Development of a Psychological First Aid Model Based on Crisis Emergency Theory to Improve COVID-19 Psychological Readiness: The Best Recommendation yet for the Javanese Population

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Abstract. Coronavirus Disease 2019 (COVID-19) has become a health crisis in the world that causes psychological distress to crisis conditions. This study aimed to develop a psychological first-aid model based on the crisis emergency theory on psychological readiness to face COVID-19. This was explanatory survey research with a cross-sectional approach. The population in this study were all people on Java Island with a sample size of 1218 respondents and was taken by means of convenience sampling. Data were collected using a questionnaire from each sub-variable, and then the data were analyzed using partial least squares. The instrument was composed of modified questionnaires that have been tested and declared valid and reliable. There is a significant influence of individual internal factors on mental health crises and emergencies (t = 2.829) and psychological readiness (t = 2.679). Psychological factors affect mental health crises and emergencies (t = 6.533) and psychological readiness (t = 2.261). External factors affect mental health crises and emergencies (t = 2.190) and psychological readiness (t = 2.681). Mental health crises and emergencies affect psychological first aid (t = 3,748), and psychological first aid affects psychological readiness (t = 10,742). The development of psychological first aid modifies the knowledge and attitudes of individuals, and controls the level of stress and anxiety that occurs, coping mechanisms, social support, environment, and supporting facilities.

Keywords: COVID-19 · mental health crisis · psychological readiness · psychological first aid

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1 Introduction

Coronavirus Disease 2019 (COVID-19) has become a global health crisis due to the rapid spread of the disease [1, 2]. The yet-to-be-discovered treatment for COVID-19 triggers fears, global panic, and psychological distress [3, 4]. The COVID-19 pandemic, an international health emergency, shows the number of cases continues to grow, causing many countries to face the second wave of COVID-19 [5, 6]. The increase in the number of cases in Indonesia has made the National Disaster Management Agency define COVID-19 as a national disaster crisis since March 2020 so that handling can be carried out in a compact manner by all levels of society [7]. However, the amount of information that is spread from the media that has not been confirmed has made the public more restless, anxious, and afraid [8]. Based on the results of research conducted on people in China, it shows that the psychological impact of fear of COVID-19 is more dangerous than the disease [9, 10]. The population in China showed 53.8% experienced severe psychological effects, 16.5% severe depressive symptoms, 28.8% severe anxiety symptoms, and 8.1% severe stress levels [11]. It was confirmed that the beginning of the pandemic in Indonesia created a negative stigma that was so visible that many people rejected the bodies of COVID-19 patients because, for them, COVID-19 is a very dangerous disease, and those with a risk of transmitting it must be kept away from the community [12].

Several case reports that often appear in the media regarding the refusal and discrimination of patients and individuals who are in close contact with COVID-19, such as health workers, are a matter of concern [13, 14]. The media coverage of the community's rejection is very high so rejection has become a trending topic in the news. Negative stigma was also obtained by several health workers who had died due to COVID-19. The community refused the nurse's corpse, so it had to be buried in another location [15]. The medical team also felt the same way who had been expelled by the boarding house owner or refused to return to their respective homes [7]. This makes the patient, family, and close contact individuals negatively stigmatized and experience mass discrimination [16, 17].

The COVID-19 pandemic has turned into a case that makes many people nervous to the point of causing mass paranoia [18]. Based on the results of the discussion, psychologist experts said that the public's reaction to the spread of COVID-19 could also be in the form of excessive protection for themselves and their families [19]. As a result, it causes obsessive-compulsive symptoms, namely mental disorders that cause sufferers to feel compelled to perform an action repeatedly. If not done, the individual will continue to be filled with anxiety or fear [8]. The circulation of a lot of negative stigmas makes people view patients and close contact cases as individuals who must be shunned because they can transmit disease [20]. Isolation and rejection have an impact on psychological conditions in the form of feelings of depression, stress, and anxiety when diagnosed positive for COVID-19 [21]. Meanwhile, many health workers complain of burnout due to fatigue, lack of personal protective equipment, and the risk of being infected at any time. This also has a psychological impact on health workers [22].

