Impact of NP Home-Visits on Health Outcome of Home-Dwelling Older Adults in Honolulu

August 13, 2021

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Keywords: Nurse Practitioner, Home-Visits, Older Adults, Primary Care

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CHAPTER 1.

Introduction

It is of mutual interest between most older adults and healthcare providers for the older adults to stay well and independent living in their familiar homes as long as possible. However, caring for the aging population has been a challenge for the healthcare system worldwide. By 2050, one in six people will be over 65 years and older accounting 16% of world's population which was 9% or one in 11 people in 2019 [United Nations (UN), 2020]. In the United States (U.S.), by 2030 the population of adults over 65 years old will exceed 70 million accounting 1 in 5 Americans to be 65 and older, and the population above 85 years and older is estimated to increase 151% (U.S. Census Bureau, 2016). Approximately 80% of those older adults are estimated to have two or more chronic health conditions (National Council on Aging, 2018), and it continues to pose serious strain on the healthcare delivery system to support for the fast-growing high morbidity population to sustain independent life in their familiar homes. In the shortage of primary care providers (PCPs), the nurse practitioners (NPs) contribute to deliver quality, effective care to the elderly population. Especially in the midst of novel Corona pandemic, the clinicians continue to seek ways to deliver health care to the population who need continuous care and follow-up. As NP home-visits being an increasing trend of primary care delivery method (Yao et al., 2016), the NPs can aide in this challenging time by offering the elderly population quality and timely medical and nursing care to be delivered at their homes.

Background of the Project

To meet the increasing healthcare needs of the aging population, the interests and demands to strengthen primary care is more than ever emphasized. The scope of primary care practice includes health promotion, disease prevention, health maintenance, patient education, diagnosis

and treatment of acute and chronic illnesses [American Academy of Family Physicians (AAFP), 2020]. The World Health Organization (WHO) recognizes the critical role of primary health care in maintaining the health of older people worldwide and at the most local level of a country's health system (2004). The Affordable Care Act (ACA) in 2010 had established a new direction for the U.S. healthcare system that includes emphasis on the active role of the primary care in providing care for the nation's aging population (Lathrop & Hodnicki, 2014). Parallel to strengthening the primary care practice, the ACA strategized to expand the number of NPs to aide in anticipated primary care provider shortage (Duckworth et al., 2013, Lathrop & Hodnicki, 2014). The NPs are prepared to meet the full range of primary care practice scope [American Association of Nurse Practitioners (AANP), 2020], trained and equipped to provide quality care with a holistic approach to manage the complex health care needs (Duckworth et al., 2013). It is reported that in 2020 approximately one third of older adults over 65-year-old are already receiving care from NPs (AANP, 2020).

To better manage complex health conditions of the older adults, it is critical to have continuation of periodical follow-ups and timely intervention when health concerns arise. However, today especially with the novel Corona virus pandemic, the access to office-based healthcare providers may be limited for many older populations, and maintaining normalcy of primary care function has been greatly challenged. While the clinicians continue seeking the alternatives to deliver necessary care to the aging population, the accumulated evidence suggests that home-visits by NPs have been increasingly recognized as one of the primary care delivery options (Duckworth et al., 2013, Melnick, Green & Rich, 2016, Osakwe et al., 2020). In fact, the Home Health Care Planning Improvement Act of 2019, which authorizes NPs to certify and recertify Medicare patients to receive home health services, was granted in March 2020 as a part

of the CARES Act, the Coronavirus Aid, Relief, and Economic Security Act (AANP, 2020). While the demands and utilization of home visits by NPs has been increasing in number and being recognized as one of the valid delivery methods of primary care, it presents an opportunity to explore the impact of NP home visits on the health outcome of the home-dwelling older adults. This project hopes to examine how the NPs home visits can contribute to maintain older adults' health status by delivering quality patient-centered primary care to their familiar homes.

