Original Article

Internet Usage and Its Utilization for Outpatient Treatment among Older Adults in Indonesia: Evidence from the 2020 National Socioeconomic Survey

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Abstract

Background: Health insurance is essential for older adults to get healthcare services. Interestingly, only around half of older adults in Indonesia had used the health insurance for outpatient care. Recently, internet usage has increased and is considered a predisposing factor for seeking therapy or treatment. This study aimed to explore the internet use among older adults for outpatient treatment.

Methods: The National Socioeconomic Survey (SUSENAS)-core 2020 had included 29,905 older adults people who had poor self-rated health and were unable to work or carried out other daily activities. Regression analysis was performed to determine the factors that influence the outpatient treatment.

Results: Outpatient treatment utilization was highly associated with all predisposing factors such as age, gender, marital status, and education (p<0.05). Older adults who did not use the internet were 1.4 times more likely not obtain outpatient care (OR 1.362; 95% CI (1.207–1.537)). Those without health insurance had a higher probability of not seeking outpatient care (OR 1.643; 95% CI (1.551–1.741)) than those who had health insurance. Enabling factors, such as household wealth and living arrangements, were significantly associated with outpatient treatment utilization (p<0.05).

Conclusions: Although health insurance remains the most significant factor, internet use is emerging as a way to increase coverage of outpatient treatment for the older adults.

Keywords: Health insurance, internet use, older adults, outpatient treatment utilization, self-rated health

Introduction

Aging is linked to health decline and age-related disability. Indonesia, with a rapidly aging population, must adapt more quickly, including accelerating the development of health services. Prior research has found that the greatest barrier to impoverished people receiving modern health treatment is financial constraints.[1–3] In 2020, around 43.36 percent of Indonesian elderly were at the 40 lowest household expenditure.[4]

Prior studies report that the issue of health insurance coverage is a barrier for the Indonesian older adults to access healthcare services.[1,5,6] Only about 54.58 percent of older adults households had health insurance in 2015.[7] However, in 2020, the percentage of older people aged 60 and over with health insurance was 73.59 percent.[4] Even though health insurance is provided to encourage healthcare use, particularly modern outpatient care utilization, only around 49.93 percent of older adults with health insurance used outpatient treatment in 2020.[4] Outpatient treatment is necessary in Indonesia as a

prerequisite for receiving other types of health treatment. Furthermore, outpatient treatment also functions as a curative activity.

Healthcare information is becoming more widely available as information technology advances. Data reveals that the proportion of elderly people who access the internet has increased from 1.98 percent in 2016 to 11.44 percent in 2020.[4] With the use of the internet, older people might access any information on the internet. Online healthcare information could be used to raise public awareness about the need of outpatient care. On the other hand, the abundance of information available may undermine older adults trust and confidence in the internet, directing them to traditional modern healthcare facilities.[8] The usage of the internet is then assumed to be a predisposing factor for the elderly to use healthcare services. Therefore, following Andersen's model of healthcare utilization, this study will analyze internet use among the older adults aged 60 and above in accessing outpatient care utilization. This study aimed to assess the impact of internet use on outpatient care utilization among the older adults.

Methods

This study used the dataset of the 2020 National Socio-Economic Survey (SUSENAS)-core, a cross-sectional households survey carried out by Statistics Indonesia (Badan Pusat Statistik, BPS). The information was collected in March 2020, prior to the COVID-19 pandemic.

A two-stage stratified sample design with 320,000 households was used for 2020 SUSENAS-Core. Our study's eligible analysis unit included 29,905 (unweighted) older persons aged 60 years and over who had poor self-rated health and were unable to work or perform other daily activities.

The outcome variable was the outpatient treatment utilization. Outpatient treatment utilization was applied to define healthcare utilization among the elderly since it was less expensive and cost-effective than inpatient treatment or other preventative care options. The outpatient treatment utilization posed questions about access to outpatient care services in the month prior to the survey. Thus, it diminished the bias due to the fear of the spread of COVID-19 infection.

As this study employed Andersen's model of healthcare utilization, three components must be identified: predisposing factors, enabling factors, and health factors. Age group, gender,[6,9] marital status,[6] level of education,[2,6]

and internet access were all predisposing factors. Marital status consisted of two categories, namely currently married and others (never married, divorced, or widowed). Education levels consisted of three categories, namely low (primary school or lower), intermediate (middle and high schools), and high (university).

