American Journal of
Biomedical Science & Research

www.biomedgrid.com
ISSN: 2642-1747

Research Article

The Effect of Telenursing on the Continuity of Home Care for Elderly Patients during Covid-19 Pandemic

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To Cite This Article: *Shrouq Alhawiti*. The Effect of Telenursing on the Continuity of Home Care for Elderly Patients during Covid-19 Pandemic. Am J Biomed Sci & Res. 2023 20(6) AJBSR.MS.ID.002783,* DOI: 10.34297/AJBSR.2023.20.002783

Received: December 13, 2023; **Published:** December 22, 2023

Abstract

Background: Telenursing is a type of telemedicine that involves using technology to provide continuous care to patients with chronic illnesses. The study aims to assess and determine the impact of telenursing services to enhance continuous monitoring of elderly patients' care during a covid-19 pandemic.

Material and Methods: Semi-experimental research design was used by the researchers on 60 discharged elderly patients, and their caregivers. Three tools were used in the study; structured questionnaire to assess of patients' caregivers' knowledge and practice regarding diseases, Zarit Burden Inventory (ZBI), to assess the personal stress among caregivers, and self-efficacy scale for chronic disease management.

Results: There were significant differences between pre and post application of telenursing in terms of the caregiver's overall amount of knowledge and practice in the care of the older people.

Conclusion: Telenursing is an effective caring technique for ensuring continuity of care for elderly patients with chronic diseases during discharge during COVID-19.

Keywords: Telenursing, Elderly, Continuity of care

Introduction

During COVID-19 pandemic emergency, healthcare shifted immediately from mortar and brick care. Healthcare agencies, companies, and clinics closed transitioned to work remotely. Healthcare professionals had to dramatically and quickly shift how they day-to-day function. Digital health exploded [1]. Telenursing is an Information and Communication Technology (ICT) that can offer nursing care through a range of applications, including monitoring systems, the Internet, video, telephone, e-mail, and video pictures [2]. Telenursing is basic form of electronic healthcare communication is used to establish a discharge plan and continue care for elderly patients during the Covid-19 Pandemic. The telephone is a simple mechanism easily accessible to most people and is broadly applied [3]. Available technologies are used by nurses like computers, mobile phones and existing applications of communication like WhatsApp, Instagram and telegram in order to continue provide and care ongoing services. It is also possible to provide and manage services care through using pre-created programs of e-learning like, creating programs of training or Medscape, which can be installed on devices [4]. COVID-19 has demonstrated the telehealth value in providing the geriatric care during the pandemic. Depending on the telehealth to provide geriatric care continuity and avoid the contagion risk by decreasing the visiting health care need has been shown to be feasible during COVID-19 pandemic [5].

In countries that have high income, access to and use telehealth for older patient has enhanced during the pandemic. This occurred because of the relaxation of legal restrictions for health care providing and telehealth inclusions as a reimbursable service by company's insurance in countries like Australia. The same can't be said

about countries of low-and low-middle income from which the literature telehealth is sparse [6]. Services of nursing performed in telenursing include management of symptom, patient triage, education and control of using tools of care like, masks and capsules through telephone or at home. Education, counselling, record and diagnosis of information of patient are also possible through technology of telenursing [7]. Telenursing is effective also for using technology and telecommunications for inaccessible regions like villages. Using of technology and telenursing are developing increasingly in remote nursing care [8]. So, the aim of the current study is to assess and determine the impact of telenursing services to enhance continuous monitoring of elderly patients' care during a covid-19 pandemic.