Problem Statement

"I want to stay independent and live at home as long as I can" is the wish often heard with older patients in a primary care practice. The research by Binette and Vasold (2018) for the American Association of Retired Persons (AARP) survey revealed that 90% of people over age 65 want to stay in their homes as they grow old, and 80% believe they will stay in their current residence for their remaining years (2018). It is reported that home-dwelling older adults have a higher sense of independence and quality of life (QOL), and even tend to live longer (Lee et al., 2006), and that is every clinicians' wish as well to support patients fulfill healthy independent life in their familiar homes as long as possible. In the state of Hawaii, the population of older adults over the age of 65 is close to 20% of all population according to the latest census (US Census Bureau, n.d.), and 77.6% of Hawaii older adults are home-dwelling (Zan & Yahirun, 2018). Conversely to the wishes of those home-dwelling older adults to stay home for the rest of their lives, there are over two million older adults who are homebound with difficulties to continue independent living at homes (Osakwe et al., 2020). What are the hurdles that lead to disrupt home-dwelling of older adults?

When managing health conditions of older adults with multiple chronic illnesses, diligent risk prevention and early disease detection and intervention are especially critical because

worsening of chronic illnesses as well as developing acute illnesses can lead to major health events that can hinder independent living at home. Acute health events such as pneumonia, urinary tract infection, dehydration, falls, and stroke are among the top health problems that bring older patients to the emergency room (ER) (Jones et al., 2017). Many of those acute health conditions, however, often may have been manageable if brought to attention of primary care providers in a timely manner. The challenge: however, is that older adults can be often rather hesitant to seek medical help until their health status deteriorates to the point where they require ER services or hospitalization (Murashima et al., 2002). Especially with novel Corona virus pandemic, the limitations that hold older adults back from reaching for primary care providers include fear of novel Corona virus infection, lack of access to transportation, physical frailty, fear of caregiver burden, or language barriers (Murashima et al., 2002, Duckworth et al., 2013, Cutler, n.d.). While those limitations could be multidimensional and complicated, the consequences of delayed medical and nursing intervention are often regretfully debilitating and irreversible on the older adults' health outcome. One study shows approximately 40% of older adults result are in long-term care settings after acute hospitalization (Hakkarainen et al., 2016). In many cases, with decreased functional status, older patients are no longer able to continue independent living at their familiar homes after major health events.

In addition to conventional office-based visits, the NP home visits offers the extension of primary care into patients' homes. In this challenging time with the COVID 19 pandemic, the NPs home visits can contribute increasing accessibility to quality and timely medical intervention and nursing care to home dwelling older adults.

The consequences of the primary care provider shortage have influenced the quality of care for older adult patients (Swan et al., 2015). By 2040, approximately 24% of the total

population in the state of Hawaii will be people over 65-year-old or “kupuna” as we refer to our elders in Hawaii (The State of Hawaii, 2018). Care burden for the growing kupuna population continues to weigh heavily on primary care as the shortage of primary care providers accelerates. By 2025, nation’s supply of primary care providers is predicted to be 20% lower than the demand (Hagan & Curtis, 2018). It was reported that while the US had one of the shortest wait times for specialist care, only 59% of American adults were able to get a same- or next-day primary care appointment when ill and that a family practice wait times averaged 19.5 days (Swan et al., 2015). It is difficult to accurately capture the comprehensive clinical picture of the complex health conditions of the older adults in short five-minutes office visits by already overburdened primary care providers. It is reported that approximately one third of older adults over 65-year-old are already receiving care from NPs (AANP, 2020), and it has been an increasing trend for the NPs to co-manage older adult patients with the primary care physician (Jones et al., 2017). By delivering primary care to their homes, the NPs would have even closer surveillance on the dynamic clinical picture of complex health problems of older adults which allows early detection of health status changes and timely intervention to prevent major health events requiring ER visits and hospitalizations. During the NPs 50 years of practice history in primary care (AANP, 2020), it is reported that NPs provided care that was equivalent to the care provided by physicians (Dellabella, 2015, Jones et al, 2017). Kuo et al. (2015) reported greater reduction in blood sugar and cholesterol values in the patients seen by the NPs. The literature that documents higher patient satisfaction with NP care when compared to the care provided by the physicians (Agosta, 2005, Kippenbrock et al., 2019, Kuo et al., 2015).

