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Original Research

Nursing Students' Clinical Confidence In Caring Tuberculosis: Indonesian Version Of The U.S Tuberculosis Curriculum Consortium Survey Using Rasch Analysis

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ABSTRACT
Background: Nursing students who are prepared in clinical practicums to comprehend the knowledge, reflect their beliefs about tuberculosis instruction, and perceive their abilities in caring for tuberculosis patients are also at risk. Nursing students' clinical confidence in caring for tuberculosis patients is essential to be assessed. Knowledge, beliefs, and clinical confidence, as unidimensional constructs based on Bandura's theory of self-efficacy, had been used in the US National Tuberculosis Curriculum Consortium (NTCC) survey for nursing students. This study's objective was to investigate the Indonesian version of the NTCC survey among nursing students' experiences caring for tuberculosis patients.

Methods: A quantitative study with cross-sectional using an online survey among 250 students 1st to 3rd-yearrd year students in one faculty of nursing in Banten, Indonesia. Prior to data collection, NTCC surveys were translated backward and forward, reviewed by experts, and tested in a pilot project.

Results: Internal consistency using Rasch analysis on each subscale showed good results and gave strong evidence that three subscales are unidimensional. There was an item separation index and reliability score, in that order: knowledge about tuberculosis (8.68 and 0.99), beliefs regarding tuberculosis instructions (6.50 and 0.98), and clinical confidence in caring for tuberculosis patients (6.29 and 0.98).

Conclusion: The Indonesian version of the NTCC survey has excellent internal consistency. This instrument might be improved since the original instrument is 13 years old and there is a cultural gap between the US and Indonesia. Moreover, this instrument might be needed for improving tuberculosis teaching in the nursing curriculum in Indonesia.

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INTRODUCTION

During the period 2016–2020, Indonesia met all three criteria for classification as a high Tuberculosis (TB) burden country: a high TB prevalence, a high number of

multi-drug resistant TB (MDR-TB) cases, and a high prevalence of TB and HIV (World Health Organization [WHO], 2019). Indonesia has a TB incidence of 845,000 in a population of 268 million, and the prevalence reached 1 million in a survey from 2014 to 2015 (Surya et al., 2017). Moreover, MDR-TB cases reached 2.4 % of all new TB cases in 2018 (WHO, 2019).

Nurses and nursing students have the highest prevalence of latent TB infection among health workers due to the long duration and high intensity of their contact with patients (Christopher et al., 2010) (Kinikar et al., 2019). An Indian study also found that nursing students had more days exposed to positive smear TB patients: a mean of 12.4 days per 6 months, with a range of 0 to 126 days (Zwerling et al., 2013). Studies have documented higher exposure among healthcare workers than general populations in Indonesia, Germany, and Japan (Erawati, & Andriany, 2020) (Herzmann et al., 2017) (Nishimura et al., 2018).

Nursing students may lack knowledge about TB transmission, treatment, and prevention. Insufficient understanding of TB can lead to unsafe behaviors while conducting routine procedures for TB patients (Akin et al., 2011) (Carvalho et al., 2019). A study in Turkey showed that students' knowledge about TB was poor, and their attitudes toward caring for TB patients were generally negative, with only 5.9% of the sample reporting they would prefer to care for TB patients (Akin et al., 2011).

Beliefs are all about personal capabilities to use knowledge and skills among nursing students, and they determine the students' self-confidence (Klassen & Klassen, 2018). Belief about TB should be a concern for the nursing student while they do the clinical where they take care of TB patients. Akin et al., (2011) found 41.3% of students stated tuberculosis in their academic programs is not satisfied, 80% of students considered tuberculosis lectures to be a very important part of their education, and only 5.9% of students prefer to work in the units in which patients with tuberculosis were being treated. Students who received tuberculosis lectures or education had higher levels of knowledge and more positive attitudes toward tuberculosis than their peers who did not receive such education.

During clinical practice, TB exposure from patients might highly occur among nursing students whether in a hospital setting or in a community setting since Indonesia is one of the top five TB cases countries in the world. Undergraduate nursing students are preparing to be professionals (Mekgoe et al., 2019) (Chicas et al., 2021). Moreover, an African study found that nursing students have difficulty integrating tuberculosis content from nursing school into clinical practice (Mekgoe et al., 2019).

Clinical confidence is a key component for effective clinical performances during clinical practice and self-efficacy in doing clinical practicum is a mediating between knowledge and skills (Porter, Morphet, Missen, & Raymond, 2013). Clinical practicums serve the dual purposes of developing competency prior to practicing in clinical settings and developing confidence in a safe setting where no harm can come to the student or patient (Porter et al., 2013). A hospital or another clinical setting as a place where students practice the previous knowledge they gained in a classroom or faculty's laboratory is a totally different situation, yet sometimes it creates multiple challenges for students.

Research about TB in Indonesia is mostly focusing on patient-centered care, general healthcare workers, health system programs, and microbiology in diagnosis. Patient–centered research is such as non-adherence to medication, family support, willingness to seek health facilities, and psychological distress (Jauhar, Nursasi, &

Wiarsih, 2018) (Probandari, Mahendradhata, Widjanarko, Alisjahbana, & Tuberculosis Operational Research, 2017) (Ruru et al., 2018). Research general healthcare workers related to TB such as case finding, notification rate, lost to follow-up, managing TB, and LTBI (Rahayu et al., 2015) (Sari, Mertaniasih, Soedarsono, & Maruyama, 2019). Limited studies and instruments focusing on nursing students' clinical confidence in taking care of TB patients are inadequate sources of information for nursing education.

National Tuberculosis Curriculum Consortium NTCC survey, a self-report survey that has been used for eight health disciplines (medicine, nursing, pharmacy, physician assistant, public health, clinical laboratory, respiratory therapy) across 25 academic institutions in the United States (Benkert et al., 2009) (Fair et al., 2006) (Harrity et al., 2007) (Jackson et al., 2007). The survey instruments were designed by the NTCC's contributors using content from the United States Centers for Disease Control and Prevention, the NCC's core curriculum on tuberculosis, and the self-study modules on tuberculosis that form part of the curriculum (Jackson, Harrity, Hoffman, & Catanzaro, 2007). This study aims to evaluate the NTCC survey for Indonesia's undergraduate nursing students. This study's results are expected to be useful for nursing scholars in the nursing education field for evaluating curricula regarding tuberculosis nursing care.

MATERIALS AND METHOD

We conducted an online survey and collected data from 250 nursing students in one nursing faculty located in Banten province, Indonesia. Ethical approval was obtained from the Mochtar Riady Institute of Nanotechnology Ethical Committee (MRIN-EC) Karawaci, Banten, on July 28th 2020 with protocol number 2007020-04. This study's inclusive criteria were those who are students in their first to final year, have internet access, and are at least 17 years old.

This study used a descriptive correlational design and convenience sampling. The online questionnaire did not identify the respondents. The respondents who consented to participate filled out the consent, put their electronic signatures on it, captured the form, and sent it to the cloud. The cloud for the informed consent was provided separately from the questionnaire database, and only the researcher has access to it. Once the respondent clicks on the yes button, it indicates they are agreeing to join this study.

All of the students had to fill out the National TB Curriculum Consortium Survey (NTCC), nursing faculty developed a version of the survey specifically for undergraduate nurses (Benkert et al., 2009). The NTCC survey for the Bachelor of Nursing Science is a 45-item, self-report instrument developed to measure knowledge, beliefs about TB instruction, and clinical confidence in treating TB patients and controlling the spread of TB. The NTCC survey for nursing students consists of five parts.

Part-one records demographic characteristics. Part two measures nursing students' beliefs about TB education. Section three consists of general TB knowledge questions. Section four contains TB knowledge questions specifically for BSN students. Together, parts three and four form the TB knowledge scale. Part five assesses the students' confidence in caring for TB patients.

TB knowledge was measured by general questions about TB (Part 3) and questions about TB specifically for BSN students (Part 4). The questions concentrate on the diagnosis of TB, the assessment of TB patients, and the treatment of adult TB patients. Part three consists of five items. Part four of the NTCC survey has twelve items; in the adapted version used for this study, all but two were included as questions

about TB for nursing students, while items 19 and 20 were treated as demographic characteristics.

The two-part TB knowledge scale has 15 multiple-choice questions, five of them general and 10 specific to nursing students. The TB knowledge items have one right answer out of four options. Every correct answer receives a score of 1, while wrong answers are scored as zero. The original instrument had no cut-off points for the knowledge scale. Possible scores range from 0 to 15. Higher scores indicate greater knowledge about the care of TB or latent TB infection patients.

Part two is about beliefs about TB education and consists of five items. Each statement assesses what students believe about the value of TB instruction. The Likert scale for every statement consists of four responses: *strongly disagree, disagree, agree,* and *strongly agree.* There were two reverse items in the adapted survey, numbers 2 and 4. In those questions, the agreement indicates something undesirable or negative. On non-reverse items, *strongly agree is* scored as 4, *agree is* scored as 3, *disagree is scored* as 2, and *strongly disagree is scored* as 1. For reverse items, *strongly disagree is* scored as 4, disagree is scored as 3, *agree is* scored as 2, and *strongly agree is scored* as 1.

Part five of the NTCC survey measures clinical confidence about caring for TB patients. The clinical confidence scale focuses on four competence categories that include 10 items total: assessing, screening, and monitoring TB patients (three items), designing, implementing, and evaluating a patient management plan (two items), communicating effectively with TB patients and their families (three items), and assessing, evaluating, and utilizing community public health resources for TB (two items). On the original survey, answers were assessed on a six-point scale, with A indicating the lowest level of confidence and F indicating the highest level of confidence. The adapted survey scored responses as 1, 2, 3, 4, 5, and 6 instead. On the clinical confidence scale, which is section 5 of the survey, there were no reverse items and no cut-off points.

Rasch analysis was used to analyze the data collected in this study. NTCC tested the U.S. version of the NTCC students' tuberculosis survey's reliability using Rasch analysis with a group of 92 APN/NP students. According to Wright and Mok, (2014) a noble and valid measurement model has to follow five indicators for human science. Those indicators are for producing a linear measure, overwhelming missing data, affording an accurate estimate, determining outliers or misfits, and being a replicable evaluation. The Rasch model accomplishes these compared with other measurement models.

The Rasch model is a subsection of a larger group of measurement models. It is known as item response theory (IRT), which transforms raw ordinal type data using probability and logarithms to equal-interval scale data called logit (log odd unit). According to Bradley et al. (2015), the Rasch model has been used broadly to analyze psychometric data in many areas, such as educational research, language assessment, and health sciences.

RESULTS

The following are tables of research results.

Table 1. Nursing students' sociodemographic characteristics (n=250)

Variable		*N*	%
Year of Study			
	1st year	75	30.0
	2nd year	104	41.6
	3rd year	71	28.4
Age (years)			
	17-18	22	8.8
	19-20	162	64.8
	>20	66	26.4
Gender			
	Female	213	85.2
	Male	37	14.8
GPA			
	2.75-3.0	15	6.0
	3.01-3.5	170	68.0
	3.51-4.0	65	26.0
Place of Origin in Indonesia			
	West	156	62.4
	Central	72	28.8
	East	22	8.8

Table 2. Variable fit statistics of knowledge, beliefs, and clinical confidence among nursing students (N=250)

Variable	Fit Statistics				Item separation	Item reliability
	Infit		Outfit			
	Mean Square	SD	Mean Square	SD		
Knowledge	0.99	-0.1	1.10	0.3	8.68	0.99
Beliefs	0.99	-0.3	1.00	-0.2	6.29	0.98
Clinical confidence	0.99	-0.3	1.00	-0.2	6.50	0.98

Table 3. Rasch analysis fit statistics and item difficulty assessment

Items	Fit Statistics				SE Model	Measure
	Infit		Outfit			
	Mean Square	SD	Mean Square	SD		
Tuberculosis Knowledge						
Generally, what percentage of people in the United States who have latent TB infection (LTBI) and a normal immune	0.95	-0.1	1.87	1.79	0.33	3.78