Early handling and prevention in psychology are important to pay attention to in handling COVID-19 [23]. Psychological first aid (PFA) is important to be used as an intervention for affected victims who have the potential to experience anxiety, depression, and trauma in crisis situations [24, 25]. PFA has been applied to post-traumatic

stress disorder (PTSD) in several countries and has shown an effectiveness rate of up to 95% [26–28]. PFA can improve the capacity of disaster victims to determine coping mechanisms and control their emotions of disaster victims, so that disaster victims' responses are more adaptive [29, 30]. PFA has had a positive impact on preventing the emergence of PTSD after a disaster occurred, but PFA has never been applied to disasters caused by disease pandemics. This study aims to develop a PFA model based on the crisis emergency theory on psychological readiness in the community with COVID-19 infection.

2 Methods

2.1 Study Design

This was explanatory research with a cross sectional-approach [31] to determine the influence of individual factors, psychological factors, external factors, mental health crisis and emergency, and PFA based on crisis emergencies theory on psychological readiness. Research on model development was carried out on communities on the island of Java that were affected by COVID-19 infection from June – August 2020.

2.2 Participants and Recruitment Procedure

The sample included 1216 respondents from all communities affected by COVID-19 infection on the island of Java, especially in areas with the highest number. Based on the respondent selection criteria, the main criteria in this study were people on Java Island facing the COVID-19 pandemic, aged 20–55 years, who were willing to take part in the study, literate, having internet access and having the ability to access the electronic form. The following exclusion criteria were applied: immigrants experiencing mental illness and being unwilling or unable to continue contributing to the study. The sample in this study was recruited conveniently. Patient recruitment was conducted between July - August 2020. All required information was provided, and informed consent was obtained online. After that, questionnaires were sent to them via WhatsApp, and all the respondents filled out all the questions in the questionnaires.

2.3 Instruments

Data were collected using a questionnaire. The sociodemographic form developed by the researchers was used to assess the patient's sociodemographic characteristics (age, gender, religion, marital status, and educational level), knowledge and attitude measures using a modified questionnaire from Mohammed Dauda Goni [32]. The outcome measures of psychological factors (level of stress, anxiety, coping mechanisms, problems encountered) were developed by the researchers from depression anxiety stress score [33]. This questionnaire consists of 21 items with a rating using a 4-point Likert scale starting from 1 (strongly disagree), 2 (disagree), 3 (agree), and 4 (strongly disagree). On unfavourable questions, the assessment is reversed. Coping Mechanisms were measured using The brief 28-item COPE Inventory [34] which consists of 10 questions.

The problems encountered were measured using a Questionnaire on problem face [35] with eight questions. Social support was measured using The Social Support Questionnaire [36] with eight questions. Collaboration between health workers with eight questions was measured using the Perception of Interprofessional Collaboration Model Questionnaire (PINCOM-Q) [37]. The environmental situation was measured using an environmental questionnaire, and the availability of information using the Questionnaires can provide valuable information, while the questionnaire for infrastructure and the availability of health services was modified from the Healthcare resource use questionnaire. For the PFA variable, the researchers used the Maslow Assessment of Needs Scales (MANS) [38], the Counseling Assessment Self-Healing Questionnaire, The Life-Expectancy Scale, and Self-Report Measures of Intrinsic Motivation questionnaires. The questionnaire also uses a 4-point Likert scale.

Measurement of the Mental Health Crisis During the COVID-19 Pandemic was measured using a mental health questionnaire that had been developed by researchers. Question items consist of 9 questions with a Likert scale of 4 points, 0 (never), 1 (every day) (1–7 days), 2 (more often) (7–12 days), and 4 (Almost every day) (13–14 days). The result of the interpretation assessment is a score of 0–4: No referral is required at this time. 5–9: Clients may benefit from using natural support or mental health services. 10–19: Clients should seek professional mental health services. 20–27: Clients should immediately access health crisis services.

