADSCs navigated the unprecedented challenges of the COVID-19 pandemic and transitioned to remote service delivery. It investigates the perceptions of technology infrastructure, expertise, and access, finances, external support, and organizational status, as well as the implications these factors had on the ADSCs' operations. This analysis is important to understand the dynamics of service delivery adaptations under crisis and offers insights into broader contexts beyond the specific scope of ADSCs. In the process, the discussion also seeks to expose the gaps and challenges encountered by ADSCs in ensuring continuity and access to critical services for their clients. By doing so, it provides a platform for understanding the complex nature of service delivery models in the face of unforeseen circumstances, such as a pandemic. The findings and insights garnered from this analysis may not only benefit the ADSCs but also have broad applications in similar settings that require swift transitions to remote operations during crises.

5.1 Maintaining Clients' Stability while Staying Afloat

Although most remote services ADS providers implemented were not reimbursed, they prioritized consistency with in-person services and maintenance of client stability. With center closures due to the pandemic and state mandates, the pandemic imposed significant operational changes and challenges for ADS. Despite these difficulties, the ADS providers interviewed adapted to provide various support services, including telephone support, food delivery, medical check-ins, and online activities, which corroborated with the existing literature [1], [4], [7], [82]. During the

shift to remote services, providers stated their priorities include maintaining their clients' health, well-being, and stability, which are comparable to findings reported by Bradsher et al. Specifically, when researchers asked study participants about their ADS goals, they reported that the three most common responses were "(1) increasing activity/enhancing quality of life, (2) providing services to caregivers and families, and (3) maximizing independence of clients" [103].

While ADSCs took measures to maintain their clients' health stability by providing essential services (as mentioned in Section 4.2), all centers had to navigate the financial and logistical implications of the pandemic – a concern echoed in broader LTSS literature [1]–[3], [7], [37], [51], [104]. The pandemic imposed a financial strain on ADSCs nationwide, marked by decreasing revenues and escalating expenses, while providers also had to navigate shifting regulations [1], [18], [104], [105]. Similar to the CEO of C1, who applied for PPP loans, community-based programs nationwide also sought PPPs and all available grants to handle the surging demand for services and sustain their operations [7], [83]. Not all ADSCs successfully maintained their operational status and fiscal health amidst the pandemic, ultimately leading to permanent closures [7].

5.2 Facilitators & Barriers to Remote Service Provision

My findings elucidate the complex interplay between facilitators and barriers that either enabled or hindered successful remote service provision. In this section, we explore five main areas that emerged, namely: (1) technology access, infrastructure, and expertise, (2) financial infrastructure, (3) external support, and (4) organizational

& affiliate status. These themes collectively provide a nuanced understanding of how ADS providers navigated the unprecedented challenges and how these elements influenced their ability to adapt and sustain remote services long-term.

5.2.1 Technology Access, Infrastructure, and Expertise

The COVID-19 pandemic necessitated a transition towards technology use for those fortunate enough to access and know how to use such resources. As healthcare practices evolve, technology integration has become increasingly prevalent, with modalities such as telemedicine (i.e., synchronous interactions between patients and healthcare providers in real-time through audio or video calls) becoming an alternative to in-person visits [13]. In my study, technology played a significant role during remote service provision as it was a means to connect with clients and caregivers during the pandemic. Extant literature has demonstrated that technology can foster social connections by counteracting the impact of diminished social support and interactions [64], [106], [107] and expand access to healthcare [13], [38], [65], [108]. The shift to remote services also demonstrated the potential for technology to support ongoing contact and care for older adults during periods of isolation [109]. Strutt et al. observed how the pandemic accelerated technological progression in communication and highlighted older adults' adaptability, which allowed them to maintain social connections remotely—a strategy associated with improved mental health outcomes [110]. Using video calls to facilitate virtual interactions between residents and their families has been found to reduce depressive symptoms, alleviate loneliness, and enhance social interaction and quality of life [106], [111].

Despite most efforts to utilize technology for remote services, providers from my study ultimately reported inequitable participation among their clients. Providers perceived barriers related to technology (e.g., Zoom activities, telephone), such as access to the devices, internet, unfamiliarity, and difficulties connecting to the platform, and language barriers – which is consistent with research on patient barriers to telemedicine [108], [112], [113] and remote social activities [7], [64], [80], [114]. Access to technology, digital literacy, and reliable internet was deemed necessary to participate in remote LTSS, as described by my participants and dementia healthcare professionals in Hunt et al.'s study [81]. However, the provision of necessary equipment alone did not adequately address issues related to training, internet connectivity, or the accessibility of telehealth systems or devices [81].