Items	Fit Statistics				SE Model	Measure
	Infit		Outfit			
	Mean Square	SD	Mean Square	SD		
system, will go on to develop TB disease at some point in their lives						
Ms. Hardy has been diagnosed with active TB. Which one of the following should be the <u>first</u> priority in developing a teaching plan about her anti-tuberculosis medications	1.10	0.62	1.7	2.43	0.22	2.78
Which of the following is a contraindication to TB skin testing?	1.12	2.54	1.15	2.32	0.14	0.45
What is the currently recommended method for administering tuberculin?	1.03	0.26	1.1	0.6	0.18	-1.67
You are working as the RN in a rural clinic. Mary wants to obtain a food handler's license and is required to show proof that she does not have active tuberculosis disease. She came to your clinic to obtain a skin test (PPD), and now returns for the reading. When it should the skin test reading be done for Mary?	0.95	-0.75	0.95	-0.75	0.15	-0.77
Tuberculosis organisms are most commonly transmitted from person-to-person in which one of the following ways	1.01	0.1	1.06	0.38	0.18	-1.67
Why is BCG <u>NOT PART</u> of the routine vaccination program in the United States?	1.02	0.39	1.06	0.67	0.14	1.13
Which one of the following is <u>NOT</u> appropriate for you to use in working with a patient with active TB	1.02	0.29	0.98	-0.9	0.16	-1.23
Which of the following is <u>NOT</u> a risk factor for progression of TB from infection to disease	1.00	0.04	0.96	-0.56	0.14	-0.2
As a nurse, you should teach patients that the MOST	0.96	-0.4	1.0	0.07	0.17	-1.39

| Items | Fit Statistics | | | | SE Model | Measure |
| | Infit | | Outfit | | | |
	Mean Square	SD	Mean Square	SD		
common route of transmitting tubercle bacilli from person-to-person is through contaminated						
What do you tell Mary's employer?	0.97	-0.72	0.95	-0.79	0.14	0.37
Which of the following describes best practice for directly observed therapy (DOT)	0.96	-0.39	0.85	-0.92	0.17	-1.42
What additional tests should be done on all specimens regardless of AFB smear results	0.95	-1.01	0.91	-1.25	0.14	0.9
Your patient asks what her positive PPD test means. Your BEST response is:	0.94	-1.06	0.95	-0.5	0.14	-0.56
Mary returned to the clinic within the correct time frame and her PPD reading is 20 mm induration. What would be the next step in diagnosis and treatment for Mary?	0.95	-0.86	0.93	-0.77	0.14	-0.5
Beliefs						
The career path I have chosen will not require me to know much about TB.	1.43	3.70	1.38	3.36	0.12	-0.11
There is only minimal need for more education on tuberculosis because it is not likely that I will need it in my chosen career.	1.23	2.11	1.23	2.18	0.12	-0.31
In my future plans as a health professional, I am confident that the level of TB knowledge I have attained is adequate to prepare me for my career needs.	1	0.05	1	0.05	0.1	1.15
The current emphasis on TB in my academic program is adequate.	0.71	-3.08	0.77	-2.44	0.11	0.54

Items	Fit Statistics				SE Model	Measure
	Infit		Outfit			
	Mean Square	SD	Mean Square	SD		
TB education is very important to my academic program.	0.75	-3.09	0.70	-3.05	0.14	-1.28
Clinical confidence						
Assess signs and symptoms of medication toxicity in patients who are being treated for LTBI or active TB	1.49	4.90	1.54	5.3	0.07	0.83
Assess a patient's risk for TB exposure	1.32	3.33	1.29	3.02	0.07	0.48
Implement to patient with latent TB infection (LTBI)	1.05	0.6	1.12	1.36	0.07	0.43
Report cases of TB to the appropriate public health authority according to state and local reporting requirements	1.1	1.09	1.09	1.05	0.08	-0.37
Asses patient-reported symptoms suggestive of active TB	1.02	0.22	1.00	0.08	0.07	0.53
Implement to patient with latent TB infection (LTBI)	0.89	-1.22	0.94	-0.68	0.08	0.18
Educate patients and families about issues related to TB, using language that is understandable and reflects cultural awareness	0.79	-2.51	0.75	-2.94	0.08	-0.73
Access community resources available for the low- cost treatment, monitoring (e.g., DOT programs) and follow-up of patients with LTBI	0.76	-2.90	0.78	-2.63	0.08	-0.26
Use of effective verbal and non-verbal skills to elicit the patient's perspective about his/her illness	0.74	-3.12	0.77	-2.73	0.08	-0.42
Identify and describe patient behavior patterns, cultural beliefs and values, that may pose difficulties for adherence to the recommended treatment regimen	0.73	-3.34	0.70	-3.68	0.08	-0.67

DISCUSSION

The NTCC survey for BSN students is originally an English-language instrument developed for US nursing students in 2003 and was translated into Indonesian for this study using the WHO-recommended process for translation. Three translators participated in the translation process. The first and second translators did the forward translation into Indonesian.

The first translator was an Indonesian Ph.D. student in nursing from the University of Texas who was the principal investigator on several projects. The second translator was Indonesian, an English lecturer in the Faculty of Nursing at Universitas Pelita Harapan who graduated from the University of Bristol, United Kingdom. The two translators worked separately and independently.

The researcher reviewed the two forward translations and discussed them with the two translators, combining them to form one forward translation. A third translator did the backward translation. The third translator is an Indonesian, an English lecturer at Universitas Pelita Harapan's Faculty of Nursing who earned a master's degree in English language studies at Sanata Dharma University Yogyakarta. A professional English editor and translator reviewed the original English version and the backward translation to confirm the identity of the meaning.

There were significant gaps between the content and context of the U.S. and Indonesian undergraduate nursing surveys. The original instrument was developed in 2003, 17 years before the Indonesian students took the survey. Several items in the knowledge section regarding TB and nursing education used with US nursing students were different due to differences in the curriculum, nursing students' competencies, and the use of technology in teaching. The language referring to the United States was changed to refer to Indonesia. Items in the instrument that referred to the United States were adapted to Indonesian data without any further changes.

The reliability and validity scores for TB knowledge, beliefs about TB education, and clinical confidence were tested by Rasch analysis using the Winstep statistical program (Linacre & Wright, 2010) (Benkert et al., 2019). Infit and outfit statistics are considered acceptable if they range from 0.6 to 1.4 (Smith & Smith, 2004) (Benkert et al., 2007). Infit statistics are less sensitive to surprising responses to items far from a person's level of ability, and outfit statistics are sensitive to atypical responses to items far from a person's level of ability. An item or outfit value lower than 0.6 indicates the item is not affordable. This study's fit statistics and descriptive data are presented in Table 2.

Rasch's analysis indicated quite good internal consistency for each of the subscales in this pilot study. The reliability score was 0.99, and the item separation index was 8.68 for 15 items on the TB knowledge subscale. Beliefs about TB instruction had an item separation index and reliability of 6.29 and 0.98, respectively. Clinical confidence in taking care of TB patients under this subsection had an item separation index and reliability of 6.50 and 0.98, respectively.

The TB knowledge scale has all items within the range of acceptable attire and outfits except item 3, which has 0.51. Item 3 is the question about the contraindications of skin testing. The item with a score less than 0.6 indicates that the item cannot be answered by pilot study participants. Beliefs about the TB education scale had one of the five items where both the infit and outfit statistics were lower than 0.6. Belief item 3 is about the adequacy of the current emphasis on TB in the student's academic program: 0.48 as an infit and 0.46 as an outfit.

Moreover, the clinical confidence scale has two of the ten items with both infit and outfit lower than 0.6. Those items are item 8 (0.55 as an infit and 0.55 as an outfit) and item 9 (0.28 as an infit and 0.29 as an outfit). Clinical confidence item 8 is about identifying and explaining the patient's behavior and culture related to TB issues. while Item 9 is about confidence in accessing community resources for low-cost TB treatment.

As far as seeking all literature, the authors could state that this current study is one most recent that used the NTCC questionnaires in an Indonesian setting. The previous original instrument was done on nurse practitioner students in the United States by Benkert et al., (2007) by distributing a self-report survey during the final clinical course. The number of respondents was 92 NP students from four universities in the United States, 70 students (61%) reported having attended at least one lecture on TB, and 53 students indicated that they had cared for at least one LTBI or TB patient.

This study used Bandura's self-efficacy theory as the conceptual framework in Benkert and colleagues' study showed that there was a positive relationship between exposure to TB content and perceived self-efficacy for TB care. The result showed a trend toward significance, but there was not a statistically significant positive relationship between TB content in lecture exposure and perceived TB self-efficacy ($r = 0.20$, $p = 0.06$). However, the result revealed a statistically significant positive relationship between self-directed exploration of TB content outside of the classroom and perceived TB self-efficacy ($r = 0.29$, $p = 0.01$).

Besides, there was a positive relationship between past experiences with the care of patients with LTBI or TB, knowledge of TB, and perceived self-efficacy for TB care. A statistically significant relationship between TB knowledge and perceived TB self-efficacy ($r= -0.32$, $p \leq 0.01$) was found. Nonetheless, this was a negative correlation, suggesting the lower the students' knowledge of TB, the more confident they were in their ability to take care of these patients. A statistically significant positive relationship between the number of TB patients cared for in the past and TB self-efficacy ($r = 0.324$, $p = 0.002$) was found (Benkert et al., 2009).

CONCLUSION

The Indonesian version of the NTCC survey has excellent internal consistency. This instrument might be improved since the original instrument is 13 years old and has a cultural gap between the US and Indonesia. It is suggested that future studies might be conducted using an experimental or larger number of undergraduate students. As a result, it is also suggested that future research use more precise and up-to-date methods established by Indonesia's Ministry of Health. So, this instrument might be needed for improving tuberculosis teaching in the nursing curriculum in Indonesia.

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Original Research

Zero Mortality During Covid-19 Outbreak: A Review in 418 Workers at a Health University

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ABSTRACT

Background: Mortality due to Covid-19 outbreak in Indonesia are the second highest in Asia on period 2020-2021, but there is one of health university that zero mortality. Some of the factors that cause high mortality are only assumptions from researchers, need to be clarified scientifically. Aim of study is to analyze factors that causes zero mortality during covid-19 outbreak.

Methods: We performed a descriptive study using result of medical check up workers within the first 1 year of the pandemic. All workers consist of lecturers, administrative staff, drivers, and cleaning staff were included as much as 418 persons. Patients were assessed for their gender, age, body mass index, blood pressure, total cholesterol, and electrocardiography based on laboratory test and interview. We analyze data using descriptive based on characteristics respondents. Data collected in December 2021. The examination is carried out by a certified laboratory.

Results: The age of the workers is mostly young, the small incidence of hypertension, hypercholesterolemia, and heart health problems, have the potential to be a reason for zero mortality during the covid 19 outbreak in 418 workers. Hypertension, gender, obesity, hypercholesterolemia, and aritmia unrelated to mortality, but related to severity. Age directly related to mortality.

Conclusion: A healthy body is an asset in dealing with a pandemic. Periodic checks on blood sugar, electrocardiography, cholesterol, body mass index, is needed in preparing for the next pandemic minimum once every 6 months.

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INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is a virus new strain has turned out to be a pandemic in short period that has never been identified before in humans (Lu et al., 2023; WHO, 2022). The high transmissibility of its causative agent, causes severe acute

respiratory syndrome. This diseases is expected as an air borne disease and it have ability to spreads human to human through microdroplets which are released during exhalation, talking, and coughing (Harbuwono et al., 2022; Sarkar, Das, Borsingh Wann, Kalita, & Manna, 2021; Setyorini, Ardesa, & Darmawan, 2022).

This disease causes many unexpected deaths. Wang, Comfort, Aravkin, Fuller, & Allorant, (2022) report that mortality patient with covid-19 between Jan 1, 2020, and Dec 31, 2021, estimate that 18·2 million (95% uncertainty interval 17·1–19·6). The global all-age rate of excess mortality due to the COVID-19 pandemic was 120·3 deaths (113·1–129·3) per 100000 of the population, and excess mortality rate exceeded 300 deaths per 100 000 of the population in 21 countries. Indonesia become one of country that have high number of excess deaths due to COVID-19 was largest in the regions of Asia. Were estimated in India (4·07 million [3·71–4·36]), Indonesia (736 000 [594000–955000]), and Pakistan (664 000 [498 000–847000]) during 1 year of pandemic.

The pandemic has caused the government to place restrictions on citizens' mobilization (Heymann, 2020; WHO, 2020). The outbreak profoundly disrupted the delivery of care for patients that have chronic diseases (Lv et al., 2022). For example is patient with diabetes melitus, where they high risk for complications like end-stage renal failure, blindness, and lower-limb abnormalities are all linked to diabetes. If the disease is not controlled, it is dangerous for the sufferer if infected with Covid-19. This condition increasing chance of getting life-threatening illnesses like covid-19 (Sharma et al., 2022).

Pandemic pressure not only poses a risk to health but also to their psychology conditions (Setyorini et al., 2022). Indonesia itself is still struggling with cancer, stroke, chronic kidney disease, diabetes mellitus, and hypertension where these diseases are the highest cause of death. This disease has the potential to increase the risk of death in sufferers (Harbuwono et al., 2022; Sarkar et al., 2021; SatgasCovid-19, 2021; Sharma et al., 2022). Eryilmaz-Eren, Ture, Kilinç-Toker, Korkmaz, & Çelik, (2022) report that persons who have older age, cancer history and infected COVID-19 were determined as prognostic factors predicting increasing incident mortality. Research from Feng, (2023) revealed that factors potensials make high incident of mortality are age composition, ethnic, deprivation, care home and air pollution.

The results of the literature review do not show consistent data on the factors causing the high death rate from Covid 19 in a region. On the other hand, there is the composition of the age distribution, the number of workers who are chronically ill, and other factors that cannot be explained beforehand as the cause of death. The unique phenomenon of having a university where there are no deaths during an outbreak. Aim of study is to analyze the factors that cause zero mortality during a pandemic.

MATERIALS AND METHOD

We performed a descriptive study using result of medical check up workers within the first 1 year of the pandemic. We used total sampling, were all workers consist of lecturers, administrative staff, drivers, and cleaning staff were included as much as 418 persons. Patients were assessed for their gender, age, body mass index, blood pressure, total cholesterol, and electrocardiography based on laboratory test and interview. Using this dataset, we conducted a descriptive analysis to investigate based on characteristics respondents. Data collected in December 2021.