With many home-dwelling older adults, adequate assistance with the activities of daily living (ADLs) is crucial to sustain independent living at home. Providing the assistance with

ADLs which is tailored to the care needs of each unique older individual requires careful assessment of the living environment, communication with family members, and meticulous coordination of care with the caregivers. While the NPs operate within a medical model with nursing care fundamentals of patient-centeredness (Duckworth et al., 2013), the NPs not only provide necessary medical intervention but also exercise specific skills to build trusting and therapeutic relationships with patients, family, and caregivers to elicit and address patients ADL care needs to make informed decisions and assist them in engaging in self-care (Jean-Jacques & Wynia, 2012). One of the goals of NPs home-visits is to support home-dwelling older adults to maintain ADLs functions while minimizing the potential health risks that may hinder independent living at home. For the older adults with mild cognitive impairment, for example, they may not be able to cook for themselves anymore; however, can still keep a degree of independent living at home if well-coordinated adequate home care support such as meal delivery services is set up. The home visits allow the NPs to perform environmental assessment of the older adults' dwellings for potential hazards. Accidental falls at home, for example, is one of the most debilitating health events among older adults accounting for more than 2.8 million emergency visits, 800,000 hospitalizations, and more than 27,000 deaths annually [Center for Disease Control and Prevention (CDC), 2017]. Yet, many falls are preventable with simple environmental modifications such as adequate lighting, uncluttering and correcting uneven floors as well as timely physical therapy intervention and use of ambulatory assistive devices such as a walker (Stevens & Lee, 2018). The NPs can examine the home environment for those preventable fall hazards while home-visiting, and plan a course of fall prevention care including patient and family education solicitating awareness about fall hazards in familiar home environment. As clinicians, NPs adjust medication dosage that causes dizziness, prescribe a

walker and order mobile physical therapy to sustain mobility. Home visits allows NPs to utilize and maximize nursing fundamental skills and the practice autonomy within medical model.

Purpose of the Project

In attempt to support older adults in maintaining and prolonging independent living in their familiar homes, the purpose of this project is to examine the effect of NP home-visits to home-dwelling older adults in Honolulu area as one of the factors in decreasing ER visits and hospitalization.

Clinical Question

The clinical question of this project is "For independent home-dwelling elderly in Honolulu area, what is the effect of the NPs home-visit as compared to current health care service utilization in decreasing ER visits and hospitalization while maintaining independence?"

Theoretical framework

It is a universal wish of older adults to stay independent and live in their familiar homes and be cared for by family/ significant others with support from trusted PCPs as needs arise (Mager & Grossman, 2013). As a patient-centered, caring profession, nursing is committed to meeting the holistic needs of all patients in all care settings including home care. Hines (2014) explains that as patients population becomes increasingly more diverse, it is "the nursing profession's moral and ethical commitment to our patients, families, and communities to develop ongoing skills to meet some of those needs by becoming more culturally competent (Hines, 2014, p.S5)". I believe this is especially true for home care when clinicians are the guests at patients' most private habitat. It resonates with Dr. Madeleine Leininger's culture care nursing theory. Dr.Leininger (1989) defines cultural based care in nursing as:

> “the most comprehensive, holistic, and particularistic means to know, explain, interpret, and predict beneficial congruent care practices. Culturally based caring is essential to curing and healing, as there can be no curing without caring, although caring can occur without curing (Leininger, 1989, P4)”.

The cultural care nursing theory explains that it aims to provide culturally congruent nursing care through "cognitively based assistive, supportive, facilitative, or enabling acts or decisions that are mostly tailor-made to fit with individual's, group's, or institution's cultural values, beliefs, and lifeways” (Leininger, 2002). With the older adults, who come from differing walks of life and various cultural backgrounds, and may present with unique, unmet needs, which in turn may result in poor health outcomes as a result of misunderstandings and poor communication skills (Cueller, 2015). A great majority of the older adult population have two or more chronic health conditions (National Council on Aging, 2018), and during a time when older adults may suffer from cognitive impairments, sensory losses, and chronic diseases, a foundation in culturally congruent health care is essential not only for the patients but also for their families and communities (Cueller, 2015). In order to be an effective home health care provider when visiting older adult patients at their homes, it is important for the NP to be culturally competent by adopting Dr.Leininger’s cultural care nursing theory to guide nursing care decisions and actions. Culturally congruent care navigates the providers to reorder, change, or modify lifestyles of the older adults in accordance with a beneficial health care pattern while respecting the patients’ cultural values and beliefs (Leininger, 1989).

