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The Relationship Between Level of Knowledge About Early Mobilization with Pain Intensity of Post Laparotomy Patients

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ABSTRACT

Background: Laparotomy surgery cause severe pain intensity immediately post-surgery. Sufficient knowledge is predicted to be the patient's provision to determine effective pain management through early mobilization.
Purpose: The study aimed to determine the relationship between early mobilization knowledge and pain intensity on postoperative laparotomy patients.
Methods: Cross-sectional study with 41 respondents were treated in the COVID-19 ward at Dr. Saiful Anwar Hospital. Data were collected by early mobilization knowledge questionnaire and Verbal Response Scale (VRS). Data were analyzed using the Spearman rho test with a significance value α = 0.05.
Results: The study showed 20 respondents (48.8%) have good knowledge of early mobilization. Of the amount, 25 respondents (61%) felt mild pain post laparotomy surgery. Statistical tests showed a significant relationship between knowledge of early mobilization and pain intensity (p = 0.046).
Conclusions: Early mobilization knowledge correlates with pain intensity. Study results suggest for nurses to increase early mobilization education in post-laparotomy patients.

Keywords: knowledge; early ambulation; pain; laparotomy

INTRODUCTION

Data from the World Health Organization (WHO) cited by Haynes et al. (2009) in (Subandi, 2017) shows that for more than a century, surgical treatment has become the crucial component of health care worldwide. WHO also estimates that 230 million major surgeries are performed worldwide every year, one for every 25 people live. Research in 56 countries from 192 countries estimated that 234.2 million surgical procedures are performed each year and have the potential to cause complications and death. The prevalence in Indonesia in 2012 reached 1.2 million cases of surgery. Surgery also continued to increase every year wherein in 2009 there were 46.87% of surgical patients, in 2010 it was 53.22%, in 2011 it was 51.59%, and in 2012 it was 53.68% (Darmawan & Rihiantoro, 2017). The Ministry of Health stated that of the many surgeries and operations, 32% of them were laparotomy (Anggraeni, 2018). The number of cases of post-laparotomy patients undergoing

treatment in the COVID-19 ward at 19 of Dr. RSUD. Saiful Anwar in the last three months, namely in December 2019 with 25 patients, January 2020 with 30 patients, and February 2020 with 15 patients.

Immediate, gradual mobilization is beneficial for wound healing and prevents infection and venous thrombosis. If it is too early to mobilize, it can affect wound healing. So regular and gradual mobilization followed by exercise is the most recommended thing (Darmawan & Rihiantoro, 2017). Early mobilization has an essential role in reducing pain by eliminating the patient's concentration at the location of pain or the area of operation, reducing the activation of chemical mediators in the inflammatory process that increases pain response, and minimizing pain nerve transmission to the central nervous system. Through this mechanism, early mobilization effectively reduces the intensity of postoperative pain (Wulandari & Anindari, 2018).

A preliminary study conducted by researchers in the COVID-19 ward at RSUD Dr. Saiful Anwar found that not all patients can immediately mobilize early after laparotomy surgery. Generally, after 24 hours, postoperative patients prefer to stay in bed (bedrest) without doing any activity. The results of interviews with several patients said that not doing early mobilization was primarily because of pain, mainly when used for light activities or mobilization. Patients also said they were afraid that the stitches were damaged or torn, and various reasons for discomfort when patients had to mobilize early. When asked about early mobilization, the patient admitted that he still did not know much about it and practiced it in bed. This study was conducted on post-laparotomy patients to determine their level of knowledge on early mobilization.

METHODS

Design

The research design was descriptive-analytic with a cross-sectional study.

Sample and Setting

In this study, the population used were post-laparotomy patients treated in the COVID-19 ward of Dr. RSUD. Saiful Anwar Malang. The number of samples involved in the study was 41 respondents. The sampling technique used in the study is systematic sampling. Inclusion criteria included (1) post-laparotomy patients (2) stable condition and vital signs. the exclusion criteria were (1) postoperative patients with severe/severe pain with a pain score range of 7-10 (2) postoperative patients receiving narcotic pain medications (3) postoperative laparotomy patients who could not read and write (4) post-laparotomy patients who are not willing to be respondents.

Instruments

The instruments used in the study were questionnaires on the level of knowledge of early mobilization and pain observation sheets (Verbal Response Scale).

Data Collection

The researcher distributed the early mobilization knowledge questionnaire to the respondents, which the researcher had prepared. The early mobilization knowledge questionnaire was compiled based on the literature of Hidayat and Uliyah (2016). Researchers conducted pain observations using the Verbal Rating Scale (VRS) to determine the respondent's pain intensity. Pain observation sheet used is the verbal rating scale (NRS) obtained from the source Hjermstad et al., (2011).

Data Analysis

Data analysis was carried out after the data was collected to determine the relationship between early mobilization knowledge and pain intensity. This study used the Spearman Rho test with a confident interval (CI) of 95% and a calculated r-value.

Ethical Consideration

This research has gone through an ethical test at Dr. Saiful Anwar Hospital, Malang. Information that passes the ethical review will get an ethical approval letter number 400/135/K3/302/2020. On June 15, 2020.

RESULTS

This research was conducted in COVID-19 Ward RSUD Dr. Saiful Anwar Malang. The total number of respondents is 41 respondents. The results showed 15 respondents (36.6%) are in the category of early elderly and late elderly, 18 respondents (43.9%) have an elementary school education background, all of them (100%) are male. Male, 33 respondents (80.5%) never had a history of surgery (Table 1).

Table 1. Characteristic of Respondents (n = 41)

Characteristics	n	%
Age		
Late Teens (17-25 years)	1	2.4
Early Adult (26-35 years)	2	4.9
Late Adult (36-45 years)	8	19.5
Early Elderly (46-55 years)	15	36.6
Late Elderly (56-65 years)	15	36.6
Educational Characteristics		
Elementary School	18	43.9%
Junior High School	12	29.3%
High School	10	24.4%
Undergraduate	1	2.4%
Characteristics Gender		
Male	41	100
Surgery History		
None	33	80.5
Ever Surgery	8	19.5

Table 2. Distribution of Knowledge about early mobolization and pain intensity (n=41).

Characteristics	n	%
Knowledge		
Less	6	14.6
Moderate	15	36.6
Good	20	48.8
Pain Intensity		
No Pain	9	22
Mild	25	61
Moderate	7	17.1

It is known that from 41 respondents, almost half of them, namely 20 respondents or 48.8%, have a level of knowledge of early mobilization in the excellent category. It is known that from 41 respondents, more than half of them, namely 25 respondents or 61.0%, after early mobilization, felt the intensity of pain in the mild category. None of the respondents felt severe pain intensity (Table 2).

Based on table 3, it is known that the Spearman Rho statistical test results obtained p-value = 0.046 ; p <0.05, there is a relationship between knowledge of early mobilization and pain intensity of post-laparotomy patients in COVID-19 ward at RSUD Dr. Saiful Anwar Malang. The Spearman Rho statistical test results obtained the value of the correlation coefficient or r = -0.314. The value of r indicates the close relationship between knowledge of early mobilization and pain intensity, which is included in the moderate category. The correlation coefficient value is negative, indicating the close relationship between knowledge of early mobilization and pain intensity is inversely proportional. The higher the level of knowledge of early mobilization, the lighter the intensity of pain felt by post-laparotomy patients in the COVID-19 ward at Dr. RSUD. Saiful Anwar Malang.

DISCUSSION

Based on the study results, it is known that from 41 respondents, almost half of them, 20 (48.8%) respondents, have a good level of early mobilization knowledge. While a small proportion of respondents, 6 (14.6%) respondents knew the category of less. The researcher believes that the respondent's education is quite influential in shaping the knowledge of early mobilization. Although nurses have used profane language to explain the standard operating procedure (SOP) for early mobilization in the room, it is still possible that there is a cognitive gap in bridging the information transfer process between the researcher as the sender of the message to the respondent as the recipient of the message. Several factors, such as experience in taking formal education and experience in understanding complex instructions during the learning process, are obstacles that cause patients with a history of low education to find it challenging to achieve good knowledge. Based on the study results, it is known that from 41 respondents, more than half of them, namely 25 (61.0%) respondents felt the intensity of pain in the mild category. The study results did not show that there were respondents who experienced severe pain. However, 7 (17.1%) respondents are still experiencing pain in the moderate category.

Researchers believe that the number of respondents with moderate pain intensity shows that the condition of pain is an absolute thing that occurs in post-laparotomy patients. This pain condition is caused by a tissue incision followed by an inflammatory process resulting in releasing neurotransmitters that cause pain. Pain arising from a laparotomy surgical incision includes the type of peripheral pain and is acute.

Researchers believe that respondents who

Table 3. Cross Tabulation Between Knowledge about early mobolization with pain intensity (n=41)

Knowledge	Pain Intensity			Total n (%)
	No Pain n (%)	Mild n (%)	Moderate n (%)	
Less	1 (2.4%)	1 (2.4%)	4 (9.8%)	6 (14.6%)
Moderate	2 (4.9%)	12 (29.3%)	1 (2.4%)	15 (36.6%)
Good	6 (14.6%)	12 (29.3%)	2 (4.9%)	20 (48.8%)
Total	9 (22%)	25 (61%)	7 (17.1%)	41 (100%)
Test Type		Sample Quantity	Value (r)	Value (p)
Spearman Rho Statistical Test		n = 41	r = -0.530	p = 0.000

do not have a history of previous surgery feel subjectively more severe postoperative pain than respondents who have had previous surgery (Ditya et al., 2018). Pain is an experience that affects the patient's neurological physical condition and perception (Stamenkovic et al., 2018).

Researchers found that the perception of pain caused the intensity felt by each patient to be different. This perception is built on age, gender, cognitive level, temperament, family background, and, most importantly, previous pain experiences. Aspect's prior experience of pain can form a belief that pain is not scary, can be felt naturally and is something that should be enjoyed peacefully. Patients with previous surgery feel a natural temporary pain sensation. They understand that the pain will go away on its own in a period that they know based on their experience. The individual perception gives rise to the belief that oneself is 'immune' to pain (Permana et al., 2015).

Based on the study results, it is known that of the 41 respondents, most of them, namely 12 (29.3%) respondents, had a level of knowledge of early mobilization in the moderate category and the intensity of pain in the mild category. Spearman Rho statistical test results obtained p-value = 0.046 or p <0.05, which means H0 is rejected, so it can be interpreted that there is a relationship between the level of knowledge of early mobilization and pain intensity.