The examination is carried out by a certified laboratory. The study was approved by the Research Ethics Committee of the Indonesian Ministry of

Health. The Ethical Approval was obtained from Health Research Ethics Committee of Poltekkes Kemenkes Surakarta, number LB.02.02/1.1/2424.4/2021 dated on January 31st, 2021. The researchers applied research ethics principles of anonymity, beneficence and non-maleficence, autonomy, and justice.

RESULTS

A total of 418 workers were registered during the study period. The baseline characteristics of our study subjects are summarized in Table 1. This study consist of similar amount of gender male (51%) and female (49%). They were generally are of age 26-55 years old and only 5% in more than 55 year old. In addition, the most respondents have body mass index more than 23 or obesity (table 1).

On the other hand only 6% respondent who suffer hypertension, 25% respondent suffer hypercholesterolemia, and only 7% respondent suffer aritmia and heart rhythm disturbance. Respondent who become active smoker is 16% and 78% respondent never smooking (table 1).

Table 1. Baseline characteristics

Category	Frequency (person)	Percentage (%)
Gender		
Male	213	51
Female	205	49
Age		
< 25 years old	8	2
26-35 years old	54	13
36-45 years old	157	38
45-55 years old	175	42
> 55 years old	24	5
Body Mass Index		
< 18.5	11	3
18.5 - 22.9	55	14
23 - 24.9	112	27
25 – 29.9	192	46
> 30	48	10
Blood Pressure		
Hypertension (Systole > 140 mmHg)	25	6
Normal	393	94
Total Cholesterol		
High (>200 mg/dl)	105	25
Optimal (<200 mg/dl)	313	75
Electrocardiography		
Sinus Rhythm	387	93
Aritmia	14	3
Suspect ishcemia	17	4

DISCUSSION

Mortality incidence globally showed that male were somehow, more easy to the infection and death by Covid-19 than women. Hypertension and diabetes melitus become most diseases that found in male patients male. This diseases increasing risk predictor of mortality (Cunha et al., 2023). Report from Zakaria et al., (2021) also stated that women had a lower incidence of death than men.

Male have higher risk COVID-19 mortality rates than female at most ages (Torres et al., 2023). Even though there was no difference in mortality between men and women in this study, the factor that male have more comorbid diseases is suspect. Not only cause due to co-morbidities, the psychological conditions of female and male patients are also different. Shams & Nasreen, (2023) report that survivability and awareness level is 71.6% female more skilled in isolation management, and food stocking, in contrast with 64% of men.

The report shows women can adapt to loneliness in self-isolation. People who got loneliness is connecting with some physical and mental disorder, including hypertension and increased risk for heart disease. This feel and social isolation have been associated with an increased risk for infarct myocardial disease-associated death, even in adults without history of heart arterial diseases (Hwang, Rabheru, Peisah, Reichman, & Ikeda, 2020).

An increase in age was strongly associated with an increased risk of severe COVID-19 outcomes (Alissa et al., 2023). During first year of outbreak in 2021, the most COVID-19 mortality rates is ages 75+ (Torres et al., 2023). Patient with older age (>80 years old), dementia, CKD, and greater length of stay were associated with potentials high mortality (Zakaria et al., 2021). Prevalence and epidemiological trends of COVID-19 mortality researched by Alissa et al., (2023) and got several comorbidities like diabetes, hypertension, obesity, and cardiac arrhythmias the cause of the high death rate due to covid 19 in Saudi Arabia.

Result of this study is 84% respondent are obese, and no one has died during the pandemic. These results are in line with report from Abumweis, Alrefai, & Alzoughool, (2022) that obesity is not associated with mortality in COVID-19 (OR = 1.1; 95%, CI: 0.8 to 1.3), but it associated with severity (OR = 2.4; 95%CI: 1.7 to 3.3). Patients with higher nutritional risk was positively associated with mortality in critical ward COVID-19 patients, regardless of obesity.

This conditions showing the importance of maintain nutritional status and calculate appropriate nutritional (Palermo dos Santos et al., 2022). Patients with BMI above 40 kg/m^2 or Class III obesity showed a higher in-hospital mortality and higher incidence rate of AKI during admission compared to patients with BMI between 25 and 30 kg/m^2 (So et al., 2022). Almost half of the sample 773 patients with COVID-19 hospitalized had obesity, and It was significantly increasing risk of AKI, RRT and mortality in hospitalized patients with COVID-19 (Martín-del-Campo et al., 2021).

Some researchers argue that hypertension or uncontrollable BP increases the risk of death. In fact is that only 6% of respondents have hypertension, so there are no deaths from Covid 19. An et al., (2021) report that from 12,548 patients with hypertension and COVID-19 with mean age 60 years, had 63% hypertension prior to COVID-19. Patient with hypertension and Covid-19 among them 21% were hospitalized or died within 30 days after infected.

Uncontrolled BP was not associated with higher hospitalization or mortality, and it did not appear to be an important risk factor for 30-day mortality or hospitalization.

This study contradicts the report from Du, Zhou, Zha, & Lv, (2021) that state hypertension was independently associated with a significantly increased risk of critical COVID-19 (aOR: 1.82; 95% CI: 1.19 2.77; P Z 0.005) and inhospital mortality of COVID-19 (aOR: 2.17; 95% CI: 1.67 2.82; P < 0.001). Hypertension is related to heart and kidney damage and increases the risk of stroke, thereby increasing the risk of death (Alissa et al., 2023; An et al., 2021; Du et al., 2021; Dyusupova et al., 2021).

A quarter of the respondents to this study had hypercholesterolemia, and there were no deaths from Covid 19. Uric acid to high density lipoprotein ratio is associated with mortality in Covid19. High level of high density lipoprotein cholesterol related increasing risk of sepsis (Bölen, Baycan, Cesur, & Agirbasli, 2022). Study from 3,933 COVID-19 patients with 7.53% patients in criticall condition, find positive association was found between TG/HDL ratio and serious complications of COVID-19 (adjusted OR, 1.09; 95% CI[1.03–1.15], p = 0.004) (Chang, Jeon, Song, & Kim, 2023).

Nadakinamani et al., (2023) found that high level of cholesterol can causes a large proportion of people covid 19 become with fever, sore throats, and coughs. High cholesterol also increasing risk of stroke, hypertension, diabetes, obesity, and experience chest discomfort. Results showed that respondents had arrhythmia (3%) and suspected ischemia (4%). This condition is not enough to make the incidence of death in workers.

Hernández-Vásquez, Visconti-Lopez, Alburqueque-Cruz, & Rojas-Roque, (2023) report that decrease amount of patient with heart failure (HF) in hospitalizations and an increase in the in-hospital mortality of patients with HF before and after the mandatory lockdown due to the COVID-19 pandemic in Peru. The pandemic has reduced heart patients coming to the hospital (Yamamoto et al., 2023). This condition is dangerous, because the patient's health is not controlled. Hypertensive diseases, diabetes, and IHD were the most prevalent cardiovascular conditions among COVID-19 related deaths (Vasudeva et al., 2022).

CONCLUSION

Research findings show that the majority respondent have age of the workers is mostly young, the small incidence of hypertension, hypercholesterolemia, and heart health problems. This condition have the potential to be a reason for zero mortality during the covid 19 outbreak in 418 workers. Hypertension, gender, obesity, hypercholesterolemia, and aritmia unrelated to mortality, but related to severity. Age directly related to mortality. Periodic checks on blood sugar, electrocardiography, cholesterol, body mass index, is needed in preparing for the next pandemic.

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Original Research

Predicting Quality of life of Schizophrenia Patients

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ABSTRACT

Background : Previous studies on sociodemographic characteristics connected to quality of life in schizophrenia discovered inconsistent results. This study aims to analyze predicting factors of quality of life (QoL) of schizophrenia patients.

Methods : A quantitative study included 153 respondents who were selected using random sampling at the State Psychiatric Hospital Surakarta. The research instruments were a questionnaire containing questions about demographics consisting of age, age at first experiencing schizophrenia, gender, education level, work status, marital status, frequency of treatment, duration of suffering from schizophrenia, insight, physical health problems and quality of life by using WHOQOL-BREF. The analyses used were Spearmen's rank (rho) and the Pearson Chi-Square to analyze factors connected to QoL of schizophrenia patients and multiple logistic regression tests to analyze predictors of QoL of schizophrenia patients. This study was conducted in the State Psychiatric Hospital of Surakarta from September 2020 to March 2021.

Results : There were 4 characteristics of sociodemographic that have a positive significant relationship with the overall quality of life of schizophrenia patient, namely work status (p = 0.000), marital status with p = 0.000, gender (p=0.032), and adherence to take medicine with p=0.015 (p <0.05). marital status and work status that influence the quality of life (p=0.000 and p=0.001). Marital status and work status influence the quality of life (p=0.000 and p=0.001), the largest OR value obtained is 25.499. It means that married patients have a 25.499 times chance of having a better quality of life controlled by work status.

Conclusion : Marital status and work status are predictors of QoL of schizophrenia. In providing services to schizophrenic patients, health professional need to pay attention in assessing social demographics such as work status and marital status so that appropriate action can be taken with an approach to these aspects.

INTRODUCTION

Schizophrenia is a complex mental disorder that can present itself in a person in a number of unsettling clinical presentations, leading to a variety of treatment outcomes and a poor Quality of Life (Joshi et al., 2023). One of the top 10 diseases increasing the burden of sickness worldwide is schizophrenia. However, little is known about the quality of life for those who have schizophrenia, particularly in developing countries (Desalegn, Girma, & Abdeta, 2020). Patients with serious mental disorder including schizophrenia have lower quality of life due to several comorbidities. Internalized stigma has a negative impact on patient initiation, which plays a vital role in the management of chronic illnesses to achieve a higher quality of life. By promoting patient initiation, lowering internalized stigma, psychiatric symptoms, and the seriousness of comorbidity in patients with co-occurring serious mental illnesses and chronic diseases, these discoveries can assist mental health professionals in fostering intervention strategies to improve quality of life (Y. S. Chiang, Chang, Liu, & Tzeng, 2020). In young adults, having a single chronic illness was linked to reduced wellbeing-related quality of life and self-assessed wellbeing. In all age groups, multi-dismalness was consistently linked to a lower quality of life that is related to one's health and a lower assessment of one's own health. According to research, although chronic diseases are less common in young adults, their consequences on quality of life in terms of health and self-assessed wellbeing can be very significant in older and medium aged persons (Ge, Ong, Yap, & Heng, 2019). Being treated as an inpatient and the length of untreated psychosis both have an effect on the development of a low quality of life social domain (Renwick et al., 2017).

The respondent's education level and the affective responsiveness domain of the Family Assessment Device (FAD) independently predicted the psychological domain of quality of life. The problem solving, communication, and depressive symptom dimensions of FAD independently predicted the social relation domain of quality of life. The physical and social domains of the QOL scale, educational status, and the number of visits to health services over time account for 54% of the variance in the average functional recovery (Ertekin Pinar & Sabanciogullari, 2020). Only the current occupation was an independent predictor of the environment domain of quality of life, whereas no other variables were independent predictors of the physical health domain. Last but not least, education independently and negatively predicted total life quality, while current employment positively predicted it (Khatimah, Adami, Abdullah, & Marthoenis, 2021).

The negative symptoms had a correlation with the physical, psychological, and social QOL dimensions; the disordered symptoms had a link with the physical domain. Patients with schizoid features and patients with histrionic traits had worse QOL scores in the physical, psychological, and social relationships areas, respectively. Surprisingly patients with histrionic characteristics scored higher on the psychological and social domains, whereas patients with narcissistic traits scored higher on the physical domain (Sevilla-Llewellyn-Jones et al., 2017).

In several nations, studies on schizophrenia patients' quality of life and drug adherence have been conducted. However, there is still not a lot of research in Indonesia that examines the connection between schizophrenic patients' adherence to their drug regimens and their quality of life. In addition, socio-demographic parameters such gender, education level, household income, and marital status have been found to affect

the quality of life of patients with schizophrenia in earlier studies (Hasan & Tumah, 2019; A. A.-H. Hasan, 2019).

Previous studies on socio demographic characteristics connected to quality of life discovered inconsistent results. On the other hand, Endriyani, Chien, Huang, & Chieh-Yu (2019) discovered that adherence to take medicine did not add enough to be meaningful in the quality of life among patients with schizophrenia. Adherence to take medicine was a predictor of quality of life of schizophrenia patients (Wang et al., 2017). Numerous sociodemographic traits are connected to patients with schizophrenia's quality of life ((A. A.-H. Hasan, 2019); Hasan & Tumah; & Peng et al., 2021; work status (Hsiao, Hsieh, Tseng, Chien, & Chang, 2012; Hamaideh, Al-Magaireh, Abu-Farsakh, & Al-Omari, 2014; A. A.-H. Hasan, 2019; Hasan & Tumah; & Peng et al., 2021), marital status ((A. A.-H. Hasan, 2019); Hasan & Tumah; & Peng et al., 2021).

