

FACTORS INFLUENCING THE WEARING OF SURGICAL MASK AMONG ELDERLY POPULATION DURING COVID-19 IN THAILAND

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ABSTRACT

Background: Covid-19 is a recent pandemic problem affecting peoples with all ages but elder population is on high risk. This virus can be transmitted from person to person through saliva droplets. This study has explored factors associated with wearing the surgical mask among Thai elderly.

Methods: This was a cross-sectional study conducted on 400 elderly people aged 60 years and over. Data were collected through interviews on pretested, validated questionnaires. Factors related to wearing the surgical mask were analyzed by using chi-square and binary logistic regression. This study was ethically approved and written consent was taken prior data collection.

Results: Nearly two-thirds 62% of the elderly were female with mean age 68.32 ± 6.934 SD. Mostly 85% of them were wearing a mask when go outside of their home. Factors like; residence ($p > .001$), education level ($p = 0.015$), occupation ($p = 0.014$) and perceived risk of Covid-19 infection ($p > 0.001$), were associated with the wearing of surgical mask.

Conclusion: Study concludes that the elderly using masks during Covid-19 in Thailand were more influenced by residence, education level, occupation and perceived risk of infection. However, use of mask among this population could be increased through addressing these factors at population level.

Keywords: Elderly, Risk Group, Wearing Of Surgical Mask, Corona Virus Disease

INTRODUCTION

Surgical masks are used in hospitals to prevent infection in the late 18th century and were widely used by the general public in Spanish flu epidemic of 1919¹. Mask can help and protect from droplets contain virus and germs entering the human body^{2,3}. During the month of April 2021, first Covid-19 wave in Thailand reported 759 deaths. According to the information from the Center for Epidemic Situation Administration of the Coronavirus Disease 2019 on May 22, 2021, the overview of the outbreak still needs to be closely monitored. After 3,052 new cases of

COVID-19 were found, categorized as 2,447 new cases and 605 cases in prison, bringing Thailand's cumulative total of 126,118 confirmed cases.⁴ and continues to spread make today no matter where you go will see people wearing masks. Because it is one of the primary ways to protect yourself. There is clear scientific evidence that China, South Korea and Taiwan have given importance to and emphasized on the patient and not getting sick, especially when going in the community or during the outbreak of the disease making it possible to reduce the spread of disease and is part of the East Asian disease control. Can do better than countries in Europe and America. Because people in the west do not like to wear masks. Thus, there is a high chance of spreading the disease⁵, resulting in the use of masks to prevent infection with COVID-19 has been popular in many countries around the world. According to a study by the World Health Organization⁶ at the beginning of the outbreak, advice was given to patients or those with symptoms of COVID-19. Medical personnel only wear masks and later changed to encourage the general public to wear masks or cloth masks for prevention of COVID-19. This has resulted from a continuous decline in new infections in countries in Asia and less than European countries. This is consistent with the characteristics of people in Asia who wear masks along with COVID-19. It is a disease that has a long incubation period of 1-14 days, so there is a chance of infection others.

In 2020, Thailand had a total population of 66,558,935 people aged 60 years and over, 11,136,059 people, representing 16.73 %. Found the highest elderly in the North region, 2,287,470 people, representing 18.87%, followed by the elderly in the Central region, amounting to 3,215,275, equivalent to 17.77%, Northeastern region, 3,532,115 people, representing 16.04%, Eastern region, 719,044 people, representing 14.85 %, and the Southern region of 1,382,155 people, representing 14.56 %, respectively. In 2021, Thailand is moving towards a complete aging society with an elderly population of more than 20% of the country's population of 13 million people⁷. Based on research results, infection rates and severity of COVID-19 from the World Health Organization China and Italy⁸ it was found that the elderly aged 70 years and over were the group most at risk of severe infections and death, with the risk increasing with age. Those under 60 had a mortality rate of less than 1%. As soon as, those aged 70 years and over had a mortality rate as high as 14.8-19.0%. Therefore, it is important to take special care of the elderly to prevent infection with COVID-19. Using a strategy for all elderly people to wear masks⁹ because of the epidemic has spread to more people in the family. To prevent infection with COVID-19. Therefore, the researcher deems it appropriate to study the factors affecting the wearing of masks among Thai elderly people during the COVID-19 crisis. This study aims to study the factors associated with wearing the surgical mask among Thai elderly.

