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Factors associated with Preventive Behavior of COVID-19 Frontliners in Cagayan: Using Health Belief Model

Jennifer L. Luyun

College of Allied Health Sciences, Cagayan State University- Andrews Campus, Pengue Ruyu, Tuguegarao City, Cagayan, PHILIPPINES, jluyun@csu.edu.ph, (+63)936-134-0699

**Corresponding author. jluyun@csu.edu.ph*

Abstract

The COVID19 pandemic has undoubtedly paralyzed our medical system. The front liner is considered the leading player in this battle and is therefore the first group to be seriously affected by the COVID 19 pandemic. This study was conducted to determine frontliner health beliefs about COVID 19. This descriptive correlation study investigated the 384 randomly selected frontliners working in the community and government hospitals and municipalities in Cagayan, Philippines. The research interviewed doctors, nurses, medical technologists, respiratory therapists, radiologists, midwives, ambulance crews, janitor, guards, and members of the Barangay Health Emergency Response Team through phone survey. Results showed that respondents have perceived barriers, perceived benefits, perceived severity of covid-19 and cues to action as COVID-19 frontliners in Cagayan. Family illness, occupation, employment status, employment agency, and age were found to be significantly associated with the frontliners' preventive behavior.

Keywords: *Health Beliefs, COVID-19, Cagayan, Philippines, Community-based, Hospital-based, Health Belief Model*

INTRODUCTION

Many say that an encouraging behavior sets someone up to remain steadfast at any angle of a challenging situation. Noticeably, a unique style of crushing out threats varies from person to person. There are individuals who continue to wonder how the problem exists without taking any steps to provide a remedy, while others may take a proactive approach to the problem and demonstrate their willingness to take the risks it entails. In this regard, our individual beliefs about how to cope with the devastating upshot of the CoViD-19 pandemic relate to how we perceive our personal health status and make behavioral-based interventions.

As emphasized by the International Labor Organization (ILO) Centenary Declaration, safe and healthy working environments are vital to meaningful employment. That is even more valuable today, because ensuring the quality of working life among the frontliners is key to managing the outbreak (Papandrea, 2020). In the Philippines, the Pandemic and All-Hazards Preparedness Act (PAHPA), Public Law No. 109-417, was passed by Congress and signed by the President in December 2006, with important impacts on the Department of Health and Human Services' response and recovery. Essentially, its goal is to strengthen the nation's public health and health emergency response capabilities in the event of a crisis, whether planned, unplanned, or environmental (Hodge et al., 2007). This means that healthcare workers searching for answers to the CoViD-19 outbreak must receive ample support in order to realize their full potential.

"To wear someone out", an idiomatic expression that best explains the current state of our frontliners in this ungenerous period of pandemic, to an unwelcoming extent, their stored energy evaporated with the intention of promoting health and preventing the exponential growth of CoViD-19 transmission.

Equally, the timeless efforts displayed by our courageous frontliners are behavioral weapons, providing them with the sharpest vision and allowing them to remain dilated in the area of trouble. As expounded by Bish & Michie (2010); Park et al., (2010); Agüero, (2011); and Fischhoff (2018), all of a sudden, the emergence of the different CoViD-19 variants changed so-called human behavior. Evidently, frontliners were morally tested. They had to make on-the-spot judgments to possibly stretch the meager resources for the pandemic (Suhonen et al., 2018; Maffoni et al., 2019). In such a painful manner, brought about by the flooding of uncertain information, universally, frontliners were stigmatized as threats and burdens to the local residents, instead of looking up to them as goal keepers in this distressing period (WHO, 2020a). Overwhelmingly, frontliners are truthfully eager to showcase their functional abilities. In spite of their awareness of infecting their families and relatives, the bulk of them prefer to gamble and take risks in order to fulfill their roles and responsibilities (Evans et al., 2020). Acknowledging and understanding individual needs, in general, captures the expressions of affection, concern, and compassion.

The Health Belief Model has previously been successful in a diverse variety of illness-prevention habits. It enhances the likelihood of early disease diagnosis and for which the consequences of any behavior modification are frequently well defined (Carpenter, 2010; Sulat et al., 2018). Therefore, while battling for CoViD-19, the behaviors of frontline health workers play a remarkable role.

To fill in the gaps in the literature dealing with health beliefs, this study aimed to examine and evaluate the existing conditions of CoViD-19 frontliners in terms of providing an appropriate and safe working environment, thus preventing the health care system from being overworked.

METHOD

Research Design

The overall aim of this study is to investigate the health beliefs of CoViD-19 frontliners. This indicates that the study used a descriptive comparative research approach in which the respondents' health opinions or beliefs were compared when they were grouped based on their profile variables.

Research Environment

The research was conducted in Cagayan Province, Philippines. All public health services (community health facilities and hospitals) were included in the study. The investigation was conducted mainly due to the direct and indirect engagement of frontliners during the CoViD-19 outbreak. Following the approval and release of the Ethics Clearance from the Ethics Review Board, data collection began immediately.

Data Gathering Procedure

Respondents of the Study and Sampling Procedure

The respondents of this study were solely community health workers and frontline hospital personnel during the CoViD-19 outbreak, with exclusivities of the following criteria: (1) working in any public healthcare facilities for health promotion, disease prevention, and treatment of the underlying disease, (2) directly or indirectly engaged, (3) free from viral infection, or contracted the virus and recovered. However, frontline health workers who exhibited mental health concerns were given an option not to take part.