Enabling factors were health insurance,[1,5] social protection program,[10] household wealth status,[6,11] and living arrangement. In this study, social protection programs were defined as respondents receiving benefits from at least one of the following types: pension scheme, old-age pension plan, work accident insurance, job loss insurance, a non-cash assistance program for poor households to obtain basic needs (*Bantuan Pangan Non Tunai*, BPNT), conditional cash transfer program, specifically provided for very poor households with pregnant mothers, children, the elderly, and people with disabilities (*Program Keluarga Harapan*, PKH), education program for poor households with school-aged children (*Program Indonesia Pintar*, PIP), subsidized rice program for poor households (*Beras Miskin*, Raskin), pre-employment card (*Kartu Prakerja*), and other social assistance programs from the city government. It is important to examine the benefit of social protection programs in increasing opportunities for Indonesian older people to seek outpatient care because these programs are intended to provide benefits and effective protection to the poor.[12] Polychoric principal component analysis with multivariate techniques was performed to assess household wealth status (lowest, middle, and highest) based on assets and the highest level of education of the household head.

Health status was a need factor. In this study, the need factor was defined as the elderly's self-rated health status, followed by the inability to work or do daily duties. Previous studies have reported that self-rated health status is a powerful predictor of healthcare utilization and mortality among the elderly.[13–16] Self-rated health status was the inclusion factor for the eligible unit analysis of this study.

The analysis of this study included the survey design and the sampling weight due to the sampling design of SUSENAS-core. Descriptive analysis was carried out to show the distribution of poor self-rated health status among older persons aged 60 and above who were unable to work or conduct daily activities by predisposing and enabling factors. The weighted data was displayed as

Table 1 Socio-demographic Characteristics of the Older Adults with Poor Self-rated Health Status

Variables		n (Weighted)	% (Unweighted)
Outpatient treatment utilization	Yes	19,026	65.1
	No	10,879	34.9
Age group (year)	60–64	10,049	32.9
	65–69	7,890	25.7
	70–74	5,418	18.2
	75–79	3,469	12.5
	≥80	3,079	10.6
Gender	Male	14,061	46.6
	Female	15,844	53.4
Marital status	Others	12,427	41.9
	Currently married	17,478	58.1
Education	Low	24,047	81.6
	Middle	4,770	14.8
	High	1,088	3.6
Internet usage	Yes	1,741	7.3
	No	28,164	92.7
Health insurance coverage	Yes	23,281	75.4
	No	6,624	24.6
Social protection coverage	Yes	11,662	38.7
	No	18,243	61.3
Household Wealth status	The lowest	12,334	40.5
	Middle	10.868	36.9
	The highest	6,703	22.7
Living arrangement	Living alone	3,605	12.1
	With a spouse	6,487	20.7
	With family	19,813	67.2

a percentage. Logistic regression analysis was performed to determine the relationship between explanatory variables and outcome variables. The χ test was used to determine whether there was a significant relationship between outcome variable and each explanatory variable. The adjusted odds ratios were reported with a 95% confidence interval (p<0.05). The STATA package v15.1 was used (http://www.stata.com, StataCorp, College Station, Texas, USA).

The 2020 SUSENAS datasets were available through a letter of agreement (No. 48/LADU/0000/12/2020) between BKKBN and BPS. The agreement established legal constraints preventing the general public from obtaining raw data, and BPS did not give personal data identification, such as name and address. Thus, this study did not require ethical approval.

Results

The respondents' sociodemographic characteristics showed that the data was weighted. Outpatient treatment was not carried out by around 34.9 percent of respondents with poor self-rated health status. In terms of internet utilization, around 92.7 percent did not have access to the internet. Approximately 81.6 percent of the population had a low level of education. The majority of respondents (40.5 percent) were in the lowest quintile of household wealth (Table 1).

From the proportion of the older adults with poor self-rated health status for outpatient treatment utilization could be seen that the χ test for determining if variations in outpatient care utilization were significant in each explanatory variable (p<0.05) (Table 2).

The findings of the logistic regression

Table 2 Proportion of the Older Adults with Poor Self-rated Health Status for Outpatient Treatment Utilization

Variables		Outpatient treatment utilization	
		Y=0, Yes	Y=1, No
Age group (year)*	60–64	64.3	35.7
	65–69	63.8	36.2
	70–74	65.0	35.0
	75–79	93.9	36.1
	≥80	58.5	41.6
Gender*	Male	63.0	37.0
	Female	64.2	35.8
Marital status*	Others	63.3	36.7
	Currently married	64.8	35.2
Education*	Low	62.1	37.9
	Middle	69.5	30.5
	High	71.3	28.7
Internet usage*	Yes	74.8	25.2
	No	62.9	37.1
Health insurance coverage*	Yes	66.5	33.5
	No	53.6	46.4
Social protection coverage*	Yes	64.7	35.3
	No	63.0	37.0
Household wealth status*	The lowest	61.4	38.6
	Middle	62.6	37.4
	The highest	69.3	30.7
Living arrangement*	Living alone	63.8	36.2
	With a spouse	64.9	35.1
	With family	63.2	36.8

Note: *Significant if α= 0.05

analysis showed that the elderly who did not utilize the internet were 1.4 times more likely (OR 1.362; 95% CI (1.207–1.537)) not to receive outpatient care. Older adults with a higher education level (middle schooling) were less likely to avoid outpatient care (OR 0.830; 95% CI (0.774–0.891)) than those with a lower education level. The older adults with the highest household wealth (OR 0.763; 95% CI (0.711–0.819)) had the lowest probability of not receiving outpatient care. Those without health insurance (OR 1.643; 95% CI (1.551–1.741)) had a higher risk of not seeking outpatient care than those with health insurance (Table 3).