The quality of life of schizophrenia patients was not found to be correlated with age (Hamaideh et al., 2014; (A. A.-H. Hasan, 2019); and Endriyani, Chien, Huang, & Chieh-Yu, 2019), age of onset (Hamaideh, Al-Magaireh, Abu-Farsakh, & Al-Omari, 2014; and Endriyani et al., 2019); education level (Hsiao, Hsieh, Tseng, Chien, & Chang, 2012; Hamaideh, Al-Magaireh, Abu-Farsakh, & Al-Omari, 2014; Endriyani, Chien, Huang, & Chieh-Yu, 2019). The purpose of this study is to demonstrate if socio-demographic characteristics have an impact on quality of life in light of the contradictions in earlier research.

MATERIALS AND METHOD

This research is a cross-sectional study to identify the relationship of social demography to quality of life of schizophrenia patients and find the predictors of quality of life of schizophrenia patients. This research was conducted as an effort to answer the inconsistent results of research on the relationship between demographic factors and the quality of life in schizophrenic patients. The population in this study were individuals with schizophrenia in the State Psychiatric Hospital Surakarta with 153 people represented the study's target population. In this study, the researchers used quota random sampling, in which the number of respondents from each region was first specified, and then random representatives from each region were selected. The inclusion criteria for the sample in this study are: being willing to be a respondent, having a history of schizophrenia at age 10-50 years old, has capability to communicate verbally, relapse and had been hospitalized at least two times. This study identified the relationship of social demography to quality of life of schizophrenia patients including age, age at first experiencing schizophrenia, gender, education level, work status, marital status, frequency of treatment, duration of suffering from schizophrenia, insight, physical health problems. The data collection tool in this study was a questionnaire containing questions about demographics consisting of age, age at first experiencing schizophrenia, gender, education level, work status, marital status, frequency of treatment, duration of suffering from schizophrenia, insight, physical health problems and quality of life by using WHOQOL-BREF. The results obtained from the instrument trial showed that the Cronbach's coefficient, was $\alpha = 0.952$ in overall WHOQOL-BREF.

After obtaining permission, the researcher entered into a contract with the State Psychiatric Hospital Surakarta, nurses, volunteer health workers, families, and people with schizophrenia. Data was collected on patients who hospitalized in collaboration with nurses. This research started from September 2020 to March 2021 in the State Psychiatric Hospital Surakarta. This study was followed by schizophrenic patients who met the inclusion criteria and obtained a sample of 153.

The data were analyzed using univariate, bivariate, and multivariate methods using SPSS for Windows version 25. The univariate analysis presented the demographic characteristics of people with schizophrenia including age, age at first experiencing schizophrenia, gender, education level, work status, marital status, frequency of treatment, duration of suffering from schizophrenia, insight, physical health problems, and quality of life by using WHOQOL-BREF were shown in the frequency distribution. An analysis of bivariate test data with the Spearmen rank (rho) test and the Pearson Chi-Square were used to analyze the relationship between each demographic factor with the quality of life by using WHOQOL-BREF. Meanwhile, multivariate test data analysis with multiple logistic regression was used to analyze the WHOQOL-BREF predictors. This research has been registered with the Health Research Ethics Commission of the Health Polytechnic of the Ministry of Health of Surakarta with the Ethical Clearancenumber: No.LB.02.02/1.1/6924.1/2019.

RESULTS

Table 1 shows that of the 153 patients the mean age was 34.33 ± 7.59 years old. The mean age for the first-time experiencing schizophrenia was 26.24 ± 7.59 years old. The mean frequency of treatment was 3.65 ± 3.37 times. The mean duration of suffering was 8.38 ± 3.52 years. More men than women are patients as a percentage. Male

respondents were 72.5% (111) while the rest were female 27.5% (42). At the level of education, most patients have senior high school and above education, 39.2% (60) people, while the lowest percentage of patients who have primary school and below was 27.5 % (42) people. The proportion of patients before illness who worked more than those who did not work were 42.5% (65) people as full time employed and 34.6% (53) people as part time employed, the patients who did not work was 22.9% (35) people. The proportion of patients who are married is more than those who are single and divorced. The number of patients who are married is 43.1% (66), while for the rest are single 28.8 % (44) and divorce/separated/widow is 28.1% (43). Meanwhile, the most respondents have no history of physical problems, account 49.7% (76), 42.5% (65) of patients with history of noninfectious problem, and 7.8% (12) with history of infectious disease problem. A total of 43.8% (67) patients had low adherence, 29.4% (45) respondents had medium adherence in taking medication while 26.8 % (41) people had high adherence with the medication given.

Table 1. Demographic Characteristics of Respondents(N=153)

Demographic Characteristics of Respondents		N	%
Age (Mean± SD)	34.33±7.59		
Age of onset (Mean± SD)	26.24±7.59		
Number of previous hospitalization (Mean± SD)	3.65±3.37		
Duration of suffering (Mean± SD)	8.38±3.52		
Gender	Male	111	72.5
	Female	42	27.5
Education level	Primary school and below	42	27.5
	Junior High School	51	33.3
	Senior High School and above	60	39.2
Work Status	Unemployed	35	22.9
	Part time employed	53	34.6
	Full time employed	65	42.5
Marital Status	Single	44	28.8
	Divorce/Separated /Widow	43	28.1
	Married	66	43.1
History of physical problem	Non infectious disease	65	42.5
	Infectious disease	12	7.8
	No history	76	49.7
Adherence taking medicine	Low adherence	67	43.8
	Medium adherence	45	29.4
	High adherence	41	26.8

Table 2. Relationship **between** sociodemographic and quality of life (WHOQOL-BREF General) in schizophrenic patients (n = 153) according to the Spearman's coefficient and the Pearson Chi-Square

Characteristics of sociodemographic	Quality of life (WHOQOL-BREF General)	
	Correlation Coefficient (Rs)	P value
Age	0.089	0.273
Age of onset	0. 088	0. 279
Gender		**0. 032**
Education level	0.067	0. 410
Work status	0.578**	**0.000**
Marital status	0.604**	**0.000**
Number of Previous hospitalizations	0.094	0.248
Duration of suffering illness	- 0.068	0.402
History of physical problem	0.054	0.507
Adherence taking medicine	0.197*	**0.015**

**. Correlation is significant at the 0.01 level (2-tailed).

The relationship between sociodemographic and overall quality of life (WHOQOL-BREF General) in schizophrenic patients is displayed in Table 2. There was no relationship between characteristics such as age, age at first experiencing schizophrenia symptoms, education level, number of previous hospitalizations, duration of illness, history of physical problem with the overall quality of life (WHOQOL-BREF) ($p > 0.05$). The analysis showed a significant positive correlation between quality of life (WHOQOL-BREF General) and gender (p=0. 032), work status (p =0.000), as well as with marital status (p =0.000). Furthermore, a positive significant relationship was detected between quality of life (WHOQOL-BREF General) and adherence taking medicine (p = 0.015)

Table 3. The predicting factors of quality of life (QOL) in patient with schizophrenia according to the Multiple Logistic Regression test (n = 153)

Variable		Quality of Life (QOL)			
		β	SE	P value	OR
QOL in general	Work status	2.942	0.925	0.001	18.956
	Marital status	3.239	0.912	0.000	25.499
	Constant	-1.976	0.330	0.000	0.139

The results of the analysis with multiple logistic regression using Backward stepwise are presented in Table 3. The findings revealed that work status and marital status are significant predictors of the quality of life in general. The largest OR value obtained is 25.499, this means that married patients have a 25.499 times chance of

having a better quality of life in general. Employed schizophrenia patients have 18.956 times chance to have high quality of life.

DISCUSSION
There is a relationship between social demography and quality of life of schizophrenia patients

From the demographic characteristics of schizophrenic patients in this study, there are 4 characteristics that have a positive significant relationship with the overall quality of life, namely work status (p = 0.000), marital status with p = 0.000, gender (p=0.032), and adherence to take medicine with p=0.015 (p <0.05). The result was in line with other studies that the overall quality of life has a significant relationship with work status (Hsiao, Hsieh, Tseng, Chien, & Chang, 2012; Ogunnubi, Olagunju, Aina, & Okubadejo, 2017; (A. A.-H. Hasan, 2019); Hasan & Tumah, 2019; Yerriah, Tomita, & Paruk, 2022), and marital status (A. A.-H. Hasan, 2019); Hasan & Tumah, 2019). This research also has similar findings with previous research that gender (Hasan & Tumah, 2019), and adherence to take medicine (Hasan & Tumah, 2019; Endriyani, Chien, Huang, & Chieh-Yu, 2019; Caqueo-Urízar, Urzúa, Mena-Chamorro, Fond, & Boyer, 2020) have a positive significant relationship with the overall quality of life.

In addition, the other results were also consistent with previous study that there was no significant relationship among quality of life in general with age (Endriyani et al., 2019; Hamaideh, Al-Magaireh, Abu-Farsakh, & Al-Omari, 2014, age at first experiencing schizophrenia (Endriyani, Chien, Huang, & Chieh-Yu, 2019), number of previous hospitalizations and education level (Hsiao, Hsieh, Tseng, Chien, & Chang, 2012; Endriyani, Chien, Huang, & Chieh-Yu, 2019), and history of physical health problem (Peng et al., 2021).

On the other hand, the results of this study are contrary to previous studies that there was no relationship among age, age at first experiencing, duration of suffering schizophrenia, and history of physical health problem. Previous study found that there was a relationship between quality of life with age (Hasan & Tumah, 2019; Hsiao et al., 2012), age at first experiencing schizophrenia (Hsiao, Hsieh, Tseng, Chien, & Chang, 2012), duration of suffering schizophrenia (Hasan & Tumah, 2019; Hsiao, Hsieh, Tseng, Chien, & Chang, 2012), and history of physical health problem (Hsiao, Hsieh, Tseng, Chien, & Chang, 2012).

The difference results of this study with previous studies may be due to the different of age, age of first suffering and duration of suffering with previous studies. The longer a person suffers from a chronic disease such as schizophrenia, the more knowledge, experience, and understanding of the drugs they consume. In this study, the mean of suffering mental disorder was 8 years. The length of time suffering from mental disorders has the potential to cause similarities to their quality of life.

Furthermore, there was no relationship between quality of life and marital status (Hsiao, Hsieh, Tseng, Chien, & Chang, 2012). Marital status can be viewed in terms of cultural needs so that it will be different for each person with a different cultural background. Moreover, marriage can also be interpreted socially and economically. The more advanced the level of education, the opening of economic job opportunities for women, and the smooth flow of information and communication make people's lives change, for instance, the working-age population's suicide rate is influenced both separately and together by marital status, educational level, and employment situation. Particularly among young adults, being divorced, unemployed, or economically inactive

increased the chance of suicide (Choi, Sempungu, Lee, Chang, & Lee, 2022). The higher the age of marriage and the phenomenon of women working/career is one of the many symptoms that marriage has become something that can be negotiated which ultimately affects a person to choose or not to choose marriage as an effort to fulfill his life satisfaction. Most Indonesian women with lower level of education and do not have good careers at work, will assume that marriage will help them to meet their needs and meet the demands of society. In addition, most Indonesian people think that getting married is part of the ideal of life. Married status makes people feel more valuable and achieve what they dream of in life. Some parents in Indonesia also want their children to get married as soon as they reach adulthood even when they graduate from school in grade 9 or 12. Marriage makes people feel there is a support system from their partner and other families to share and avoid gossip from society. People with mental problems who were married reported feeling more supported by their social networks (Vaingankar et al., 2020). The previous research is in line with this research finding.

Work status and marital status are predictors of the quality of life of schizophrenia patient

It can be concluded that of all the independent variables that are thought to affect the quality of life of schizophrenia patients in general (Overall WHOQOL-BREF), there are 2 sub variables, marital status and work status that influence the quality of life (p=0.000 and p=0.001). The largest OR value obtained is 25.499. It means that married patients have a 25.499 times chance of having a better quality of life controlled by work status.

This finding is in line with the results of previous research (Hasan & Tumah, 2019; A. A.-H. Hasan, 2019) that marital status are predictors of quality of life of schizophrenic patients. In contrast, other study found that marital status was not useful for predicting subsequent long-term quality of life (Ritsner, Lisker, & Grinshpoon, 2014). Employed schizophrenia patients have OR value 18.956. This means that employed patients have possibility 18.956 times to have high quality of life than unemployed patient. Some of the results in previous studies showed variations in different results with several similarities and differences. The conflicting results of the studies on relationship between social demographics variables and quality of life including predictors of quality of life were because of having either been directed in various nations with various psychosocial factors or design aspects of these researches.

CONCLUSION

From the demographic characteristics of schizophrenic patients in this study, there are 4 characteristics that have a positive significant relationship with the overall quality of life, in particular work status (p = 0.000), marital status with p = 0.000, gender (p=0.032), and adherence to take medicine with p=0.015 (p <0.05).

The multiple logistic regression test showed that marital status and work status are predictors of quality of life in general. Marriage status and employment status that affect quality of life (p=0.000 and p=0.001, respectively). Work status and marital status are important indicators of overall life quality, 25.499 is the highest OR value that was found. This indicates that patients who are married are 25.499 times more likely to have a higher overall quality of life. Schizophrenia patients who are employed had an 18.956 times higher likelihood of having lives that were satisfying.

