Factors Influencing Preventive COVID-19 Practices of Primary School Teachers in Aojiang Town, China

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(received 3 September, 2021) (revised 11 October, 2021)
(accepted 19 October, 2021)

Abstract

The aims of this research are to examine preventive COVID-19 practices and identify related factors to primary school teachers' preventive COVID-19 practices during COVID-19 pandemic in Aojiang town, China. The sample size was calculated, totally 300 primary school teachers from a total of 547 teachers from the 8 primary schools were selected by proportional stratified random

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sampling. Cross-sectional survey study was employed for the research. The questionnaire was tested for validity by 3 experts with IOC more than 0.5 and reliability by 30 secondary school teachers with Chronbach's alpha of 0.84. Data were analyzed by descriptive statistics, t-test and multiple regressions by SPSS. The findings were the high preventive COVID-19 practices of teachers. The factors influencing preventive COVID-19 practices were perception and social support of teachers. The recommendations were as follow: schools should promote preventive COVID-19 practices to make perceptions. The school, community and family should support teacher for preventive COVID-19 practices.

Keywords: Prevention; COVID-19; Primary school teacher

Introduction

The coronavirus is a family of viruses which may lead to various symptoms such as fever, dyspnea, and pneumonia (LI, et al., 2020). These viruses are usually found in animals globally, but rare cases have been found to infect humans. The World Health Organization (WHO) called the term 2019 novel coronavirus refer to a coronavirus that infected the lower respiratory tract of patients with pneumonia in Wuhan, China on 29 December 2019 (CDC, 2019). The WHO declared that the official name of the 2019 novel coronavirus is coronavirus disease (COVID-19) (WHO, 2020). The current reference name for the virus is severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was reported that a cluster of patients with pneumonia of unknown cause was linked to a local Huanan South China Seafood Market in Wuhan, Hubei Province, China in December 2019 (Zhu, et al., 2020). In response to the outbreak, the Chinese Center for Disease Control and Prevention (China CDC) dispatched a rapid response team to accompany health authorities of Hubei province and Wuhan city to conduct epidemiological and etiological investigations. The WHO

confirmed that the outbreak of the coronavirus epidemic was associated with the Huanan South China Seafood Marketplace, but no specific animal association was identified (WHO., 2020). Within 1 month, this virus spread quickly throughout China during the Chinese New Year, a period when there is a high level of human mobility among Chinese people. Although it is still too early to predict susceptible populations, early patterns have shown a trend similar to Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS) coronaviruses. Susceptibility seems to be associated with age, biological sex, and other health conditions (Fehr, Channappanavar, Perlman, 2017). COVID-19 has been declared as a Public Health Emergency of International Concern by the WHO. Human-to-human transmission of the COVID-19 has posed a major global health threat (Wang, et al., 2020). Since the WHO declared the COVID-19 as a pandemic and hence a public health emergence of international concern, the rate of new infections and deaths has been ever-accelerating in many parts of the world. As of August 17, 2020, at least 21,549,706 confirmed cases of COVID-19, including

767,158 deaths, had been reported in 216 countries around the world (WHO, 2020). This pandemic has brought a significant change in life style as well as working environment. Such sudden changes to daily life may have adversely impact peoples' mental health (Dong & Bouey, 2020). When the pandemic of COVID-19 occurs in 2019 – 2021, Wuhan are locked down and made various measures, including shutting down work, delayed school opening, closing all kinds of entertainment places, and home segregation. Everyone restricted travel. It is important to know the method to lessen COVID-19 spreading. (Centers for Disease Control and Prevention, 2020).

The COVID-19 pandemic has caused unprecedented damage to the educational system worldwide. As a result, most countries, including China, which is seen as a credible global health actor (Zhang, et al., 2020; Wu, et al., 2020), have been implementing strict controls over social gatherings including schools that would anyhow be regarded as a super spreading event (Abdollahi, et al., 2020; Auger, 2020). To control COVID-19, proper use of masks, hand hygiene and social distancing have proved

