INTRODUCTION

The ongoing COVID-19 global pandemic has had a significant impact on the physical health, psychological well-being and daily routine of older adults. In the United States, 80% of Americans who died from COVID-19 were older adults (aged 65 or older; Centers for Disease Control & Prevention, 2021a). Although the group aged 18–49 accounted for 49% of infections, more older adults were hospitalised (47%) than the age groups of 50–64 (26%) and 18–49 (24%; Centers for Disease Control & Prevention, 2021b). Older adults also are more likely to be re-infected with COVID-19 (Hansen et al., 2021). Older adults have fewer options and resources to improve or maintain their physical and mental well-being due to the closure of public amenities such as gyms and senior centres under the mandates of ‘shelter in place’ and ‘social distancing’ (Son et al., 2020). Physical inactivity significantly increases the risk of disability and productivity loss and in turn, imposes great costs on the healthcare system, which means that the COVID-19 pandemic will accelerate negative long-term impacts on older adults’ health and healthcare systems (Hall et al., 2020). Decreased in-person contact may exacerbate social isolation and loneliness and may further harm their mental and physical health (Wu, 2020). According to data on prior crises and disasters, it is reasonable to expect higher rates of mental health issues during and after the pandemic among older adults, especially those with pre-existing psychiatric conditions (Aronson, 2020; Sher, 2020).

As the most populated city in the country, New York City (NYC) is home to more than 1.1 million older adults, and its older population is projected to grow more than 41% by 2040 (Greer et al., 2019). NYC had the highest number of confirmed infections and deaths due to COVID-19 in the United States from March to May 2020 (Centers for Disease Control & Prevention, 2020; Johns Hopkins University, 2020). Many community-dwelling older adults experienced a scarcity of home health aides. Many older patients, who would otherwise receive care from nurses and doctors, were redirected to stay home as hospitals prioritised patients with COVID-19 (Jamison, 2020). Many community services for older adults have...
been interrupted due to social distancing (Graham, 2020). However, very little empirical evidence is available regarding the well-being of community-dwelling older adults and social services for this population. The present study explored these issues with a focus on homebound older adults, one of the most vulnerable subgroups of community-dwelling older adults.

1.1 | Homebound older adults and relevant services

Homebound (or housebound) older adults cannot freely leave their homes and require help in doing so due to medical conditions or mobility-affecting impairments (Choi & McDougall, 2007). In the United States, more than 10 million Americans aged 65 or older had difficulty walking or climbing, and about 2 million older Americans were completely or mostly homebound in 2011 (He & Larsen, 2014; Ornstein et al., 2015). Compared with their ambulatory peers, homebound older adults are more likely to be older, female, racial and ethnic minorities, and less educated, and have low income (Ornstein et al., 2015). Homebound older adults are also characterised by a high risk of comorbid chronic conditions, frailty, disabilities, cognitive impairment and mortality (Qiu et al., 2010; Soones et al., 2017).

In terms of psychological and social well-being, homebound older adults have more difficulties engaging in social interactions and community activities, and they are more likely to be isolated, lonely, depressed and anxious (Qiu et al., 2010; Rosso, Taylor, Tabb et al., 2013).

Services designed for homebound older adults are typically either home or information and communication technology (ICT) based because of the mobility difficulties of this population. Empirical evidence has shown the effectiveness of community and healthcare services in helping homebound older adults to manage chronic conditions, improve nutrition, meet care needs related to activities of daily living (ADL) and instrumental activities of daily living (IADL), increase social connectedness, and reduce mental health problems (Choi et al., 2014; Choi et al., 2020; Gellis et al., 2012; Gollub & Weddle, 2004; Norman et al., 2018; Stall et al., 2014). However, most existing services lack a multidimensional perspective, in that they fail to address older adults’ multifaceted health needs, including physical health, psychological well-being and social circumstances that are interdependent and jointly shape the quality of life of homebound older adults (Bérenger & Verdier-Chouchane, 2007; Bowling et al., 2002). There are several barriers to designing and implementing effective health interventions for homebound older adults. It is hard to coordinate experts and resources across various professions or agencies (e.g. medical versus nonmedical service providers) to meet homebound older adults’ multilevel needs (Norman et al., 2018). In addition, lack of human and technology resources also influences the delivery of services to homebound older adults. For home-based services, lack of staff for frequent and sufficient home visits is common. For ICT-based services, challenges in accessing or utilising the internet and digital devices are manifest among homebound older adults who are older, racial and ethnic minorities, living alone, and having low incomes, poor health, hearing or vision impairments and little interest in technology (Choi & DiNitto, 2013). These challenges related to human and technology resources may be more prominent and impactful in shaping service delivery for homebound older adults during the pandemic, when ‘shelter in place’ and ‘social distancing’ were required.