In order to take the proper action with an approach to these factors when delivering treatment to schizophrenia patients, health professionals must pay attention when examining socioeconomic demographics such as work status and marital status. Research on sociodemographic characteristics connected to quality of life revealed inconsistent findings. Based on the inconsistency of previous research, it is necessary to prove whether socio-demographic factors can be a moderating variable on quality of life.

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Original Research

Frequency of Treatment of Foot Wounds in Diabetes Melitus Patients Infected with Covid -19

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ABSTRACT

Background: *Frequency of Treatment of Foot Wounds in Diabetes Melitus Patients Infected with Covid -19 Objective: to assess the differences in the frequency of treatment in patients with or without arterial injuries. Purpose to assess the differences in the frequency of treatment in patients with or without arterial injuries.*

Methods: *This type of quantitave research was comparative and descriptive to assess the difference in the frequency of treatment between those with arterial injuries and those without arterial injuries. A sample of 60 people who had been exposed to COVID-19 and had diabetic foot wounds was split into two groups: 35 people who had arterial injuries and 25 people who did not. Samples were taken using purposive sampling method Both groups of respondents recorded the frequency of wound care that had been received and analyzed it using the Chi- square test with an error degree of 0.05.*

Results: *Patients exposed to Covid 19 showed a difference in the frequency of treating diabetic foot wounds between those who had vascular injuries and those who did not, with a P value of 0.049 0.05 and an OR of 95% CI = 2.114.*

Conclusion: *There is a difference in the frequency of wound care for DM patients between those exposed to COVID-19 and experiencing arterial injuries and those who do not have arterial injuries. Patients who experience arterial injuries have the risk of increasing the frequency of wound care by 1.114 times compared to those who do not experience arterial injuries.*

INTRODUCTION

Diabetes, also referred to as diabetes mellitus (DM), is a chronic illness that affects the majority of people worldwide. A change in lifestyle is one of the primary causes of DM. The number of DM patients continues to rise annually; in fact, the WHO predicts that it will reach 61% in 2030 and that it will become a pandemic and affect 70% of developing nations, including Indonesia, in 21 years (WHO, 2016).

According to the IDF (International Diabetes Federation), the prevalence rate of

type 2 diabetes mellitus, which was around 10.5% in 2021, could increase to 12.2% in 2045. According to research, the prevalence of T2DM in urban areas is 12.1% greater than in rural regions by 8.3% (Sun, H., Saeedi, P., Karuranga, S., Pinkepank, M., Ogurtsova, K., and Duncan, B.N., 2022). Multiple consequences of diabetes mellitus necessitate ongoing care and supervision, altering the biopsychosocial and spiritual aspects of the patient. Providing spiritual guidance is essential to enabling someone to live successfully and happily despite the difficulties they encounter.

The increasing prevalence of diabetes mellitus is causing a massive increase in peripheral arterial disease, a disabling complication of diabetic atherosclerosis that often results in amputation of the affected limb. Diabetic foot ulcers are one of the complications caused by poor blood sugar control. This condition will get worse if blood sugar control is also bad. The condition of leg injuries is usually not felt by patients because they experience nerve death, so patients are not aware of the condition of their leg injuries. However, when an infection occurs, they usually only realize that they have a leg wound.

Avoiding the expansion of foot wounds and avoiding the occurrence of complications that lead to amputation requires proper and continuous care. Various modern foot wound dressing and treatment techniques can be used to assist in treating foot wounds. For maintaining moisture, occlusive and semi-occlusive dressings can be used because modern dressings aim to maintain the isolation of the wound environment, which remains moist.

MATERIALS AND METHOD

A comparative descriptive study is the kind of research used to compare the frequency of hospitalization between people who have arterial injuries and others who don't. The study was carried out in the Wound Care Clinic of PT Rumah Sakit Indonesia Unit Surakarta, Karang Anyar, and Sukoharjo, Central Java, and Yogyakarta Sleman and Bantul Units from February 2022 to November 2022. The sample included 60 participants with diabetic foot wounds who had been exposed to or received COVID-19; of them, 35 participants had vascular damage and 25 participants did not. Modern dressings were used to treat the wounds in each group.

Additionally, both respondents with arterial injuries and respondents without arterial injuries had their wound care time assessed. Furthermore, an assessment of the length of wound care was carried out for respondents who had arterial injuries and those who did not have arterial injuries and assessed the degree of injury using the wound observation sheet according to Meggit-Wagner and PEDIS. Chi-squared analysis of outcome data. This multi-year research feasibility statement was obtained from the Ethics Commission of RSUP Dr Moewardi Surakarta on April 28 2021 number 464/IV/HREC/2021.

RESULTS
The following are tables of research results

Table 1. Respondent Characteristics and Frequency of Wound Care

Variabel		Arterial Wound				Total
		Yes		No		
		f	%	f	%	
Gender	Male	10	29	11	44	21

| Variabel | Arterial Wound | | | | Total |
| | Yes | | No | | |
	f	%	f	%	
Female	25	71	14	56	39
Age					
< 59	18	51	10	50	30
60-74	15	44	6	30	24
>74	2	5	4	20	6
Educational Background					
Elementary School	14	40	11	11	25
Junior High School	10	31	6	23	16
Senior High School	8	21	6	27	14
Higher Education	3	8	2	8	5
Frequency of wound care					
3 x	17	44	10	69	27
>3 x	24	56	9	31	33
OR 95% CI	2,114				
p. Value	0,049				

According to the IDF (International Diabetes Federation), the prevalence rate of type 2 diabetes mellitus, which was around 10.5% in 2021, could increase to 12.2% in 2045. According to research, the prevalence of T2DM in urban areas is 12.1% greater than in rural regions by 8.3% (Sun, H., Saeedi, P., Karuranga, S., Pinkepank, M., Ogurtsova, K., and Duncan, B.N., 2022). Multiple consequences of diabetes mellitus necessitate ongoing care and supervision, altering the biopsychosocial and spiritual aspects of the patient. Providing spiritual guidance is essential to enabling someone to live successfully and happily despite the difficulties they encounter.

The table shows that most of the respondents are women and most are less than 59 years old. The educational background of the respondents was mostly elementary school as many as 25 people. The highest frequency of wound care was > 3 times compared to those with < 3 times frequency. Meanwhile, the difference in the frequency of wound care between respondents who had arterial injuries and those who did not have arterial injuries had a p value = 0.049 <0.05. The table also shows that the frequency of wound treatment is 2.114 times higher for respondents at risk for arterial injuries than for respondents who do not have such injuries.

DISCUSSION

Currently, foot wounds in diabetics are one of the consequences that frequently happen, can be fatal, shorten life expectancy, and cost a lot to heal. According to the IDF (International Diabetes Foundation), it affected 9% (463 million adults) of the world's population in 2019. This will continue to rise, especially in relation to the senior population (Hong Suna et al., 2022).

Diabetes mellitus, which affected about 7% of patients with COVID-19 during the pandemic (Shenoy A., Ismaily M., 2020), was the most frequent comorbidity. Diabetic patients exposed to COVID-19 frequently encounter difficulties as a result of this disease. On the one hand, dietary consumption needs to be restricted, especially in terms

of carbs. On the other hand, the body's tolerance to COVID-19 must be increased through optimal nutrition (Madsbad, 2020).

The findings of this study are consistent, in terms of age and gender characteristics, with those of Yunus' (2015) study, which found that male and female respondents took different amounts of time to care for their diabetes wounds. Additionally, it was discovered that respondents under the age of 50 received wound treatment more quickly. Additionally, it has been discovered that among diabetic people with foot ulcers, whose mean age is 73 years, 44% of the ulcers do not heal after 17 months of treatment, 15% require major amputation, and 42% pass away. According to the study's findings, individuals with arterial damage and diabetic foot ulcers are more likely to experience problems after treatment, including amputation.

Diabetes mellitus wounds are believed to be closely associated with vascular injuries because numerous previous studies indicate that diabetic patients are at risk of suffering from such wounds (Takahara, 2021). When diabetic patients are exposed to COVID-19, this problem becomes more obvious. Endothelial dysfunction was explained as the result of hypercoagulation, which started as a result of endothelial injury and caused susceptibility to thrombosis in the peripheral blood vessels. This led to ischemia in the extremities, which sped up the development of ulcers in diabetic patients (LU, Tilo, Claesson, K., and Acosta, 2021).

According to a different theory, peripheral arterial disease, which can have serious consequences, is one of the factors contributing to diabetic foot wounds (Atri, A., Murthy, C., Dasgupta, 2020). Thus, it is clear that vascular disease can result in diabetic wounds and that diabetic wounds can make people severely ill as a result. This can induce problems, including amputation.

Other studies that claimed there was a connection between endothelial cell dysfunction in diabetes and COVID-19 patients, which led to an increase in the frequency of wound care, also corroborated the findings of this study (Hayden, 2020). According to additional research, diabetic lesions will deteriorate into arterial wounds (Bekele, F., 2020). As a result, this will increase the likelihood of problems, such as amputation, to a prevalence of up to 43.87% (Azhar, 2021). Similar reasoning was given as to why treating populations at risk for amputations should be the focus of efforts to enhance the standard of care for patients with vascular injuries (Barnes J.A., 2020).

CONCLUSION

There is a variation in the frequency of wound treatment for DM patients depending on whether they were exposed to COVID-19 and had vascular damage or not. When compared to patients who do not experience arterial injuries, those who do run the risk of needing wound care 1.114 times more frequently.

As a recommendation from the results of this study, it is recommended every time you want to provide wound care Every time you want to treat a diabetic patient's wound, it is advised that you begin by being aware of any prior exposure to COVID 19. The presence of vascular wounds is then investigated in order to provide more accurate and efficient wound management.

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frequent wound care. In order to comprehend and patiently support wound care efforts, patients are expected to be informed.

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JURNAL KEPERAWATAN GLOBAL

Original Research/Systematic Review

Evaluation of the Program for Giving Iron Tablets to Young Women

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ABSTRACT

*Background***:** *Anemia due to iron deficiency is a prevalent health issue that affects many people, particularly women, from early childhood through adulthood. Bleeding can be a problem for pregnant women who have iron deficiency anemia, among other things, during pregnancy, labor, and the puerperium. Low birth weight, early birth, and problems of growth and development that result in stunting are some of the effects that anemic mothers experience while carrying their unborn children. Adolescent anemia continues up until the point at which the adolescent becomes pregnant. To treat iron-deficient anemia, the government is marketing blood replacement tablets. Pupose of study is to determine the effectiveness of iron tablets, the authors worked with the Klaten District Health Office to compare Hb and ferritin levels in pupils who had received blood tablets for 9 months versus kids who had not had blood tablets.*

Methods: *This study used a cross-sectional research approach and is a case analysis study. The SMP Negeri I Jogonalan Klaten is the research location. Study do in June to September 2022. Respondents are 60 pupils from Klaten Public Middle School I, ages 11 to 14, participated in the survey. Of them, 30 female respondents had taken iron supplements for 9 months (40 weeks), while the remaining 30 served as controls and had not received blood supplements. After being told of the advantages of the study, participants who signed a written informed permission form and agreed to take part in it had their ferritin and hemoglobin levels checked.*

Results: *When compared to the control group's ferritin value of 16.13% and Hb value of 6.45%, the treatment group's ferritin value was low (24.14%) and the Hb value was 10.34%.*

Conclusion: *20% of young women are still found to have anemia. Young women should be prevent anemia.*

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INTRODUCTION

Anemia due to iron deficiency is a prevalent health issue that affects many people, particularly women, from early childhood through adulthood. According to the 2018 Riskesdas data, the prevalence of anemia in young women increased from 37.1% in the 2013 Riskesdas to 48.9% in the 2018 Riskesdas, with the age groups 15–24 and 25–34 years having the highest proportions of anemia (RI Ministry of Health, 2018). Children who have anemia due to iron deficiency may experience growth and developmental disorders, behavioral changes, and impairments in motor function. These effects may lead to decreased learning capacity, which may in turn lead to lower academic achievement (Intantri, 2020). If untreated, anemia can have negative effects on adolescent daughters and women who are of childbearing age up until they become pregnant. This can result in bleeding before, during, and after birth, endangering the health and safety of both the mother and the unborn child. In addition, problems that can be caused to the unborn child when the mother has anemia include impaired fetal growth, premature birth, BBLR and child growth disorders such as stunting and neurocognitive disorder (Kemenkes RI Ditjen P2P, 2021).

Consuming foods high in vitamins and minerals, particularly those that can encourage the production of red blood cells as a preventive strategy, fortifying foods with iron, and taking iron supplements are all ways to treat and prevent anemia. Not everyone is able or ready to eat a variety of foods high in iron, folic acid, vitamin B12, and vitamin C; therefore, the most practical alternative is to administer iron tablets (TTD) to ensure iron consumption. The administration of iron supplements to young women is carried out through UKS/M at educational institutions (junior high and high schools or equivalent) by determining the day of taking iron tablets together. The Ministry of Health determines the provision of iron supplements to young women and women of childbearing age. Young girls at SMP Negeri 1 Jogonalan Klaten, held every Friday after breakfast together at school, receive a weekly dose of one tablet (RI Ministry of Health Directorate General of P2P, 2021).