The Spearman Rho statistical test results obtained the value of the correlation coefficient or r = -0.314. The value of r indicates the close relationship between knowledge of early mobilization and pain intensity, which is included in the moderate category. The correlation coefficient value is negative, showing the close relationship between knowledge of early mobilization and pain intensity is inversely proportional. The higher the understanding of early mobilization, the lighter the intensity of pain felt by post-laparotomy patients.The higher respondent's knowledge, the higher the compliance of mobilization behavior so that it is inversely proportional to the level of pain felt by the respondent. Indirectly, knowledge is inversely proportional to pain intensity in post-laparotomy patients.

There is a relationship between the level of knowledge and the intensity of pain as described in the study's conceptual framework. Based on the research concept framework, it is known that the level of knowledge becomes the basis for individuals to perform a behavior. Knowledge of early mobilization consists of know or know. This basis will grow to be comprehensive and continue at the application level. His knowledge of mobilization at the application stage will impact the benefits felt by postoperative patients. It will directly reduce the patient's bed rest. The low intensity of bed rest decreases the amount of reactive oxygen in the body, decreases inflammatory cytokines, and prevents neuromuscular damage. All of these conditions will simultaneously reduce the intensity of postoperative pain gradually.

The researcher argues a relationship between early mobilization knowledge and pain intensity due to transferring knowledge into practice for the patient. After getting information on early mobilization by the nurse, the patient was moved to practice it according to the instructions. Early mobilization movements directly benefit the wound healing process so that it gradually reduces the intensity of pain felt by respondents.

This opinion is in line with Karyati et al. (2018) research that there is a significant relationship between knowledge and early mobilization behavior in postoperative patients. Karyati et al. (2018) that early mobilization is effectively proven to reduce the pain scale of postoperative patients.

Although most respondents showed a

significant relationship between knowledge of early mobilization and decreased pain intensity, some respondents still had good knowledge but felt pain in the moderate category. Likewise, some respondents with poor category knowledge did not feel pain.

Researchers believe that some respondents may have certain factors that can hinder the receipt of information. Respondents have obstacles such as the lack of support for postoperative physical conditions different surgical histories. The majority of respondents' ages are in the elderly category. It is also possible for cognitive abilities from a non-uniform educational history.

The results of the study support this opinion. The 41 respondents, almost half of them, namely 15 respondents (36.6%), are in the category of early elderly and late elderly. The condition of the elderly allows forming early mobilization knowledge not to be carried out optimally. In addition, the respondent's pain sensitivity will be more intense when the body's metabolic function degenerates related to the age of the respondent who enters the elderly category.

The researcher believes some respondents with a high level of knowledge still feel the pain caused by natural phenomena, influenced by the sensitivity of receptor pain. Each patient has their subjective assessment of a respondent as a human individual identifies pain based on his experience with pain in the past. The number of pain events, the type of pain, the severity or intensity of previous pain experiences, the effectiveness of pain therapy, and how to respond to pain affect how respondents perceive and react to current pain experiences. Researchers believe that patients with minimal previous experience of pain accompanied by inadequate early mobilization therapy still cause distress to respondents.

Limitations

The research was conducted during the COVID-19 pandemic outbreak. The limited process of collecting research data is minimized contact between researchers and research respondents. However, researchers are still trying to optimize while complying with the COVID 19 health protocol. The administration of non-narcotic analgesic drugs (NSAIDs) in post-laparotomy patients may confound the respondents' pain intensity. The type, dose, and frequency of drug administration are carried out by doctors and cannot be controlled by researchers. However, researchers have attempted to exclude respondents by administering narcotic analgesic drugs to avoid bias.

CONCLUSION

This study concludes a significant relationship between knowledge of early mobilization and pain intensity of post-laparotomy patients in Ward 19 of Dr. RSUD. Saiful Anwar Malang. Increasing education exposure to increase knowledge of early mobilization in post-laparotomy patients in Ward 19 of RSUD Dr. Saiful Anwar. This has been proven from research results that knowledge can reduce patient pain non-pharmacologically. Make standard operating procedures (SOP) for early mobilization complete with instructional media that nurses can use in providing standardized knowledge and information to patients. Further research was conducted by involving the patient's behavior in early mobilization. To obtain a complete picture of the relationship between knowledge and early mobilization behavior in reducing pain intensity in post-laparotomy patients.

Declaration of Interest

No conflict of interest

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Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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The Relationship Between Family Support and Depression among Patient with Renal Failure

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ABSTRACT

Background: Family support is an essential factor supporting psychological conditions during hemodialysis.
Purpose: We analyzed the relationship between family support and depression in kidney failure patients undergoing hemodialysis in Hemodialysis Room Dr. Saiful Anwar Hospital Malang
Methods: A cross-sectional study was used. Sample selection technique determined by quota sampling method then 107 patients were obtained as participants. Data were collected using MOS-Social Support Survey (MOS-SSS) & Zung Self-Rating Depression Scale (ZSDS) questionnaire. Data analysis used the Spearman Rho test with $\alpha = 0.05$.
Results: Data showed that 48 respondents (44.9%) had sufficient family support. Most of the respondents, 46 respondents (43%), experienced mild depression. The statistical test showed a significant relationship between family support and depression with $p < 0.001$. Relationship strength value (r) is -0.530 or negative, and family support is inversely related to the incidence of depression. The correlation strength category is vital.
Conclusions: There is a significant relationship between family support and depression in patients with kidney failure in Hemodialysis Room Dr. Saiful Anwar Hospital. The study suggests that the nurse provides family education to encourage positive family support.

Keywords: family support; depression; kidney failure

INTRODUCTION

Kidney failure is a kidney disorder that arises due to various factors, such as infections, tumors, congenital abnormalities, metabolic or degenerative diseases, and others. Chronic kidney disease usually occurs slowly and chronically. Much research confirms a high prevalence of depression and anxiety among patients with Chronic Kidney Disease (CKD). It is estimated that 23.7% of patients with CKD have depression. Additionally, CKD patients on dialysis are more likely to develop depression (34.5%) compared with patients not on dialysis (13.3%) (Mosleh

et al., 2020).

The Indonesian population suffering from kidney failure is 19.3% or 19 per 1000. The highest prevalence of kidney failure, 38.7%, was in Jakarta. Based on gender, most kidney failure in males (4.17%) was higher than in females (3.52%). The highest prevalence was in 65-74 years (8.23%) based on age characteristics. Based on education, the majority of kidney failure is highest in people without a school background (5.73%), higher in urban areas (3.85%) than rural areas (3.84%) (RISKESDAS, 2018). In East Java, prevalence increased from 2007-to 2017 as 4,828 people (PERNEFRI., 2017). The number of patients with kidney failure in Malang is 3.54 million thousand residents treated by dialysis at dr. Saiful Anwar Hospital Malang (Rekam Medis, 2019).

The number of dialysis patients increases every year. During 2013 were 5,700 patients, and from 2013 to 2014, dialysis treatment reached 3,005 patients. Several dialysis patients continue to grow up (PERNEFRI, 2018). Incidence of depression in dialysis patients impacts prolonged hospitalization, morbidity and mortality, and adherence therapy. Research by Semaan et al. (2018) showed that 40.8% of patients diagnosed with kidney failure experienced cases of depression; even 24.1% of them experiencing depression also experienced anxiety at the same time.

Results of research conducted by Ruza et al. (2017) patients who experience depression are adaptive coping patients. Meanwhile, Mailani & Andriani (2017) states that adaptive coping got by support is needed, one of which is family support. Based on a preliminary study at hemodialysis unit dr Saiful Anwar Hospital Malang, total patient visits in November 2019 were 3,900; December 2019 was 2,898, and January 2020 was 2,909. The average number of patients per day undergoing hemodialysis therapy in November 2019 was 150 patients/day. In December 2019, 149.9 patients/day, and in January 2020, 144.7 patients/day (Rekam Medis, 2019). Interviews were conducted on five hemodialysis patients; hemodialysis patients found that four people were accompanied by their families, and as many as two people experienced symptoms of depression. This study aimed to investigate the relationship between family support and depression incidence in patients with chronic kidney failure. The research was conducted on patients with chronic kidney failure who underwent hemodialysis therapy in the Hemodialysis Room of dr Saiful Anwar Hospital Malang.

METHODS

Design

The research design was descriptive-analytic with a cross-sectional study.

Sample and Setting

The population was patients with chronic kidney failure who visited the hemodialysis unit at dr. Saiful Anwar Hospital Malang amount to 1,209 patients. The population was screened using inclusion and exclusion criteria. Inclusion criteria were (1) Patients are in the age range of 17-65 years (2) Willing to be research subjects and fill out an informed consent form (3) Patients with chronic kidney failure undergoing hemodialysis therapy at Saiful Anwar Hospital Malang (4) Patients with chronic kidney failure stage 4 & 5 (5) Suffering from kidney failure > 6 months (6) Patients with chronic kidney failure who live in the same house with their family. The exclusion criteria were patients with chronic kidney failure who had co-morbidities with cancer. This resulted in inappropriate 146 patients. The sample size was 107 respondents. The sampling technique was purposive sampling.

Variables

Independent variable was family support, and the dependent variable was depression.

Instruments

Instruments used in the study were Medical Outcome Study – Social Support Survey (MOS-SSS), family, support questionnaire, and depression level questionnaire using Zung Self-Rating Depression Scale (ZSDS).

Data Collection

IResearchers formed an enumerator team consisting of hemodialysis room nurses. Enumerators are needed because of the research policy at crossing the room and the policy due to COVID-19 pandemic transmission.

Data Analysis

Bivariate analysis was used in this study to determine the relationship between categorical variables of family support and depression

incidence in patients with chronic kidney failure using Spearman Rank Rho statistic test with 95% Confident Interval (CI).

Ethical Consideration

This research has obtained ethical approval from RSUD Dr. Saiful Anwar Malang on June 15, 2020. The number that passes the ethical review is 400 / 136 / K.3 / 302 /2020.

RESULTS

This research was conducted in the Hemodialysis Room, RSUD Dr. Saiful Anwar Malang, with 107 patients as respondents. Data retrieval in the study used a questionnaire sheet containing two variables, namely family support and the level of depression. The data that has been collected is then analyzed using univariate and bivariate analysis. Descriptive statistical results of demographic characteristics 42 respondents (39.3%) were in the early elderly category or the age range of 46-55 years, 80 respondents (74.8%) were male, 35 respondents (32.7%) had Recent education history in high school (SMA), 35 respondents (32.7%) work as private employees, 91 respondents (85%) have marital status and are married, 42 respondents (39.3%) have income according to the minimum wage in Malang City, 47 respondents (43.9%) had a long history of undergoing hemodialysis 1-3 years, 68 respondents (63.6%) had no complications (Table 1).