extremely useful in most countries (Chu et al., 2020; Koo, 2020). Among other practices, mask wearing is considered the most recommended practice for infection control and breaking the transmission chain of COVID-19 (Goh, et al., 2020). However, a cross-sectional study that investigated Chinese residents from January 27 to February 1, found only 73.9% of residents chose the proper type of mask (Zhong, et al., 2020). Another cross-sectional study among primary school students in Wuhan, China which included 9145 students showed only 51.60% of students practiced appropriate mask wearing behavior (Chen, 2020). In addition, about 19.6% of study participants frequently reported to experience itchy sensations when they wore the mask for an extended time (Szepietowski, et al., 2020). An observational study involving 1,738 respondents from 190 Chinese cities revealed that high frequency of mask wearing regardless of the presence or absence of symptoms was significantly associated with lower scores of anxiety (Wang, et al., 2020). Based on above evidences, a cross-sectional survey of primary teachers in china during the COVID-19 pandemic to explore the

relationships between preventive COVID-19 practices and related factors should be conducted.

Teachers should be role models of preventive COVID-19 practices for students. Furthermore, primary schools are more connect to communities or villages than secondary schools, high schools and universities. Primary schools in Ao Jiang town, Pingyang country, Zhejiang province, China have to decrease COVID-19 spreading in schools and communities too. Hence, this research was interesting to examine and identify primary school teachers' preventive COVID-19 practices and related factors in Ao Jiang Town, Pingyang County, Zhejiang province, China. This research will contribute ability of more fully understanding the main factors that affect teachers' preventive COVID-19 practices on schools, and these factors will become the main hand in management practice, give some operability suggestions for the preventive COVID-19 practice of primary school students in Aojiang town, China, which can play a very good role of reference.

Research objectives

1. To examine preventive COVID-19 practices during COVID-19 pandemic of primary school teachers in Aojiang town, China
2. To analyze relationships between preventive COVID-19 practices during COVID-19 pandemic and related factors of primary school teachers in Aojiang town, China

Material and Method

Method

In this cross-sectional survey study, teachers from eight primary schools in Ao Jiang were selected as research subjects, consisting of 547 teachers.

The sample size was calculated by the formula below:

$N = N / (1 + Ne^2)$

n: sample size

N: population

e: sampling error = 0.05

$n = 547 / 1+ 547 (0.05)^2$

n = 231

Based on Taro Yamane formula with the receivable error 0.05, the result of sample size from calculation was 231 primary school teachers in AoJiang town, China. However, the researcher added up the minimum sample size to 300 for improving confidence level. In order to make every teacher in each school had the same opportunity to be selected as sample, the proportional stratified random sampling method was employed to draw the teachers from each school

Instrument

The questionnaire of primary school teachers' preventive COVID-19 practices during COVID-19 pandemic with 10 items was developed covering 3 components were wearing mask**.** physical distancing and washing hand**.** Each item comprised of 5 level as**:** 1= never, 2 = seldom, 3 = sometimes, 4 = often, 5 = very often. The meaning and score range of crisis management level was done as: highest, high, moderate, low and lowest. The quality of instrument was tested. The validity was checked by 3 experts by IOC more than 0.5 in each item. The try-out of 30 teachers was conducted to check

reliability. The Chronbach's alpha was 0.84 of this questionnaire.

Data collection and analysis

We collected by 5 steps as: 1) obtain formal data collection approval from Mahidol University graduate school. 2) contact the principal of the school and obtain their permission. 3) according to the size of the sample, questionnaires were distributed to school teachers. 4) after distributing the questionnaire for one week, the researchers will re visit the school to collect the returned questionnaires. 5) check whether the questionnaire is complete.

The preventive COVID-19 practices 10 items with 5 scale raw scores were calculated to be 1-5 points and divided it into 5 levels. The statistics were descriptive statistics and t-test with multiple regression by SPSS for window package.

Results

The scores of preventive COVID19 practices from 1.00 - 5.00 were divided into 5 levels (highest, high, moderate, low and lowest). After survey, the results showed that the average preventive COVID-19 practices in high level (mean = 3.48, SD. = 0.83). According to descriptive statistics Male

teachers were 64.7%, while female teachers were 35.3%. The most age group was in 21 to 40 years old (79.3%). The majority of teachers were married (82%). The highest degree of education was Undergraduate, accounting for 48.7%. Most of the teachers teach Chinese language (27.7%). The half of teachers were general teachers and teach for 1 to 5 years. Most of the teachers (70%) participate in community activities and have plan and training for crisis management. Have 64.3% teachers was in high level of the knowledge about COVID-19. Most of the teachers (80.3%) was in high level of the perceptions about COVID-19. Social giving supports about crisis management was in the moderate level.