The authors worked with the Klaten District Health Office to conduct an evaluation by comparing the Hb and ferritin levels of Joyonalan Klaten 1 Public Middle School students after 9 months of consuming iron tablets to those of students who had not yet taken iron tablets in order to determine the efficacy of giving iron supplements to young women there.

MATERIALS AND METHOD

This research method is a case study with a cross-sectional research design. The research was conducted from June to September 2022 at SMPN I Jogonalan-Klaten. Ethical approval for this study was issued by the Health Research Ethics Commission at RSUD Dr. Moewardi in Surakarta. Respondents in this study amounted to 60, who were divided into two groups, each consisting of 30 respondents. The first group was comprised of female students who had taken 60 mg ferrous fumarate supplements for nine months, and the 30 respondents as controls were female students who had not been given supplements. Purposive sampling was used to collect samples, and the inclusion criteria included being between the ages of 11 and 14 years old, taking iron supplements regularly every Friday for nine months, not having periods, and having a phobia of blood. All female students had their blood drawn for ferritin and hemoglobin testing after being told of the advantages of the research and expressing their understanding and

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willingness to take part in the following study by signing the informed consent form. A chi-square with a value of 0.05 was applied for data analysis.

RESULTS

Table 1. Female Ferritin Value After Taking Blood Supplement Tablets (n = 60)

Respondent	Ferritin Value (mg/dl)			Keterangan
	Low	Normal	High	
Taking Blood Supplement Tablets	24,14%	65,52%	10,34%	p = 0,532
kontrol	16,13%	80,65%	3,23%	

Based on the data above, the low ferritin value remains at 24.14% after taking blood-added tablets; more than half of this value is considered normal, while the high ferritin value only makes up a minor percentage of the total. Prior to taking iron supplements, only a tiny percentage of ferritin readings in the control group were low, while the majority (80.65%) were normal. The chi-square test results showed a p-value of 0.532.

Table 2. Hemoglobin Value of Young Women After Taking Blood Supplement Tablets (n = 60)

Respondent	Hemoglobin Value (gr%)			P Value
	Low	Normal	High	
Taking Blood Supplement Tablets	10,34%	75,86%	13,79%	
kontrol	6,45%	77,42%	16,13%	0,847

The table above shows that the Hb levels were generally normal in both the iron tablet group and the control group, with just a few individuals having low and high Hb readings. The chi-square test outcomes were p = 0.847.

DISCUSSION

According to the findings of this study, the low ferritin value was 24% and the low hemoglobin value was 10.34% after taking blood supplement tablets for nine months, but in the control group, the low ferritin value was 16.13% and the poor hemoglobin value was 6.45%. According to Tiyas' findings, the prevalence of anemia reduced from 20% to 15.7% after eating blood supplement tablets (Permatasari et al., 2018). The findings of this investigation were different from those of Tiyas.

This research supports the findings of other studies (Yuanti et al., 2020; Kapoh et al., 2021) that showed elevated Hb levels following the administration of blood-

supplement tablets. The hemoglobin value after taking 30 blood tablets is not significantly different from that of pregnant women who do not take iron tablets. A considerable increase in hemoglobin was observed in a study (Daniilidis et al., 2020) in which women were given acetylated iron aspartate for 4 weeks. According to the study's findings, low ferritin levels were found in both the controls and the female adolescents who had taken blood-supplement tablets, suggesting that the presentation of anemia in these young women was more severe than that of individuals who had low hemoglobin levels. These findings also suggest that not all individuals with low ferritin levels exhibit the physiological symptoms of anemia.

Masrizal asserts that despite the physiological absence of anemia symptoms, a person with extremely low iron levels is prone to anemia. A person is said to have iron nutritional anemia if their body does not have enough ferritin, which serves as its iron reserve, and this lack of ferritin affects their ability to form red blood cells in the bone marrow, causing their hemoglobin level to drop below normal (Masrizal, 2017). In this study, young women who had been taking the blood supplement for nine months had a higher incidence of anemia than the controls. Chronic malnutrition and micronutrient deficiency are closely associated with low hemoglobin levels and can prevent the body from responding to iron delivery (Allen et al., 2000).

The prevalence of anemia is frequently employed as a variable to evaluate iron deficiency anemia because, in Durrani's view, anemia is an accumulation of different causal causes, but iron deficiency is by far the most important one (Santosa et al., 2022). The mineral iron is one that the body truly needs. Every 1 mg of iron consumed can boost hemoglobin concentration by 0.052 hemoglobin, serving as a chemical that aids in the synthesis of hemoglobin. According to Beck, compared to women who don't drink milk, who only have subpar body iron reserves, women who consume milk and its derivatives have enough body iron reserves. Beck advised young women to consult a nutritionist, saying that the most effective way to treat anemia is through diet (Beck et al., 2014), (Nazanin Abbaspour 1, Richard Hurrell 2, 2014). He further stated that in order to increase the absorption of non-hem iron, it is necessary to consider foods that can inhibit or increase iron absorption at every meal. The value of serum ferritin-free erythrocyte protoporphyrin (FEP) can be increased by providing female adolescents with iron supplementation at a level of 60 mg/day regularly, two times per week, for 17 weeks (IDAI, 2012).

The outcomes of recycling the destruction of erythrocytes by macrophages in the reticulum, in accordance with Dan et al. (2023) are the source of iron for iron metabolism. Heme and non-heme forms of iron are both present in the diet, and these are the two types. Fish, meat, and chicken have heme iron, whereas vegetables, fruits, eggs, and pasta contain non-heme iron. Food sources of iron contain ferric ions, which must first be converted to ferrous ions in order to be absorbed. If the respondent consumes foods high in vitamin C, amino acids, and fructose from fruits, administering iron pills will be more effective.

CONCLUSION

The hemoglobin value in female adolescents who had been given iron supplement tablets (TTD) in the form of ferrous fumarate 60 mg for 9 months (40 mg) was not significantly different from female adolescents who had not been given iron supplement tablets (p = 0.847). Female adolescents who had received iron supplement

tablets (TTD) in the form of ferrous fumarate 60 mg for 9 months (40 mg) did not differ substantially from female adolescents who had not received iron supplement tablets, according to the results ($p = 0.532$).

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Original Research

Study of Diabetes Mellitus Management Policies Using a Systems Approach in Surge Capacity

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ABSTRACT

Background: *The prevalence of Diabetes Mellitus (DM) in Indonesia continues to increase, even though DM control policies and programs have been implemented. According to existing policies, the family has not been involved in diabetes control. This study evaluates diabetes mellitus management policies by designing family-based community empowerment model interventions with a systems approach to surge capacity.*

Methods: *The design of this study used a cross-sectional operational analysis conducted in Cirebon City with 26 participants. Data collection was carried out using Focus Group Discussion (FGD) and in-depth interviews using interview guidelines from the surge capacity component. Inclusion criteria were Non-Communicable Diseases program holders at the Cirebon City Health Office and Community Health Centers with the highest and lowest prevalence, and DM sufferers and their families representing each age and gender category. Data analysis was performed using open code.*

Results: *The non-communicable disease program has not been integrated between the health office and the hospital; funds for the DM prevention program have not met the needs; there are limited human resources with multiple tasks and an excessive workload, so it is not optimal for DM health services; and there is a lack of family involvement in diabetes control, so the incidence of DM is still not usually controlled.*

Conclusion: *Policy studies using a system approach in surge capacity have been able to dig up various information on DM control efforts in terms of policy, organizational structure, DM surveillance, information systems, integrated services, case screening, budgeting, and community empowerment.*

INTRODUCTION

Diabetes Mellitus (DM) is a Non-Communicable Disease that is an issue of the 2030 Sustainable Development Goals and is a priority in every country (Direktorat Jenderal Pencegahan dan Pengendalian Penyakit, 2019). The International Diabetes Federation estimates that the prevalence of DM worldwide is 9.3%. Indonesia is the only country in Southeast Asia that is included in the ten countries with the highest DM sufferers in the world (Kementerian Kesehatan RI, 2020).

Diabetes Mellitus can cause heart disease, kidney failure, blindness, and even death, especially during the COVID-19 pandemic, which is still happening today. Diabetes Mellitus is the second-largest comorbid disease that increases the risk of death in Indonesia (Kemenkes, RI, 2020). The prevalence of DM in Indonesia based on a doctor's diagnosis at the age of >= 15 years has increased from 1.5% in 2013 to 2% in 2018, as well as the prevalence based on blood sugar examination results from 6.9% in 2013 to 8.5% in 2018 (Badan Penelitian dan Pengembangan Kesehatan Kemenkes RI, 2019a).

This prevalence is still very far from the global target of the P2PTM program. Namely, there is no increase in DM or 0% (Direktorat Jenderal Pencegahan dan Pengendalian Penyakit, 2019). The difference in the prevalence of DM based on a doctor's diagnosis and blood sugar examination shows that only 25% of sufferers know they have DM (Kementerian Kesehatan RI, 2020). West Java Province has a high DM prevalence of 1.7% (Badan Penelitian dan Pengembangan Kesehatan Kemenkes RI, 2019a). Cirebon City is a city in West Java Province with the highest DM prevalence of 3.58%, which exceeds the national prevalence (Badan Penelitian dan Pengembangan Kesehatan Kemenkes RI, 2019b).

The government has issued a policy through Permenkes, or Regulation of the Minister of Health number 71 of 2015, concerning the management of Non-Communicable Diseases (NCDs) (Kemenkes, 2015). Permenkes explains that the central government, local government, and the community are responsible for managing NCDs and the consequences they cause through community health efforts and individual health efforts. Prevention of NCDs through Public Health Efforts is carried out with prevention and control efforts focused on controlling modifiable risk factors through health promotion activities, early detection of risk factors, and special protection. Control is carried out through early-case findings and early management activities. Handling individual health efforts is carried out by handling cases.

Health promotion aims to realize clean and healthy behavior by practicing CERDIK behavior, namely periodic health checks, getting rid of cigarette smoke, diligent physical activity, a healthy diet, balanced nutrition, adequate rest, and managing stress, carried out by health workers who are competent in the field and empower health cadres (Kemenkes, 2015). Even though there has been a policy on DM prevention until now, it has not shown any significant success, as evidenced by the increasing prevalence and low CERDIK behavior for diabetes prevention. In Cirebon City, the proportion of people eating sweets > once a day was 56.99%, and the habit of drinking sweets was 70.36%. The habit of consuming fatty foods once per day was 58.77%, and physical activity that was less active was 43.89%. All these figures exceed national figures.

In existing policies, the family has not been involved in diabetes control. The results of previous research concluded that the Sundanese culture-sensitive family empowerment model was effective in increasing family behavior and greatly

contributing to DM control (Badriah & Junaiti Sahar, 2017; Badriah et al., 2019; Badriah et al., 2021). The purpose of this study is to examine diabetes mellitus management policies using a systems approach to surge capacity.

MATERIALS AND METHOD
The study conducted is a cross-sectional operational analysis and policy research. This study explores the implementation of current regulations and what potential can support them so they can be implemented properly following existing regulations. The participants of this study were the head of nursing at Gunung Jati Hospital, Cirebon City; non-communicable disease officers, doctors, and nurses from Puskesmas Perumnas Utara and Puskesmas Kalitanjung, Cirebon City; Head of the Cirebon City Health Office; Head of Disease Prevention and Control; and Coordinator of Non-Communicable Diseases. The number of participants was calculated by a purposive sampling technique, with as many as 12 participants.

Data were collected from November 12 to November 15, 2022, through in-depth interviews and focus group discussions, using digital sound recordings and field notes, with each participant in their home in approximately 60 to 90 min/sessions, for a total of 4 interview sessions for one participant from the head of the nursing field at Gunung Jati Hospital. Focus Group Discussion data collection techniques have been carried out with health workers from the Puskesmas Perumnas Utara Puskesmas Kalitanjung and the Cirebon Health Office regarding efforts to control DM using the system approach in the surge capacity. The FGD activities were carried out on September 13, 2022. Data analysis in this study used qualitative analysis, namely content analysis, a scientific research technique aimed at describing the characteristics of the content and drawing inferences from the content. Content analysis was carried out using open-source software.

This research has passed the ethics test from the Gunung Jati Hospital, Cirebon ethics committee, with the number 044/LAYAKETIK/KEPPK RSGJ/IX/2022. In carrying out this research, it has fulfilled ethical principles such as explaining the research objectives, maintaining the confidentiality of respondents, and providing sufficient time for data collection. In addition, this study provides direct benefits, namely optimizing the implementation of Regulation of the Minister of Health number 71 of 2015 concerning the management of Non-Communicable Diseases (NCDs), specifically in the prevention and control of DM.

RESULTS
Characteristics of participants
There were twelve participants (two male and ten female), with an age range of 32 to 55 years. Their educational level varies; one participant passed the master of health, and eleven passed the bachelor's in nursing and public health. The length of work varies from 5 years to 10 years.