Based on table 2, it is known that from 107 respondents, almost half of them, amount 48 respondents or 44.9%, have family support in the moderate category.

Based on table 3, it is known that from 107 respondents, almost half of them, amount 46 respondents or 43% experienced depression in the mild category.

Based on table 4, know that 29 respondents (27.2%) had family support in the moderate category with mild depression, 23 respondents (21.5%) with good family support did not experience depression and 17 respondents (15.9%) with family support in the moderate depressed category. Furthermore, it is known that from 107 respondents, results of the Spearman Rho statistical test obtained a value of $p < 0.001$; $p < 0.05$, which means H1 is accepted and H0 is rejected, so it can be interpreted that there is a significant relationship between family support and incidence of depression in patients with kidney failure. in Hemodialysis Room, Dr. Saiful Anwar Malang. Strength value (r) is -0.530 or a negative value, which means that family support is inversely proportional to the incidence of depression, and a strong correlation is strong. Its means that higher families support lower the incidence

Table 1. Distribution of Patients Characteristic in the Hemodialysis Room (n=107).

Characteristics	n	%
Age		
Late Teens (17-25 years)	6	5.6
Early Adult (26-35 years)	9	8.4
Late Adult (36-45 years)	27	25.2
Early Elderly (46-55 years)	42	39.3
Late Elderly (56-65 years)	23	21.5
Characteristics Gender		
Female	27	25.2
Male	80	74.8
Educational Characteristics		
Elementary School	27	25.2
Junior High School	25	23.4
High School	35	32.7
Undergraduate	20	18.7
Job Characteristics		
Jobless	25	23.4
Housewife	13	12.1
Entrepreneur	18	16.8
Private employees	35	32.7
Government employees	16	15
Marital status		
Single	5	4.7
Married	91	85
Divorce	11	10.3
Income		
Below the minimum wage	34	31.8
Minimum wage	42	39.3
Above minimum wage	31	29
Time undergoing hemodialysis		
< 1 Year	18	16.8
1—3 Years	47	43.9
> 3 Years	42	39.3
Complications		
None	68	63.6
Hypertension	24	22.4
Diabetes Mellitus	15	14

Table 2. Distribution of Family Support for Patients with Kidney Failure in the Hemodialysis Room

Family Support	n	%
Less	13	12.1
Moderate	48	44.9
Good	46	43

Table 3. Distribution of Depression in Patients with Kidney Failure in the Hemodialysis Room.

Depression	n	%
No Depression	25	23.4
Mild	46	43
Moderate	31	29
Severe	5	4.7

Table 4. Cross-tabulation of Family Support with Depression in Patients with Kidney Failure in the Hemodialysis Room

Family Support	Depression				Total n (%)
	No Depression	Mild	Moderate	Severe	
Less	0 (0%)	3 (2.8%)	5 (4.7%)	5 (4.7%)	13 (12.2%)
Moderate	2 (1.8%)	29 (27.2%)	17 (15.9%)	0 (0%)	48 (44.9%)
Good	23 (21.5%)	14 (13%)	9 (8.4%)	0 (0%)	46 (42.9%)
Total	25 (23.3%)	46 (43%)	31 (29%)	5 (4.7%)	107 (100%)
Test Type			Sample	Value (r)	Value (p)
Spearman Rho Statistical Test			n = 107	r = -0.530	p < 0001

of depression experienced by the patient.

Discussion

Results showed that almost half of them, namely 48 respondents or 44.9% had family support in the excellent category. Meanwhile, a small proportion of 13 respondents, or 12.1%, have family support in less variety. According to Friedman et al. (2010), family support is the attitude action of family members. Including informational support, assessment support, instrumental support, and emotional support. Family support is a form of interpersonal relationship that includes attitudes, actions, and acceptance of family members. Family members feel someone is paying attention.

Researchers believe that family support motivates respondents to be enthusiastic when undergoing hemodialysis therapy. The researchers found support was the family's willingness to assist during the hemodialysis process, take the patient to a hospital, manage BPJS insurance for payments, and provide information/supervision support, especially regarding patients at home.

High level of family support in study related to educational history. Results showed majority had a history of high school education. According to (Setyawan, 2017), factors influence family support, one of which is education. Researcher belief in the existence of a consent is formed by intellectual variables consisting of knowledge, educational background, and experience. Cognitive abilities will shape a person's way of thinking, including understanding factors related to disease and using health knowledge to maintain his health.

Results showed that almost half of them, 46 respondents or 43%, experienced depression in the mild category. Meanwhile, only five respondents, or 4.7%, experienced severe depression. Depression is a severe mental disorder characterized by feelings of sadness and anxiety. It usually disappears within a few days but can also be continuous so that it affects daily activities (National Institute of Mental Health, 2019). Depression is a mental disorder characterized by symptoms of decreased mood, loss of interest in something, feelings of guilt, sleep or appetite disturbances, loss of energy, and reduced concentration

(World Health Organization, 2017).

The number of respondents who experience mild depression is related to the length of time undergoing hemodialysis therapy. Riccio et al. (2018) state chronic physical illness is a condition where the disease occurs for a long time and usually cannot be cured entirely, although some illnesses can be controlled with a healthy lifestyle and some medication. Some chronic diseases that cause depression are diabetes, heart disease, arthritis, kidney failure, HIV/AIDS, lupus, and sclerosis.

The researcher believes that the length of hemodialysis is a factor in forming a depression. Duration of hemodialysis is related to feelings of saturated, repeated actions, dependent on machines in life long, and helplessness. A study supports this longer undergoes hemodialysis, is more accessible to experience depression and impacts adherence.

Family support is one of the family's duties. The family's task in health care, according to Friedman et al. (2010), is recognizing health development disorders of each family member, making decisions for appropriate health actions, providing care when family members got hospitality, and maintaining a home atmosphere related health and personality development of family members. The absence of tasks and family support increases the occurrence of depression.

According to Agerskov et al. (2020), the absence of family support causes discomfort, inability, dependence, and insecurity, so a person tends to become depressed. People with chronic pain conditions such as kidney failure are prone to depression, especially when forced into a position where they are powerless.

Researchers' opinion that family is the smallest unit in society and interdependent with one another. Support from family is significant for patients with chronic kidney failure in undergoing hemodialysis because it can motivate patients to adhere. The patient feels that there is still someone who gives attention, affection, or someone who cares for him even though he is sick. Researchers argue a form of support by families was emotional support (attention, affection, empathy), appreciation support (appreciating, feedback), informational support (suggestions, advice, information), and in the form of instrumental support (assistance). Energy, money, and time). Thus, appropriate family support is needed by the depressed to provide new power and focus on the meaning of life. Conversely, inappropriate support can increase the burden of thought and significantly affect the patient's level of depression.

Conclusions

The study's conclusion was a significant relationship between family support and incidence of depression in the Hemodialysis Room of Dr. Saiful Anwar Hospital Malang. They are recommended for nurses to improve family education to provide positive reinforcement for patients with kidney failure in the Hemodialysis Room of Dr. Saiful Anwar Hospital Malang. In addition, nurses also need to conduct a depression assessment experienced by patients with kidney failure to determine nursing interventions and recommend for hospitals to promote family support for patients with hemodialysis. Future studies are expected to examine interventions for depression in patients with kidney failure, considering many patients experience depression both in mild and severe depression levels.

Declaration of Interest

No conflict of interest

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Data Availability

The datasets generated during analyzed the current study are available from the corresponding author on reasonable request.

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The Correlation between Healthcare Workers' Support and Compliance of COVID-19 Health Protocol Implementation in The Community

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ABSTRACT

Background: The compliance of COVID-19 health protocol implementation in the community is one of the steps to prevent the spread of COVID-19.
Purpose: This study aimed to analyze the relationship between the support of healthcare workers and the compliance with implementing COVID-19 health protocol in society.
Methods: This research used a quantitative design with a cross-sectional approach. This research was conducted on society in Mojo Village, Gubeng District, Surabaya. The number of samples was 400 respondents with the cluster sampling technique. The results were analyzed using descriptive analysis and logistic regression test with a significance value of $p \leq 0.05$.
Results: Statistical tests showed that there was a relationship between the support of health workers and the compliance with implementing the COVID-19 health protocol in society with a significant value of emotional support (p=0.040), informational support (p=0.003), instrumental support (0.000), and appraisal support (0.011). These results indicated that instrumental support had the most influence on the level of compliance in implementing the COVID-19 health protocol in the community.
Conclusions: The compliance with implementing the COVID-19 health protocol in the community is related to the emotional support, information support, instrumental support, and appreciation support of healthcare workers.

Keywords: healthcare workers; support; compliance; health protocol; COVID-19

INTRODUCTION

COVID-19 health protocols have been designed by various countries and have been implemented to suppress the spread of COVID-19 cases. The protocol will be effective if there is compliance in society to implement it (Clark et al., 2020). The disobedience in society to implement the COVID-19 health protocol still often occurs, such as not disinfecting mobile phones, not washing hands after sneezing, and not using hand sanitizers (Nivette et al., 2021). The results of a preliminary study in Mojo Village, Gubeng District, Surabaya on 28th July

2021 found that there were still residents who did not wear masks when leaving their house and did not keep their distance when they were outside their house. A cross-sectional study of 424 people in the Jabodetabek area on factors related to the behavior of COVID-19 prevention showed that family support, friend support, health worker support, and sources of information about COVID-19 had a relationship with the behavior of COVID-19 prevention in society (Kundari et al., 2020). The previous research that explains the relationship between the healthcare workers' support and the compliance with COVID-19 health protocols in Mojo Village, Gubeng District, Surabaya has not been found.

Data from the Indonesian COVID-19 Handling Task Force showing that the monitoring of health protocol discipline carried out since November 18, 2020, shows a decline in compliance with the COVID-19 health protocol on November 27, 2020, with a percentage of compliance to wear masks of 58.32% and keep the social distancing long holidays were the main cause of the decline in discipline compliance with COVID-19 health protocols for in society. Based on the zoning map for compliance with wearing masks and keeping the distance, from data from 512 districts/cities that entered, only less than 9% of districts/cities complied with wearing masks. Less than 4% of regencies/cities complied with social distancing (Satgas COVID-19, 2020).