The researcher gathered information from public health hospitals and community health facilities in the province of Cagayan. Direct care is provided by medical doctors, nurses, medical technologists, and members of the Barangay Health Emergency Response Team [BHERT]. On the contrary, patient transport vehicle drivers and ambulance crew are categorized under indirect care. Meanwhile, frontliners working in hospitals were surveyed, namely: medical doctors, nurses, nursing aides, medical technologists, respiratory therapists, and radiologic technologists (under direct care), janitors, and security guards (under indirect care).

The researcher then used the Cochran's formula to calculate the sample size for the study, with a 95 percent confidence interval and a 5% margin of error, respectively. After which, the researcher utilized stratified random sampling in selecting respondents. As a result, three hundred and eighty-four scientific samples were calculated (384).

Frontliners who decided to participate in the study were contacted through their individual

agencies to request their involvement. The details of the prior and informed consent were addressed with them, and every respondent was notified about the objectives of the study. Notably, only those who agreed to take part in the survey were considered respondents. All gathered information were treated with the utmost confidentiality as stipulated in the Data Privacy Act of 2012. Once the respondents indicated their commitment to participate in the study, the interview proceeded to the official survey.

Due to an exceptional rise in the number of CoViD-19 cases, a phone-assisted survey was used to collect the data. Hence, responses from hospital and community health frontliners were gathered thru phone assisted survey. Upon explaining the provisions of the informed consent to the respondents, the researcher requested the frontliners for permission to start with the phone aided survey. An affirmative response from the respondents showed their willingness to engage in this study voluntarily and that their responses to the questions were truly free decisions.

The randomly selected respondents' contact information was obtained from their respective agencies. The researcher requested the affiliated agencies to inform and coordinate properly with the respondents regarding the interview to ensure precision of identity. A survey questionnaire was used in this study. An in-depth interview with the respondents verified the quantitative conclusion of the data. To verify that the instrument would not cause any form of risk or harm to the emotional and well-being of the respondents, the mental health experts validated and approved that the tool was more than safe for utilization. For the record, during the conduct of the study, details of the questionnaire did not violate any boundaries of the respondents' rights.

Importantly, the stringent public health requirements for CoViD-19 provided by the Inter-Agency Task Force (IATF) were firmly followed in order to safeguard both the welfare of the respondents and the researcher of this study.

Research Instruments

The researcher of this study utilized a researcher-made questionnaire as a principal tool for data collection.

All ethical and legal matters were cautiously followed by the research investigator. The researcher initially secured the Ethics Clearance from the Regional II Trauma and Medical Center (RT2MC) before the study was conducted. A courtesy call from the Local Chief Executives, Heads of the Rural Health Units (RHUs), and Hospital Care Facilities was sought prior to the start of the data gathering. After the researcher explained the essence and objective of the study, the respondents willingly gave their valid consent, and all private information were maintained across the study.

The researcher used a collection of literature to develop the survey questionnaire, and the instrument was then evaluated by content experts, as proposed by Zamanzadeh et al. (2015), using the Content Validity Index (CVI). The instrument is appropriate if the overall CVI is greater than 79 percent; between 70 and 79 percent, the instrument requires revision; and less than 70 percent, the instrument is void, difficult to interpret, and useless. With this, the tool has been validated by content experts and has a computed Content Validity Index (CVI) of 96.24, indicating that it was appropriate.

The instrument was pilot tested. The internal consistency of the instrument was next determined by computing the Cronbach's alpha value, which was 0.74, showing the uni-dimensionality of the instrument. Before presenting the questionnaire to the respondents, the researcher translated it into local languages (Tagalog and Ilocano) to ensure that they understood the questions. The tool has two parts. In the first part, the demographic profile, socioeconomic status, employment history, and medical history were discussed. On the other hand, the second component featured items that assessed the health beliefs of frontliners during the CoViD-19 outbreak.

Treatment of Data

Descriptive statistics was used to describe the data on respondents' profiles and health beliefs. The difference in respondents' health beliefs when grouped according to profile variables was determined using 25th Quantile regression. The hypotheses in the study were tested at the.05 level of significance. Statistical Package for the Social Sciences was used to conduct all of the analyses (IBM SPSS Statistics v.20, 2011.).

Ethical Considerations

The researcher obtained approval from the local chief executives, heads of rural health units and hospitals, and respondents through a letter prior to carrying out this study. The letter presented an overview of the study and the methods to be used for collecting and processing data. The researcher communicated the purpose of the study to the respondents before they filled out the survey form. During the initial stage of data collection, the Informed Consent Form (ICF) was read. Once verbal consent was secured, the research investigator would immediately start with the data gathering. Only those who agreed to participate were taken as respondents to the study. There was no harm done to the respondents in any way. Individual confidentiality and privacy were guaranteed, and respondents' names were made optional to reveal. Data were treated with the utmost confidentiality and are currently stored in the vault of the College of Allied Health Sciences. It will be preserved for at least two years, so long that it could contribute largely to the implementation of crucial programs and other related undertakings regarding research. All paper records will be burned. All computer hard drive records will be deleted. Any discussion relating to the research will be conducted in an open setting and in an ethical manner.

The nondisclosure agreement is duly protected by RA 10173, also known as the Data Privacy Act of 2012, which states that the information provided by the respondents would be used purely for the purpose of this study and would never be used against him/her in any legal disputes or forms of bias. The respondents' cooperation was solely for the data gathering and the success of this research endeavor.