Management of DM in a Cirebon City-based system in the Surge Capacity System
The system in DM management includes policies and regulations, organization, structure, DM disease surveillance, information system, budget, case screening, integrated health services delivery, and community empowerment, as clearly described as follows.

Policies/Regulation

System analysis (integrated policy and management) in managing DM in the city of Cirebon. Based on the results of interviews with research informants, information was obtained regarding policies and management in DM in the city of Cirebon that the regulations and policies are divided into, namely, regulations that apply to the national level, such as Minister of Health Regulation No. 71 of 2015 concerning NCDs, PMK No. 5 of 2017 concerning the 2015-2019 National Action Plan for the Management of NCDs, and Minister of Health Regulation No. 4 of 2019 concerning the Minimum Service Standards and NCDs management manual. The Regulation at the City District Level, which is the guideline, consists of Regional Regulations on the Prevention and Management of NCDs, the Mayor's Circular on Prevention and Control of NCDs, the Mayor Decree, and standard operating procedures related to Minimum Service Standards No. 43 of 2016. The implementation of policies that apply in hospitals using Minister of Health regulations clinical guidelines no. HK 107, as stated by the informant, "..that the policies in force in cities and provinces are following national policies, achievement of the Minimum Service Standard target must be 100%, and the policy is made not specifically for the treatment of DM but for NCDs."

Organizational Structure

According to the information of the participants at the city or health office level, "the organizational structure of DM control shows that the structure of the service is integrated into NCDs. The structure looks "big" because many disease programs are integrated over there. The participant from the hospital stated that "the structure of DM treatment does not stand alone but is part of internal medicine." The Community Health Center (Puskesmas) received information from the participant: "The structure is integrated with NCDs; Posbindu and cadres are not included in the structure."

DM Disease Surveillance

The participants' answers to DM surveillance were divided into two categories, namely: a) regarding the objectives and implementers of the surveillance that surveillance aims to find or screen new sufferers; for old sufferers, it is more about treatment management. b) the timing of the surveillance as described below: "..surveillance of DM is not carried out separately but together in an NCDs program, by circulars and guidelines. Surveillance is carried out once a year, both outside the building and inside the building. Cadres assist in implementation at Posbindu and Posyandu with the target population aged 15 years and over. If suspected DM is found, they will be referred to the puskesmas, and a repeat test will be carried out at the puskesmas."

Information System

The participants answered that the information system in management DM was divided into two categories, namely types of information systems and constraints on the implementation of the information system.

The type of information stated by the participant is as follows: The Health Service and Puskesmas already have "SI PTM, or Information System NCDs," but this year a new IS, namely "ASIK," has appeared. Another participant mentioned that System NCDs" are used offline and online. At Posbindu and puskesmas, data is recorded on form or paper first, then entered into the application (excel) offline, and then the Excel file is sent to the Health Office for entry by health service officers into the action system

NCDs. " To complete the data for "information system NCDs," the puskesmas sometimes retrieve data from the "e-pusk" application; there is no special application for the hospital. However, it is included in the Hospital Information System (HIS). This year, there is a new application called ASIK for all programs, including PTM and DM. The ASIK application is fully online, but it is still quite difficult to use (because it is still new and the training is very new), and you also have to re-train the cadres."

The constraints on the implementation of information systems experienced by participants are described below: "... there still likes to have double data when entered (reported twice), puskesmas often send wrong NCDs reports, reports were sent late to the health office because the puskesmas staff was busy, health center staff who hold NCDs programs often change, the existing programs at the puskesmas are solid, but the number of officers is limited, and for ASIK because it is online, cadres must provide internet data/quota access."

Budget

Information obtained from participants regarding the DM management budget at the health office and at Puskesmas was divided into two categories: budget type and budget constraints.

Budget Type

The type of budget received was revealed from the participant's statement that '...the available annual budget is combined with the PTM program. There are various sources of the budget at the health service center and at the puskesmas: APBN, or State Revenue Expenditure Budget; APBD, or Regional Revenue Expenditure Budget; BOK, or Health Operational Assistance; and for puskesmas, other than the source of the budget, this is taken from the BLU Public Service Agency. The budget from the public service agency at the puskesmas is managed by the puskesmas itself. To carry out the screening of the puskesmas in coordination with the ward for the provision of consumables from the ward budget (before COVID)... Budget in the laboratory for the purchase of reagents... In the health department, the budget is more for outreach, and in the hospital, there is no special budget."

Budget Constraints

Information from some of the participants about budget constraints is that "the budget from the central government is very dependent on the size and allocation of the central government, often not by local or regional needs; the budget is not optimal during the COVID pandemic; the budget is too limited; the budget is not sustainable every year."

Case Screening

The participants' answers were divided into two categories: screening types and screening targets. As stated by the participant, "the available annual budget is combined in the PTM program; screening with blood sugar examination; screening for DM in hospitals is carried out according to standard clinical guidelines." Meanwhile, the target screening cases obtained information that "screening was carried out on residents aged 15–59 years; some were screened in junior high school; screening, especially in the building, is not only for residents in the working area of the puskesmas; the results of the screening will determine if the DM suspect is treated according to the work area because it will be difficult if it is managed at the puskesmas if it is outside the area."

Integrated Health Services Delivery
The participant's answers were divided into three categories: a) service characteristics; b) service flow; and c) constraints. The characteristics of health services are integrated, involving many professions such as doctors, nurses, nutritionists, laboratories, health promotion, and pharmacy. The service flow Services at the hospital are carried out according to patient service standards; if patients have positive DM, then services are given according to the diagnosis of DM for those served at the Internal Medicine Clinic with a laboratory examination package (BPJS), including serving patients referred to suspected DM, and the results of the service are recorded in the patient's medical record; if it's routine, it's recommended to the prolanis group." The constraints in service were mentioned by the participant as follows: There are obstacles in referral services from hospitals to puskesmas depending on the hospital; there are patients whose blood sugar is checked more than once a month; while follow-up efforts for patients served include those referred to the hospital; there are obstacles in the referral service from the hospital to the puskesmas depending on the hospital; there are patients whose blood sugar is examined more than once a month; while efforts to do follow-up for patients served include those referred to the hospital."

Community Empowerment
The participant's answers were divided into two categories: the content of the empowerment and the community empowerment goals. The content and type of empowerment are conveyed through the following statement: "Inviting the community to carry out the Healthy Community Movement, or Germas, to provide education about DM disease, education is carried out while identifying cases in the field. Education continues at every meeting. Empowerment during home visits... contains material about being smart and obedient; material on how to take medicine; education for prolongs and health promotion are separate and uncooperative patient education."
The Community Empowerment Goals are expressed as follows: "People with home visits will collaborate within health promotion officers,... to the patient's family for patients whom the family drives to the puskesmas; in hospitals, a community of DM sufferers was formed to facilitate socialization, etc., empowerment of cadres; the puskesmas conducts training to cadres at least once a year; and in educational hospitals, it is carried out when examining patients in clinics."

DISCUSSION
Based on the answers from the participants and cross-checked with existing documents, the regulations and policies used in the implementation of DM prevention are quite complete, starting with policies that are national, namely Minister of Health Regulation No. 71 of 2015 concerning DM management, which is followed up with policies at the national level. Until a circular letter from the mayor of Cirebon, at the technical level, such as at the health office and health center, SOPs have been made. Even so, the existing regulations and policies do not specifically address the prevention of DM but, in general, the prevention of Non-Communicable Diseases (NCDs).

According to the researchers, even though the implementation of DM prevention is integrated with the prevention of other non-communicable diseases, it is better for things that are more technical to make specific policies or regulations regarding DM prevention. Regarding the content of the policy, apart from being generally concerned with non-communicable diseases, the policy technically has not yet integrated all

services, both at the basic level, such as health centers, clinics, and specialist practice, up to the hospital when referred. There are no rules governing DM handling that are integrated from technical services and DM counseling to DM case reporting.

As a result of the absence of these regulations and policies, the researchers found that related DM management programs in hospitals were less integrated with programs in the health office. The new hospital serves DM patients according to clinical service guidelines only. There is no link between programs at the health office, puskesmas, or doctor's practice. This is following research in Thailand. This strategy document provides clear guidance to address the increasing burden of diabetes and NCDs, and creativity is needed.

In this changing disease burden, linking this approach to decentralization, national and local governments need to adapt guidance from the central level to effectively address a health concern that affects all levels of society and, therefore, clearly define their role in the struggle to prevent and deal with the increasing burden of diabetes and other NCDs (Beran & Higuchi, 2013). By applicable policies, DM surveillance activities are carried out together in non-communicable disease prevention activities. The implementation is carried out passively in the building and acts directly on the community, with the target population aged more than 15 years, by health cadres through posbindu. This surveillance aims to capture new DM sufferers who were previously undetected.

In practice, if a person is found whose blood sugar test results are higher than normal levels, then the health cadre will refer the person to the puskesmas for further examination. If it turns out that the results lead to DM disease, then the patient will be recorded as a DM sufferer and will be handled according to the Standard Operating Procedure for DM sufferers. For better results, as has been done in Pakistan, the four main strategies to tackle the rising incidence of diabetes in Pakistan are: 1) creating a multidisciplinary team through capacity building of the health care professionals, including doctors, dieticians, diabetes educators, diabetes foot assistants, and program managers, in standardized, evidence-based protocols, enhancing their knowledge and skill in managing diabetes and their related comorbidities; and 2) promoting primary prevention and awareness all over Pakistan using screening methods such as risk assessment of Pakistan individuals for diabetes. 3) defining strategies for management and prevention of diabetes and complications through a forum such as the Pakistan Diabetes Leadership Forum (PFLF); and 4) implementing a nationwide diabetes care program including registrations, treatment, and referral protocols (Basit et al., 2019).

The information system (SI PTM) has been created and implemented. Filled out by officers at the puskesmas, then recapitulated by officers at the district health office to be reported to the province and the ministry of health. Nevertheless, unfortunately, this system is not integrated with services in the hospital. This has the potential for undocumented patient care at the hospital. This also shows that the data has not been integrated into one system because the hospital records and reports it in another format to the health service department at the health office.

The latest information has been made and introduced; a new information system called ASIK has been used as a substitute for SI PTM. Following applicable regulations, this information system is not specific to DM but to non-communicable diseases. It is very important to integrate DM patient data in an information system, such as the results of research conducted in Turkey that primary care services for CVD-DM require urgent attention, focusing particularly on the training of staff in public facilities, the integration

of patient data, referrals, and follow-up across all levels of the health system (Kilic, B., Kalaca, S., Unal, 2015).

The results showed that empowering health workers had made promotional and preventive efforts through education about DM during hospitalization and home visits, as well as identifying cases in the field, but more often during visits to clinics or hospitals and even if a family was accompanying them. This is consistent with the results of other studies, which state that educational interventions have increased the knowledge of diabetic patients about the disease, self-care, and long-term disease control. Patient education is thus an important component in the management of diabetes mellitus. In addition, education with a cultural approach has been proven to increase knowledge, attitudes, and skills in controlling blood sugar levels in West Java, Indonesia. The same condition shows that a cultural approach is very important in the Saudi Arabian environment for improving DM treatment behavior (Alharbi et al., 2016; Badriah et al., 2021).

The study found that DM services have been carried out in an integrated manner between professions in the form of interprofessional collaboration and a referral system that has been running optimally. This is under the results of a study in Iran that reported that doctors should use guidelines regarding glycemic control to treat diabetes patients. Apart from that, to increase the program's effectiveness and strengthen the referral system, the government must also provide adequate health facilities for the prevention and control of diabetes in the country. In addition, given the important role of the community and patients in the success of the diabetes program and its patient-oriented nature, they must pay more attention to their health through proper nutrition, sufficient physical activity, and awareness of physical health. Carried out collaboratively in the form of interprofessional collaboration (Faraji et al., 2015).

The results show that the budget for controlling non-communicable diseases, especially DM, is not optimal at the health office and health center levels. This factor can become an obstacle to implementing DM control programs, as reported in a study. The government should allocate more funds and interest to education programs. Furthermore, NGOs and the private sector should contribute to formulating and implementing diabetes prevention and control programs in the future (Faraji et al., 2015).

CONCLUSION

Policy studies using a system approach in surge capacity have been able to dig up various information on DM control efforts in terms of policy, organizational structure, DM surveillance, information systems, integrated services, case screening, budgeting, and community empowerment. However, there are several obstacles to optimizing DM control, including family involvement that is not optimal and budgets that do not meet needs. Therefore, for future researchers, further studies are needed regarding family involvement to create effective interventions in optimizing DM control, as well as further studies regarding budget reviews as needed so that they will support efforts to prevent an increase in the prevalence of DM.

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Original Research

The Effect of Therapeutic Communication on the Anxiety Level of Children Undergoing the COVID-19 Vaccination

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ABSTRACT

Background: Anxiety is often encountered in society, especially in children, when undergoing the COVID-19 vaccination. Anxiety is a factor influencing children to refuse vaccination. Therefore, nurses need to reduce this level of anxiety through the application of therapeutic communication. This research was carried out to determine the effect of therapeutic communication on children's anxiety levels during the implementation of the COVID-19 vaccination.