The Association of Indonesian Public Health Scholars and Professionals (Persakmi) and The Universitas Airlangga Alumni Association, Commissariat of the Faculty of Public Health (IKA FKM UA) issued the results of a rapid online survey on evaluating the implementation of the new normal order in Surabaya City. The survey, followed by 1009 respondents spread across 31 sub-districts in Surabaya, showed that activities in traditional markets needed to be carried out with health promotion, especially in enforcing health protocol compliance. The compliance with wearing masks was 49.36%, compliance with physical distancing was 25.97% and compliance with body temperature checks was 27.95%. Penyediaan fasilitas cuci tangan pakai sabun sudah relatif baik yaitu sebesar 70%. The provision of handwashing facilities with soap was relatively good at 70%. Activities in restaurants/cafes/stalls/similar businesses also required attention in enforcing the COVID-19 health protocol. The aspect of physical distancing enforcement was 45%, compliance with body temperature check activities was 34.69%, and compliance with masks was 56.69% (Persakmi, 2020).

A person's compliance is influenced by various factors so that it can be formed in a person. Community compliance with the COVID-19 health protocol is influenced by age, education, knowledge, attitudes, and motivation. Family support and support from health workers are factors for a person's compliance (Novi Afrianti & Rahmiati, 2021).

One of the support from health workers that have been carried out during the COVID-19 pandemic is by providing Telemedicine services aims as a medium in providing consultations for patient needs (Wibowo, 2020). The Directorate of Health Promotion and Community Empowerment campaigns for the movement of wearing masks in society as an effort to encourage all people to use masks when doing activities outside the home (Kemenkes RI, 2020). Another form of support that has been carried out by the COVID-19 Task Force, BPBD, and East Java Disperindag is by distributing 500 packages of health equipment containing masks, hand sanitizers, and vitamins to the public at the Surabaya Keputran Market (Kominfo Jatim, 2020). Health workers are a source of social support that comes from other individuals who rarely provide support and have a very fast-changing role (Windari, 2017). Health workers have an important role in improving the maximum quality of health services to society so that people can increase awareness, willingness, and ability to live a healthy life so that the highest degree of health will be realized (Arumsari et al., 2019).

The solution that can be done in increasing community compliance in implementing the COVID-19 health protocol is by providing social support from family, friends, and health workers (Kundari et al., 2020). In addition, providing information on COVID-19 knowledge such as diseases and quarantine procedures, social norms, perceptions of the benefits of quarantine and perceptions of disease risks, as well as practical issues such as running out of feed supplies or the consequences of decreased income due to job loss, will increase public compliance with COVID-19 health protocols (Webster et al., 2020).

This study analyzes the relationship between the support of health workers (emotional support, information support, appreciation support, and instrumental support) and the compliance with the COVID-19 health

Dwiyanto, F, E., Dewi, Y, S., & Nimah, L. (2022). The Correlation between Healthcare Workers' Support and Compliance of COVID-19 Health Protocol Implementation in The Community. *The Journal of Palembang Nursing Studies*. *1*(2):40-48. http://dx.doi.org/10.55048/jpns.v1i2.14

protocol in society in Mojo Village, Gubeng District, Surabaya. The Mojo Village society was chosen because the number of positive COVID-19 confirmations there was recorded as the highest, namely 546 patients on March 25, 2022 (Cahyadi, 2021). Knowing this relationship, it is expected that it can be used to increase support for health workers as an effort to increase public compliance in implementing the COVID-19 health protocol to reduce the number of positive COVID-19 confirmations.

METHOD

Design

A correlational descriptive with a cross-sectional approach was adopted, to enable the researcher in determining the association between healthcare workers' support and compliance with COVID-19 health protocol implementation in the community.

Sample and Setting

The population in this study was the inhabitants of Mojo Village, Gubeng District, East Surabaya in the amount of 48,516 people (Central Bureau of Statistics, 2019). The inclusion criteria in this study were the society that was above 16 years old, cooperating, and not a bed rest patient in the Mojo Village area, Gubeng District, East Surabaya. The sampling technique in this study used the Cluster Random Sampling method in which the samples were grouped by the citizen organization in Mojo Village, Gubeng District, East Surabaya. The independent variable used in this study was the health workers' support, while the dependent variable in this study was adherence to the COVID-19 health protocol.

Instruments

A Multidimensional Approach to Social Support: The Questionnaire on the Frequency of and Satisfaction with Social Support (QFSSS). The questionnaire consists of 14 questions that have been modified. There are 4 types of social support, namely emotional support, instrumental support, informational support, and appreciation support. This question uses the following 2 Likert scales 1: "Never" (score 1), "Agree" (score 1); 2: "Never" (score 0), and "Disagree" (score 0). All scores were summed and categorized into emotional support and appreciation support: High = 3; 2: Medium = 2; Low = 1, informational support and instrumental support: High; = 3-4, Medium = 2; Low. = 1.

Development and validation of a questionnaire to assess preventive practices against the COVID-19 pandemic in the general population for implementing the COVID-19 health protocol. The questionnaire consists of 17 questions that have been modified. All statements are favorable statements. Statements are presented on a 4-point Likert scale: "Always" (score 4), "Strongly Agree" (score 4); "Often" (Score 3), "Agree" (Score 3); "Sometimes" (Score 2), "Disagree (Score 2); "Never" (Score 1), and "Strongly Disagree" (Score 1). Then all scores were added up and categorized into "low" (score 17-34), "medium" (score 35-51), and "high" (score 52-68).

Data Analysis

To analyze the data, a logistic regression test with $p \leq 0.05$ was used in this study.

Ethical Consideration

This study uses humans as subjects, it must not be contrary to ethics, the purpose of this study must be ethical, and also the rights of respondents must be protected. This study has ethical approval from the Faculty of Nursing Airlangga University with a number of 2339-KEPK.

RESULTS

Table 1 contains information related to the demographic characteristics of 400 respondents who represented residents in Mojo Village in July 2021. The majority of respondents were 279 men (69.8%) and dominated by respondents aged 26-35 years old (Early Adults) as many as 87 (21.8%). The majority of education level is at the secondary level, namely high school/vocational school/ equivalent totaling 245 respondents (61.3%).

Table 2 shows the support of healthcare workers obtained by 400 respondents who represent residents in Mojo Village. Almost all respondents as many as 377 people (94.3%) have high instrumental support, while 13 people (3.3%) have low emotional and appreciation support.

Table 3 shows the compliance with the COVID-19 health protocols owned by 400 respondents who represent residents in Mojo Village. Almost all respondents, in amount of 356 people (89%), had high COVID-19 health protocol compliance, the remaining 44 respondents (11%) had moderate COVID-19 health protocol compliance, and none of the

Table 1. Characteristics of Respondents

Characteristics	n	%
Age		
17 - 25 years old	70	17.5
26 - 35 years old	87	21.8
36 - 45 years old	81	20.3
46 – 55 years old	77	19.3
56 – 65 years old	62	15.5
>65 years old	23	5.8
Gender		
Male	279	69.8
Female	121	30.3
Education		
Basic Education	99	24.8
Secondary Education	245	61.3
Higher Education	56	14.0

Table 2. Distribution of Healthcare Workers' Support

Characteristics	n	%
Emotional Support		
High	328	82.0
Moderate	59	14.8
Low	13	3.3
Information Support		
High	349	87.3
Moderate	51	12.8
Low	0	0
Instrumental Support		
High	377	94.3
Moderate	12	3.0
Low	11	2.8
Appreciation Support		
High	349	87.3
Moderate	38	9.5
Low	13	3.3

Table 3. Frequency Distribution of Compliance with Implementing COVID-19 Health Protocol

Characteristics	n	%
COVID-19 Health Protocol Compliance		
High	356	89
Moderate	44	11

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respondents had low COVID-19 health protocol compliance.

Table 4 shows the results of the cross-tabulation between the four supports of healthcare workers and compliance with implementing the COVID-19 health protocol. The tabulation results show that the highest category of instrumental support among other supports is 351 people (87.8%) with a high level of compliance. Instrumental support with the lowest category was most found, namely 8 people (2.0%) with a moderate level of compliance. The moderate level of compliance was most found in emotional support and information support with the same results, namely 31 people (7.8%). The tabulation results did not find low category crosses.

Table 5 shows the results of hypothesis testing on four research variables, namely emotional support, information support, instrumental support, and appreciation support for compliance with the COVID-19 health protocol. The results of the analysis show that all variables have significant values, namely p 0.05, emotional support variable (p = 0.040), information support variable (p = 0.003), instrumental support variable (p = 0.000), appreciation support variable (p = 0.011) with a positive relationship which means that the higher the level of emotional support, information support, instrumental support, and appreciation support will tend to have high compliance. The value of Exp (B) is the level of the variables' influence so that instrumental support is obtained (Exp B = 11.874) which is the variable that has the most influence on compliance and followed by emotional support (Exp B = 1.896) which has the lowest effect.

DISCUSSION

Relationship between Emotional Support and Compliance with Implementing COVID-19 Health Protocol

Emotional support is significantly related to compliance with implementing COVID-19 health protocols in society. The results of this study are in line with previous research that emotional support for healthcare workers, in the form of attention to invite people to behave in a healthy manner to prevent the spread of the virus, warnings about the dangers of COVID-19 for people who do not carry out preventive behavior, and invitations to care for each other's health for families and people in the community environment, has a significant relationship with COVID-19 prevention behavior to society in Jabodetabek (Kundari et al., 2020).

Healthcare workers can use social media to diagnose illness and provide counseling to patients during the COVID-19 pandemic so that people will get support from good health workers without having to worry about COVID-19 transmission (Machado et al., 2020). The support of healthcare workers is very important to provide support to the community that the behavior of complying with the COVID-19 health protocol is important in order to prevent the transmission of COVID-19 (Dian Setyaji et al., 2020).

This study shows that the higher the emotional support for the community, the higher the compliance with implementing the COVID-19 health protocol in the community. Compliance with implementing the COVID-19 health protocol in society is influenced by the emotional support of health workers because they receive support such as attention, motivation, and services from healthcare workers to the community to wear masks, maintain distance, wash hands, and comply with other COVID-19 health protocols.

Relationship between Information Support and Compliance with Implementing COVID-19 Health Protocol

Information support from healthcare workers is significantly related to compliance with implementing the COVID-19 health protocol in society. The results of this study are in line with previous research that health worker information support is related to a person's compliance (Diesty et al., 2020). Information from healthcare workers is very important so that people do not panic to facing COVID-19 and understand how to protect themselves from COVID-19 (Sujan et al., 2021). The information delivered by healthcare workers must also use language terms that can be understood by ordinary people and can explain the importance of complying with the COVID-19 health protocol.