Discussion

After controlling for other variables, the multivariate model showed that internet use was positively associated with outpatient therapy utilization among the elderly. Internet connectivity was critical for Indonesian older people to use outpatient care. However, the descriptive analysis showed that only around 7% of older persons with poor self-rated health status use the internet. Furthermore, the percentage of villages in Indonesia having strong internet signals accounts for only 72.65%, reflecting the country's limited internet infrastructure coverage.[17] The lack of internet infrastructure development may also make it difficult for Indonesian older people to access the internet.

Other predisposing factors, such as age group, gender, marital status, and education, were associated with outpatient treatment utilization. The older adults were more likely to undergo outpatient care if they had a higher educational level. However, descriptive data suggested that around 81.6 percent of the older adults in Indonesia had a low educational level. Education is essential for increasing understanding of the crucial aspect of health issues and modern healthcare utilization.[18] Moreover, among the older adults, a low

Table 3 Adjusted Odds Ratios for The Multivariable Logistic Regression Model for The Predictors of Outpatient Treatment Utilization among the Older Adults with Poor Self-Rated Health Status

Variables		OR (95% CI)	
Age group (year)	60–64	1.000	-
	65–69	1.006	(0.945–1.071)
	70–74	0.937	(0.873–1.006)
	75–79	0.968	(0.891–1.052)
	≥80*	1.164	(1.067–1.269)
Gender	Male	1.000	-
	Female*	0.915	(0.868–0.966)
Marital status	Others	1.000	-
	Currently married*	0.758	(0.637–0.862)
Education	Low	1.000	-
	Middle*	0.830	(0.774–0.891)
	High	0.902	(0.780–1.042)
Internet usage	Yes	1.000	-
	No*	1.362	(1.207–1.537)
Health insurance coverage	Yes	1.000	-
	No*	1.643	(1.551–1.741)
Social protection coverage	Yes	1.000	-
	No	0.982	(0.933–1.034)
Household wealth status	The lowest	1.000	-
	Middle*	0.925	(0.874–0.980)
	The highest*	0.763	(0.711–0.819)
Living arrangement	Living alone	1.000	-
	With a spouse	0.977	(0.881–1.084)
	With family*	1.132	(1.039–1.232)

Note: *Significant if α= 0.05

education level is linked to a low likelihood of internet adoption.[19] While internet access is essential for increasing outpatient care utilization among the older adults, their poor education level may limit their capacity to access the internet.

Findings demonstrated that enabling factors, such as health insurance and household wealth were positively associated with older outpatient treatment utilization. The older adults with the highest household wealth were at the lowest risk of not receiving outpatient care. Health insurance coverage was the most crucial factor influencing Indonesian older people to seek outpatient care. Considering that the majority of older adults Indonesians lived in poverty, with 43.36 percent having the lowest household spending, health insurance may help them access outpatient treatment. Therefore, affordability was a concern in increasing outpatient treatment utilization among Indonesian older people.

Living arrangements were also significantly associated with outpatient treatment utilization. However, contrary to many previous studies on the value of family support in accompanying the older adults to the healthcare service,[20,21] those living with other household members are less likely to access outpatient treatment.[22] Those who are currently married are likewise more likely not to use outpatient treatment.

The strength of this study is the use of nationally representative data. However, there are some constraints. First, the cross-section survey design limits this study to measuring the association between variables. The cause-and-effect link is difficult to assess. Second, outpatient therapy utilization is reported solely on the information provided by respondents, which may be biased. Third, internet usage data is not directly related to healthcare utilization, such as measuring internet use to seek health information or access telemedicine. Fourth, SUSENAS does not provide information on older people receiving outpatient care for the

first time. Previous studies have shown that self-medication is common among the elderly who are already receiving outpatient care.[23]

In conclusion, with an aging population, Indonesia continues to face health challenges. In 2020, only around half of the older adults with health insurance use outpatient care because many older people live in poverty, and access to outpatient care is a concern. Health insurance provides benefits to boost the coverage of older adults using outpatient treatment.

Moreover, internet use plays a crucial influence in increasing outpatient treatment utilization among the older adults. However, many older people have low educational levels and limited access to the Internet, which may impede internet adoption. Therefore, in addition to investing in internet infrastructure, providing internet training to the older adults may be helpful. In summary, providing health insurance and social security programs, as well as increasing internet access among Indonesian older people, could be key steps towards improving outpatient treatment utilization.

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