1.2 | Wellness together—a service program for homebound older adults

To analyse the influence of the pandemic on services for homebound older adults, the present study evaluated a service program, Wellness Together (WT), which works with homebound older adults in the Lower East Side and Chinatown areas in Manhattan, NYC. Older adults in these neighbourhoods include racial minorities (76.6%), immigrants (72.2%) and people with low income (63.8% have an income under 200% of the federal poverty level), less education (46.5% have no high school degree) and limited English proficiency (70.2%, NYC Department for the Aging, 2019).

The WT program aims to maintain and improve physical and mental health and independence among homebound older adults by offering health, social and recreational services in person and via ICT. It was founded and designed by administrators and staff members in University Settlement, a community agency providing services for NYC residents from early childhood to late adulthood. The program provides services by partnering with multiple organisations to offer in-person concerts, legal, home modification, mental health, nursing, friendly visiting and nutrition services. The program also offers case assistance, supportive counselling and companionship by its in-house staff. With the initial funding sponsored by a foundation,
WT admitted its first client in January 2019. In terms of staffing, the initial stage of WT largely relied on social work interns, whose work was supervised by a full-time social worker. WT provides most services during home visits and some services via ICT. Telephone interactions are used as additional service venues, such as reminder calls and quick clarification. Teleconferencing programs were designed for older adults to participate in classes and presentations via telephone (landline or cell phone). The program was also designed to deliver services via cable TV by maintaining monthly half-hour slots on two local cable TV channels. Classes, presentations and discussion groups offered at centre-based programs were filmed, edited and submitted to fill the slots, which enables homebound participants, who otherwise are not able to attend, to watch the programs from their homes.

1.3 | Research questions

In this study, we proposed two research questions. First, how did the COVID-19 pandemic influence inputs, activities and outcomes of the WT program? Second, considering the potential usefulness of ICT in health and social services, how could more advanced ICT, such as an internet platform, be used in the WT program?

2 | METHODS

2.1 | Data collection

Using a mixed-methods approach, we collected and analysed qualitative and quantitative data. The procedure of data collection and analysis (IRB-AAAS7716) was approved by the institutional review board at Columbia University.

In July 2020, we conducted semi-structured interviews with the program staff, including one administrator, one social worker, and two social work interns, via phone calls to understand their perspectives on the impact of the pandemic on program implementation. The interview guideline was designed based on a conceptual framework we developed by adapting a program logic model, which depicts outcomes as a function of program activities that are influenced by event or disaster characteristics, community characteristics and inputs (Norris et al., 2009; Rosen et al., 2006). As shown in Figure 1, we focused on the COVID-19 pandemic as the event. Based on the program design, we examined inputs of budget, resources and staff as well as activities in services, referrals, and staff support. The well-being of homebound older adults was the program outcome. In terms of community characteristics, we focused on the sociodemographics and health status of homebound older adults served by WT, not only because these characteristics could determine program design and implementation but also due to their strong connection with the utilisation of ICT. The interview covered three themes: program inputs, activities and outcomes. For each theme, we asked program staff members to share their perspectives on the pandemic’s impact and the feasibility of ICT-based services.

To complement these staff narratives on activities and outcomes, we also interviewed five clients to understand the impact of the pandemic on their well-being, services they received from the program and their experience using computers and the internet in their preferred language (two in English, two in Cantonese Chinese and one in Spanish). The social worker selected the five clients for interviews based on the following criteria: (a) received services from WT during the pandemic, (b) had no hearing impairment or physical and mental conditions that could influence meaningful and substantial conversations over the phone, and (c) received the program services for more than 15 hr or had 15 or more contacts with the WT staff. The five clients also reflected the gender, racial and language ratios of WT. In each interview, verbal consent was obtained and recorded in an audio document. The interviews with program staff members and clients were conducted, transcribed and translated by the first and third authors and research assistants, who were not affiliated with WT or the agency.