Significance of the Project

It is my practice goal to support older adults sustain and prolong independent living at home, this project is to examine how NP home visits contribute to reduce ER visits and hospitalization among older adults. There are several clinical significances this project hopes to illuminate. The NP home-visit can offer quality patient-centered primary care delivered to the homes of the older adults. Home visits create an opportunity for NPs to perform assessment on home environment and ADL functionality of older adults at home, so that the NPs can keep close surveillance on potential health hazards and take swift action coordinating care with family and caregivers to prevent debilitating health events such as fall.

The NPs home visits can contribute to reduce the burden of PCP shortage. According to the AANP (2020), 89% of NPs are trained in primary care, and more than 75% practice in primary care settings. Alleviating pressures on the primary care workforce, NPs could potentially free up physicians to care for more complex patients (Yee et al., 2013). Higher provider satisfaction was reported by primary care physicians about chronic condition management when comanaging patients with home-visiting NPs (Jones et al., 2017).

The NP home visits can help to illustrate an expansion of primary care delivery option during the COVID 19 pandemic. During the pandemic, many office-based out-patient visits were canceled, postponed or converted to telemedicine due to shortages of healthcare resources or the risk of infection (Wright et al., 2020). When access to health care is limited for the older adults, appropriate chronic disease management was neglected (Wright et al, 2020). The NP home visits offer medical and nursing intervention delivered in timely manner in the safety of one's home because ongoing patient monitoring are the bases of essential primary care.

Health care cost for the aging population continues to expand. Medicare spending was 15% of total federal spending in 2018, and is projected to rise up to 18% by 2029 (Cubanski et al., 2016). It has been reported that the NPs have provided high-quality, cost-effective care for more than 50 years (AANP, 2013). The NPs home-visits are reported to aide in reducing healthcare financial burden. The study has shown reduced Medicare spending by 17% when NPs provided home base primary care to frail elders with multiple chronic conditions (Trilla et al., 2018).

CHAPTER 2. REVIEW OF LITERATURE

As the NPs' home-visit is gaining popularity as a quality and economical primary care delivery option (Duckworth et al., 2013), there is a body of evidence accumulating that shows the positive impact of NP home-visits. In attempt to explore existing reports and studies about the NPs home-visits, databases such as PubMed, MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar and the Cochrane Library were systematically searched to identify studies examining NP-home visits. The conditions for the literature search included were English language, studies done in the U.S., publication after 2015, and inclusion of keywords such as nurse practitioner, home-visit, older adults and primary care. A total of 262 citations were identified; 5 met eligibility criteria and were included in the review.

Yao et al. (2016) argued that home-based primary care allows providers to deliver an individually tailored care plan to manage multiple chronic conditions and functional limitations using a variety of resources. In an attempt to examine the increasing role of NPs in house call program (HCP) and its impact, the authors in their observational study using secondary data, looked at visit volume and Medicare payments for the residence-based health care provided by

NP in Medicare fee-for-service environment. They also compared NP residential visits to those of internists and family physicians, and geographical service areas of fulltime house call NPs versus the NPs who mainly make nursing facility visits. They found that NPs are the majority of HCP providers delivering residence-based care making 1.1 million home-visits in 12-month compared to other healthcare providers. While Yao et al. successfully demonstrated an increasingly important role of NPs in-home and domiciliary care, it also suggested the need for further exploration of geographical discrepancy in the utilization of NP home care depending on each states' NP scope of practice and regulation (2016).

Jones et al. argued that co-management of the patients with physicians and NPs on home-based primary care programs could reduce hospitalizations and readmissions (2017). In their quasi-experimental study with sample size of 87, they examined the impact of NP co-management for clinically complex patients in home-based primary care programs. The researchers compared the history of hospitalizations, history of 30-day hospital readmissions, and provider satisfaction. They found the positive outcomes on high physician provider satisfaction when co-managed with NPs, significant reduction in annual hospitalization (1.26 vs 2.27, $p=0.005$) and 30-day readmission rates (5.8% vs 17.2%, $p=0.004$) among high-risk home-bound patients, and cost savings for institutions. Jones et al. noted that further investigation would be desired to examine NPs' satisfaction in co-managing home care with physicians (2017).