Information support from healthcare workers regarding the importance of complying with the COVID-19 health protocol can be delivered

Table 4 Cross Tabulation of Healthcare Workers' Support and Compliance

Variable	Compliance with Implementing COVID-19 Health Protocol				Total	
	High		Moderate			
	n	%	n	%	n	%
Emotional Support						
High	297	74.3	31	7.8	328	82.0
Moderate	50	12.5	9	2.3	59	14.8
Low	9	2.3	4	1.0	13	3.3
Information Support						
High	318	79.5	31	7.8	349	87.3
Moderate	38	9.5	13	3.3	51	12.8
Instrumental Support						
High	351	87.8	26	6.5	377	94.3
Moderate	2	0.5	10	2.5	12	3.0
Low	3	0.8	8	2.0	11	2.8
Appreciation Support						
High	320	80	29	7.2	349	87.3
Moderate	26	6.5	12	3.0	38	9.5
Low	10	2.5	3	0.8	13	3.3

Table 5 Regression Analysis

Variables	Regression Coefficient (B)	S.E	Wald	dF	Sig.	Exp (B)	Description
Emotional Support	0.640	0.311	4.224	1	0.040	1.896	Significant
Information Support	1.257	0.428	8.611	1	0.003	3.515	Significant
Instrumental Support	2.474	0.425	33.912	1	0.000	11.874	Significant
Appreciation Support	0.801	0.316	6.442	1	0.011	2.229	Significant

through posters, leaflets, banners, or other media, education on how to wear masks, keep the distance, and wash hands as a form of self-protection from COVID-19 (Prasanti & Fuady, 2018). Information support from healthcare workers to society, namely advice, instructions, and information about the COVID-19 health protocol can give them trust to healthcare workers and they become more obedient in implementing the COVID-19 health protocol (Wu et al., 2019).

Information support from healthcare workers must be delivered to society as a whole so that the implementation of the COVID-19 health protocol can be carried out effectively by people throughout Indonesia. People can comply with the COVID-19 health protocol with information support from healthcare workers.

Relationship between Instrumental Support and Compliance of COVID-19 Health Protocol implementation in the community

Instrumental support is significantly related to compliance with implementing the COVID-19 health protocol in society. This research is in line with previous research that instrumental support can influence a person to comply with the recommendations of healthcare workers (Ernia, 2020). Instrumental support influences one's cognitive behavior so that it can increase a person's compliance with the COVID-19 health protocol (Szkody et al., 2020). This study found that instrumental support in the form of

health consultation services and distribution of masks could increase public compliance in implementing the COVID-19 health protocol. Instrumental support is comprised of the things that others physically do or provide to assist someone. The form of support of healthcare workers can be done through programs and other media, such as counseling programs on the COVID-19 health protocol, online consultation media, and the provision of handwashing places at crowded points.

Researchers assume that instrumental support can help increase compliance with implementing the COVID-19 health protocol, therefore it needs assistance from the government so that it can provide various instrumental assistance to society. Healthcare workers cannot provide instrumental assistance independently, so there needs to be collaboration from various parties from the government and society.

Relationship between Appreciation Support and Compliance with Implementing COVID-19 Health Protocol

Appreciation support is significantly related to compliance with implementing the COVID-19 health protocol in the community. The results of this study are in line with previous research that social support influences a person's compliance with the COVID-19 health protocol (Paykani et al., 2020). Other studies that are in line state that the support of healthcare workers has a significant relationship between the support of healthcare workers and one's compliance (Kundari et al., 2020).

Appreciation support is the provision of feedback regarding the performance or personal qualities. Appreciation support from healthcare workers such as a praise for the use of masks makes people compelled to use them obediently. People's compliance in implementing the COVID-19 health protocol is influenced by the support of healthcare workers because there is good communication. Communication is very important in promoting the health of the COVID-19 health protocol, willingness to provide explanations regarding how to prevent oneself from COVID-19, offering alternatives that can help people meet their needs, and officers who are responsive to people's compliance can build good communication between healthcare workers and society (Ilmah & Rochmah, 2015).

People who comply with health protocols need to be given appreciation support so that people can maintain their compliance with implementing the COVID-19 health protocol. Appreciation support can help assess the level of people's compliance and monitor them so that they continue to comply with the COVID-19 health protocol. The implementation of appreciation support requires the involvement of various parties who are closer to society so that health workers are not overwhelmed by the implementation of appreciation support.

CONCLUSION

This study concluded that there was the relationship between emotional support, instrumental support, information support, and appreciation support from healthcare workers with compliance of COVID-19 health protocol implementation in community

Declaration of Interest

No conflict of interest

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Data Availability

The datasets generated during analyzed the current study are available from the corresponding author on reasonable request.

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REVIEW

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A Narrative Review of Physical Activity and Exercise during Pregnancy: Nurse's Role

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ABSTRACT

Obesity is an important global health issues in pregnancy that impact on pregnant women and newborn such as gestational diabetes mellitus, and cardiovascular diseases. The scoping review six stages is used to review an exercise during pregnancy, which is associated to potential maternal and newborn's physical, psychological and social health aspects both short and long terms. The prescription of exercise during pregnancy for low risk pregnant women without any contraindications should take moderate level of exercise at least 3 times a week, at least 30 minutes or more of accumulated exercise a day, which include a 5-10 minutes warm up and cool down period, 20-30 minutes exercise from protocol: muscular workouts and/or cardiovascular training. Pregnant women should exercise as muscular workouts and cardiovascular training and unsafe activities should be avoided. Nurses' role support pregnant women to enhance knowledge of exercise and increase exercise behaviour during pregnancy through nursing process at antenatal care clinic.

Keywords: pregnant women; exercise; physical activity; pregnancy

INTRODUCTION

Obesity and overweight (O&O) is an important global health problem. The Global Health Observatory (GHO) report indicated that the prevalence of global O&O is increasing continuously (The World Health Organization (WHO), 2015). including in Thailand (The Ministry of Public Health (MoPH), 2019). Obesity has direct and indirect impacts on physical and mental health, particularly in terms of high to extremely high risk of non-communicable diseases (NCDs) depending on level of obesity (Mahmood & Arulkumaran, 2013; Özdemir, 2015). NCDs are also known for leading to chronic illness composed of four main types: cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes mellitus (The World Health Organization (WHO), 2015). In pregnant women, obesity and overweight may impact on maternal health and offspring outcomes, including both medical and obstetrical complications. Moreover, being obese is associated with next generation (The Centers for Disease

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Control and Prevention, 2012; Marchi et al., 2015), thereby compounding this public health issue for future generations. The evidence strongly supports the benefits of regular exercise during pregnancy, which increases physical fitness. Several studies show that exercise is associated with a decrease in the risk of NCDs and obstetrical complications, control of gestational weight gain, reduction in antenatal depression symptoms, reduced rates of macrosomia (a birth weight more than 4,000 grams) and reduced risk of the overweight offspring (Millard et al., 2013; Makinde et al., 2014; Seneviratne et al., 2014)

The Arksey and O'Malley methodological framework was applied in this scoping review about exercise in pregnancy. The process involved six stages: identifying the research question, identifying the relevant studies, selecting the relevant studies, charting the data, collecting summarising and reporting the results, and consulting (Arksey & O'Malley, 2005; Peters et al., 2015). A scoping search was undertaken on electronic databases as Medline (EBSCO), EMBASE, CINAHL, PsycINFO, and PubMed Central (PMC), from 2014 and updated in 2020. The search consisted of two concepts: exercise/physical activity; and pregnancy. For each concept, key words and MeSH terms were combined with the 'OR' operator and the results were combined with the 'AND' operator.

After identifying the studies, the study selection process was applied to decision making based on the quantity and quality of the studies, inclusion and exclusion criteria, study design, and key findings. The titles of articles were reviewed based on the inclusion and exlusion criteria indicating a target population, language, and scope of the study. Then, the selection process included reviews of abstracts and full-text articles under supervision of the consultant. In this scoping review, the quality assessment of the articles were assesed by using the assessment tool from the Critical Appraisal Skills Programme (CASP). Data were extracted from the studies using a data sheet about the study's author and year, study design, sample size and characteristics, data collection, and key findings. The findings from present study are summarised in accordance with the questions of this review. There were 1,054 articles from the search. 754 articles were removed after screening the title and abstract. 288 articles were excluded that did not meet the criteria about exercise or physical activity during pregnancy. 12 studies were scoping review.

The worldwide level of exercise among pregnant women is low in both developed and developing countries (The Centers for Disease Control and Prevention, 2014); The National Heart Foundation of Australia, 2015; (The World Health Organization (WHO), 2015). Pregnant women typically had a lower level of exercise than they did during their pre-pregnancy life (Engberg et al., 2012; Currie et al., 2013; Nascimento et al., 2015). Only 8.4% of pregnant women remained active all three trimesters of pregnancy. The proportion of women who met the ACOG guildelines for exercise during pregnancy (>150 minutes of moderate intensity exercise per week) was lower: 7.2%, 7.6% and 4.7% in the first, second and third trimester, respectively (Nascimento et al., 2015). 11.1% of pregnant urban Chinese women met the ACOG guildelines (Zhang et al., 2014). Exercise during pregnancy declined from pre-pregnancy to after delivery due to avoiding any harm for their offspring, and changing the type of physical activity (Engberg et al., 2012).

Recommendation physical activity and exercise during pregnancy

The World Health Organization (WHO) recommends for adults aged 18-64 years that they should engage at least 150 minutes of moderate intensity physical activity, or at least 75 minutes of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous intensity physical activity per week. The American College of Obstetricians and Gynecologists (2002) recommends that healthy pregnant women should engage an accumulated 30 minutes or more of moderate exercise a day on most days of the week (The American College of Obstetricians and Gynecologists, 2002); Artal et al., 2003). An updated version recommends that healthy pregnant women should take moderate intensity exercise at least 20-30 minutes a day on most or all days of the week.

The Royal College of Obstetricians and Gynaecologists (RCOG) recommends for previously inactive women or those starting exercise during pregnancy that women should begin moderate intensity exercise no more than 15 minutes at least three times a week and progress up to 30 minutes four times a week (The Royal College of Obstetricians and Gynaecologists, 2006). The American College

of Sports Medicine (ACSM) recommends that women with morning sickness in the first trimester should initially perform at least 10 minutes of moderate intensity exercise during pregnancy, progressing to up to 30 minutes a session, at least three times a week (The American College of Sports Medicine, 2014).