Quantitative data were exported from the agency database system, including client profiles that were gathered by staff members when they enrolled in the program and service documents. To protect clients’ privacy and confidentiality, all quantitative data were exported from the system and de-identified by the WT staff prior to analysis. We selected 10 measures of clients’ sociodemographic characteristics and health status from the client profiles. The sociodemographic measures included age in years, gender, race, marital status, first language, place of birth (the United States versus. other countries), highest education level and whether they had received any safety-net services (such as food stamps, Medicaid, SSA/SSD, SSI/SS or transportation or housing assistance). Three dichotomous variables were created to indicate whether they had experienced falls in the past year, mental health problems and hospitalisations in the past 6 months when enrolled in the program.

From the service documents, we selected measures of date, duration (in hours), type and delivery method (home visit vs. phone)
of each service from January 2019 to 13 July 2020. The program staff reviewed service notes and extracted the data on the type of each service. All services were classified into three types: physical health, psychological well-being and home environment services. Physical health services were provided to help clients receive nutrition, healthcare, and end-of-life preparation by helping them to apply for benefits and entitlements, preparing relevant documents (e.g., healthcare proxy, power of attorney) and coordinating informational and community resources. Home environment services were provided to resolve housing issues (e.g., utilities, repair needs and affordable housing) and improve environmental safety by home modification. Services provided to reduce loneliness and isolation, such as community engagement, teleconferencing, cable TV programs and mental health counselling, were categorised as efforts to improve psychological well-being. Other measures of services were exported from the database system. We merged the service data with the selected measures from client profiles based on client IDs. The final quantitative dataset included 886 services nested in 63 clients.

To depict the influence of the pandemic on services, we coded several significant time points: 1 March, when a partner agency stopped home visits for in-person concerts; 16 March, when the nursing partner stopped home visits; 17 March, when all social work schools in NYC suspended student fieldwork assignments; and 22 March, when the New York state stay-home order (hereafter, the order) went into effect.

2.2 | Data analysis

To address the first research question, both quantitative and qualitative data were analysed. Quantitative data were analysed to examine the effect of the pandemic on the number, type and duration of services of WT. The sample of bivariate and multivariate analyses included 886 services. We portrayed the progress of WT by reporting the number of services and average service duration each month. Chi-square analyses and t-tests were employed to compare service type and duration prior to and after each significant time point. We ran a multinomial logistic regression to examine the effect of the pandemic on service type (Model 1), with services for physical health as the reference group. A multivariate linear regression was carried out to test the effect of the pandemic on service duration (Model 2). In both regression models, we tested the key independent variable, whether the service was provided after the order (22 March 2020), after controlling for the clients’ sociodemographic characteristics, health status and methods of service delivery. We conducted sensitivity tests by coding the key independent variable based on other significant points (1, 16 and 17 March), and the regression results remained the same. Robust standard errors of both models were obtained by clustering client IDs, allowing for intragroup correlations. For variables with more than 5% missing data, we coded the missing data as ‘disclosed or unknown’, because the cause of such missing data was not clear. For variables with less than 5% missing data, we employed list-wise deletion.

The qualitative analysis was guided by a three-step hybrid grounded theory model, which combines grounded theory and a conceptual framework in coding qualitative data (Bennett, 2010; Donnellan et al., 2015). The first author and a research assistant coded the transcripts based on the conceptual framework in Figure 1. In the first step, the two coders coded the transcripts independently and then reached a consensus on codes for each interview. In the second step, they identified the relationships between codes across transcripts and further developed mutually agreed-upon final codes and themes. In the third step, the transcripts were recoded using final themes and reviewed by the first and third authors. We adopted a triangulated approach to ensure the validity of the data by asking the WT staff to review the themes and quotes.

3 | RESULTS

3.1 | Results of quantitative data analysis

Table 1 reports descriptive statistics. Among the 63 clients, the mean age was 82 years, 72% were women and about 27% were married. More than 70% of the clients were racial minorities, and about 55% did not speak English. The low education level and high rates of receiving welfare benefits indicate low socioeconomic status among these older adults. When enrolled in the program, about 10% of clients reported falling in the past year or hospitalisation in the past 6 months and about 11% had mental health issues. On average, each client had received 14.06 instances of services for a total of 0.66 hr between 1 January 2019 and 13 July 2020.

Figure 2 shows monthly program records. The program experienced a significant drop in the number of services and service duration shortly after the order in April and May, but these figures recovered in June.

Table 2 reports the comparison of service type and duration over time. Service type and duration significantly varied by all time points. In particular, the percentage of physical health services increased from 29% to 49%, home environment services remained the same and psychological services reduced from 40% to about 20%.