Response strategies suggested in the literature, such as providing directions and training over the phone, offering print materials with instructions, troubleshooting, and involving a family member or caretaker to assist with technology setup and issues [106], align with those implemented by providers in my study. One study points to the presence of a facilitator necessary to successfully implement video conferencing [115], which parallels the suggestions providers made in my study. My data suggest that this support may have been critical for individuals with limited technological proficiency as providers troubleshot technical issues and guided clients through the steps to access services.

However, these technology barriers affected providers as well. The lower digital proficiency levels among staff were hurdles to remote working and service provision. From the provider perspective, some centers did not have the resources to

promote technology usage, aligning with barriers to implementation in other long-term care settings, such as nursing homes [10], [111]. While there is some research on the impacts of ADS closures on clients and caregivers who rely on in-person services, further investigation is warranted to gather firsthand (i.e., the client perspective) insights on this matter.

The accelerated shift towards remote services has underscored the importance of creative solutions to address the barriers older adults with limited technology experience face. For example, in my study and throughout the US, telephone outreach programs were implemented to lessen the impact of social isolation during the pandemic [73], [86], [116]. In Connecticut and Illinois, two medical schools collaborated with student volunteers to establish partnerships with isolated older adults through phone calls. These calls assessed their needs, shared resources, and engaged them in meaningful conversations [116]. My findings align with these studies as providers also leveraged phone calls to maintain a connection with clients and provide companionship during the pandemic. However, some providers in my study felt that telephone calls were insufficient, as their in-person services went beyond telephone conversations. Providers utilized activity packets to complement the telephone-based services, which is akin to the responses by other ADS and community-based organizations [7], [87], [117]. This suggests that a multifaceted low or no-tech approach may be most beneficial when facing technology-related barriers.

Examining the response of long-term care services following a crisis event that significantly disrupts their operations can offer valuable insights for the industry, considering their traditional reliance on in-person service provision and slower

adoption of technology [39]. These lessons can be instrumental for others in the field, shedding light on effective strategies and approaches to navigate similar challenges in the future.

Perceptions of Technical Competence & Access

In Section 4.2, the initiation and continuation of remote services were notably influenced by providers' perceptions of their clients' and caregivers' technical capabilities and access. Stereotypes associating older adults with limited tech-savviness were frequently mentioned. Paralleling my findings, research by Vervaecke et al. [1] and Danilovich et al. [87] found that ADS directors and staff often assumed their clients and caregivers lacked access to technology, showed little interest in online programs, and had low tech proficiency. In the study by Danilovich et al., such presumptions led to varying departmental decisions regarding adopting online programs, with some departments holding off until there was evidence of older adults showing interest in participation [87]. Similarly, my study found that providers' assumptions about their clients dictated their view of the effectiveness of remote platforms, leading to disparate adoption amongst providers.

However, upon implementing online services, in Vervaecke et al.'s findings, ADS staff and directors encountered an unexpected outcome. Participants previously unable to partake in activities due to geographical constraints could engage in classes [87]. Moreover, in Danilovich et al.'s study, clients and caregivers demonstrated a higher level of technological adeptness than originally assumed, effectively using platforms like Zoom for valuable connections. The "soft bigotry of low expectations" [118] observed in my and Vervaecke's studies further support Becca Levy's call for

further research on ageism and age stereotypes within healthcare systems. This "soft bigotry of low expectations" can stem from societal stigma and inadequate information and highlights the need for a more nuanced understanding of digital literacy among older adults [119].