The study was carried out at outpatient clinics at King Fahad Hospital in Tabuk, KSA from April 2022 until July 2022.Semi-experimental research design was used by the researchers. 60 elderly patients with a chronic disease and their caregivers of both genders who had cellphones and agreed to participate in the study were included in the study. They were chosen based on their readmission rate during the previous two months. Three tools were used in the study; **Tool I** Structured questionnaire which composed of three parts: **Part I** included participant socio-demographic data including gender, marital status, educational level, residence, and occupation. **Part II** assessment of patients' caregivers' knowledge regarding diseases. The total level of caregivers' knowledge was classified into three categories: poor (less than 50 percent), fair (50 to 74 percent), and good (75 percent and more). **Part III** assessment of patients' caregivers' practice regarding elderly care. The total level of caregivers' practice was classified into two categories: incompetent practice (less than 60 percent) and competent practice (60 percent and more). **Tool II** was Zarit Burden Inventory (ZBI), to assess the stress among elderly patients' caregivers. It consists of 22 items; each item scored zero for never, one for rarely, two for sometimes, three for quite frequently, and four for nearly always. **Tool III** was Self-efficacy scale for chronic disease management: six questions were used to assess how confident chronic disease patients are in executing specific activities. Study tools content validity was assessed through reviewing by three experts in the field of geriatric care. Also, the validity and reliability of the study tool were calculated through Cronbach's Alpha test. The Cronbach's alpha values for caregivers' knowledge and practice were 0.993, 0.994 respectively, the ZBI scale was 0.995, and Self-efficacy Scale was 0.981. The three tools were used before and after telenursing application.

Telenursing education to the elderlies and their caregivers by phone in two sessions. Session I included education about chronic diseases (such as diabetes, hypertension, and heart failure), causes, diagnosis, treatment, complications, advice on a healthy lifestyle, and information on necessary homecare strategies. Session II included appropriate training for measuring vital signs; as how to measure the random blood sugar, blood pressure, respiratory rate, and other necessary care for elderly caregivers to utilize in digital practice sessions. Every session from 10 to 20 minutes per week. The researcher arranged the caregivers into three groups for online meetings on (WhatsApp) to send the educational material to patients and their caregivers depending on their selected schedules.

Ethical Considerations

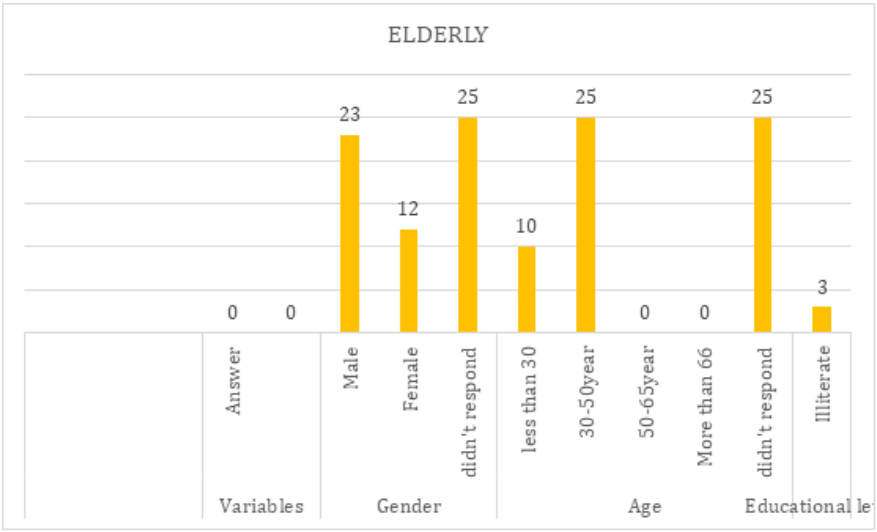
KSA: H-07-TU-077, IRB Protocol No: TU-077\022\121 at 30 march 2022. The participant consent to participate in the study was taken after explanation of the aim of the study. Every participant signed a written agreement form. Privacy and confidentiality of participant data was considered in the study. The institutional review board at King Fahad Hospital in Tabuk approved this study with the IRB Protocol No: TU-077\022\121 at 30 march 2022.

Table 1 presents that more than half of the elderly patient (58.3) and more than one thirds of caregivers are male. The age of 55% of the elderly patient is more than 66. Moreover, 48.3 of the elderly patients are illiterates and 38.3 enter the hospital once in the last two months (Table 1) (Figure 1).

Table 1: Socio-demographic characteristics of the caregivers and the elderly (N=60).