Table 3 shows the results of regressions predicting service type and duration. After the execution of the order, WT became less likely to provide services for psychological or environmental well-being than for physical health, when covariates were controlled (Model 1). Inconsistent with the results of bivariate analysis, execution of the order was associated with longer service duration, when the method of service delivery, which was associated with shorter duration, was controlled in the regression model (Model 2).

3.2 | Results of qualitative data analysis

Focusing on the impact of COVID-19 pandemic and feasibility of using ICT, we present the qualitative coding results in three themes—inputs, activities and outcomes.
3.2.1 | Inputs

During the pandemic, the funder allowed the agency to postpone home-based services and provided a small amount of funding to help the program address emergency issues resulting from COVID-19. However, a few concerns arose in response to the pandemic. Due to social distancing mandates, the program could not enrol any new clients because an in-person intake assessment was not feasible. Without remarkable growth, the agency faced significant challenges in fundraising to sustain the program. Although the administrator and staff recognised the potential usefulness of internet-based services, the lack of extra funding to prepare the technology platform and provide relevant devices for clients with low income was salient.

It [the pandemic] has affected our ability to fundraise for the program. It’s just not big enough yet. We haven’t been able to put together enough numbers [of clients], partly because of COVID. (Administrator)

We ourselves don’t have the ability to solve that problem [some clients could not afford digital devices]. Anything we offer is going to just be for people who have access. So, it is inherently unfair. (Administrator).

Other crucial resources affected by the pandemic included the social safety net, partnerships with other agencies and expertise in employing advanced ICT. At the beginning of the pandemic, the social safety net did not have an immediate and effective response, which resulted in WT being burdened with finding resources from an overwhelming system of local community services to meet the basic needs of their clients, such as food. Different policies and funding sources in response to COVID-19 across their partnering agencies created challenges in coordinating services for homebound older adults in WT. Besides the shortage of funding, the agency was not ready to develop internet-based services, given the scarcity of expertise to launch technology and the lack of relevant technology training among staff members and clients.

There are so many things that people want at home but [are] just not available; for example, I just want to design an exercise [regime]. Maybe having a physical therapist would help. But the physical therapist can only go to people’s homes when there is [a] doctor’s order. There is no way that doctors orally issue that order without a specific disease, accident, or a thing to trigger this order. … Insurance company wouldn’t pay for that. (Social Worker)

In mid-March, all NYC colleges and universities suspended in-person classes and internships. Later, some schools allowed students to quit their internships at agencies if they had challenges working from home. These decisions considerably affected WT’s implementation in April and May, when the program was overwhelmed by trying to meet the basic needs of homebound older adults.

The [social work] schools said “OK, you can’t work there any longer,” and students just can’t [come to work]. And it is really a sudden destructive [decision] for us. (Social Worker)

3.2.2 | Activities

During the pandemic, all home-based services were suspended. Client services and communications primarily relied on phone calls
and sometimes mail. WT had to defer in-person services. Based on the staff’s estimation, more than 95% of WT clients did not have access to the internet, leaving phone calls and mail the only feasible alternatives, which made service provision and communication more complicated than before the pandemic. These alternatives also created challenges for clients with hearing and vision impairments or limited English proficiency. Most homebound older adults preferred in-person communication and felt that in-person home visit was not replaceable. Despite the impact of the pandemic, all five clients who were interviewed appreciated the services they had received from WT and reported having a pleasant relationship with the staff.

It would be just so much easier if I can sit next to someone and fill out [a form] together. And now I have to fill out as much as I can, and call him to try to get information, mail it to him, hopefully his aide can mail [it]. ... You know, it’s like many, many steps. (Intern 1)

Building trust, building rapport, and building that relationship have been a lot more challenging when you can’t, you know, smile at someone, you can’t connect with someone, and you can’t see someone. (Intern 2)

They [WT staff members] always talk to me. They are very kind. (Client 5)

During the pandemic, referrals were primarily made to provide food for homebound older adults because some home aides had stopped working. Although some homebound older adults had to wait for a few days, they eventually received meals from Meals on Wheels. However, only one meal delivered per day could not provide adequate nutrition for these older adults. Other referrals, such as escorts and home visits by nurses, were impossible because those services were suspended during the pandemic.