Exercise is a subcategory of physical activity. Physical activity is defined as "any bodily movement produced by skeletal muscles that result in energy expenditure" (Caspersen et al., 1985) which covers numerous activities of daily living such as activities for working, household working, child-care, playing, gardening, leisure-time activity/recreational activity, and stair climbing (WHO, 2014). While exercise is the leisure time physical activity, exercise refers to "planned, structured, repetitive and purposive in the sense that improvement or maintenance of one or more components of physical fitness is an objective" (Caspersen et al., 1985; WHO, 2014). Exercise is categorised into two types: non-weight bearing, and weight bearing exercise. Brisk walking, jogging, stationary cycling, water aerobic exercise, swimming, or a myriad of other recreational activities are examples of exercise (Caspersen et al., 1985; WHO, 2014).

Benefits of exercise during pregnancy

The evidence strongly supports the benefits of regular exercise during pregnancy, which increases physical fitness. Several studies show that exercise is associated with a decrease in the risk of NCDs and obstetrical complications, control of gestational weight gain, reduction in antenatal depression symptoms, reduced rates of macrosomia (a birth weight more than 4,000 grams) and reduced risk of the overweight offspring (Prather et al., 2012; Siebel et al., 2012; Millard et al., 2013; Makinde et al., 2014; Seneviratne et al., 2014).

Reducing risk of Gestational Diabetes Mellitus (GDM)

Gestational diabetes mellitus (GDM) is associated with several maternal and fetal health problems such as an increasing rate of perinatal morbidity and mortality, the increasing risk of type 2 diabetes mellitus after childbirth and high obstetrics delivery rate (Mudd et al., 2013). Risk of GDM is related to several factors such as overweight, obesity, physical inactivity or sedentary lifestyle, advanced maternal age, family history of diabetes mellitus and excessive weight gain during pregnancy (Han et al., 2012). An increase in insulin resistance from the placenta during the second trimester of pregnancy (Ouzounian & Elkayam, 2012; Yanamandra & Chandraharan, 2012). may cause gestational diabetes resulting in macrosomia, dystocia in labour, and increasing risk of caesarean section (Han et al., 2012; Ouzounian & Elkayam, 2012; Yanamandra & Chandraharan, 2012). Exercise enhances insulin sensitivity and improves glycogen storage in muscle and liver that would help reduce insulin resistance (Horak & Osman, 2012; Barakat et al., 2014). Moreover, exercise during pregnancy prevents gestational diabetes from both normal BMI and over (Artal et al., 2003; The Royal College of Obstetricians and Gynaecologists, 2006). In addition, recreational moderate and vigorous PA (MVPA) before and during pregnancy can reduce the risk of developing GDM in women with normal pre-pregnancy BMI.

Weight management

O&O impact on pregnant women through several complications such as pre-eclampsia, hypertensive disorder, impaired glucose tolerance, gestational diabetes mellitus, infection, dystocia in labour and the increasing rate of caesarean section (C/S) including perinatal death, congenital anomalies and macrosomia (Furber et al., 2013; Muktabhant et al., 2012). The recommendation for gestational weight gain between international and Asian criteria is displayed in Table 1. The new guidelines of IOM based on the cut-off points for the BMI categories of WHO and included the new evidence of specific relatively narrow range of recommendation for weight gain for obese women (Rasmussen & Yaktine, 2010; The American College of Obstetricians and Gynecologists, 2013). The new IOM guideline focuses on both total weight gain and rate of weight gain week by week, recommended for implementation in several countries. In Thailand, the national guidelines are drawn from IOM and the cut-off points of overweight and obesity in adults whereas some other studies are based on Asian criteria (Isaranurug et al., 2007; Saereeporncharenkul, 2011; Seneviratne et al., 2014). This very much depends on how those researchers considered advantages/ disadvantages, including their research objectives, questions and assumptions.

Table 1. Recommendation range of weight gain during pregnancy

Pre-pregnancy BMI (kg/m2)		Recommendation range of total weight (Kilograms (kg))	Rates of weight gain in second and third trimester (kg/week)
International criteria	Asian Criteria		
BMI < 18.5	BMI < 18.5	12.5-18.0	0.51 (0.44-0.58)
BMI 18.5-24.9	BMI 18.5-22.9	11.5-16.0	0.42 (0.35-0.50)
BMI 25.0-29.9	BMI 23.0-29.9	7.0-11.5	0.28 (0.23-0.33)
BMI > 30	BMI > 30	5.0-9.0	0.22 (0.17-0.27)

(Adapted from: (The Institute of Medicine (IOM) (US) and National Research Council, 2009 and The American College of Obstetricians and Gynecologists, 2013).

Regular exercise such as walking, cycling, and resistance training assist in efficiently controlling standards of maternal gestational weight gain based on pre-pregnancy BMI (Sui et al., 2012). It prevents and reduces excessive weight gain in O&O women from the baseline pre-pregnancy weight (Makinde et al., 2014; Sunsaneevithayakul et al., 2014). This is because adipose tissue or fat is converted to muscle and energy (Barakat et al., 2014). Some studies found that moderate intensity exercise assisted women to control gestational weight gain in both healthy, underweight, and overweight pregnant women (Brown & Avery, 2012; Jones et al., 2010), including women who had excessive gestational weight gain during pregnancy (Mudd et al., 2013). As reported in a cohort study of urban Chinese pregnant women, sedentary women had higher average gestational weight gain than active ones during the second and third trimesters (Jiang et al., 2012). Moreover, some studies confirmed that a combination of intervention between nutrition and exercise programmes increases the success management rate of excessive weight gain in obese pregnant women (Martin et al., 2014).

Reducing risk of hypertensive disorders

Hypertensive disorders during pregnancy such as pre-eclampsia, chronic and gestational hypertension are associated with several maternal complications such as eclampsia, coronary heart disease, acute renal failure, gestational diabetes, abruption placenta, and intrauterine growth restriction (IUGR). This also results in offspring complications such as preterm birth, birth asphyxia and respiratory distress syndrome. Exercise reduces blood pressure, levels of stress, and anxiety that may cause gestational hypertension and pre-eclampsia (Horak & Osman, 2012).

The mechanism of regular exercise during pregnancy decreases arterial stiffness that leads to cardiovascular disorders such as pregnancy-induced hypertension and myocardial ischemia in low risk pregnant women (Kawabata et al., 2012). In addition, the effect of 12 week of aerobic exercise training on women with a history of pre-eclampsia included a decrease in blood pressure and the lower risk of cardiovascular diseases, as recorded from arterial pressure and biochemical parameters such as cholesterol, triglycerides and fasting blood glucose. This case control study was conducted with 24 women who had previous pre-eclampsia history and 20 control women of similar characteristics (Scholten et al., 2014). With some limitations, the participants received a follow-up evaluation of 6-12 months after delivery. The recovery period of pre-eclampsia was within 6 months (Mikami et al., 2014). Hence, the levels of blood pressure and risk of cardiovascular diseases in women may return to normal within the recovery period after delivery.

Improvement in musculoskeletal fitness

Pregnant women experience abdominal wall stretch because their enlarged uterus reduces the strength of abdominal wall. The enlarged abdomen shifts the balance of the body (forward) with more lordosis, causing back/low back pain (Yanamandra & Chandraharan, 2012). Ligament and fascia around the pelvic frame have more flexion because the progesterone hormone generates the alteration of pelvic joint and bone, which can be easily injured. Exercise can increase or maintain physical strength, body balance, and good posture.

PA during pregnancy improves physical fitness, body balance, and posture as well as maintains physical and muscular strength, including increasing lean muscle mass and bone density (Prather et al., 2012). Moreover, some studies confirmed that physical inactivity and/or sedentary lifestyle during pregnancy leads to loss of muscular and cardiovascular fitness and increases incidence and severity of back/low back pain (The Royal College of Obstetricians and Gynaecologists, 2006).

Pregnant women exercising at least three times a week have been found with less low back pain, pelvic girdle pain and leg pain than pregnant women who exercised less than three times a week at third trimester (thirty-two weeks of gestational age) (Field, 2011; Gjestland et al., 2012). The prevalence and intensity of low back pain and pelvic girdle pain has been found to be reduced by exercise, including moderate intensity aerobic exercises and different types of exercises such as tread (Millard et al., 2013), brisk walking, stationary cycling, swimming and water-gymnastics (Kader & Naim-Shuchana, 2014). Aquatic activity offers many benefits during pregnancy because water lessens pressure on joints for pregnant women. Water thus helps reduce pressure on the uterus and pelvis, which improves joint flexibility during pregnancy (Stan, 2014).

Reducing discomfort during pregnancy

Physiological and psychological alteration during pregnancy impacts on pregnant women, especially discomfort such as nausea, headache, morning sickness, fatigue, constipation, varicose veins and swollen extremities (Yanamandra & Chandraharan, 2012). Some studies have demonstrated that PA and/or exercise reduce these common discomforts during pregnancy (Stan, 2014; Fieril et al., 2014; Tiran, 2014) as reflected in increased QoL and wellness scores (Prather et al., 2012). Furthermore, exercise tends to decrease severity of nausea and fatigue symptoms as a result of physical, psychological and social changes during pregnancy (Tiran, 2014). Exercise and dietary interventions during pregnancy have been found to prevent and reduce constipation symptoms during pregnancy and the postpartum period including decreasing the risk of haemorrhoids during pregnancy (Avsar & Keskin, 2010).

Labour outcomes

Pregnant women engaged in exercise were found to better manage pain during labour process, and experience reduced pain during first and second stages of labour, including a decreased risk of childbirth complications and a higher rate of vaginal birth (Barakat et al., 2014; Kader & Naim-Shuchana, 2014). Studies on PA during pregnancy have supported the reduced incidence of caesarean section, which often occurs with both sedentary and inactive pregnant women (Melzer et al., 2010). Some studies found that exercise and yoga programmes help reduce the perception of labour pain and increase the tolerance of such a pain (Field, 2011; Horak & Osman, 2012). Moreover, a study advocates that moderate intensity of exercise during pregnancy reduces the risk of preterm delivery with pre-pregnancy BMI at least 24 kg/m2 and over (Guendelman et al., 2013). This cut-off BMI is associated with nearly overweight and over. In other words, moderate exercise could prevent preterm birth in O&O pregnant women.

Long-term outcomes

Long-term benefits of exercise include protection against the effects of coronary heart disease, and the reduced risk for osteoporosis, diabetes mellitus and hypertension (Hay-Smith, 2013; Horak & Osman, 2012). Clapp III (2008) studied long-term outcomes of women who regularly exercised during pregnancy by comparing the outcomes in two groups: women who had regularly exercised before pregnancy until one year after delivery, and those who had stopped exercise before twelve weeks of gestation until delivery. The study found that pregnant women who participated in a weight-bearing exercise programme during pregnancy and six months after delivery were found with lower risk of cardiovascular diseases, when measured at 18-20 years after the index pregnancy (Clapp III, 2008).