Methods: A pre-experiment design with a one-group pretest-posttest design was used on 58 respondents who were selected using a simple random sampling technique. The research instrument used was the Zung Self-Rating Anxiety Scale (SAS/SRAS) questionnaire with a Likert scale model, and the results were analyzed using the Wilcoxon Signed Ranks Test statistical test.

Results: The results of the Wilcoxon Signed Ranks Test analysis on respondents' anxiety levels showed that there was a decrease in anxiety after therapeutic communication was carried out with a p-value of 0.00 (p < 0.05), which means that therapeutic communication had a significant influence on the anxiety level of children undergoing the COVID-19 vaccination.

Conclusion: Therapeutic communication can effectively reduce the anxiety level of children undergoing COVID-19 vaccination.

INTRODUCTION

The COVID-19 vaccination program is a strategic effort proven to be the key to ending the pandemic by reducing mortality and morbidity rates and developing immunity against the COVID-19 virus (Nugroho & Hidayat, 2021). Unfortunately, to be well received and distributed to the wider community, this vaccine program requires a longer process, as many people are still worried about its effectiveness and safety, as well as the factors and causes that influence the acceptance of the COVID-19

vaccination in the community. Based on a survey conducted by the Ministry of Health of the Republic of Indonesia and the National Immunization Expert Advisory Committee (ITAGI) with the support of UNICEF and WHO in September 2020, the COVID-19 vaccination program in Indonesia was carried out, involving 115,000 respondents, but the results showed that there were still many people who felt hesitant and even refused vaccination for various reasons (Kemenkes RI et al., 2020).

The reasons for refusing vaccination are quite varied, ranging from anxiety about the side effects of the vaccine and feeling afraid about the safety of the vaccine to the influence of religious beliefs on the vaccine (Kemenkes RI et al., 2020). The amount of information regarding COVID-19 cases and vaccines has greatly influenced people's anxiety. Public anxiety can have an impact on reducing a person's immunity and a person's acceptance of the COVID-19 vaccine. Apart from that, public trust in the government regarding the safety of the vaccine is still lacking.

Various myths and hoaxes circulating regarding the COVID-19 vaccine are some of the factors that encourage people's doubts about getting vaccinated (Iskak et al., 2021). The same anxiety and fear also arise among children. This can be influenced by children's imaginations, which often respond to sensitive and scary things such as bad information, needles, pain, and other scary things. So this can cause reactions including crying, hitting, screaming, holding back, running away, shortness of breath, and even fainting when immunization is being carried out (Suartini & Andriani, 2019).

Anxiety in children is a challenge for health service providers. Health workers are required to be able to reduce anxiety in children through therapeutic communication techniques, an interaction that occurs not only between nurses and clients but also with other members of the healthcare team. This communication is more commonly used for purposes that focus on clients who need help so that nurses actively listen and pay attention to clients by showing responses such as being willing to accept and understanding so that they can encourage clients to talk openly about themselves. Therapeutic communication in school-aged children has different techniques compared to adult communication. If adults only need to be asked about their health and smiled at, communication with children requires more questions about things they like, such as their playing activities.

They also need to be more coaxed and praised when medical procedures are carried out. For this reason, nurses must ensure that all communications are indicated for both the giver and recipient of the message. Therapeutic communication has to be demonstrated by creating mutual understanding, which must be done first before giving advice, information, and input. This technique can reduce children's anxiety by providing an understanding of action and education and also diverting their attention from the process of administering the COVID-19 vaccine to other things such as chatting, playing, counting, and so on (Novikasari et al., 2019).

In Indonesia, there have been several research studies about anxiety during the COVID-19 vaccination. However, research focusing on techniques for reducing anxiety through therapeutic communication, especially in school-aged children, is still rare. Therefore, this study aims to determine the effect of therapeutic communication on the anxiety level of school-aged children undergoing the COVID-19 vaccination.

MATERIALS AND METHOD

Study Design

A pre-experimental design with a one-group pretest-posttest design was used in this research by comparing the anxiety levels of groups of respondents before and after therapeutic communication as they underwent the COVID-19 vaccination program.

Sample and Settings

The population in this study were fourth- and fifth-grade elementary school students. The research was carried out on 58 elementary school students who were selected using simple random sampling techniques. Data collection was carried out at the Muhammadiyah Special Program elementary school in Belimbing, Gatak, Sukoharjo, Central Java, during the implementation of the COVID-19 vaccination program from April 14 until April 20, 2022.

Instrument

The instrument for therapeutic communication treatment in this research uses Standard Operating Procedures with the aim of helping clients explain their health problems so that they can reduce the burden of feelings and thoughts, take action to change the existing situation if the client believes in what is needed, and guide the course of communication between researchers and clients. The anxiety measurement tool used is the Zung Self-Rating Anxiety Scale (SAS/SRAS) questionnaire, which consists of 20 questions with a Likert method measurement scale model with the hope that it can be selected according to the respondent's condition. The Zung Self-Rating Anxiety Scale is an anxiety questionnaire designed by William W.K. Zung that was developed according to the symptoms of anxiety in the Diagnostic and Statistical Manual of Mental Disorders (DSM-II). The validity test of the Zung Self-Rating Anxiety Scale (SAS/SRAS) questionnaire showed that this questionnaire was valid with an r-value of 0.454 to 0.454. 0.771 (r count > r table 0.444). Meanwhile, the questionnaire reliability test showed a Cronbach Alpha value of 0.711 (>0.6), which proves that this questionnaire is reliable.

Data Collection

Prior to the study, participants provided their informed consent by signing a form provided by the research team, which also included an explanation of the research's purpose and procedures. The consent was signed by the respondent's guardian, considering that the respondent's age was still in the school age range. Ethical clearance, numbered LB.02.02/1.1/693.6/2022, was obtained before commencing the study. The implementation of data collection began with screening respondents and a pre-test to determine the respondent's anxiety level. On the following day, researchers gave information and education regarding the COVID-19 vaccination and its benefits using a therapeutic communication method approach to children. On the last day, researchers conducted a post-test to measure the respondents' level of anxiety after being given the intervention.

Statistical Analysis

The data obtained from the data collection stage was processed using the SPSS 25 program. The results of univariate analysis are presented in the table of frequency and percentages for categorical data, the means of the minimal-maximum, and the standard deviation for numeric data. Meanwhile, the results of bivariate analysis using the

Wilcoxon Signed Rank test to determine changes in pre- and post-intervention anxiety levels are presented in a table of ranks, means, and significance.

RESULTS

The average age of respondents was 10.47±0.503 years old, with the majority of respondents being men (60.3%). The pre-intervention level of anxiety was mild (39.7%), and the post-intervention level of anxiety was normal (Table 1).

Table 1. Respondents Characteristic (n=58)

Characteristics		Frequency (%)	Means±SD	Min-Max
Age	-	-	10,47±0.503	10-11
Gender	Male	35 (60.3%)	-	-
	Female	23 (39.7%)	-	-
Pre Intervention Anxiety Level	Normal	14 (24.1%)	-	-
	Mild	23 (39.7%)	-	-
	Moderate	20 (34.5%)	-	-
	Severe	1 (1.7%)	-	-
Post Intervention Anxiety Level	Normal	37 (63.8%)	-	-
	Mild	18 (31.0%)	-	-
	Moderate	3 (5.2%)	-	-
	Severe	0 (0.0%)	-	-

The result of the analysis of pre-and post-intervention anxiety level changes is presented in Table 2.

Table 2. Changes in Respondents Anxiety Levels Pre and Post Therapeutic Communication (n=58)

Characteristics	n	Negative Ranks	Positif Ranks	Ties	Mean Rank	Sig.(2-tailed)
Pre test	58	56	0	2	28,50	0,000
Post test	58					

The results of the Wilcoxon Signed Ranks Test on the pre-test and post-test of anxiety level during the implementation of vaccination showed a significance value of 0.000 and a mean rank of 28.50. Based on the results in Table 2, the negative rank was 56, which means there were 56 respondents who experienced a decrease in their scores on their anxiety level from pre-test to post-test, and the positive rank results were 0, which means there were no respondents who experienced an increase in their scores on their anxiety level. respondents from pre-test to post-test, and the tie result was 2, which means there were 2 respondents who had the same score on the respondent's anxiety level from pre-test to post-test.

DISCUSSION

The average age of respondents is 10.47 years. According to Akhriansyah (2018), school-age children rely more on past experiences that can guide them. However, it depends on the quality of the child's past experiences; for example, a child who appears shy or hesitant during a health assessment. Often, the child may be afraid of getting hurt

or feel embarrassed when examined. So it takes time to obtain peace and privacy (perhaps from parents) to help children communicate.

The characteristics of school-age children have a way of hanging out with their peers in groups. The cognitive development of children at this age has entered a concrete stage, namely that children have begun to look realistically at their world environment, and the process of conveying information to school-age children requires efforts to group and choose the right signals to help communication between the sender and recipient of the message so that they understand each other's words (Tewuh et al., 2013).

Most of the respondents in this study were male. The results of this research are in line with the research results of Hadi et al., (2022) which found that the majority of respondents who experienced anxiety were male. The results of this research were also confirmed by Tewuh et al., (2013) who found that males are more likely to experience anxiety. Even though the results of this study show that men experience anxiety more than women, this difference is not significant because these results are not in accordance with the literature, which says that women experience anxiety more easily than men because women have a stronger response to stimuli and stimulation, which is stronger compared to men, who tend to be stronger in viewing reality (Simaremare et al., 2018).

According to Hayati et al., (2022) boys are required to be brave in facing challenges in everything that comes before them. In whatever conditions, boys must be ready to face unexpected things in order to be educated as strong children. As for girls, they will receive treatment from their parents from childhood to adolescence, where parents will provide care for the girls with tenderness and affection. Parental overprotective treatment also makes girls tend to be melancholic compared to boys.

The results of the research that has been conducted show that the majority of respondents experienced a mild level of anxiety before being given therapeutic communication (39.7%). Meanwhile, the results of the research after being given therapeutic communication showed that the majority of respondents did not experience anxiety or were normal: 37 respondents (63.8%). So the results of this study show that respondents who do not experience anxiety or are normal are more dominant, and this is because respondents have been given therapeutic communication.

This data shows that there are differences in anxiety levels before and after therapeutic communication intervention. This result is in line with research conducted by Aniharyati and Ahmad, (2019) which stated that there is an influence of providing therapeutic communication on the anxiety level of school-age children when undergoing hospitalization because before children are given therapeutic communication during hospitalization, they will experience activity restrictions that make the child feel worried, anxious, and losing control while undergoing treatment. Meanwhile, for children who have been given therapeutic communication by approaching it through a close relationship and meeting the child's desired needs, the child's response will be more open and easier to convey health information. It is also confirmed by Simaremare et al., (2018) who showed that the majority of children experienced a mild level of anxiety when undergoing a tooth extraction, which means that the child showed symptoms such as restlessness, sweating, tension, stiffness, trembling, weakness, and avoidance. Because the anxiety experienced by a child is sensitive, is influenced by the subconscious, and needs to be communicated intrapersonally (Hayati et al., 2022).

Children undergoing treatment in hospitals will experience many problems, both related to pain and anxiety, that arise when facing environmental situations and

procedures (Tewuh et al., 2013). According to Pragholapati et al., (2019) changes in the physical environment of a room, such as a COVID-19 vaccination site and loud noises around it, can make children feel disturbed and cause anxiety. So some changes in the physical environment can make children feel strange.

The results of the comparative analysis of anxiety levels before and after the intervention showed that there was a significant change in anxiety levels among research respondents. The results of this research are supported by Tewuh et al., (2013) Hospitalization. Hadi et al., (2022) also have similar results where there is an influence of therapeutic communication on children's anxiety when undergoing tooth extraction with a significance value of 0.041 (p<0.05). Therapeutic communication is useful for clarifying and helping respondents reduce the burden of thoughts and feelings and be able to act to change the situation if they believe in it.

The aim is to reduce anxiety and doubt and help maintain their ego (Hadi et al., 2022). Effective therapeutic communication can be used by paying attention to attitudes, knowledge, and psychology so that efforts to overcome various problems in patients can be resolved. This interaction can be useful in the patient's healing process, and the atmosphere of mutual trust created by nurses can facilitate the treatment process (Nofriadi et al., 2021).

A nurse can have quite a big influence on patients when carrying out nursing actions because, in achieving the desired action goals, a nurse should have sufficient knowledge, attitudes, environment, and experience (Sasmito et al., 2019). Nurses who listen attentively to their problems and fulfill their needs are the most effective techniques for interaction, namely therapeutic communication (Fandizal et al., 2020).

CONCLUSION

The research highlights a significant decline in anxiety levels in children undergoing the COVID-19 vaccination after therapeutic communication. This shows the effect of therapeutic communication on changes in the anxiety level of children undergoing vaccination. However, this research still has limitations that can influence the results, such as the gap of days between the assessment and evaluation of anxiety levels and the implementation of therapeutic communication, making it possible for other factors to influence the respondents' anxiety levels. In future research, it is hoped that therapeutic communication can be provided on the same day as assessing and evaluating anxiety levels to minimize the influence of other confounding factors.

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