Referral was hard, because everybody [across different agencies] was so overwhelmed. (Social Worker)

Although remote work created some challenges in communication among staff members, the social worker and interns reported that they received the same quantity and quality of supervision as they had prior to the pandemic, which helped to maintain the job satisfaction and well-being of staff members and good quality of services for clients. Regarding the psychological stress caused by the pandemic, the administrator and social work supervisor provided...
emotional support for their staff and students based on each person’s personality and needs.

I’ve had to just take a deep breath and sort of work outside of my comfort zone because people needed to talk, just to talk. (Administrator)

3.2.3 Outcomes

The pandemic created challenges in grocery shopping, receiving home-care services, seeing doctors and having in-person contacts for homebound older adults, which influenced their well-being. However, the extent of such influences varied across the five clients we interviewed. In terms of physical health, two clients reported feeling worse compared with their status before the pandemic, two felt a little worse and one felt the same. Regarding mental health, two clients felt worse and three felt a little worse. In terms of loneliness, two clients felt lonelier and three perceived no change.

I don’t go out. I never go out. I try not to think about it [COVID-19] too much. (Client 3)

It [COVID-19] is terrifying. It’s beyond scary. (Client 4).

I’m easy to satisfy. ... I’m fine if I have clothes to wear and food to eat. (Client 1).

Given the low rate of accessing or using the internet among these homebound older adults, it is hard to conclude whether using internet-based resources benefits their well-being. Among the five clients we interviewed, one older adult, who used the internet for entertainment, reported that internet resources helped to reduce stress. However, the lack of confidence, the fear of scams, inadequate financial resources for devices and the lack of interest were salient obstacles expressed by these older adults regarding internet utilisation. Considering these issues, the program staff originally chose telephone and cable TV to deliver WT services instead of the internet.

I use my computer every day, because that’s my outlet. I watch soap operas ... read the news. ... I don’t buy anything online, because I’m afraid of making mistakes. ... I’m very nervous when they ask me to enter my bank account [online]. (Client 4)

My memory is not good, so I will not remember how to use the internet even if someone teaches me. (Client 1).

4 DISCUSSION

This study is among the first to examine how the COVID-19 pandemic has influenced community services for homebound older adults. In particular, we examined the impacts of the pandemic on WT, a service program for homebound older adults in NYC. Furthermore, we explored the possibility of delivering internet-based services for this population given the necessity of maintaining social distance during the pandemic. The findings of this timely study provide guidance for improving current services for homebound older adults during and

| Cut-off time points | Service type and mean difference in service duration | Before Cut-off % or M (SE) | After Cut-off % or M (SE) | p |
|---------------------|------------------------------------------------------|----------------------------|--------------------------|---|
|                     | Physical health services                             | 28.65                      | 47.25                    | <0.001 |
|                     | Psychological services                               | 40.85                      | 22.61                    | <0.001 |
|                     | Home environment services                            | 30.5                       | 30.14                    | <0.001 |
|                     |                                                      | 0.285                      | 0.71 (0.02)              | 0.42 (0.02) | <0.001 |
| Nursing partners stopped home visits (3/16) | Physical health services                             | 28.2                       | 50.32                    | <0.001 |
|                     | Psychological services                               | 41.52                      | 19.16                    | <0.001 |
|                     | Home environment services                            | 30.28                      | 30.52                    | <0.001 |
|                     |                                                      | 0.304                      | 0.70 (0.02)              | 0.40 (0.02) | <0.001 |
| NY State social work schools suspended fieldwork (3/17) | Physical health services                             | 28.79                      | 49.83                    | <0.001 |
|                     | Psychological services                               | 41.23                      | 19.06                    | <0.001 |
|                     | Home environment services                            | 29.98                      | 31.1                      | <0.001 |
|                     |                                                      | 0.291                      | 0.70 (0.02)              | 0.40 (0.02) | <0.001 |
| NY State stay-home order (3/22) | Physical health services                             | 29.77                      | 49.28                    | <0.001 |
|                     | Psychological services                               | 40.3                       | 19.42                    | <0.001 |
|                     | Home environment services                            | 29.93                      | 31.29                    | <0.001 |
|                     |                                                      | 0.26                       | 0.68 (0.02)              | 0.41 (0.03) | <0.001 |

Note: The mean service duration is reported in hours. Abbreviation: SE, standard deviation of service duration.

TABLE 2 Service type and duration in WT program before and after significant time points
after the pandemic and developing innovative and effective interventions in the future.