Variables	Answer	Caregivers for the Elderly		Elderly	
		Frequencies	%	Frequencies	%
Gender	Male	23	38.3	35	58.3
	Female	12	20	25	41.7
	didn't respond	25	41.7	0	0
Age	less than 30	10	16.7	0	0
	30-50year	25	41.7	0	0
	50-65year	0	0	27	45
	More than 66	0	0	33	55
	didn't respond	25	41.7	0	0
Educational level	Illiterate	3	5	29	48.3
	Primary	2	3.3	4	6.7
	high education	12	20	6	10
	Secondary	18	30	21	35
	didn't respond	25	41.7	0	0

Marital status	Single	11	18.3		
	Married	15	25		
	Divorced	9	15		
	didn't respond	25	41.7		
Number of hospitalization times in the last two months	three times			1	1.7
	Once			23	38.3
	Twice			13	21.7
	None			23	38.3



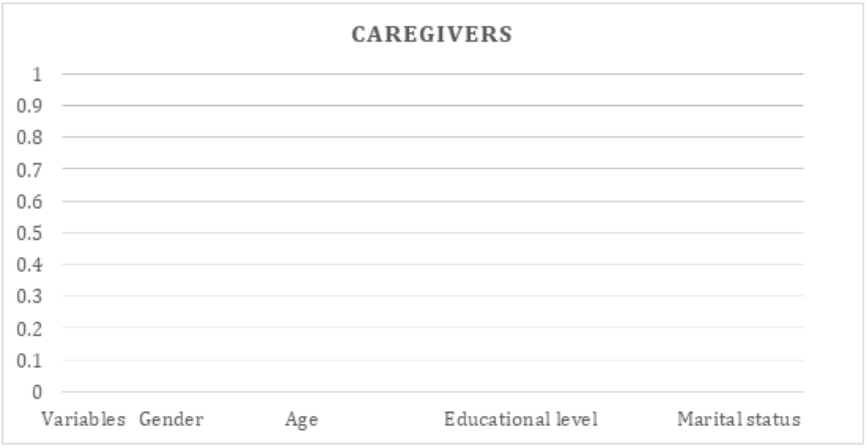


Figure 1: Socio-demographic characteristics of the caregivers and the elderly (N=60).

Table 2 shows that the total level of knowledge 23.3% of caregivers regarding chronic diseases is good before telenursing application in comparison with 50 % after telenursing application. In addition, 33.3% of caregivers are Competent in their care for elderly patient with chronic disease before telenursing versus 58.3 % after telenursing application. There are statically significant differences (P value 0.000) (Table 2) (Figures 2,3).

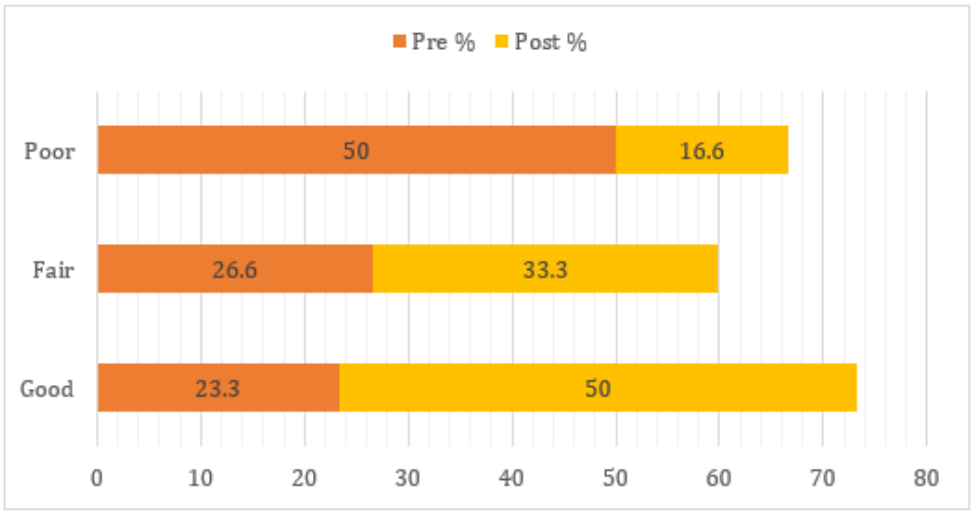


Figure 2: The total level of knowledge and practice of caregivers regarding chronic diseases pre and post Telenursing application (n=60).