Psychological aspects

Regular PA and exercise in pregnant women enhances self-esteem, improves body image, self-confidence, sense of control and psychological well-being while reducing stress, anxiety, depression and insomnia symptoms (Fieril et al., 2014; Prather et al., 2012). It also improves stress response and relaxation. Yoga enhances vagal activity with numerous hormonal and physiological

impacts (e.g. reducing cortisol and substance P and increasing serotonin) that reduce blood pressure and heart rate. Pregnant women who engaged in PA had lower scores on anxiety and depression symptoms compared to those who did not perform significant PA (Horak & Osman, 2012). In addition, some studies indicate that taking part in an exercise programme during pregnancy can boost emotional states such as vigour, energy level, enjoyment and euphoria, reducing negative affective states such as anger, tension, confusion, fatigue and depression (Guszkowska, Sempolska, et al., 2013).

Social aspects

Pregnant women engaged in exercise programmes may have more opportunities to meet new people, friends, and families (Gaston et al., 2012), which might lead to networking and collaboration between groups of pregnant women. Some studies found that exercising pregnant women developed closer relationships with families as well as social relationships compared to inactive pregnant women because the former received supportive influences from social models such as family members, friends, and colleagues (Connolly et al., 2014), this also may indirectly reduce stress, anxiety, and depression during pregnancy.

Life course of offspring outcomes

PA has a significant role in improving the viability of the placenta and placental functional capacity, increasing amniotic fluid level and endothelium dependent vasodilation. These results prevent fetal distress and the risk of pre-eclampsia (Prather et al., 2012), and improve overall fetal growth. Regular moderate intensity exercise during pregnancy is found to produce appropriate birth weight (Doustan et al., 2012), especially for infants born from overweight and obese mothers (Prather et al., 2012; Seneviratne et al., 2014). Some studies indicate that neonates born from exercising mothers had lower birth weight (> 2,500 grams) than those of non-exercising, overweight, obese and gestational diabetes mothers (Tomić et al., 2013). Exercise during pregnancy reduces the rate of macrosomia because mechanisms of PA affect insulin sensitivity, adipose tissue, endocrine regulation and muscle mass (Siebel et al., 2012).

Research on long-term effects of exercise during pregnancy suggests that maternal exercise reduces the risk of developing later overweight, obesity and cardio-metabolic complications on the next generation (Siebel et al., 2012). Moreover, some studies have reported that offspring of exercising mothers have improved neurodevelopmental outcomes at five years old than those of non-exercising mothers (Prather et al., 2012; Siebel et al., 2012). A cohort study about PA during pregnancy and offspring's cardiovascular risk factors has confirmed that maternal PA during pregnancy is associated with lower BMI, waist circumference, glucose and insulin of offspring at fifteen years old, including an increase in PA at fourteen years old, when compared to those born of inactive mothers, (Millard et al., 2013).

Prescription of exercise during pregnancy

In Thailand, recommendations of exercise during pregnancy follow the ACOG guidelines endorsed by empirical evidence appropriate in the Thai context (Suputtitada, 2015). For the promotion of mother and child health (The National Economic and Social Development Board, 2011; The National Health Development Plan Committee (NHDPC), 2011). The Department of Health, Thailand developed the implementation of an action plan for all antenatal care units about promoting exercise during pregnancy, The Physical Power for Health Division adapted steps and types of exercise which are suitable in the Thai context (Suputtitada, 2015). Women in low risk pregnancy should perform at least 30 minutes of moderate exercise at least three times a week and progress up to a maximum of five times a week (3rd Regional Health Centre, Nakhon Sawan, 2011; Suputtitada, 2015). Pregnant women who are starting exercise or suffering morning sickness in the first trimester should begin moderate exercise from a minimum of 10 minutes three times a week and progress up to a maximum of approximately 30 minutes per session four times a week (Davies et al., 2003; The Royal College of Obstetricians and Gynaecologists, 2006; The American College of Sports Medicine, 2014). The intensity should be a moderate level of exercise as measured by multiple methods. Firstly, The Royal College of Obstetricians and Gynaecologists (2006), recommends the talk test, whereby the exercising pregnant woman should be able to communicate (in light conversation) during exercise. This is considered to constitute moderate-level exercise. This method is the

simplest measurement of intensity of exercise that pregnant women of all backgrounds can easily remember and apply in their exercise regimens. Secondly, the Borg rating scale is used to measure perceived exertion during exercise. The guidelines recommend twelve to fourteen perceived exertions for moderate exercise (this is generally regarded as somewhat hard). During the exercise activity, the number that best describes the level of perceived exertion on the Borg rating scale is chosen based on the question "how hard you feel like your body is working?" (Nascimento et al., 2015; Evenson et al., 2014). Midwives must clearly explain the meaning of the scale and measurement process for perceived exertion.

Thirdly, moderate intensity of exercise is an energy requirement of three to six metabolic equivalent tasks (METs) (Zavorsky & Longo, 2011). The METs depend on such factors as types and duration of exercise, which are quite difficult to calculate in usual care service. Midwives must clearly explain types and time of exercise for pregnant women. Next, the ACSM recommends the target heart rate (THR) based on a range of age and BMI for measuring intensity of exercise (The American College of Sports Medicine, 2014). Moderate intensity for pregnant women should meet 60-90% of maximum heart rate. This method is quite a good measurement because it considers individual factors of pregnant women such as age and BMI. Pregnant women will be able to measure their heart rate either manually or with equipment after education from midwives. Finally, oxygen consumption can be used to measure maximum oxygen uptake. Pregnant women should meet 50-85% of maximum oxygen uptake (Artal et al., 2003; Prather et al., 2012). This method is clearly a difficult application for pregnant women in the real world because it requires expertise and specific equipment.

ACSM recommends that healthcare professionals (HCPs) should screen for contraindications before pregnant women engaged in exercise (Artal et al., 2003) and be aware of any warning signs during exercise such as vaginal bleeding, dizziness and preterm labour. Risks for exercise should be advised such as falls, muscle injuries and accidents (Artal et al., 2003). The Society of Obstetricians and Gynaecologists of Canada (SOGC) and the Canadian Society for Exercise Physiology (CSEP) recommend Physical Activity Readiness Medical Examination for Pregnancy (PARmed-X for Pregnancy) as a screening tool for exercise during pregnancy (Davies et al., 2003). For high-risk pregnancy including existing medical conditions such as chronic hypertensive disorder, diabetes mellitus, and morbid obesity more detailed information from a physician or midwife is needed before engaging exercise (Artal et al., 2003; Evenson et al., 2014).

Aerobic exercise, both weight-bearing and non-weight bearing, such as walking, running, jogging, stationary cycling, swimming, aquatic activities, low-impact aerobics, prenatal yoga, muscular workouts, and racquet sports are recommended in pregnancy to maintain physical fitness, improve cardiovascular circulation, and decrease risk of NCDs and control gestational weight gain (Stan, 2014). Exercise has been found to be beneficial and safe for both women and their offspring (Nascimento et al., 2012; Prather et al., 2012; Suputtitada, 2015). However, unsafe activities and contact sports should be contraindicated because these exercises increase the risk of falling, abdominal trauma, and injury to connective muscle tissues (Suputtitada, 2015). Exercise in supine position should be avoided during the second trimester of pregnancy in order to hypotension and Valsalva manoeuvre in pregnancy (Nascimento et al., 2012; Evenson et al., 2014; Suputtitada, 2015).

Role of nurse for improving exercise behaviour during pregnancy

The aim of promoting physical activity and exercise behaviour during pregnancy to reduced effects of sedentary behaviour and improving the maternal and newborn health both short and long term (Suputtitada, 2015). Nurses should be take action based on the nursing process as assessment, nursing diagnosis, planning, implementation, and evaluation. Firstly, the subjective and objective data should be collected to assess pregnant women and context for exercise using critical thinking skill including assessment facilitators and barriers to exercise during pregnancy. Next, nurse should be screen contraindications to physical activity and exercise during pregnancy by an individual exercise checklist at antenatal care clinic. If pregnant women have any contraindications and/or warning signs to exercise, they will be referred to physician for further care. Then,

women in low risk pregnancy should perform at least 30 minutes of moderate exercise at least three times a week and progress up to a maximum of five times a week (3rd Regional Health Centre, Nakhon Sawan, 2011; Suputtitada, 2015).Pregnant women who are starting exercise or suffering morning sickness in the first trimester should begin moderate exercise from a minimum of 10 minutes three times a week and progress up to a maximum of approximately 30 minutes per session four times a week (Davies et al., 2003).

Nurse should be start with exercise education session, which consist of benefits of exercise, physiological change during pregnancy and exercise and exercise safety during pregnancy. The exercise training will be under the supervision of the nurse and consultation of the physiotherapist. Pregnant women will be observed closely and any warning signs will be picked up by the nurse. For instant, training exercise session will include a 5 minutes warm up (muscle stretching), 10-15 minutes muscular workout, 10-15 minutes low-impact aerobics (cardiovascular training) and 5 minutes cool down (muscular progressive relaxation). Duration of the muscular workout and cardiovascular training will increase progressively from 10 minutes during first two weeks to 15 minutes by the end of first month. The muscular workout will include dynamic exercises from head to toe. It will start with a set of 10 repetitions per exercise and progress to 2 sets of 10 repetitions. Muscular workouts will involve a total of 20-30 exercises. The muscular workouts may be modified every 2-4 weeks during the intervention period for enhancing motivation depending on pregnant women's satisfaction. After the exercise in each session, pregnant women will be self-reported using carotid pulse check (peak rate and base rate) and take a rest about 15-30 minutes for checking intensity of exercise. Women should be made aware of any warning signs during exercise following the suggestions of nurses based on the ACOG guidelines (Suputtitada, 2015). Lastly, nurses should inspire, facilitate, and empower women to continuous exercise during pregnancy until postpartum period including reduces barriers to exercise based on context of women.