METHODS

This cross-sectional study was conducted among aging population in Thailand. Elderly people of 60 years and older were eligible, and those who can hear and read easily were included in the study. The formula by Taro Yamane¹⁰ was used for the calculation sample size. A sample of 400 elderly, 100 each from Central, North, Northeastern, and South regions. Convenience sampling was used.

Data were collected through interviews with questionnaires. The interview form had 2 parts, were information of factors and the wearing surgical masks. The tool was piloted in similar population with 30 elderly in Phimonrat subdistrict, Bangbuathong district, Nonthaburi province. The content validity checked by 3 experts with index of Item Objective Congruent: IOC greater than 0.5 for all items. The reliability was calculated by Cronbach's alpha which was statistically significant (coefficient 0.84). The study was given ethical approval by the Ethics Review

Committee for Research Involving Human Research Subjects, Kanchanabhishek Institute of Medical and Public Health Technology, the number KMPHT-63010016, on 1 Feb 1921. Statistical were analyzed by Chi-square and binary logistic regression.

RESULTS

The total participants were 400 people. Most of the elderly were resident in other regions 75.00 %. The most of participants were female 62.00 %, mean age 68.32 years \pm 6.934 (S.D), most of them had marital status married 70.80%, The majority of older persons had graduated primary school 73.50 %, and 54.80% working in agriculture. The perceived risk of COVID-19 infection found that 77.80% of the elderly thought that they were not a risk. (Table 1)

Factors	n	%
Residence		
Central region	100	25.00
Other regions	300	75.00
Gender		
Male	152	38.00
Female	248	62.00
Age		
60-69	249	62.20
70 and over	151	37.80
	Mean (\bar{x}) 68.32 (S.D.) \pm 6.934	
Marital status		
Married	283	70.80
Sigle/window/divorce/separate	117	29.20
Education level		
No education/primary school	294	73.50
High school and over	106	26.50
Occupation		
In agriculture	219	54.80
Non agriculture	181	45.20
Perceived risk of COVID-19 infection		
No	311	77.80
Yes	89	22.20

Table 2 showed that the most of the elderly wore masks 85.20 %, arguing that having to work outside the home/meeting relatives/others/going to the market/hospital/running errands outside the home 50.15%. Followed by reducing the risk/making it less at risk of contracting the disease by 18.48 % and preventing disease/dust/substance/for safety 14.08%. For the elderly who did not wear a mask, 77.97 said that they were working at home/didn't go anywhere, and 23.03 % did not like to wear/uncomfortable/difficulty breathing.

The waring of surgical masks in Thai elderly	n	%
The waring of surgical masks (N = 400)		
Yes	341	85.20
No	59	14.80

The reasonable of wearing the surgical masks (N =341)		
In a high risk/congested area	21	6.16
Work outside the home/meeting relatives/others/going to the market/hospital/running errands outside the home	171	50.15
Heard about COVID-19 /fear of contracting the disease	28	8.21
Reducing the risk/ making it less prone to infection	63	18.48
Preventing disease/dust/substance/for safety	48	14.08
The grandchildren told to wear	8	2.35
Having a congenital disease when infected with severe symptoms	2	0.59
The reasonable of didn't wear the surgical masks (N = 59)		
Work at home/didn't go anywhere	46	77.97
Didn't like to wear/ uncomfortable / difficulty breathing	13	22.03

In term of factors affecting the wearing of masks in the elderly by using Chi-square statistics to measure the associations of independent variables, including residence, gender, age, marital status, education level, occupation, and perceived risk of COVID-19 infection. The results found that variable place of residence (p-value >0.001), education level (p-value <0.015), occupation (p-value<0.014), and perceived risk of COVID-19 infection (p-value>0.001), as the statistically significant. However, the gender, age, and marital status were not relationship with wearing a mask. (Table 3)