For factors related to preventive COVID-19 practices during COVID-19 pandemic, this study demonstrated that to preventive COVID-19 practice levels were significant difference by marital status (p-value = 0.027), work experiences (p = 0.031) community participation (p-value = 0.002), knowledge about COVID-19 (p-value = 0.006), the more knowledge, the better crisis management, perception (p-value = <0.001), the more perception, the better preventive COVID-19 practices and social support (p-value = 0.049), the more social support, the better preventive COVID-19

practices of primary school teachers in Aojiang town, China, while other factors were not significant as showed in table 1.

Table 1 Preventive COVID-19 practices by related factors of primary school teachers during COVID-19 pandemic

Factors	Number (Percentage)	Mean	S.D.	T-test P-value
Gender				
Male	194 (64.7)	3.48	0.79	0.967
Female	106 (35.3)	3.47	0.89	
Age groups				
21- 40 years old	176 (58.7)	3.47	0.84	0.881
41- 60 years old	124 (41.3)	3.48	0.82	
Marital status				
Married	246 (82.0)	3.53	0.82	0.027
Single and widow	54 (18.0)	3.24	0.83	
Highest education levels				
Technical school and college	139 (46.3)	3.46	0.86	0.751
Bachelor, master and doctoral	161 (53.7)	3.49	0.80	
Work experiences				
1 – 5 years	154 (51.3)	3.38	0.78	0.031
More than 5 years	146 (48.7)	3.58	0.86	

Table 1 Preventive COVID-19 practices by related factors of primary school teachers during COVID-19 pandemic (cont.)

Factors	Number (Percentage)	Mean	S.D.	T-test P-value
Teaching subjects				
Chinese language	83 (27.7)	3.61	0.89	0.214
Other subjects	217 (82.3)	3.44	0.81	
Position				
General teachers	164 (54.7)	3.33	0.89	0.863
Class teachers and school leaders	136 (45.3)	3.37	0.84	
Community participation				
Participate	210 (70.0)	3.56	0.76	0.002
Not participate	90 (30.0)	3.26	0.81	
Knowledge about COVID-19				
Low and intermediate levels	286 (95.3)	3.45	0.81	0.006
High levels	14 (4.7)	4.06	0.95	
Perceptions about COVID-19				
Low and intermediate levels	253 (84.3)	3.33	0.74	< 0.001
High levels	47 (15.7)	4.50	0.45	
Social supports				
Low and intermediate levels	221 (73.7)	3.37	0.81	<0.001
High levels	79 (26.3)	3.76	0.79	

From significant related factors, the multiple regression by stepwise method was conducted. The regression model to predict crisis management levels of primary school teachers contains the following information:

Adjusted R Square = 0.645

Two independent variables are statistically significant:

1) perception about COVID-19 pandemic ($p < 0.001$),

2) Social support ($p < 0.001$),

Table 2 Multiple regression of factors affecting crisis management of primary school teachers

Model	Standardized coefficients	R	Adjust R^2	T	Sig.
	Beta				
(Constant)				2.282	0.005
Perception	0.790	0.802	0.642	22.651	<0.001
Social support	0.070	0.805	0.645	2.001	0.045

From table 2, the predictive model is as follow:

Preventive COVID-19 practice levels = Constant + 0.79 (perception) + 0.07 (social support)

Preventive COVID-19 practice levels during COVID-19 pandemic of primary school teacher will increase 0.79 unit if factor of perception changes 1 unit when fix other factors. Same as social support. This regression model can predict Preventive COVID-19 practice levels of primary school teacher 64.5%.

Conclusion

The preventive COVID-19 practices of primary school teachers during COVID-19 pandemic in Aojiang town, China was in high level. Based on t test, In the end, there are six related factors as follow: perception, social support, knowledge, community participation, marital status and work experiences. For multivariate analysis, based on stepwise multiple linear regression, there are two influencing factors as follow: perception and social support. The predictive equation is as follow:

Preventive COVID-19 practice levels = Constant + 0.79 (perception) + 0.07 (social support)

This regression model can predict preventive COVID-19 practice levels of primary school teacher 64.5%.