The outcome measures of the Psychological readiness questionnaire were developed by the researchers from the Social Psychological Survey of COVID-19 [39]. This questionnaire consists of 27 items with a 4-point Likert scale starting from 1 (strongly disagree), 2 (disagree), 3 (agree), and 4 (strongly disagree). On unfavourable questions, the assessment is reversed. The result of score interpretation shows that < 56 has a low psychological condition, 56–65 has a moderate psychological condition, and > 65 indicates a high psychological condition. While regarding social stigma, people were said to experience social stigma if the score obtained was < 24. All questionnaires were tested for validity first with 100 respondents. All questions showed valid results. The calculation of the R-value is between 0.772 to 0.985 (r table value = 0.1638). In contrast, the questionnaire is reliable, with a Cronbach's Alpha value between 0.875 to 0.995.

2.4 Data Analysis

This study was analyzed using descriptive and inferential analysis. A compliance test for normal distribution was applied using Kolmogorov–Smirnov test. The descriptive value such as means, standard deviations, frequencies, and the percentage was analyzed with the frequency distribution. The inferential analysis uses Partial Least Square (PLS) analysis to test the outer and inner models and the goodness of fit of the newly formed model.

2.5 Ethical Clearance

This research has obtained ethical feasibility from the Ethics Commission of the Faculty of Nursing, Airlangga University, with certificate number 2038-KEPK, by observing the

ethical principles of beneficence, anonymity, and confidentiality and respecting human dignity.

3 Results

This research was conducted on communities on Java Island. The rate of spread of COVID-19 infection in Java was the highest in Indonesia, with East Java Province in the first place, DKI Jakarta in second, and West Java in third. The island, which has a large population, makes Java Island still a red zone in the spread of COVID-19. The demographic characteristics of the respondents showed that most of them were in their late teens (44.7%), more than 60% were women, and the Javanese were the majority of the population (73.5%). The most dominant religion is Islam (93.5%), and 66.7% indicated unmarried. More than 50% of respondents had a bachelor's degree, with the most dominant occupation being health workers (53.4%), and the majority's income is still below the Regional Minimum Wage (53.5%) (Table 1).

Table 1. Demographic Characteristics of The Respondents.

Respondent Characteristics	n	%
Age		
Latest teens (17 – 25 years)	544	44.7
Early Adulthood (26 – 35 years)	315	25.9
Late Adulthood (36 – 45 years)	224	18.4
Early Elderly (46 – 55 years)	135	11.1
Gender		
Male	377	31.0
Female	841	69.0
Marital Status		
Single	813	66.7
Married	389	31.9
Widow/ Widower	16	1.3
Ethnics		
Javanese	895	73.5
Sundanese	172	14.1
Cirebon	10	0.8
Betawi	74	6.1
Osing	2	0.2
Madura	57	4.7
Boyam	8	0.7

(*continued*)

Table 1. (*continued*)

Respondent Characteristics	n	%
Religion		
Moslem	1139	93.5
Buddhist	15	1.2
Hindu	16	1.3
Christian	19	1.6
Confucianism	29	2.4
Occupation		
Health workers (professionals?)	650	53.4
Lecturer	83	6.8
Freelancer	18	1.5
Teacher	24	2.0
Housewives	58	4.8
Farmer	6	0.5
Civil Servant	71	5.8
Secretary	8	0.7
Privat sector employee	180	14.8
Entrepreneur	76	6.2
Do not work	44	3.6
Educational Background		
Basic education	259	21.3
Diploma	136	11.2
Bachelor	698	57.3
Master	103	8.5
Doctor	22	1.8
Income		
<Minimum Regional Income	566	46.5
≥Minimum Regional Income	652	53.5

Antecedent variables, namely internal factors, indicate the knowledge and attitudes of respondents in the good category (more than 70%). A total of 46.2% showed a mild to very severe stress response, 55.8% experienced anxiety with low-moderate coping abilities (25.6%), and the ability to deal with moderate problems (71.8%). On external factors, social support is high, with only 14.6%. Collaboration of health workers is moderate (77.6%). The availability of information, health facilities, environmental situation, and infrastructure is more than 60% in the moderate category (Table 2).