Respondents were also offered the option of withdrawing their involvement in the study at any moment without publicly disclosing the grounds for it or the consequences of doing so. Respondents were not given any incentives in exchange for their participation in the study. However, they were compensated for their refreshments, meals, and travel costs. Above all, the way this study was conducted did not induce any pain or harm to the respondents who took part in it.

RESULT

Table 1.a shows the socio-demographic characteristics of the respondents. As a result, the majority are females, 253 (65.5%) and married 298 (77.2%). To note, most of them live with their children and spouses 190 (49.2%). In particular, the majority are Ilocano 282 (73.1%) and Roman Catholic 319 (82.6%). Indeed, the age range is 26-55 years old. Nonetheless, the mean age is 43 (+ 11.8) years old.

Meanwhile, 248 (64.2%) of them are at least college graduates. To date, 199 (51.6%) are employed as BHERT. Generally, the median monthly income is 7,000 pesos. Surprisingly, the Local Government Units has a frequency count of 255 (66.1%). Regarding their employment status, 151 (39.1%) are permanent employees, while 264 (68.4%) are involved in indirect patient care during the CoViD-19 pandemic. Moreover, the median length of service is six (6) years. As to pieces of training and seminars on CoViD-19, 237 (66.40%) attended, while 149 (38.60%) otherwise.

Table 1.a

Socio-Demographic Profile of Respondents

Variables		Frequency	Percent
Sex			
	Female	253	65.5
	Male	133	34.5
Civil status			
	Single	63	16.3
	Married	298	77.2

	Widow/er	20	5.2
	Common Law Partner	5	1.3
Living status			
	Alone	16	4.1
	Living with Children, Spouse and Parents	64	16.6
	Living with Children and Spouse	190	49.2
	Living with Children Only	28	7.3
	Living with Parents	40	10.4
	Living with Other Family Members or Friends	45	11.7
	Living with Spouse Only	2	0.5
	Living with Common Law Partner	1	0.3
Ethnicity			
	Ilocano	282	73.1
	Ybanag	66	17.1
	Tagalog	59	15.3
	Ytawes	57	14.8
	Others	10	2.8
Religion			
	Non-Roman Catholic	67	17.4
	Roman Catholic	319	82.6
Highest educational attainment			
	Elementary	23	6.0
	High School	97	25.1
	Vocational/Technical	18	4.7
	College	190	49.2
	Graduate Studies	21	5.4
	Post Graduate Studies	37	9.6
Occupation			
	Doctor	32	8.3
	Nurse	60	15.5
	Medical Technologist	11	2.8
	Radiologic Technologist	6	1.6
	Respiratory Therapist	3	0.8

	Midwife	32	8.3
	Nursing Aide	22	5.7
	BHERT	199	51.6
	Ambulance Driver	4	1.0
	Janitor	5	1.3
	Security Guard	12	3.1
Employment status			
	Permanent	151	39.1
	Contract of Service	34	8.8
	Co Terminus	136	35.2
	Job Order	21	5.4
	Elected	44	11.4
Employment agency			
	Local Government Unit	255	66.1
	Government Hospital	131	33.9
Role during the pandemic			
	Indirect Patient Care	264	68.4
	Direct Patient Care	122	31.6
Age (in years)			
20-25		12	3.1
26-31		63	16.3
32-37		63	16.3
38-43		59	15.3
44-49		61	15.8
50-55		63	16.3
56-61		38	9.8
62-67		19	4.9
68-73		7	1.8
74-79		1	0.3
	Mean ± SD	43.4 ± 11.8	
	Median (Range)	43 (20-75)	
Income			
	Mean ± SD	16,473.5 ± 24469.4	

	Median (Range)	7,000 (0-200,000)	
Length of service			
	Mean ± SD	8.9 ± 8.7	
	Median (Range)	6 (0-41)	
CoViD-19 related seminars/trainings attended			
No	149	38.60	
Yes	237	66.40	
Total		386	100.0

Table 1.a.1 displays the respondents' attendance to trainings and seminars. It shows that majority of both Community-based (BHERTs) (60.67%) and Hospital-based frontliners (14.56%) attended seminars as regards CoViD-19 Symptoms, Protocols and Minimum Public Health Standards. Based on the table, it can be seen that nearly half of the Hospital-based respondents (47.09%) has not attended trainings and seminars in contrast with members of BHERT where only one-fourth (25.24%) of them has not able to attend the said undertaking.

Table 1.a.1
Trainings and Seminars Attended by Respondents

Trainings and Seminars	Organization			
	Community-Based Frontliner (BHERT)		Hospital-Based Frontliner	
	Frequency	Percentage	Frequency	Percentage
CoViD-19 Symptoms, Protocols and Minimum Public Health Standards	125	60.67	30	14.56
Contact Tracing	13	6.31	3	1.67
Proper Donning and Doffing of PPE	4	1.94	16	7.77
CoViD-19 Management	8	3.88	22	12.22
Orientation about Vaccine	3	1.46	6	2.91
Infection Control/ Prevention of Transmission	1	0.49	6	3.33
None	52	25.24	97	47.09
Total	206	100.00	180	100.00

Table 1.b.1 shows the medical history of respondents. For the record, 245 (63.5%) have no known reports of comorbidities in the past two (2) years. However, data on comorbidities

reveal that there are 101 (26.2%) cardiovascular diseases (e.g., hypertension, high cholesterol, mitral valve prolapsed), 24 (6.2%) respiratory diseases (e.g., asthma, lung disease, tuberculosis), and 20 (5.2%) endocrine diseases (e.g., diabetes mellitus, gallbladder polyps, gallbladder stone, goiter, hepatitis, hepatitis B), respectively. Alarmingly, for the past two (2) years, the topmost health-related illnesses present among the family members of the respondents are 101 (26.2%) cardiovascular diseases (e.g., hypertension, high cholesterol, mitral valve prolapsed), followed by 20 (5.2%) endocrine diseases (e.g., diabetes mellitus, gallbladder polyps, gallbladder stone, goiter, hepatitis, hepatitis B).