5.2.2 Financial Infrastructure

While overcoming the barrier of technical infrastructure was a significant hurdle, it was not the sole issue. The challenges providers encountered when transitioning to remote service were amplified by ADSCs' financial resources related to their finances. Even before the pandemic, research shows that ADSCs struggled to meet expenses through reimbursements alone. As mentioned in Section 4.1, some providers suggested that client attendance was insufficient to subsidize their operations, which has been found true across adult day centers nationwide [8], [18], [21]. 75% of providers interviewed stated that most of their revenue came from Medicaid, and 100% of providers said that the reimbursement rate did not cover their costs. Directors of ADPs have also mentioned that inadequate funding for employee wages leads to difficulties in recruiting and retaining staff [1], [18], [120], [121]. C1 was the organization with the most staff dedicated to and facilitating activities before and during the pandemic, which their financial resources may have supported. Although the organization did not explicitly provide details of its funding structure, they had several activities staff, administrators, and certified nursing assistants on-site facilitating and implementing a wide range of one-to-one remote activities for residents and adult day clients. Further analysis is necessary to understand the

variations among ADSCs, including their funding structures, and the current impact of these factors on service delivery.

The pandemic exacerbated the financial constraints of ADSCs due to insufficient reimbursement for remote services. Researchers have suggested that the inadequate attention and resources directed towards ADSCs during the pandemic could be attributed to the historical trend of prioritizing acute medical services over community health and support services [84], [122]. As centers reopened, reimbursement for remote services dropped to 25%, and therefore, ADSCs in both my study and the extant literature reported a decrease or cessation of remote services [4], [7]. This decision may have stemmed from the difficulty of concurrently managing in-person and remote services, coupled with a strategic move to enroll more in-person clients to secure full reimbursement. However, by discontinuing remote services, providers may have unintentionally excluded clients who found these services accessible or did not want to risk exposure to COVID-19 – further exacerbating existing inequalities.

The challenges related to reimbursement rates for remote services highlight a significant gap in policy and funding structures, which providers in my study have identified as insufficient in addressing the rapid changes in service delivery models. The reduced financial incentives for remote services may have negatively impacted its sustainability, underscoring the need for policy changes to effectively support the transition to digital health and social care during crises. However, expanding Medicaid coverage to provide 100% reimbursement for remote services may not address these obstacles. It may further exacerbate inequities by primarily benefitting

younger, technologically adept urban residents with the necessary devices and internet access. Furthermore, even when equipment is available, telehealth may still be inaccessible for individuals with disabilities, as not all platforms are fully accessible or compatible with assistive devices [94]. Further research is necessary to comprehend the long-term effects of these changes and to guide the development of policies that promote the equitable and sustainable implementation of remote services [4], [105].

5.2.3 External Support

Our study illuminates the ability of ADSCs with external and shared resources to sustain and expand their remote service provision. In my study, 20% (N=2) of ADSCs were able to bridge the gap in resources through corporate philanthropy, donations, volunteer assistance, and subsidies from parent or charitable organizations. These centers received device donations from the community and collaborated with philanthropic organizations, which diversified their remote service offerings. The findings mirror previous literature suggesting that ADSCs rely on external support, such as financial and in-kind contributions, to close the gap between the cost of ADS and reimbursements, paying for liability insurance, facilitating equipment purchases, and transportation costs. This highlights the role external support can play in the sustainability of operations and service delivery, resonating with existing literature [8], [18], [83], [120].

5.2.4 Affiliate & Organizational Status

The diverse organizational or affiliate statuses of ADSCs led to variations in participants' management and experiences of the pandemic, particularly regarding resource accessibility and decision-making. Affiliate status, in the context of my research discussion refers to the relationship between an ADSC and a larger entity, such as a parent organization, network, or corporation. For example, C8 — a nationwide nonprofit that provides long-term care services for older adults and children of various conditions and disabilities — detailed their collaboration with leadership across various locations to share remote service insights and resources and encourage their participation in the services. Some studies suggest that operating with an affiliation (e.g., within a parent organization) was desirable and necessary for financial viability [18], [120], [123].

In contrast, the for-profit ADSCs interviewed appeared to lack this external support. The impact of such organizational statuses on the operation of ADSCs is acknowledged both before [123] and throughout the pandemic [4], [84], [124]. These varied experiences related to organizational status hint that this aspect warrants further investigation to determine whether there is an ideal organizational status for operating ADS.

5.3 Implications

In the wake of the pandemic, providers faced significant financial challenges as the reimbursement for remote services underwent several changes. While these findings were specific to the circumstances of the COVID-19 pandemic, they shed

light on broader issues that may arise when individuals cannot access essential in-person services due to small-scale (e.g., falling ill) or large-scale (e.g., natural disasters) circumstances. ADSCs' sudden shift to remote service delivery due to the pandemic suggests a need to be prepared for such circumstances given their frequent occurrence.