Factors	Not wear surgical mask n (%)	Wear surgical mask n (%)	P-value*
Residence			
Central regions	2 (3.40)	98 (28.70)	>0.001
Other regions	57 (96.60)	243 (71.30)	
Gender			
Male	22 (37.30)	130 (38.10)	0.903
Female	37 (62.70)	211 (61.90)	
Age			
60-69	39 (66.10)	210 (61.60)	0.509
70 and over	20 (33.90)	131 (38.40)	
Marital status			
Married	45 (76.30)	238 (69.80)	0.313
Single/window/divorce/separate	14 (23.70)	103 (30.20)	
Education level			
No education/primary school	51 (86.40)	243 (71.30)	0.015
High school and over	8 (13.60)	98 (28.70)	
Occupation			
In agriculture	41 (69.50)	178 (52.20)	0.014
Non agriculture	18 (30.50)	163 (47.80)	
Perceived risk of COVID-19 infection			
No	9 (15.30)	302 (88.60)	>0.001
Yes	50 (84.70)	39 (11.40)	

*Chi-square

Enter method of binary logistic regression was used to predict the wearing surgical mask we found that the elderly people residing in other regions more likely to wear a mask than the elderly in the central region by 91%. The aging with primary school were 2.57 time more likely to wear a mask than those with a high school and over. The elderly who were in agriculture had 2.086 times more likely to wear masks than non-agricultural workers. And the perceived risk COVID-19 infection among the aging who think they were not at risk 98% more likely to wear a mask than those at risk. (Table 4)

Factors	n	B	SE.	Wald	Odds Ratio	95% CI	P*
Residence Central region Other regions	100 300	-2.44	0.729	11.210	0.087	(.021-.363)	0.001
Education level No education/primary school High school and over	294 106	0.944	0.399	5.611	2.571	(1.177-5.616)	0.018
Occupation In agriculture Non agriculture	219 181	0.735	0.303	5.894	2.086	(1.152-3.776)	0.015
Perceived risk of COVID-19 infection No Yes	311 89	-3.76	0.400	88.403	0.023	(0.011-0.051)	>0.001

*Binary logistic Regression

DISCUSSION

1. The study of factors related to wearing masks among Thai elderly found that some variables were residence, education level; occupation and perceived risk of COVID-19 infection had a relationship with wearing a mask. But the variables were sex, age and marital status had no relationship with wearing a mask, which similar to a study in Iran¹² found that demographic socio-economic factors in Iran were associated with preventive behaviors from COVID-19 (washing hand, wearing mask, etc. and wearing gloves) in some variables including sex, was associated with hand washing (P=.006) and sex was related with wearing a mask and wearing gloves (P < .001), education level correlated with wearing gloves (P=0.029), economic status correlated with wearing mask (P=.032).

2. Elderly people residing in other regions 91% had more likely to wear a mask than the elderly in the Central region, indicating that some elderly people did not wear masks. They argued that they worked at home/didn't go anywhere 77.97% more likely to be at risk of contracting COVID-19 from contract with relatives who meet/visit which similar to the new wave of COVID-19 rate¹³ from 1-29 April 2021 in Thailand. Information as of April 29, 2021 had the number of confirmed patients treated by area, the highest in the Central region of 32,359 people, Bangkok and Nonthaburi province amounted to 18,522 people while other regions had lower numbers, namely to North with 6,035 people, Southern region 3,888 people and Northeastern region 2,766 people. The median age was 30 years, the highest infection rate among the 20-29 age group was 43% followed by 27% of the age group 30-39 years old, with

the highest risk factors from household exposure up to 42%. Therefore, the elderly who stay at home are a high risk of contracting COVID-19. If they are not wearing a mask.