Trilla et al. argued that comprehensive primary care in patients' home-settings would be more beneficial for the patients with complex medical, social, and behavioral conditions for whom routine office-based care was not effective (2018). To explore how NP home-based primary care program improved patient outcomes, the researchers, in their quasi-experimental study with sample size of 471, examined the history of hospital admissions, ER visits, and how

much medical expense was saved. The result showed immediate and long-term effects such as reduction in inpatient service (57.4% decrease) and ER utilization (36.5% reduction) and reduction in total medical costs (19.1% reduction). The authors also noted the possibility of future study on the impact of NP home visits on other high-risk fragile populations (Trilla et al., 2018).

With the cohort size of 82 clinically complex patients, Coppa et al. (2018) in their pilot quasi-experimental design study, attempted to describe the impact of NP home-based primary care service to decrease rehospitalizations and ER visit rates. They found 23.7% decrease in ER visits and 34.9% decrease in rehospitalizations compare to 1-year pre-home-based primary care program and a decrease of significant 35.6% in emergency department visits and 59.4% decrease in rehospitalizations compared with 6 months of pre-home care (Coppa et al., 2018). With this finding from their pilot study, Coppa et al. note that by granting full practice authority, it enables NPs to deliver home-based primary care, which is beneficial for homebound chronically ill, recently discharged, and/or disabled patients to promote optimum healthcare (2018).

In attempt to support aging in place and avoid costly institutional care, Mattke et al. (2015) implemented a home-visit program that includes comprehensive geriatric assessment and referral to community providers. In their quasi-experimental design study, a large sample size of 19,732 Medicare recipients had house-visit intervention. They compared the group without house-visits done at the 12-month postintervention for the history of hospitalizations, nursing home admission, and the number of office visits. The study results were positive with 14% decrease in hospitalization, significantly lower nursing home admission ($p<0.01$), and increased specialists' office visits by 2 to 6% suggesting successful implementation of the comprehensive geriatric assessment while home visits.

The literature review illustrated positive impact of the NPs home-visits and its benefits not only to the patients' health outcomes by reducing ER visits, inpatient services, hospital readmission, and nursing home admission, but also on the reduction of healthcare costs. Also, high level of patient satisfaction was demonstrated with NPs home visits as well as primary care provider satisfaction when NPs comanage overwhelming patient loads.

CHAPTER 3.

Project Design

This is a quasi-experimental design pilot study to examine the impact of the NP home-visits on reducing ER visits and hospitalization among home-dwelling older adults. The NP home-visit was done 1 to 2 times from January 2021 for duration of 3 months. At the end of 3 months, records of the participants' history for ER visits and hospital admissions were collected through EMR. To examine the effect of the NP home-visits, in addition to conventional primary care office visits and routine check-ups, number of ER visits and hospital admission within the 3 months period after the home-visits were compared to the number of ER visits and hospital admission within 3 months prior to the NP home-visits. To explore patients' satisfaction with NP home-visits, satisfaction survey was conducted at the end of visits. Being midst of the Covid 19 pandemic, home-visits had been done with the highest level of vigilance focused on infection control since the target population is older adults.

Sample

The study sample collection was done through purposive sampling from the established patients of St.Luke's Clinic-Ala Moana. St.Luke's Clinic is a primary care clinic with 4 medical doctors (2 internal medicine and 2 family medicine) and 3 family nurse practitioners. Inclusion

criteria for the study sample were 65 and older, Medicare beneficiary, home-dwelling in Honolulu area. The patients with mild cognitive impairment (MCI) with Mini Mental State Exam(MMSE) score 28 and above (out of 30) were included. All participants were carefully and thoroughly assessed for exposure risk to Covid 19 at recruitment.

Due to current pandemic restriction, there were 15 home-visit cases. Limitations in relation to sampling should be noted. As well as the small sample size of 15 participants which poses a threat to internal and external validity, the homogeneity of the sample being all with Japanese ancestry may pose limitations to generalization to other cultural groups.

Data Collection Instrument

To identify levels of satisfaction with the NP primary care home-visit, a survey was conducted using the Nurse Practitioner Satisfaction Survey (NPSS) (Agosta, 2005) (Appendix). This 28-item Likert-style questionnaire was developed by an NP, Dr. Lucie Agosta, intends to measure general patient satisfaction of NP-delivered health care on qualities including convenience, accessibility, competence, knowledge, trust, receptivity, openness, and interpersonal communication. Content validity and reliability were tested with exploratory factor analysis (EFA) on the pilot study by the author with sample size of 39 people which resulted internal consistency Cronbach's at $\alpha > 0.98$ (Agosta, 2009).