Table 2. Internal, Psychological, and External Factors among People in COVID-19 Pandemic

	Indicators	N	%
Internal Factors	Age		
	Latest teens (17–25 years)	544	44.7
	Early Adulthood (26–35 years)	315	25.9
	Late Adulthood (36–45 years)	224	18.4
	Early Elderly (46–55 years)	135	11.1
	Gender		
	Male	377	31.0
	Female	841	69.0
	Educational Background		
	Basic education	259	21.3
	Diploma	136	11.2
	Bachelor	698	57.3
	Master	103	8.5
	Doctor	22	1.8
	Knowledge		
	Less	76	6.2
	Moderate	275	22.6
	Good	867	71.2
	Attitude		
	Less	73	6.0
	Moderate	276	22.7
	Good	869	71.3
Psychological factors	Stress level		
	Very severe	143	11.7
	Severe	128	10.5
	Moderate	189	15.5
	Mild	103	8.5
	Normal	655	53.8
	Anxiety level		
	Very severe	288	23.6
	Severe	144	11.8
	Moderate	131	10.8
	Mild	117	9.6
	Normal	538	44.2
	Coping Mechanism		

(*continued*)

Table 2. (*continued*)

	Indicators	N	%
	Less	32	2.6
	Moderate	280	23.0
	High	906	74.4
	Problem facing		
	Less	150	12.3
	Moderate	874	71.8
	Good	194	15.9
External Factors	Social Support		
	Less	217	17.8
	Moderate	823	67.6
	High	178	14.6
	Healthcare Collaboration		
	Less	148	12.2
	Moderate	945	77.6
	Good	125	10.3
	Environmental situation		
	Less	166	13.6
	Moderate	815	66.9
	Good	237	19.5
	Information availability		
	Less	141	11.6
	Moderate	883	72.5
	Good	194	15.9
	Infrastructure		
	Less	123	10.1
	Moderate	1000	82.1
	Good	95	7.8
	Healthcare availability		
	Less	192	15.8
	Moderate	853	70.0
	Good	173	14.2

The mental health crisis condition of the Indonesian people during the pandemic was that 10.1% experienced fear, 8.2% experienced panic, 9.8% experienced denial, 9.9% experienced depression, and 12.2–46.9% had a high risk of a mental health crisis (Table 3). Respondents' ability in PFA is shown from 26.2% good, 23.8% unable to interpret life, 55.4% have low motivation, and 44.4% need counselling (Table 4). The

psychological readiness shown by the community is mostly sufficient, with the ability, knowledge, commitment, and willingness of more than 78% sufficient (Table 5).

Table 3. Mental Health Crisis and Emergency among People in COVID-19 Pandemic

Mental Health Crisis and Emergency	N	%
Afraid		
No Disturbance	933	76.6
The risk of experiencing fear	148	12.2
Experiencing Fear	123	10.1
Panic		
No Disturbance	777	63.8
Risk of Panic	341	28.0
Experiencing Panic	100	8.2
Denial		
No Rejection	669	54.9
High-Risk Reject	430	35.3
Experiencing Denial	119	9.8
Depression		
Not Experiencing Depression	535	43.9
High Risk of Depression	562	46.1
Experiencing Depression	121	9.9