In general, we found that the COVID-19 pandemic significantly affected the inputs, activities and outcomes of WT. The pandemic slowed down the growth of this relatively new program, which may make it challenging to raise funding to sustain the program. In addition, challenges in fundraising also might have been caused by shrinking government revenue and private funding resources, given the enormous impact of the pandemic on the U.S. economy. The interruption and uncertainty caused by the pandemic made staff members dedicate extra time to cooperating with partner agencies on resource coordination, referrals and working with social work schools to arrange interns’ schedules, which generated significant impacts on program effectiveness. Our mixed-methods illustration provided a more rigorous understanding of the pandemic’s impact on community-based agencies beyond the ongoing discussions in mass media (Berg-Weger & Morley, 2020; Graham, 2020).

The pandemic has changed the program’s focus and process of implementation. During the pandemic, the staff had to prioritise the basic needs of homebound older adults partly due to the slow response of the safety-net system to the crisis, which resulted in less time or energy to meet other needs of these older adults. Relying on telephone and mail to communicate with clients resulted in extra time and steps to complete services, compared with what had been required prior to the pandemic. The fragmentation of services and

| TABLE 3 Regression models on type and duration of services (N = 886) |
|---------------------------------------------------------------|
| M1 (ref: Physical Health Services)                           |
| RRR    CI   | RRR   CI     | RRR    CI     |
| Emotional Well-Being | Environmental Well-Being | Duration of Service |
| Post order          | 0.18*** 0.09, 0.37 | 0.29*** 0.15, 0.57 | 0.11* 0.02, 0.20 |
| Phone service      | 1.04 0.56, 1.91 | 1.27 0.62, 2.59 | -0.72*** -0.80, -0.63 |
| Duration            | 0.8 0.45, 1.42 | 1.13 0.65, 1.97 |
| Type (ref: physical health services)                          |
| Psychological services |                           | -0.04 -0.13, 0.05 |
| Home environment services |                     | 0.02 -0.08, 0.12 |
| Age                | 1.01 0.98, 1.04 | 0.96** 0.93, 0.98 | 0.00 -0.00, 0.01 |
| Female             | 1.24 0.55, 2.77 | 0.81 0.47, 1.37 | 0.11* -0.00, 0.21 |
| Race (ref: White)                                              |
| Non-Hispanic Black   | 0.31 0.05, 1.77 | 0.06* 0.01, 0.51 | -0.05 -0.20, 0.11 |
| Hispanic or Latino | 2.18 0.50, 9.58 | 2.07 0.59, 7.20 | 0.16* -0.02, 0.34 |
| Asian               | 1.12 0.37, 3.43 | 1.52 0.42, 5.51 | 0.21* 0.04, 0.38 |
| Marital status (ref: married)                                  |
| Widowed or divorced  | 0.53 0.17, 1.58 | 2.70** 1.46, 5.00 | -0.06 -0.17, 0.05 |
| Single              | 0.44 0.10, 1.91 | 0.39 0.10, 1.50 | 0.08 -0.09, 0.24 |
| Undisclosed or unknown | 1.38 0.20, 9.50 | 5.87** 0.92, 37.45 | 0.47*** 0.23, 0.70 |
| Language (ref: English)                                         |
| Other languages     | 0.29* 0.11, 0.78 | 0.64 0.26, 1.54 | -0.10 -0.24, 0.03 |
| Education (ref: < high school)                                 |
| GED                | 1.91 0.56, 6.49 | 3.27* 1.30, 8.19 | 0.07 -0.06, 0.19 |
| ≥Some college       | 2.32 0.73, 7.39 | 2.07 0.80, 5.36 | 0.13* 0.03, 0.24 |
| Undisclosed or unknown | 1.57 0.44, 5.60 | 1.91 0.88, 4.12 | 0.04 -0.07, 0.14 |
| Safety net (ref: Medicare only)                                |
| Yes                | 0.78 0.30, 2.04 | 1.00 0.60, 1.68 | 0.06 -0.03, 0.15 |
| Undisclosed or unknown | 4.40* 0.89, 21.60 | 4.76*** 2.22, 10.24 | 0.04 -0.07, 0.14 |
| Fall in 6 months at intake        | 3.27* 0.95, 11.21 | 2.50* 0.98, 6.33 | -0.08 -0.19, 0.03 |
| Hospitalisation in 6 months at intake                         | 1.39 0.62, 3.10 | 0.39*** 0.23, 0.66 | -0.07 -0.17, 0.03 |
| Mental health issue at intake | 1.95 0.58, 6.53 | 0.7 0.24, 2.03 | 0.23*** 0.09, 0.38 |