Discussion

It was found that the sample primary school teachers in Aojiang town practice to prevent COVID-19 infection at high level. In the term of preventive Covid-19 practices was higher than other four parts. Which the mean score is 3.48, is at high level. This refers to work of teachers is a relatively good in the prevention of the epidemic behavior, in the face of the crisis, do a good job of security protection, pay attention to personal hygiene to become the responsibility and obligation of everyone during the epidemic prevention, only effective prevention, can effectively control the outbreak, not only to protect themselves, but also to protect others. These findings relevant to the study of Aristovnik (2020) and Espino-Díaz, et al. (2020).

For multivariate analysis, the finding showed that the affecting factors were perception and social support, in detail as follow:

The finding showed that variation of teachers' preventive COVID-19 practices by perceptions was statistically significant. It shows us in a pandemic, the perception more positive in the pandemic, the more they

are able to respond to COVID-19 in a crisis by cooperating with relevant policies and related preventive measures. In the article of Zhang (2018), the emergency management of campus crisis has not been paid enough attention by the school. Only 12% of the teachers feel that the management of campus crisis has received enough attention in the middle school campus crisis.

The finding showed that variation of teachers' preventive COVID-19 practices by social support was statistically significant. It shows us the more social support, the better crisis management of primary school teachers in Aojiang town, China.

For bivariate analysis, the factors related to preventive COVID-19 practices were as follow:

The finding indicated that the variation of teachers' preventive COVID-19 practices by knowledge was statistically significant. The more knowledge, the better preventive COVID-19 practices. Teachers and students have enough knowledge of COVID-19, they will greatly reduce the COVID-19 spreading, and the damage caused by infection (Wang, 2019).

The finding showed that there was statistically significant difference in teachers' preventive COVID-19 practices based on community participation. It shows us teacher who participate in community activity prevented COVID-19 better than who did not participate. The fundamental task of community activities construction is to form community spirit and promote community development, so as to realize the improvement of the quality of life of community residents (OECD, 2018). This means that community service still lacks some development and does not involve everyone. If can, it's best that everyone can participate in community activities.

The finding demonstrated that the variation of teachers'preventive COVID-19 practices by marital status was statistically significant. Moreover, those teachers who had get married did crisis management better than teachers' who are single and widow. Family is the biggest financial source and emotional support of teachers (Wang, 2013) Widow: The harm to the physical and mental development of children. (Zhang, 2018) teachers' who are single, is young and do not have experience of many things. Marriage life is a trial, because to learn how to get

along with the partner, especially those with children, will pay more attention to some safety knowledge, education and other issues.

The finding showed that there was statistically significant difference in teachers' teachers'preventive COVID-19 practices based on work experience. Moreover, those teachers who had experience for pandemic prevented infection better than teacher who did not have experience. There is therefore still a need for prevention in this regard. Because teachers play a very important role for students, students will be at ease (Tong, 2015).

Recommendations

1. Teachers who have more perception and knowledge of COVID-19, the better teachers'preventive COVID-19 practices. in this aspect of knowledge, teacher should be positive, search and learn new knowledge. The schools should be specially organized to promote perception and learning about Covid19 related knowledge, at least one lesson per semester need to explain the

knowledge about the pandemic, understand the symptoms of the epidemic and related measures.

2. Based on the findings, teachers who have not social support and participate in community activities. Community service personnel need to hold more activities so that everyone can have opportunities and be part of community activities. Also give reward in preventive COVID-19 practices as social support, can attract more people to participate.

3. Although there are many slogans in the community that allow us to prevent the virus, and there are practical measures to control the virus, the knowledge still needs to be strengthened and supported. The community needs more slogans on COVID-19 knowledge and the establishment of some COVID-19 knowledge columns. More people understand the knowledge of COVID-19.

4. The study was conducted to ten primary schools in Aojiang town. Based on the resources and time available. If more townships can be covered, it would be more representative and new findings may be found out. Three factors were found to have impact on teachers' preventive COVID-19 practices during the COVID-19

situation. If the follow up research to find out why these factors have more influence on the teachers' crisis management responsiveness, it would be a meaningful contribution for the research and development.

5. The study was conducted in the primary schools. Further researches are recommended to include other group of sample, such as junior school teachers.

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