At large, 223 (57.8%) claim no close contact with the CoVid-19 patients. On the contrary, 163 (42.2%) have close contact, yet 144 (88.63%) underwent a swab test. To imply, 19 (11.66%) did not undergo swab test despite known exposure. Unfortunately, 19 (9.02%) tested positive; conversely, the rest were negative.

Table 1.b.1

Medical History of Respondents

Items	Frequency	Percent
Comorbidities or illnesses for the past 2 years		
Respiratory	24	6.2
Cardiovascular	101	26.2
Gastro-Intestinal	1	0.3
Genito-Urinary	6	1.6
Musculoskeletal	2	0.5
Endocrine	20	5.2
Immune Disorders	5	1.3
Blood Disorders	1	0.3
No Reported Comorbidity	245	63.5
Family Illnesses for the past 2 years		
Respiratory	41	10.6
Cardiovascular	197	51.0
Gastro-Intestinal	1	0.3
Genito-Urinary	6	1.6
Musculoskeletal	2	0.5
Endocrine	50	13.0
Immune Disorders	22	5.7
Blood Disorders	1	0.3
No Reported Comorbidity	146	37.8
Close contact with a CoViD-19 patient		
Yes	163	42.2
No	223	57.8

Total	386	100.0
Undergo swab test with closed contact		
Yes	144	88.34
No	19	11.66
Total	163.	100.0
CoViD-19 positive		
Yes	13	9.02
No	131	90.08
Total	144	100.0


- Cardiovascular Diseases (hypertension, high cholesterol, mitral valve prolapsed)
- Respiratory Diseases (asthma, lung disease, tuberculosis)
Endocrine Diseases (diabetes mellitus, gall bladder polyps, gall bladder stone, goiter, hepatitis, hepatitis B)

Table 1.b.2 indicates responses when tested positive for CoViD-19. Essentially, 12 (92.3%) of the frontliners felt anxious upon learning that the test result was positive. Thus far, 9 (69.2%) use phone calls to communicate to update their families/housemates. To sum, the families/housemates' initial reaction was worried 11 (84.6%).

Table 1.b.2
Response When Tested Positive for CoViD-19

Items	Frequency	Percent
Respondents' Initial reaction		
Anxious	3	23.1
Worried	12	92.3
Guilty	1	7.7
Frustrated	2	15.4
Angry	2	15.4
In Denial	1	7.7
Fear of Rejection	2	15.4
Manner of informing family/housemates		
Thru Phone Call	9	69.2
Others	4	30.8
Family's initial reaction		
Stressed	3	23.1
Anxious	1	7.7
Angry	1	7.7
Depressed	2	15.4

Worried	11	84.6

Table 1.b.3 presents the agency's compliance with CoViD-19 quarantine procedures. To emphasize, 374 (96.9%) have "properly isolated all suspected, probable and confirmed CoViD-19 patients depending on the severity of symptoms". In comparison, 372 (96.6%) "adhere to stringent Minimum Public Health Standards on CoViD-19 Management System through the implementation of the following: physical distancing, hand hygiene, cough etiquette, and proper wearing of a mask". In contrast, non-compliance to "psychosocial counseling on CoViD-19" 26 (6.7%), and "adequate room for quarantine" 25 (6.5%) is observed.

Table 1.b.3

Agency's Compliance on CoViD-19 Quarantine Procedures

Items	NO		YES	
	Freq	%	Freq	%
Provided adequate room for quarantine	25	6.5	361	93.5
Adhered to stringent Minimum Public Health Standards on CoViD-19 Management System through the implementation of the following:				
a. Physical distancing	13	3.4	373	96.6
b. Hand hygiene	13	3.4	373	96.6
c. Cough etiquette	13	3.4	373	96.6
d. Proper wearing of mask	13	3.4	373	96.6
Properly isolated all suspected, probable and confirmed CoViD-19 patients depending on the severity of symptoms	12	3.1	374	96.9
Followed the desired number of days for quarantine prior to discharge	14	3.6	372	96.4
Provided psychosocial counselling on CoViD-19 quarantine	26	6.7	360	93.3

Table 2 explains the respondents' health beliefs on CoViD-19. Taking into account, "Quality time with family members is compromised" 212 (54.9%), along with "Shortage of Personal Protective Equipment (PPE) for CoViD-19 Pandemic" 67 (43.3%) are abundantly agreed as perceived barriers during the pandemic. As regards their perceived benefits, "Preventing the spread of CoViD-19 virus" 225 (58.3%), and its "Life Saving Effect for the humanity" 209 (54.1%) highly suggest their firm agreement. In a similar vein, statements on perceived susceptibility, namely, "Increased chance of acquiring CoViD-19 virus" 201 (52.1%), and "Psychological and emotional stress for possible self-isolation" 199 (51.6%) show strong agreement, as well. Additionally, statements of solid agreement emerge from perceived severity caused by CoViD-19 virus; specifically, "Underlying health conditions such as heart and lung problems" 299 (77.5%), together with "Increasing rate of morbidity and mortality from CoViD-19 Pandemic" 201 (52.1%). Observably, cues to action such as "Prevention remains the key intervention in controlling CoViD-19 Pandemic" 296 (76.7%), and "Strict implementation and observance of infection control practices for CoViD-19 Pandemic 293 (75.9%) establish a firm agreement.