Procedures and Timeline

Upon getting Internal Review Board (IRB) approval from Hawaii Pacific University and St.Luke's Clinic, the NP started recruiting study participants in January 2021 by calling patients or upon patients' office visits. After getting the consent form singed, the NP called a participant to set up home-visit schedule. The home-visits were done 1 to 2 times on 15 participants from

January 2021 to February 2021. At the last home-visit, all participants were asked to fill out NPSS. At the end of 3 months from participants' home-visits, along with the demographic data, record of the participants' history of ER visits and hospital admissions were collected using insurance claims data base via St.Luke's Clinic's EMR system.

Data Analysis

Collected data including participants' demographics, history of ER visits and hospital admission, and the scores from NPSS 28 items were first entered and compiled into Microsoft Excel 2019 Version. For descriptive and non-parametric statistical maneuver, the software IBM SPSS Statistics for Windows, Version 19.0. was used.

The correlation between NP home-visits and ER visits and hospital admission will be manipulated by using non-parametric tests such as Wilcoxon rank correlation test which should have coefficient p value between 0.05 to 0.01 to show statistical significance. However, given a small sample size, insufficient statistical power might result Wilcoxon pre- and post-test p value of greater than 0.05.

Resources and Budget Considerations

The resources needed to implement this project including office supplies such as papers and copy machine use, and the personal protective equipment (PPE) were graciously donated from St.Luke's Clinic. The NP home-visits were reimbursed using Medicare reimbursement (CPT Code 99341-99350).

For data processing and analysis including EMR review, compiling data set in Excel, statistical maneuver with SPSS, and putting summary of the analysis report and presentation, a

NP had designated10 % of fulltime clinical hour for the duration which calculates approximately into 48 hours, tallying up to be approximately 3,000-dollar wage worth labor.

CHAPTER 4.

Results

Descriptive analysis

From January to March 2021, fifteen participants (men=33.33%, women=66.66%) were visited at their homes by the NP. Mean age of the participants was 87.6 years old ranging from 79- to 96-year-old. All the participants were of Japanese ancestry, spoke both Japanese and English. About half (46.66%) lived with children (son=4, daughter=3), 5 lived alone with family members or caregivers living close visiting every day, 2 lived with spouses, and one participant lived alone with family out of state. Per International Classification of Disease (ICD)10 codes, 80% of participants had hypertension, 20% had hyperlipidemia, diabetes, pulmonary disease such as chronic obstructive pulmonary disease (COPD) and asthma, and hypothyroidism. Three participants had history of cancer in remission, and 5 out of 15 participants (33.3%) had MCI with MMSE score 28 and above.

Impact of the NP home-visits on ER visits and hospital admission

For 15 participants, during the 3 months prior to implementation of the NP home-visits while receiving only routine primary care office visits, there were 2 cases with history of ER visits and one hospital admission found. The chief complaints for 2 separate ER visit cases were fall and general weakness, and for hospital admission, it was the case with general weakness to run diagnostic test and to monitor overnight. During and after 3 months of the NP home-visits

between January 2021 to June 2021, there were no cases of ER visits (p=0.164) and hospital admissions (p=0.351) among those 15 participants. (Table 1)

Impact of the NP home-visits on patient satisfaction

With NPSS 28 question items, strongly agree was given the highest score of 4 on Likert scale. All 15 participants (100%) scored 4 on the question item asking if the participant was satisfied with the NP. Each question item(s) corresponding to investigate qualities of patients' satisfaction on the NPs' visit on convenience, accessibility, competence, knowledge, trust, receptivity, openness, and interpersonal communication scored 4 for all participants (n=15, 100%). All 15 participants (100%) answered either strongly agree or agree to the question asking if he/she left the NP visit with all question answered, whereas only 13.33% (n=2) answered strongly agree to the question asking if he/she left their physicians' visit with all question answered, and 33.33% (n=5) answered disagree. (Table 2)

Discussion

Considering the nature of this project being home visits, even with the circumstantial limitation due to pandemic, the findings from this pilot study suggests contribution of the NP home-visits delivering quality primary care to older adults' homes to reduce ER visits and hospital admissions. The NP home-visit was mostly welcomed and appreciated from older adults under self-quarantined, it might have contributed to high satisfaction appraisal of the NP home-visit on the NPSS result.