Abbreviations: CI, confidence interval; RRR: relative risk ratio.
* p < 0.01,
* p < 0.05; ** p < 0.01; *** p < 0.001.
extra work appeared to increase staff burden. Moreover, phone calls were not favourable given the hearing impairment of some clients and challenges in engaging clients and building rapport, which may decrease service satisfaction. When facing a sudden and urgent crisis, social service agencies are invisible heroes that distribute and operate social resources as a mediator between policies and society (Guerrero et al., 2020; Brodkin, 2021). These agencies also experience organisational changes due to external shock, including disrupted routines, adaptation to a sudden mismatch between needs and resources, potential resistance (e.g., discretion over resource distribution) and innovation or redirection to a new routine of practice (Brodkin, 2021).

The impacts of the pandemic on the well-being of homebound older adults were individualised. Because of social distancing, most homebound older adults had fewer friend and family visits or in-person communication, but not everyone felt lonely. Although their physical and mental health worsened, this health decline might be associated with pre-existing health status and the resilience of each older adult. The results seem different from theoretical considerations of loneliness during the pandemic among older adults (Morrow-Howell et al., 2020; Wu, 2020). This may be because of the resilience among homebound older adults who had the experience of coping with social isolation prior to the pandemic. However, the data could be biased due to the small sample.

The pandemic is continuing, and home visits remain suspended. Besides telephone, internet technology could be an alternative platform to deliver services (Zhou et al., 2020), but neither the agency nor clients were ready to adapt to it yet. Although staff members and clients agreed they perceived the potential benefits of online services, they expressed a range of concerns. The agency has not built an online platform due to a lack of funding, expertise and staff training. The organisational unpreparedness of delivering ICT services was also documented in other health and mental health service programs for older adults (Abrashkin et al., 2020; Latus-Olaifa et al., 2019). Considering the sociodemographic characteristics of the homebound older adults in the community, their readiness to receive online services is also questionable given limited financial resources to afford devices and internet access services, hearing and vision impairments, lack of experience in utilising the internet, fears of scams and inadequate interest and confidence. To avoid the double burden of social and digital exclusion (Seifert et al., 2021) among homebound older adults, it is necessary to provide more support to help them access and utilise internet technology (Chen et al., 2021; Xie et al., 2020).

There are several limitations of this study. A significant proportion of data on marital status, education and welfare benefits were missing. As shown in the regression results, the missingness was not random, but we could not identify patterns. This study lacked data on quantified outcomes of the program and measures that potentially confound clients’ service utilisation, such as the number of children and social support. Moreover, the results are not generalisable to community services for homebound older adults across the country, because WT is in a highly urbanised area.

This study provided helpful insights for future research on services for homebound older adults during the COVID-19 pandemic and beyond. Future research could incorporate more detailed characteristics of the pandemic, such as duration, evolving and complex impacts on the economy, health behaviours and public service systems, in examining the pandemic's impact on community services. A larger scale study on more programs is needed to understand the pandemic's impact on services for community-dwelling older adults. To develop effective ICT-based services, more studies are necessary to extend our knowledge on capacities, attitudes and preferences regarding technology among older adults and professionals.

This study provides crucial insights into relevant practice and policy. The COVID-19 pandemic is a prime test for community resilience and collaboration. Obviously, stronger collaborations among stakeholders are needed to ensure a smooth and effective response during a crisis and postcrisis recovery. It is necessary to improve existing ICTs and make them friendlier to older adults and useful to those with hearing or visual impairments. The government should consider increasing its budget for safety-net services and support ICT-based services. WT built itself on top of the safety net offered by the government. Without the basic needs (food, shelter, etc.) being properly addressed, the program could offer little beyond basic needs for homebound older adults. Evidently, a stronger and more resilient safety net is needed in response to a crisis. Policy support is necessary to advance ICT-based services not only in response to a crisis but also to develop sustainable and effective services for the long-term improvement of quality of life among older adults.

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How to cite this article: Liu, J., Ji, B., & Lou, Y. (2021). Impact of the COVID-19 pandemic on community services for homebound older adults in New York City. *Health & Social Care in the Community*, 00, 1–11. https://doi.org/10.1111/hsc.13554