Table 2
Respondents' Health Beliefs on COVID 19

	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Perceived barriers as frontliner										
Quality time with family members is compromised.	8	2.1	11	2.8	25	6.5	212	54.9	130	33.7
Shortage of Personal Protective Equipment (PPE) for CoViD-19 Pandemic.	13	3.4	30	7.8	35	9.1	167	43.3	141	36.5
Perceived benefits as frontliner										
Life Saving Effect for the humanity.	4	1.0	6	1.6	11	2.8	156	40.4	209	54.1
Preventing the spread of CoViD-19 virus.	2	0.5	8	2.1	13	3.4	138	35.8	225	58.3
Perceived Susceptibility to CoViD-19 Virus (SARS-CoV-2)										
Increased chance of acquiring CoViD-19 virus.	4	1.0	13	3.4	23	6.0	145	37.6	201	52.1
Psychological and emotional stress for possible self-isolation.	1	0.3	11	2.8	21	5.4	154	39.9	199	51.6
Perceived Severity caused by COVID-19 Virus										
Underlying health conditions such as heart and lung problems.	1	0.3	2	0.5	9	2.3	75	19.4	299	77.5
Increasing rate of morbidity and mortality from CoViD-19 Pandemic.	2	0.5	8	2.1	14	3.6	161	41.7	201	52.1
Cues to Action on COVID-19 Pandemic										
Strict implementation and observance of infection control practices for CoViD-19 Pandemic.	2	0.5	3	0.8	5	1.3	83	21.5	293	75.9
Prevention remains the key intervention in controlling CoViD-19 Pandemic.	1	0.3	0	0.0	3	0.8	86	22.3	296	76.7

Family illness (p=0.004) and occupation (p=0.034) are significantly associated with the perceived barrier scores (see Table 3). Specifically, respondents whose family members are suffering from more illnesses for the past two years tend to have higher scores on perceived barrier. In addition, frontliners whose occupation are in allied health have higher

perceived barrier scores compared to those who are non-allied health.

Meanwhile, employment status (p<0.001) is the only profile variable that is significantly associated with perceived benefit scores. Those who are permanent have higher perceived benefit scores compared to those who are not permanent.

There are no significant profile variables associated with perceived susceptibility scores. Under perceived severity, employment status (p=0.011) and employment agency (p=0.002) are significant factors. Those who are permanent have higher perceived severity scores compared to those who are not permanent. Also, those who are working in LGU have higher perceived severity scores compared to those working in hospital.

Lastly, age (p=0.023) and employment status (p=0.001) are significantly associated with cues to action scores. The age coefficient in the results implies that those frontliners who are younger tend to have higher score on cues to action. Moreover, those who are permanent have higher scores on cues to action compared to those who are not permanent.

Table 3

Summary of the relationship between profile variables and beliefs scores at the .25 quantile

Parameter	Barrier		Benefit		Susceptibility		Severity		Action	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Age	0.001	0.007	0.001	0.005	0.000	0.005	-0.007	0.005	-0.010*	0.004
Education	-0.018	0.067	0.019	0.046	0.000	0.049	0.057	0.050	0.034	0.040
Length of service	0.004	0.009	0.001	0.006	0.000	0.007	-0.002	0.007	-0.003	0.005
Income	-3.176E-06	4.4339E-06	-4.090E-06	2.4970E-06	-8.246E-08	2.6574E-06	-1.837E-06	2.7222E-06	-1.963E-06	2.1783E-06
Comorbidity	-0.093	0.107	-0.032	0.075	-0.006	0.080	-0.070	0.082	-0.068	0.066
Family illness	0.240**	0.083	0.044	0.057	0.000	0.060	0.108	0.062	-0.068	0.049
Sex (female)	0.006	0.131	-0.001	0.092	0.001	0.098	-0.030	0.100	0.070	0.080
Civil Status (w/o partner)	0.103	0.155	-0.004	0.108	-0.001	0.115	-0.078	0.118	0.003	0.095
Living status (with someone)	-0.066	0.307	0.417	0.216	-0.006	0.230	-0.240	0.235	0.142	0.188
Ethnicity (Ilocano &Tagalog	0.066	0.152	0.020	0.107	-0.001	0.114	0.015	0.116	0.005	0.093
Religion (Roman Catholic)	-0.050	0.159	-0.011	0.111	0.004	0.118	-0.092	0.121	-0.110	0.097
Occupation (allied health)	0.514*	0.241	0.016	0.169	0.248	0.180	0.093	0.184	0.261	0.147
Employment status (permanent)	-0.114	-0.197	0.492**	-0.138	0.008	-0.147	0.383*	-0.151	0.399**	-0.120
Employment agency (local government unit)	0.062	-0.183	-0.022	-0.127	0.249	-0.136	0.438**	-0.139	0.143	-0.111
Role (indirect patient care)	0.325	0.193	0.037	0.135	-0.242	0.143	0.143	0.147	0.062	0.117
Seminar attended	0.012	0.127	-0.026	0.089	0.001	0.095	0.036	0.097	-0.023	0.078

*p<0.05, **p<0.01

DISCUSSION

In this study, perceived benefits and barriers encountered by frontliners were meaningfully recorded. Along with the spread of CoViD-19 virus, susceptibility and severity affected human actions, which surfaced further exploration.