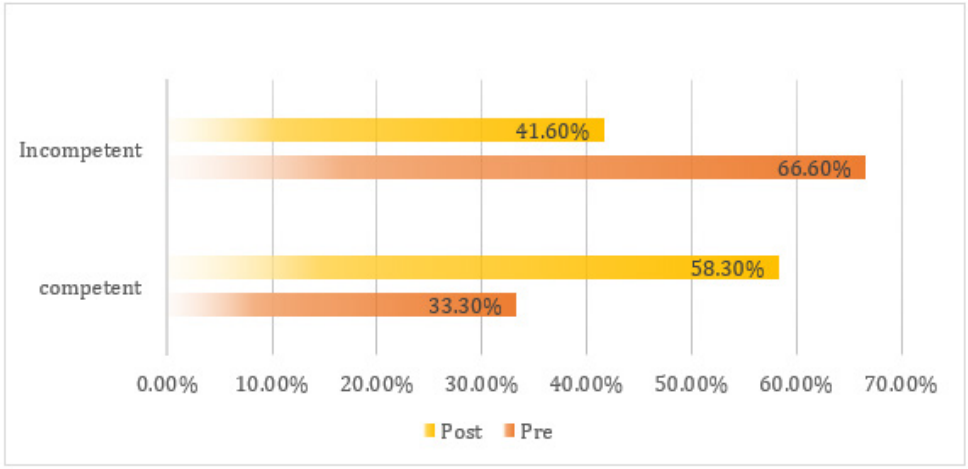


Figure 3: The total level of practice of caregivers regarding chronic diseases pre and post Telenursing application (n=60).

Table 2: The total level of knowledge and practice of caregivers regarding chronic diseases pre and post telenursing application (n=60).

The total level knowledge and practice	Pre		Post		T-test
	Frequencies	%	Frequencies	%	Sig
Total Level of Knowledge					
Good	14	23.3	30	50	-15.706
Fair	16	26.6	20	33.3	0.000
Poor	30	50	10	16.6	
Total Level of Practice					
Competent	20	33.3	35	58.3	-17.706
Incompetent	40	66.6	25	41.6	0.000

Table 3 demonstrates that the mean of caregivers' burden is 1.5 before telenursing application in comparison to 1.4 after telenursing application. Regards caregivers' self –efficacy, the mean is 4.45 before telenursing application versus 6.51 after telenursing application. There are statically significant differences (P value 0.000) (Table 3) (Figure 4).

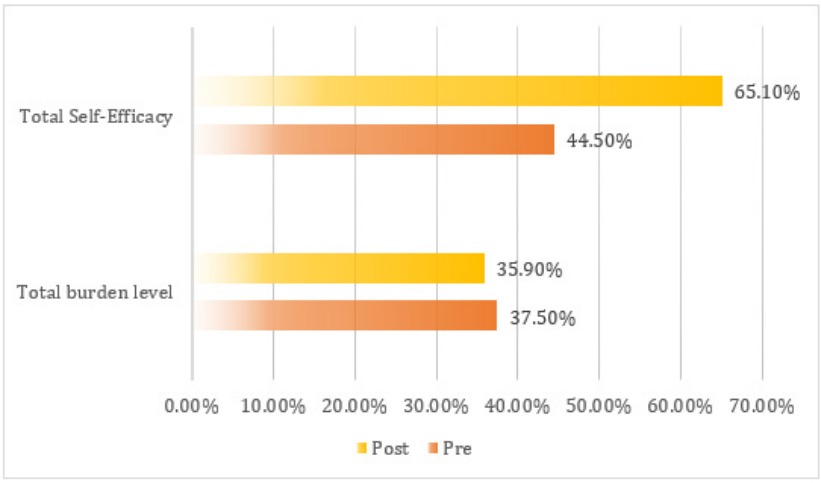


Figure 4: Burden level and Self-Efficacy for Managing Chronic Disease among elderly patient pre and post telenursing application.

Table 3: Burden level and Self-Efficacy for Managing Chronic Disease among elderly patient pre and post telenursing application.

Burden level and Self-Efficacy	Pre			Post			T-test
	Mean	RII	R	Mean	RII	R	Sig
Total burden level	1.5	37.50%	Low	1.44	35.90%	Low	0
Total Self-Efficacy	4.45	44.50%		6.51	65.10%		0

COVID-19 outbreak was a powerful catalyst for the broad adoption of telenursing in healthcare systems around the globe. Furthermore, the elderly have been a popular target for telenursing initiatives since these technologies may link, supervise, and help elders with health practitioners, emergency responders, and family members over lengthy ranges without in-person, face-to-face contact. Elderly persons, in particular, are less acclimated to technology and may ignore it altogether. A capable caretaker would be critical in this case. *Gately, et al.* (2021) state that without sufficient assistance and support, even those with mild chronic conditions may have considerable difficulty using telenursing services, which will deteriorate as the disease develops [9].