It is worth noting that the home-visit at this predicament time had been challenging; however, could not been timelier for it has given the NP opportunities to check on home-dwelling older adult patients. Some older adults under quarantine at home were at risk, easy to get isolated and

had limited means to actively ask for support. The NP home-visit provided opportunities to assess needs for support, coordinate for the services such as periodical telephone visits and meal delivery.

For further exploration of the impact of the NP home-visit, limitations of this pilot project should be discussed. Due to the restriction under pandemic, small sample size of 15 participants poses a threat to internal and external validity. The homogeneity of the sample being all with Japanese ancestry may pose limitations to generalization to other cultural groups.

Summary

With the Covid 19 pandemic, it posed a great challenge for clinicians trying to seek creative ways to reach patients for continuity of care. The NP home-visit could propose an opportunity to expand options for quality healthcare delivery especially in this time of challenge. This project is a pilot study to explore the possibility of NP home-visit as an healthcare delivery option and its impact on older adults' health outcome to promote independent living at their familiar home.

Tables

Table 1. NP home-visit outcome evaluation compared with 3-months pre-home-visit (N=15)							
	3-months pre-NP-home-visit (October 2020 to Fuburuary 2021)			NP-home-visit within 3-months (April 2021 to June 2021)			
		# of Hx			# of Hx		p-Value
ER visit		2			0		p=0.164
Hospitalization		1			0		p=0.351

Table 2. Patient satisfaction on NP home-visit (N=15)		
NPSS Question	Agree/ Strongly Agree	Disagree/Strongly Disagree
Overall I was satisfied with my visit with NP	100% (15/15)	0%
I left NP visit with all my questions answered	100% (15/15)	0%
I usually leave physicians' visits with all questions answered	13.33% (2/15)	33.33% (5/15)

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Appendix

Nurse Practitioner Satisfaction Survey

We are conducting a study of patient satisfaction regarding the use of nurse practitioners. The survey is completely confidential and only summary information will be reported in the study results. Thank you in advance for your help with this survey.

Please indicate your degree of satisfaction with the following statements:
"SD"= Strongly Disagree "D"= Disagree "A"= Agree "SA"= Strongly Agree "U"= Uncertain

Fill in the bubbles like this: ●

	SD	D	A	SA	U
1. Overall I was satisfied with my visit with the nurse practitioner (NP)	○	○	○	○	○
2. I am likely to recommend the NP to others	○	○	○	○	○
3. I am likely to schedule appointments with the NP in the future	○	○	○	○	○
4. The NP was not rushed	○	○	○	○	○
5. I would rather see the NP than my regular physician	○	○	○	○	○
6. I was able to schedule a convenient appointment with the NP.	○	○	○	○	○
7.When I feel the need to see a healthcare provider, I can get an appointment with the NP without a problem	○	○	○	○	○
8. The Woman's Hospital Employee Health clinic is easy to access	○	○	○	○	○
9. Scheduling an appointment with the Woman's Hospital Employee Health Clinic NP is easier than scheduling with my usual physician	○	○	○	○	○
10. My NP is a skilled healthcare provider	○	○	○	○	○
11. My NP discusses methods other than medication to treat my problem	○	○	○	○	○
12. I am satisfied with how the NP treated me	○	○	○	○	○
13. I was satisfied with the amount of time the NP spent with me	○	○	○	○	○
14. My NP is caring	○	○	○	○	○
15. My NP is knowledgeable about health problems	○	○	○	○	○
16. I trust my NP	○	○	○	○	○
17. My NP knows when to refer to or consult with a physician	○	○	○	○	○
18. The NP listened to what I had to say	○	○	○	○	○
19. The NP was interested in my health concerns	○	○	○	○	○
20. The NP respected me	○	○	○	○	○
21. I can easily talk to the NP about my health concerns	○	○	○	○	○
22. I understood what the NP explained to me	○	○	○	○	○
23. I understood what the NP taught me	○	○	○	○	○
24. The NP explained things in an understandable manner	○	○	○	○	○
25. I feel comfortable asking the NP questions	○	○	○	○	○
26. I feel comfortable asking my personal physician questions	○	○	○	○	○
27. I left the NP visit with all questions answered	○	○	○	○	○
28. I usually leave my personal physician's visits with all questions answered	○	○	○	○	○