CONCLUSION

This scoping review was a description of exercise during pregnancy including benefits of exercise, recommendation of exercise during pregnancy, prescription, and nurses' role to improve exercise in women. Guidelines recommend that low risk pregnant women without any contraindications should conduct moderate exercise of at least 30 minutes of accumulated exercise a day for at least 3 days a week (The American College of Sports Medicine, 2014; The American College of Obstetricians and Gynecologists, 2015). The findings support healthcare professionals especially nurse at antenatal care clinic to provide appropriate informational support about exercise during pregnancy. Nurse is a key person to improve exercise behaviour continuously in pregnant women as healthy pregnant women that supports them to exercise during pregnancy until postpartum period to decrease risks for NCD.

Declaration of Interest

None

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Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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EDITORIAL

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Optimization of Telenursing in Combating COVID-19: Preparation for Transitioning from Pandemic to Endemic Era

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ABSTRACT

COVID-19 conducted the worst impact in many aspects, especially in Health Care Workers (HCW) as a first liner. Abundant quantities of people infected by COVID-19 were far beyond the hospital's capability in many areas, thus making them neglected and generating an unpleasant favor toward HCW. Approval of a new strategy is needed to overcome those problems, which telenursing has a role in it. However, are there any aspects that could make it feasible in Indonesia? Bear in mind that this practice is not favored here. This editorial was carried out to explain what was happening and what action could be taken to solve it.

Keywords: nurse; telenursing; COVID-19; information technology; communication; remote monitoring

Nurses play a significant role as frontline fighters during COVID-19 pandemic management in various mechanisms, such as gatekeepers to screen suspected patients, tracing unit, caregiver, and post COVID-19 rehabilitator (Çelebi et al., 2020). However, during its implementation, those direct or high-risk activities prolonged the duration of interaction between nurses and patients, thus making them vulnerable to it. Although those events were minimalized by using personal protective equipment (PPE), the strict-protective suit could promote another problem such as fatigue and discomfort for the nurse and propagate a negative stigma from the patient's point of view (Bagcchi, 2020). Hence, a good strategy must create a better outcome for both sides, safety and comfort for the nurse, and also satisfaction for the patient.

The hospital should only be used by those who are severely or critically ill because of COVID 19, and it could reduce the number of beds occupied, thus improving the health care that was being delivered. Prevention of the health system's collapse by reducing the scale of patient visits related to COVID-19 as much as possible became the central premise to adopt telenursing in our system. As the act of adaption about nursing care during a pandemic, telenursing could be used to treat a patient with mild or moderate symptoms of COVID-19. Nurses were uniquely assigned to give education about COVID-19 disease, eradicate inappropriate information related to the policies of COVID-19, and serve excellent psychological support. One important thing

to note is that much improper information has already circulated in our community; hence, the person or even familial approach must be taken to rule out incorrect information (Souza-Junior et al., 2016).

Telehealth nursing, commonly known as telenursing, is the use of communication and information technology to transfer data relevant to nursing practice remotely by immediate real-time interaction or remote monitoring (Fronczek & Rouhana, 2018). Currently, telenursing is generally practiced in many countries around the world (Digin & Zeynep, 2021; Firouzkouhi et al., 2021; Galiero et al., 2020; Heo et al., 2021; Herliani et al., 2021; Kord et al., 2021; Raesi et al., 2021; Rajab Dizavandi et al., 2021; Rodrigues et al., 2021). However, unfortunately, this practice is not widespread in Indonesia now. The absence of a law that regulates telenursing specifically conduce an obstacle during its development, thus making it far left behind if compared with another telehealth practice, in this case, is telemedicine. However, both of them pose a different role in the action.

Pandemic era COVID-19 puts the hospitals or health caregivers in some areas on the brink of collapse because the mismatch number between HCW capability and patient demands could be helped as many as possible telenursing. Telenursing could help the patient obtain immediate primary health care, acquiring proper treatment remotely away from hospitals. Telenursing could also induce better nursing care by reducing the risk of transmission for the nurses. Lastly, from the nurse-managerial point of view, the digitalization of nursing practice could improve health care quality by reducing the cost, human resources, and material needed to afford holistic care.

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PERSPECTIVE

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Exacerbation of Chronic Obstructive Pulmonary Disease during Outbreak Pandemic

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ABSTRACT

Chronic obstructive pulmonary disease (COPD) during a pandemic is of particular concern because it can worsen the disease. The COVID-19 pandemic is known to cause many deaths and a high spread of the virus. This is a concern for people with COPD regarding the risk of death. The indicator of worsening COPD symptoms is when patients with COPD need to be hospitalized. During the pandemic outbreak, social distancing, use of face masks, and lockdown were implemented. Several studies have reported reduced hospital admissions for COPD exacerbations. It is necessary to intervene judiciously to solve the problem in order to maintain the stability of COPD patients.

Keywords: chronic obstructive; exacerbation; COVID-19; pandemic

Chronic Obstructive Pulmonary Disease (COPD) is the third leading cause of death worldwide (World Health Organization, 2020). The natural course of COPD is characterized by progressive decline in lung function and worsening relapse (GOLD, 2022). COPD exacerbation is a condition of the worsening of this disease over a short period of time. It could have a significant impact on COPD patients under long-term management, associated with the patient's health status, quality of life, length of hospitalization, and economic costs (Saminan et al., 2022).

Exacerbation of COPD cause a high clinical mortality rate, with an average length of stay of approximately 10 days (Montagnani et al., 2020). Since the pandemics began around the world, there have been more than 464 million confirmed cases of Coronavirus Disease 2019 (COVID-19) and more than 6 million deaths reported as of March 17, 2022 (World Health Organization, 2022). The ongoing COVID-19 pandemic was particularly difficult for people with chronic respiratory illness, including people with potential COPD who could be more vulnerable. In patients infected Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and COPD community acquired pneumonia is associated with 1.5-fold increase in mortality. This phenomenon has been associated with the presence of pneumonia, over-long of stay hospitalized, and multiple comorbidities (Sheikh et al., 2022).

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However, currently study showed during the COVID-19 outbreak period, patients with respiratory diseases including COPD were less frequent among patients hospitalized (Beltramo et al., 2021) and there was reduction admission hospitality for COPD exacerbations (Farrugia et al., 2021; Sarc et al., 2022; Trujillo et al., 2021; Yuan Tan et al., 2020). Another study added it was almost 50% decreased before pre-outbreak pandemic (Alqahtani Id et al., 2021). The mean length of stay for COPD patients was significantly reduced in 2020. It was stated that exacerbation of COPD did not result in an increase in overall severity of exacerbations or mortality (Lawless et al., 2022).

Currently, COPD may not represent a high risk of being infected with the COVID-19 virus. This may be due to the strategy implemented by using Personal Protective Equipment (PPE), social distancing, lockdown, and massive vaccination activities in various countries (GOLD, 2022). In addition, it was revealed a reduction in visits the emergency admissions was associated with an increase in treatment for community-treated COPD exacerbations events among patients with severe COPD during the SARS-CoV-2 lockdown and the level of anxiety increased so behavior changes during the first wave pandemic (McAuley et al., 2021). Lockdown was associated with a 39% reduction in primary care consultations for acute COPD exacerbations and a 46% reduction in COPD-related emergency department visits (Alsallakh et al., 2021). Behavioral measures taken during this period to limit transmission of COVID-19 are likely to have reduced transmission of other respiratory viruses (Lawless et al., 2022). In severe COPD, High adherence to the recommended preventive measures with keeping a social distance and wearing a face mask (Trujillo et al., 2021). The positive attitude of people with respiratory illness to the maintenance of physical intervention indicates that future COPD guidelines require reconsideration of infection control measures (Alqahtani Id et al., 2021). Therefore, the implementation of non-pharmacological interventions for COVID-19 may be one of the actions that can reduce hospitalization rates (Huh et al., 2021).

With the protection strategy implemented in the last 2 years, with strict health protocols. Several countries do not have the same cases due to an increase in COPD cases, particularly COPD exacerbations during the outbreak of the COVID-19 pandemic. However, it needs further investigation, on the other hand, the findings that asthma or COPD can increase the severity of bronchial asthma/COPD and gout were identified as risk factors for moderate to severe COVID-19 disease, although they were sampled in this study Healthcare workers who have had frequent exposure to COVID-19 (Mallik et al., 2022). Hospitalizations for COPD exacerbation without COVID19 were more common than COPD with COVID-19 during the first outbreak wave, but the latter was related to higher mortality and lower eosinophil counts. This may be related to the fact that the study did not investigate the prehospital use of systemic corticosteroids as a treatment for mortality risk factors for COVID19 among this COPD population, so it requires further analysis at the next time (Cosio et al., 2021). Chronic diseases of COPD patients also should be considered. Chronic diseases such as obesity, chronic obstructive pulmonary disease (COPD), hypertension, diabetes, cardiovascular and chronic kidney disease, poor diet, and smoking may have contributed to a heavy burden of hospitalizations and deaths from COVID-19 (Reyes-Sánchez et al., 2022).

A change in collaboration with the healthcare system during the pandemic, such as avoiding overcrowded emergency room visits, may have led to a shift towards the outpatient treatment of COPD exacerbations, particularly in patients with fewer comorbidities and less severe illnesses. Those patients with fewer comorbidities could cope better with exacerbations at home than patients with multiple comorbidities and a low baseline physiological reserve. Often, these patients tend to be younger, which probably explains the change in the mean age of COPD patients in the post-COVID-19 group. Older patients with more comorbidities and severe COPD experience more frequent exacerbations independent of respiratory viral infections and may not experience the decrease seen in patients with fewer comorbidities (So et al., 2021).

Today, several countries also had got vaccinated as contribute affects the decrease in hospital admissions in COPD patients. A study has shown that COVID19 vaccines are very effective against symptomatic diseases and, above all, against serious and fatal diseases caused by the original SARS-CoV-2 strain (Polack et al., 2020). Approved vaccines are highly protective against SARS-

CoV-2; therefore, the goal should be complete vaccination according to the standard schedule to achieve maximum vaccine efficacy. It should be noted that vaccination cannot eliminate the risk of infection and prevention and control measures should be taken seriously, especially for high-risk categories (Zheng et al., 2022). The COVID19 vaccine gave only temporary systemic inflammation in post-vaccine COPD patients. The need to consult before administering a vaccine for patients with severe COPD as it can cause exacerbations of COPD (Durdevic et al., 2021).

However, because patients with chronic lung disease have avoided hospitalization during the pandemic, special emphasis should be placed on intervention and self-management action plans when treating these patients, and every effort should be made to prevent adverse outcomes of COVID-19 in this COPD patients. COPD sufferers additionally need to remain strongly endorsed to attain vaccination. While the COVID-19 pandemic undoubtedly caused a lot of suffering and death, but there were some positive and unexpected insights that could lead to significant improvements in COPD management in the future.

Declaration of Interest

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