Perceived Barriers

Under perceived barriers, "Shortage of Personal Protective Equipment (PPE) for CoViD-19 Pandemic" and " Compromised Quality Time with Family Members" were notably had a high degree of agreement.

Due to inevitable demand from CoviD-19, frontliners thoroughly examined the surge of cases as a priority. Simultaneously, quality time with family members was compromised. Right now, crisis intervention on the shortage of health care providers laid a concern even before the pandemic. Hence, urgent attention was needed. To further validate the findings, claims from study participants were enumerated as follows: *"... No time for my family [kasi] two weeks quarantine after duty from the covid ward…"* [No time for my family [because] two weeks quarantine after duty from the covid ward…] *[SP21S01];* and *"...hindi mo na pwede lambingin anak mo pag-uwi…[at] tuwing weekends di na kami nag bobonding magkakapatid…"* […you can't caress your child when you come home… [and] every weekend we don't bond with my siblings anymore], *[SP02S02];* also *"...halos wala na talagang oras sa family…more time is given sa work compared sa family…"* […almost no time at all for the family… more time is given to work compared to family], *[SP22S01].* In the analysis, maintaining healthy family relationships during the CoViD-19 pandemic was desperately a struggle.

In the course of CoViD-19 outbreak, a broad spectrum of patient care presses health care system worldwide (WHO, 2020). Because of this, exceptional circumstances of working hours with unexplained tiredness and sustained psychological tension confronted those frontliners living in largest epidemics (Karlsson & Fraenkel, 2020). Normally, balance between work and family is a typical challenge, but investigating such changes, the current crisis draws a new form of restriction among health workers (Souadka et al, 2020).

In the Philippines, before the pandemic, the Department of Health (DOH) propelled a health workforce known as Human Resources for Health Network (HRHN). Statistically, in 2019, approximately 290,000 frontliners were critically needed (as cited by University of the Philippines Population Institute, 2020). This further explained that the shortage of health care workers in the country was perceived as a barrier.

In reality, the migration of 13, 000 frontliners yearly blurs the supply of health care professionals nationwide (POEA, 2020). Percentage-wise, the annual health workforce production can suffice the country's need for additional staffing despite its growing population. Unfortunately, migration becomes endless (UPPI, 2020).

Also, as frontliners, the shortage of PPE during the CoViD-19 pandemic was discerned as a barrier. Since the virus is highly transmissible, an insufficient supply of PPE caused fear and anxiety among frontliners due to the increased risks of CoViD-19 transmission. To confirm, a statement from the study participant revealed, *"...knowledgeable ang frontliners [sa] high risk of transmission ... [kaya] ayaw mag tender [ng duty] without favorable PPE…"* [… Frontliners are knowledgeable [on] high risk of transmission… [so] they don't want to tender [duty] without favorable PPE…], *[SP22S02].*

Unfolding the truth, personal protective equipment's scarcity resulted in countrywide lockdown, panic buying, and mental agitation (Burki, 2020). As a matter of fact, the global shortage of PPE induced frontliners' life-threatening exposure to CoViD-19 virus (Papoutsi et al., 2020).

In this time of CoViD-19 flare-up, the health workers significantly function as the first line of defense (Tee et al., 2020). They accept long duty hours, extreme tiredness, risking themselves to CoViD-19 infection, experience inadequacy of PPE, immediate isolation after work, and the most challenging part is living away from family members. (Kang et al., 2020).

Perceived Benefits

The most extraordinary forms of sacrifice that frontliners carried on were to stop CoViD-19 transmission and saved humanity. Due to high level of service offered by the frontliners, this so far unquestionably gave the most incredible benefit in this time of pandemic.

For frontliners, it may appear that the altruistic act of saving humankind shaped a feeling of self-fulfillment when caring for CoVid-19 patients. This was further reinforced by the statement, *"...kapag yung patients napagaling ng nurse or doctor it is a fulfillment…"* [when the patients are cured by the nurse or doctor it is a fulfillment], *[SP22S01]*. Moreover, they ignited hope through their acts of service to others, which can be inferred from the statement *": ...as you light yourself up nagbibigay ka din ng pag-asa sa iba…* […as you light yourself up you also give hope to others…], *[SP01S03]*.

The "Expectancy Theory" could best explain significant results. Naturally, a person's prime mover to a potential impulse is generated by the abundance of a satisfying reward (Lateef, 2020). To reiterate, work inspiration is primarily determined by its corresponding benefit, which recognizes the period of perseverance (Vroom, 1964). As further justified by Lateef (2020), frontliners are morally committed to their duties. Not only to patients but also to their families, not just to the institution they work in but also to society. Above all, practical obedience to self.