The experiences of ADSC providers also have parallels with the broader context of telemedicine, which likewise had to pivot to remote service delivery during the pandemic. Just as ADSCs encountered challenges related to technology access, infrastructure, and literacy, many healthcare providers (e.g., primary care physicians) did as well when transitioning to telemedicine. Strategies to overcome these challenges, such as providing technical support to each other and distributing devices, may offer lessons for telemedicine practices as well. Similar challenges were also encountered by childcare and education contexts, which had to quickly transition to remote delivery due to the pandemic. ADSCs experiences could thus offer valuable insights for these services, particularly in terms of overcoming technology-related barriers and maintaining engagement during remote delivery. Furthermore, the need for flexible and adaptable service delivery models highlighted over the course of the closure also speaks to ongoing discussions around universal care and accessibility.

The strategies ADSCs undertook to adapt and maintain service delivery during unforeseen circumstances underline the importance of developing service delivery models that can meet diverse needs and adapt to various circumstances. While this study specifically focused on ADSCs during the COVID-19 pandemic, its findings have broader implications beyond this specific context. Future research

could further explore these potential applications, as well as investigate ways to improve the flexibility and adaptability of service delivery in ADSCs and similar LTSS settings.

5.4 Summary

Challenges and opportunities have been identified with the shift in ADSC operations. My findings emphasize that maintaining client stability, navigating through financial hurdles, leveraging technology, receiving external support, and the organizational status of ADSCs are critical elements in the sustainability and adaptability of these services. Technological transformation, while offering a means to continue services, revealed issues surrounding digital literacy, accessibility, and infrastructural disparities. Additionally, the financial constraints were further intensified due to reported insufficient reimbursement for remote services, and the varying funding structures influenced the service delivery during the crisis. The presence of external support and the nature of an organization's affiliate status also substantially impacted providers' resilience and decision-making capacities in the face of the crisis.

The insights gathered in this study suggest a need for policy measures that address inequitable access to technology and gaps in digital literacy. Policymakers should be cognizant of how their actions may exacerbate disparities due to the variance in ADSC organizational and financial infrastructure and client population. Furthermore, my findings further suggest ADSCs' operational capacity and service provision largely depend on reimbursement structures. Given the role ADSCs play in

providing essential services to historically marginalized and vulnerable populations, policymakers should contemplate the implications of existing policies on the sustainability and accessibility of these services. My findings suggest the need for thoughtful policy design that considers not just direct effects but also the broader socio-economic consequences of these decisions on LTSS infrastructures. Future research should also delve deeper into the impact of organizational status and external support in influencing the operation of ADSCs. Examining the long-term effects of these changes can also guide the development of strategies and policies that promote sustainable remote services, ensuring the viability of ADS in the face of small- and large-scale crises.

Chapter 6: Limitations

My study faced certain limitations. Firstly, the issue of generalizability arose due to the specific focus on ADSCs in a single state for my participant pool. Due to this geographical constraint, my findings may not be applicable to ADSCs nationwide as governing policies and sociocultural contexts differ state-by-state. The insights gained may not necessarily align with other locations with differing healthcare systems, state laws & regulations, and cultural norms. Although themes arose across providers, each center differed in their access to resources and organizational infrastructure — therefore, the findings may not be applicable to all ADSC providers in the state. Different policy models may affect the sustainability and accessibility of remote services and, therefore, warrant further exploration.

Although I capture providers' decision-making processes and the multidimensional nature of challenges that surfaced during remote service provision, my insights only reflect their perspectives; my findings do not capture the experiences and challenges faced by the clients. It would be valuable to gather insights from clients and their caregivers to understand their perceptions of the transition to remote services, the benefits and challenges they experienced, and if and how services improved.

Another limitation in my study was the variability in participant roles. High staff turnover and limited bandwidth affected my ability to adequately represent participant roles across different ADSCs. Consequently, certain roles might be underrepresented in my study, influencing the breadth and depth of the insights

derived. Further research could investigate how widespread such issues are across ADSCs, their root causes, and potential strategies to mitigate these constraints.

Despite these limitations, my study offers valuable contributions to the field by providing a detailed account of ADSC providers' experiences during an unprecedented global health crisis and the strategies they implemented in response.