3. Perceived risk of COVID-19 infection among the aging who thought they were not at risk 98 % more likely to wear a mask those at risk, showed that there were some elderly people who thought they were at risk did not wear masks. This is similar to the study of Center for Disease Control and Prevention (CDC) ¹⁴ have been compared between the no-mask, put on a cloth mask, wearing surgical mask, knotting the rubber ear hooks of the mask and inserting other additional materials to the face. The results were found both how to put a cloth mask over a surgical mask and how to tie a knot on the rubber ear hook in order for the mask to fit on the face, it improves both the efficiency of preventing the spread of droplets from the patient and preventing the exposure of infected aerosols into the body up to 95% compare to those who do not wear a mask. The masks will only effectively if they are worn properly, always change and safely dispose it off¹⁵.

LIMITATIONS

The limitations of the budget used for research this led the researcher to use a convenience sampling method.

RECOMMENDATION

- 1 Campaign/encourage all elderly people to wear masks strictly and properly by having a rate of wearing masks to reach 100% during the time of COVID-19 ongoing epidemic especially the elderly who live in the central region, people with high school and over or more non-agricultural occupations and the aging who think they are at risk of contracting COVID-19.
- 2 Subsequent studies should use a systematic random sampling method.

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REFERENCES

1. BBC NEWS. Corona can a surgical mask help stop the spread of the virus? [Internet] 2020[cited 2021 May 23] Available from: <https://www.bbc.com/thai/international-51219048>.
2. Chokpaiboonkit.K. Face mask and protection against COVID-19. [Internet] 2020 [cited 2021 Apr 24] Available from: <https://www.si.mahidol.ac.th>.
3. Sikarin Hospital.To prevent COVID-19, wear a mask properly. [Internet] 2021 [cited 2021 Apr 24] Available from : <https://www.sikarin.com/content/detail/434>.
4. Bangkok Business.COVID-19 peak today. [Internet] 2021 [cited 2021 May22] Available from: <https://www.bangkokbiznews.com>.
5. Phuwan,Y. (2021). COVID-19 and Epidemiology: Prevention (5.3 Mask). [Internet] 2021 [cited 2021 Apr 25] Available from: <https://learning.covid.kv.ac.th>.
6. Bangkok Parasite Lab. Latest research solves the answer. Which type of mask prevents COVID-19? Get the worst. excellent[internet] 2021 [cited 2021 Apr 24] Available from : <https://www.bpl.co.th>
7. Department of the Elderly. Statistics of the elderly in Thailand. Bangkok: Ministry of Interior; 2020.

8. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 and Integrated surveillance of Covid-19 in Italy [internet]. 2020 Feb [cited 2021 Apr 30]. Available from: <https://www.epicentro.iss.it>.
9. Thanetsanit.O.Hygienic mask, personal protective equipment. [Internet] 2020 [cited 2021 Apr 25] Available from: <https://www.chula.ac.th/cuinside/29755>.
10. Ekakul.T.Research Methodology in Behavioral Science and Social Science. Ubon Ratchathani: Rajabhat University ; 2000.
11. Saengprateethong, W. (2005). Development of assessment tools. In Sukhothai Thammathirat Open University, Department of Education (Editor). *Management of Assessment Projects Unit*, 1-15, 228-247. Nonthaburi : Department of Education, Sukhothai Thammathirat Open University.
12. Firouzbakht, M., Omidvar, S., Firouzbakht, S., & Asadi-Amol, A. (2021). COVID-19 preventive behaviors and influencing factors in the Iranian population; a web-based survey. *BMC Public Health*, 143, 2-7.
13. Department of Disease Control.Statistics of COVID-19 of Thailand. Nonthaburi : Ministry of Public Health; 2021.
14. Centers for Disease Control and Prevention: CDC. Types of Masks [internet].2020 [cited 2021 Apr 30]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/types-of-masks.html>
15. Thai PBS News. Research shows that wearing a cloth mask over a hygienic mask can prevent 95 %. [Internet] 2021 [cited 2021 May 22] Available from: <https://www.thaipbs.or.th>