Frontliners' roles during CoViD-19 upsurge contributed substantially in reducing the spread of the disease through the presence of reliable support system while performing key roles in early detection and timely diagnosis. Apparently, their oath of ethics kept them driven to be vigilant despite flooding hazards and this significantly connotes that they valued outcomes of health care interventions during CoViD-19 pandemic. To further validate, specific statements were noted,*"...meron kaming bayanihan para makatulong sa community...pwede silang tawagan kahit anong oras at malaking bahagi yun na makatulong sa needs ng community…"* [we have a bayanihan to help the community… they (community people) can call any time and that is a big part of helping the needs of the community], *[SP10S01]; "...kami ang inaasahan ng mga tao…"* […People are relying on us…], *[SP05S01];* and *"...once na di ako papasok sino ang mag swab sa mga patient iniisip ko yun as tulong sa kanila kasi walang gagawa para sa kanila…"* [If I won't report to work, who will swab the patients, I see it as a form of help that I extend to them since no one will do it for them], *[SP10S02]*.

The disposition to land on the battlefield magnetizes and shields public health security (Vo, 2020). Regardless of any known risk, work needs to assume. Remember, this obligation is woven in the professional healthcare worker's code of conduct (Damery et al., 2010).

Perceived Susceptibility

Personal assessment of health-related risk with frontliners was surveyed. Results showed that they were highly amenable to the likelihood of harming themselves once there is an "Increased chance of acquiring CoViD-19 virus," leading to "Psychological and emotional stress for possible self-isolation."

Seemingly, research findings pointed out that occupational risk related to exposure may be attributable to a vaster possibility of acquiring CoViD-19 infection. This was confirmed by study participant's statement, *"...yung risk from work naiiuwi ko sa bahay and malaking chance na mahawaan ko ang family ko…"* […the risk from work I take home and there is a big chance that I will infect my family…], *[SP01S03]*.

As supported by Nguyen et al. (2020), increased vulnerability to CoViD-19 infection is evident despite PPE adequacy. In analogy, extensive risk of CoViD-19 transmission among frontliners is far more complicated when shortage in PPE arises.

While personal protective equipment (PPE) grants superficial immunity against CoViD-19 danger, the increasing CoViD-19 cases may outrun supplies, either confirmed or otherwise. Indeed, the projected population of infected frontliners progresses with the duration of exposure and the average number of interactions between the frontliners and COVID-19 patients (Dy & Rabajante 2020)

Impending isolation has been linked to psychological and emotional stress. It could mean that this form of observed vulnerability by frontliners deliberately led to mental health concern. Besides, specific statement was further laid, *"…Tumataas ang mental health problems sa mga frontliners…"* […Mental health problems are on the rise among frontliners…], *[SP22S02]*.

More than ever, physiologically, the human brain can process thought experiences; however, mental vulnerability arouses personal oddity. To simplify, the psychology of uncertainty is associated with any form of anxiety (Bomyea et al., 2015). In this sense, the vagueness of cognitive content tragically impacts normal defenses (Carleton et al., 2014). Most of our scheduled activities are innately shaken by uncertainty (Grupe & Nitschke, 2013b). Hence, waves of brain interruptions result in the elevation of potential threats creating exaggerated emotional reactions to unwanted details, events, and conditions (Heid, 2020). To stress, uncertainty is a substance converting anxiety (Grupe & Nitschke, 2013b).

According to Han et al. (2011), there are various causes of uncertainty. First is vagueness quality, otherwise known as "risk or probability" (Anderson et al., 2019). Second, the transparency of integrity is based on the quality of uncertainty (Ellsberg, 1961). Finally, complexity, how to measure expectations on uncertainty looking at the available resources (Anderson et al., 2019)].

Perceived Severity

In this inquiry, more than half of the respondents considered that *"Underlying health conditions such as heart and lung problems"* along with *"Increasing rate of morbidity and mortality from CoViD-19 Pandemic"* transpired as the recognized cruelties brought by CoViD-19 virus.

Frontliners believed that comorbidities associated with heart and lung problems were aggravated by CoViD-19 virus. To further confirm, the study participant disclosed that *"... first-hand experience almost entire patients ay may diabetes or may co-morbidities [kaya nagiging] morbid…"* […first-hand experience almost all patients have diabetes or have co-morbidities [thus becoming] morbid…], *[SP22S01]*. Presently, the impression was likely induced by the unceasing incidence of health-related conditions among CoViD-19 patients. To correlate, highly accessible works of literature widely ascertained that comorbidity is a risk factor present in CoViD-19 and common influenza (Wilking et al., 2010). In like manner, as cited by Ye et al., 2020, Middle East Respiratory Syndrome, MERS (Ahmadzadeh et al., 2020), Asian Lineage Avian Influenza A (H7N9) Virus, (Bermejo-Martin et al., 2013), Community-Acquired Pneumonia (CAP), (Cillóniz et al., 2013), and pandemic like Severe Acute Respiratory Syndrome, SARS (Wang et al., 2004) qualify a person's likelihood of developing CoViD-19 ailment.

In a universal approach, Zhou et al., 2020; Chen et al., 2020; Grasselli et al., 2020 and Cao et al., 2020, unfolded the comorbidities among CoviD-19 patients were hypertension (30% -50%), diabetes mellitus, DM (8% -20%), cardiovascular disease (5% -20%), chronic liver disease (1% -5%), and chronic kidney disease, CKD (1% -5%). Besides, the frontliners completely acknowledged that an increase in mortality and morbidity was due to CoViD-19 virus. In other words, they seemingly believed that comorbidities contributed to rates of mortality and morbidity. Researches provided strong evidence that asthma (Choi et al., 2020) and hypertension (Abayomi et al., 2021) widen the scope of mortality and might eventually end life when left untreated.