Chapter 7: Conclusion

The pandemic-related closures of ADSCs disrupted the healthcare continuum, leaving many individuals without essential services. This study highlights how ADSC providers responded to and navigated the challenges of the pandemic, offering valuable insights into managing and experiencing such crises. Additionally, my findings present an in-depth examination of the complexity and interplay of variables from the provider's perspective and the variables that influenced their decision-making. The complexity and interconnectedness of these variables underscore that a single solution is insufficient to address the nuances and inequities within ADSCs.

My study contributes to the growing knowledge base on the adaptability of ADSCs in the face of a public health crisis [1], [2], [4], [7], [83]. My findings underscore the need for diverse and flexible support systems that allow providers to adapt and respond to unforeseen circumstances of any scale effectively. The insights derived from this study can inform policymakers, ADSC providers, and community leaders as they work towards creating more resilient and adaptable systems of care. The disparities in resources and support among ADSCs suggest that current policies might need reevaluation to ascertain their impact on equitable service provision. My research findings aim to provide insights into the complexities of technology implementation and remote service provision within ADSCs. By demonstrating the influence of policy, funding, and infrastructure on these services, these insights can potentially provide valuable guidance to service providers, program administrators, and policymakers.

My insights warrant further investigation into how resource inequality across ADSCs affects service provision and variables that prevent and promote sustainability. For example, future research might evaluate how government policies (e.g., sufficient reimbursement structure) and proactive procedures (digital literacy education for individuals in LTSS) promote a long-term remote service model and the effect on the health and wellness of historically marginalized and vulnerable populations served by ADSCs.

Appendices

Appendix A: Demographics Form

1) What is your age? _____
2) What is your gender?
    a) woman
    b) man
    c) non-binary
    d) Prefer not to disclose
    e) Prefer to self-describe _____
3) What is your race/ethnicity?
4) What is your position title?
5) How long have you worked for this organization?
6) Overall, how confident do you feel using computers, smartphones, or other electronic devices to do the things you need to do online? (Select one option) Do you feel:
    a) Very confident
    b) Somewhat confident
    c) Only a little confident
    d) Not at all confident
7) What is the highest degree or level of school you have completed? (optional)
    a) Less than a high school diploma
    b) High school degree or equivalent (e.g., GED)
    c) Some college, no degree
    d) Associate's degree (e.g., AA, AS)
    e) Bachelor's degree (e.g., BA, BS)
    f) Master's degree (e.g., MA, MS, MEd)
    g) Professional degree (e.g., MD, DDS, DVM)
    h) Doctorate (e.g., PhD, EdD)

Appendix B: Interview Protocol

1) Can you tell me about your role in your organization?
2) Can you tell me about when you started providing remote synchronous services? What services do you provide?
   When we say remote synchronous services, we are referring to those that occur "live," or where both the client and staff member (or healthcare practitioner) are online at the same time.
3) Are there any activities that you used to support but don't anymore, or do less now than you used to?
4) The pandemic has disproportionately affected people like the clients your organizations serve. Can you tell me about your experience with this when the pandemic started?
5) What are some of the everyday challenges clients face based on your observations?
    a) How would you describe the technological savviness of the residents?
6) What would you say currently is the biggest remaining obstacle or barrier? Can you give me an example of when this happened recently?
7) How have you responded to this challenge? Can you give me an example?
8) Tell us about the people (or caregivers) involved in supporting people with memory concerns getting online.
    a) How would you describe the technological savviness of these individuals/caregivers?
    b) Is there a way you deliver prompts or verbal information to make it more accessible to people with memory concerns? Are there any ways you make online communication (chats, emails, online bulletins, web content) more accessible for people with memory concerns?
9) Choosing one of the activities, can we talk through potential strategies that you may use to make it accessible to people with memory concerns? [then ask the following:]
    a) Is there anything you do to the visual environment to make it more accessible for people with memory concerns (e.g., large fonts, arrangements, colors)
    b) Is there anything you do with the auditory environment to make it more accessible for people with memory concerns (e.g., make sure there aren't other conversations going on at the same time, music)
    c) What about strategies to make it more cognitively accessible?
    d) Have you implemented any technological solutions that make connecting remotely more accessible for people with memory concerns?

10) Is there a way you deliver prompts or verbal information to make it more accessible to people with memory concerns? Are there any ways you make online communication (chats, emails, online bulletins, web content) more accessible for people with memory concerns?
11) Do you use different strategies for different people with memory concerns? Can you give me some examples?

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