Table 4. Psychological first aid among People in COVID-19 Pandemic

Psychological First Aid	N	%
Fulfilment of Basic Needs		
Less	169	13.9
Moderate	730	59.9
Good	319	26.2
Counselling Needs		
Need Counselling	541	44.4
Do not Need Counselling	677	55.6
Meaning in Life		
Less	290	23.8
Moderate	821	67.4
Good	107	8.8
Motivation		
Less	675	55.4
Moderate	482	39.6
Good	61	5.0

Table 5. Psychological Readiness among People during COVID-19 Pandemic

Psychological Readiness	N	%
Knowledge		
Less	155	12.7
Moderate	997	81.9
Good	66	5.4
Ability		
Less	209	17.2
Moderate	1009	82.8
Good	0	0.0
Confidence		
Less	155	12.7
Moderate	952	78.2
Good	111	9.1
Commitment		
Less	155	12.7
Moderate	952	78.2
Good	111	9.1
Willing		
Less	155	12.7
Moderate	952	78.2
Good	111	9.1

3.1 Construct Validity, Discriminant Validity, and Reliability Test

The construct validity analysis shows that the outer loading value of all indicators is valid (λ 0.5 and the value of T statistic 1.96) in forming and measuring latent variables and shows a good measurement model (outer model). Based on the measurement of cross-loading (discriminant validity), the overall indicator of the dimensions of the variables is greater than the cross-loading on the other dimensions. The indicator is also said to be reliable (composite reliability = 0.912–0.996; Cronbach's alpha = 0.875–0.995).

3.2 Inner Model Evaluation

Evaluation of the structural model or inner model is a step to evaluate the goodness of fit seen from the coefficient of determination (R-square). The total R-square value is 0.596 or 59.5%, indicating that the diversity of the first psychological treatment variables on psychological readiness can be explained by individual internal factors, psychological factors, external factors, and overall mental health crisis and emergencies of 59.6%, and 40, 4% contribution of other variables.

Table 6. Hypothesis Test among People in COVID-19 Pandemic

Influence	Original Sample	T Statistics	P Values	Significance
Influence of Individual Internal Factors on Mental Health Crisis and Emergency	0,398	2,829	0,006	Significant
The Influence of Individual Internal Factors on Psychological Readiness	0,307	2,679	0,008	Significant
Influence of Psychological Factors on Mental Health Crisis and Emergency	0,536	6,533	0,000	Significant
The Influence of Psychological Factors on Psychological Readiness	0,351	2,261	0,021	Significant
The Influence of External Factors on the Mental Health Crisis and Emergency	0,326	2,190	0,027	Significant
The Effect of External Factors on Psychological Readiness	0,385	2,681	0,016	Significant
Effect of Mental Health Crisis and Emergency on First Psychological Treatment	0,447	3,748	0,008	Significant
The Effect of First Psychological Treatment on Psychological Readiness	0,751	10,742	0.000	Significant

The results of hypothesis testing show that all the measurement results of variables are significant in shaping the development of the model. PFA in influencing psychological readiness showed the most dominant results (P = 0.000; T Statistics = 10.742), and psychological factors were the highest factors affecting mental health crises and emergencies (P = 0.000; T Statistics = 6.533) (Table 6; Fig. 1). So, it is known that the strongest path analysis is the influence of psychological factors on a mental health crisis and emergencies, then on PFA and psychological readiness.

4 Discussion

Based on the overall hypothesis testing, the best path in model development is the path of individual psychological factors to the psychological readiness of the community in dealing with COVID-19 infection through the path of mental health crises and emergencies and PFA and then to psychological readiness. PFA in influencing psychological readiness showed the most dominant results and followed by the psychological factors

were the highest factors affecting mental health crisis and emergencies. The first psychological treatment model for the community with COVID-19 infection consists of meeting basic needs, counselling, meaning in life, and motivation.