The irresistible process of CoViD-19 disease was explicitly expressed in the statement, *"...nag overflow ang cases [kaya] meron na tayong home isolation…dahil hindi na kaya ng hospitals na i-accommodate yung mga ibang patients na positive…"* […cases overflow [so] we now have home isolation… because hospitals can no longer accommodate other patients who are positive…], *[SP22S02]*.

This experience of frontliners has been supported by pieces of research. In a study, there has been a phenomenal increase in the trend of CoViD-19 morbidity around the globe (Matta et al., 2020). To note, the rate of infection among CoViD-19

patients is parallel to the possibility of death (Challen et al., 2021). Likewise, the fatality rate among frontliners is pushing up the roof (Iyengar et al., 2020).

Cues to Action

Prevention and strict implementation and observance of infection control practices were essentially honored by frontliners as operational criteria in controlling the CoViD-19 pandemic. By all means, this has been made tangible through their strategic management of CoViD-19 infection. Frontliners' engagement in health-promoting behaviors ranged from self-care to getting vaccinated during CoViD-19 outbreak.

To elaborate, protocols were followed by the frontliners even when at home. To further support, narratives were: *"...nag set up ako sa labas ng [pang] disinfect pag-uwi..."* […I set up outside a disinfection corner…], *[SP06S01],* and *"...kahit sa bahay kailangan sundin ang minimum health standards..."* […even at home minimum public health standards must be followed…], *[SP05S01]*. Protecting themselves through self-care and limiting exposure can be inferred from the statements *"...nagiging very conscious na sa hygiene [at] lagi na magtake ng vitamins ngayon…para lumakas [ang] immune system..."* [become very hygiene conscious [and] always take vitamins now… to strengthen [the] immune system], *[SP04S01],* and *"...dati after work grocery kahit 2 or 3 times a week ngayon twice a month nalang..."* [before the pandemic, after work, we go to the grocery store at least 2 or 3 times a week now only twice a month], *[SP06S02].*

While at work, physical distancing was one of the control measures observed. This was further attested by the statement, *"...kailangan na ng distancing kaya kahit sino dapat itreat na positive lahat..."* [… (social) distancing is needed so anyone should treat everyone positive…], *[SP03S02]*. On the other hand, wearing protective gear was of tremendous importance. This was further verified from the participant's statement, *"...now need ng face mask [at] face shield..."* [now need (to wear) face mask [and] face shield], *[SP07S01].*

In addition, frontliners appreciated the emerging potential of the vaccine in controlling the pandemic based on the following statements, *"...prevention is better than cure...vaccination is not just to prevent but to eradicate the virus..." [SP22S01],* and *"...getting vaccinated will save lives and in a way, help alleviate the pressure on the frontliners..." [SP10S01].*

To date, there is no absolute cure to CoViD-19 problem; however, best preventive practices help manage the existing concern (Adhikari et al., 2020). Currently, scientific explorations on the CoViD-19 vaccine are underway; unfortunately, a possible remedy is still under study (Paital et al., 2020). In other words, this is somewhat a reflection that proactive behavior is a cue to action.

Household illness and work opportunities were referenced as significant barriers to frontliners. This can be justified predominantly via actual interplay between the allied health professionals and CoViD-19 victims, also when the disease is carried down through families with comorbidities. According to Ye et al. 2020, the CoViD-19 contamination has a higher risk of putting relatives in danger. Patients with underlying diseases have poorer overall health, giving rise to a lower resistance to most diseases. As a result, there are more barriers to disease prevention and treatment, and groups of frontliners are more likely to develop new diseases.

Importantly, the sole variable associated with higher perceived benefit scores was employment status. In other words, frontliners with permanent employment status benefited more than non-permanents. Permanent employment, in general, implies a continuous expectation of work status (Allan et al., 1996, cited in Webber et al., (2015); it provides monetary reward and stability (Waddell and Aylward, 2005).

Moreover, employment status and employment agency significantly evoked frontliners' perception of severity. Community-based frontliners' perception of CoViD-19 was crucially more sensitive than permanently employed in the hospitals. This is likely due to widespread

information access for frontliners at the grassroots level together with their role as primary care leaders. This was congruent with a scientific finding of clients in the community. Finally, age and employment status were notably associated with scores on cues to action. Younger frontliners showed higher scores, which meant adaptive to preventive behavior. Such a result may be due to a personal desire to prolong life, as there are still many things to accomplish and future plans to achieve. Conversely, it is logical to assume that at-risk groups, like the aging population, are more engaged in preventive behaviour due to health-deteriorating issues (Kim & Kim, 2020).

In terms of employability, frontliners with permanent work status exhibited higher scores on cues to action than otherwise. This may implore that security of tenure somehow affects individual well-being. In a study conducted, career satisfaction and perceived organizational support, for the most part, have a direct impact on work performance. However, it may not help to clarify distal findings like subjective personality or inner effectiveness (De Cuyper and De Witte, 2005, 2006b; De Witte and Na swall, 2003; Mauno, Kinnunen, Ma kikangas, and Na tti, 2005, as cited in De Cuyper and De Witte, 2007).

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