Gately, et al. (2021) also mentioned caregiver help as a mediator for their telenursing intervention's effectiveness and youthful healthcare workers should help with telemedicine techniques [9]. The present study has found various challenges to telenursing techniques for the elderly community, notably elthederly with chronic conditions, including the failure to engage with technology challenges, connectivity concerns, and data loss owing to the inability to evaluate the patient thoroughly. Nonetheless, there is agreement that telenursing has the potential to benefit patients and their access to medical care. This implies that, despite the challenges that elderly persons with chronic conditions such as heart failure and hypertension may encounter, there is still a positive side to using technology to provide services. *Lai, et al.* (2020) say that their telenursing intervention (through video conferencing) helped their elder participants establish a rising standard of living to COVID-19-related isolation [10]. There were statistically significant differences in caregiver's overall amount of knowledge and practice in the care of the older people before and after telenursing.

Shohani, et al. (2018), showed that telenursing exercise helped enhance the understanding and quality of care delivered by family caregiver of hypertension patients, backed up the current research findings [11]. Similarly, *Chi and Demiris* (2015) found that instructional telephone, online, and video technologies are helpful methods for improving caregiver knowledge and abilities *Quinn and Brien* (2018) claimed that telehealth is an excellent technique for providing families and caregivers with the competencies to offer the most outstanding quality of care feasible for their patients, hence avoiding wasteful health care consumption and early institutionalization [12,13]. On the other hand, *Shohani, et al.* (2018) found that telenursing had no profound impact on the performance of care delivered by the family's caregivers. [11] They also said that the short trial duration and the type of the sickness were factors that reduced the impact of telenursing instruction. The present study found that telenursing learning reduced caregiver burden significantly. Only a small fraction of the caregiver who received telenursing methods reported extreme distress, compared to the vast majority of before telenursing. *Bakas et al.* (2015), observed a significant decrease in caregiver load and depression symptoms following telenursing [14]. Similarly, *Graven et al.* (2021) found that telemedicine is an excellent strategy for reducing caregiver load considerably [15]. According to the findings of the current study, patients who received telenursing techniques had more self-efficacy in managing their conditions.

Similarly, *Maresca, et al.* (2019) discovered telemedicine could be a valuable technique for more effectively caring for older persons by encouraging depression and anxiety symptoms resolution and boosting self-efficacy toward their conditions [16]. The findings mentioned above also in line with with *Javanmardifard et al.*

(2017), who discovered that telenursing might increase self-efficacy, dietary habits, and physical exercise in hypertension patients [17]. In a similar vein, *Najafi, et al.* (2016), concluded that telenursing can improve patients' wellbeing while also working to enhance self-efficacy [18]. The present study revealed that unplanned hospital readmissions in pre telenursing were considerably lower than in post telenursing. The result of the study in agreement with *O'Connor, et al.* (2016), who found that the tele-health initiative reduced the clinic's 30-day hospitalization rates from 19.3 percent to 5.2 percent, a drop of 14 percentage points, backed up the current research findings [19]. Also, *Spinsante* (2014) stated that the telehealth technology might change and provide' wellbeing after dismissal, boost independence, and decrease readmission rates [20].

According to the current study's findings, telenursing is an effective caring technique for ensuring continuity of care for elderly persons during discharge and supporting informal caregiver's. The total level of knowledge and practice of caregivers regarding chronic diseases increased after telenursing application. Moreover, after telenursing instruction, the burden of elderly patient caregiver's was lowered. Furthermore, after receiving telenursing instruction, the risk of unexpected admission to the hospital was lower. One limitation of the present study that it did not look at pre-pandemic telenursing activities. Future research might look at how telenursing has evolved and changed since COVID-19 arrived and assess people's experiences throughout time. Another limitation is that the study not measure elderly psychological health measures.

Acknowledgement

None.

Conflicts of Interest

Nothing to declare.

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