The improvement of the first psychological treatment can be made by modifying the existing factors both internally from the individual, which includes the development of behaviour based on age, the ability of each gender to solve problems, education level, knowledge, and individual attitudes. Modified psychological factors included modification of the problems faced, coping mechanisms, levels of anxiety, and stress experienced by individuals. Meanwhile, regarding external factors, people must pay attention to social support and collaboration between health workers, the environment, facilities, and infrastructure. It is also necessary to pay attention to the condition of the mental health crisis in the individual to improve PFA, so it is important to control feelings of fear, panic, depression, and rejection.

The difference between these results and the main theory used, namely the concept of the Emergencies theory model by Brennaman and PFA by the National Center for Post Traumatic Stress Disorder (NC-PTSD), lies in the path of intervention given, which was initially only a nursing intervention and then combined with PFA, through this pathway that can help provide individual psychological treatment in changing behaviour towards being more constructive. Psychological problem-solving based on the Emergencies theory model shows that individuals with mental health crises will seek psychological help with positive or negative consequences [29]. In the development of the model, PFA was added, with psychological treatment supported by the fulfilment of basic needs, providing counselling, meaning in life, and motivation to form psychological readiness in the COVID-19 infection community.

Regarding the application of PFA, it is important to pay attention to the background and several factors originating from the individual's internal, psychological, and environmental factors. The COVID-19 pandemic is at risk of causing psychological problems that can lead to psychological crises, making crisis intervention necessary [40]. Crisis intervention is an attempt to help clients who experience psychological anxiety return to their adjustment function stage and prevent or reduce the negative impression of psychological trauma [41, 42]. PFA aims to provide assistance so that people feel safe and connected to the environment and a source of physical, psychological, and social assistance needed; and redeveloping the feeling of being able to control one's life.

The importance of the existence of PFA in being an intervention for the psychological readiness of the community with COVID-19 infection has three main principles, namely reducing the risk of mental disorders, increasing the self-healing process, and growing hope [40]. Based on the results of research that have been applied to PFA in overcoming the psychological impact of natural disasters, not a few victims of natural disasters feel hopeless and depressed, for example, what was experienced by the victims of the Yogyakarta Earthquake in 2006. They lost their homes, families, possessions, and various other things they had. Many of the victims do not know what to do. Therefore, the application of PFA was carried out as an intervention and succeeded in reducing the risk of being affected by disasters from the psychological aspect [40, 43].

Based on the guidelines from WHO, disasters that have an impact on the health sector must be given psychological intervention to reduce the impact on the victims [44].

WHO recommends that the basic elements of PFA are looking for basic needs, listening, comforting, connecting, protecting, and instilling hope. PFA must pay attention to these conditions in order to be able to meet the psychological needs of the community [45]., including providing security, comfort, and support, as well as providing practical assistance, including food, water, shelter, information, and medical assistance [46]. PFA implementers need to listen well to individuals to understand their particular situations and special needs and to identify the best way to assist in the selection of alternative problem-solving [47]. After a crisis event, people often experience high levels of powerlessness, isolation, and vulnerability. In the case of a confirmed positive patient, it is necessary to connect people with other family members, loved ones, friends, and local community members after the patient is declared cured so as not to create stigma and can strengthen community support [48, 49]. It is also important to empower the community; empowerment is aimed at increasing community participation in assisting health workers and the government in breaking the chain of spreading COVID-19 infections [50].

The limitation of this study is that the instrument was used to measure the form of a questionnaire without any observation of psychological conditions. In the condition of the community in which the research was conducted, it was found that there were some who needed psychological treatment, so immediate psychological intervention was needed, but the researchers only developed the model, and further research was needed in the application of the intervention.

5 Conclusion

The best path in the development of the model is the path of individual psychological factors to psychological readiness through the path of mental health crises and emergencies and PFA and then to psychological readiness. PFA on psychological readiness can be explained by the variables of individual internal factors, psychological factors, external factors, and overall mental health crises and emergencies of 59.6%.

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Conflict of Interest. The authors declare that in research activities and in the preparation of research manuscripts for scientific publications, there is no conflict of interest with any party so that the articles written can be published in full by all authors involved in the research manuscript.

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