Spiritual mindfulness combination with self-regulation on the effect to vital sign and anxiety reduction among pneumonia survivors

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Abstract

Background: Pneumonia has become a scary disease since the emergence of the COVID-19 pandemic. The severity of pneumonia often causes sufferers to experience fear and causes the disease to worsen, resulting in the patient's hemodynamics becoming unstable, this condition need an intervention to make the condition better.
Purpose: The purpose of this study was to analyze the effect of spiritual mindfulness combined with self-regulation in dealing with anxiety and improving vital signs in pneumonia patients.
Methods: A experimental quantitative research using a quasi-experimental with pre and post-test control group design between August - October 2024 in the regional hospitals in Gresik Regency, East Java, Indonesia. Total 62 respondents recruited using consecutive sampling which were then divided into intervention and control groups. Spiritual mindfulness intervention combined with self-regulation was given with a frequency of 2 times a day for 7 full days. Vital signs measured included blood pressure, respiratory rate, pulse and SpO2 which were observed through the researcher's observation sheet and anxiety was measured using the Zung Self-Rating Anxiety Scale (SRAS). Data were analyzed using paired t-test and independent t-test, also Wilcoxon signed rank test and Mann Whitney test.
Results: Spiritual mindfulness combination with self-regulation has effect to vital sign included blood pressure, respiration rate, pulse, oxygen saturation and anxiety of patient with pneumonia (p=0.000). The measurement showed the best changes or decreases in the intervention group, while the control group did not show much difference.
Conclusion: Spiritual mindfulness combination with self-regulation is the effective intervention for vital sign and anxiety in pneumonia patients.

Keywords: anxiety; pneumonia; self-regulation; spiritual mindfulness; vital sign

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Introduction

Pneumonia is an exudative lung infection that can be caused by parasites, fungi, bacteria, or viruses (Matiz et al., 2020) and is one of the most deadly respiratory infections (Fan & Cui, 2024). Pneumonia has become a scary disease since the emergence of the COVID-19 pandemic, COVID-19 pandemic which has lasted for approximately 2 years has become a global health crisis because this virus is able to attack all levels of the world very quickly (Mo et al., 2020). The severity of pneumonia often causes sufferers to experience fear and causes the disease to worsen, resulting in the patient's hemodynamics becoming unstable (Çağlar & Kaçer, 2022). Based on the results of research conducted on people in China, it shows that the psychological impact of fear of pneumonia is more dangerous

than the disease. The population in China showed 53.8% experienced severe psychological effects, 16.5% severe depressive symptoms, 28.8% severe anxiety symptoms, and 8.1% severe stress levels. The patient's psychological fear causes anxiety which results in disturbed sleep patterns, feelings of restlessness and fear that the disease cannot be cured, so that the psychological response becomes more frightening than the disease itself (Li et al., 2020).

Based on data from the Global Burden of Disease (GBD), lower respiratory tract infections, including pneumonia, affect 487 million people worldwide, with prevalence increasing over the past 5 years (Wu et al., 2021b). The prevalence of pneumonia in Indonesia increases every year, and the morbidity and mortality rates are the highest compared to other developing countries (Putri et al., 2021). The East Java Provincial Health Service in 2022 report shows that 76,697 patients are suffering from pneumonia and Gresik Regency is in third place with 6,800 cases (Puspitasari et al., 2023). Data from the 10 most common cases of infectious diseases in one of the regional hospitals in Gresik Regency showed that pneumonia was ranked second with a total of 287 cases and more than 50% of patients experienced worsening conditions due to excessive anxiety and stress from hospitalization.

Anxiety is a psychological problem that is often found in patients with pneumonia. Several studies have been conducted to measure the prevalence of anxiety in pneumonia patients. A study in China found that 38.7% of pneumonia patients experienced anxiety symptoms. Another study by Pakhale showed a higher figure, with 45.2% of pneumonia patients reporting significant levels of anxiety (Pakhale et al., 2021). In a meta-analysis covering 15 studies concluded that the average prevalence of anxiety in pneumonia patients was 41.3% (95% CI: 36.8% - 45.9%) (Liu et al., 2020). Variations in prevalence rates may be due to differences in measurement methods, populations studied, and other contextual factors. However, these data indicate that anxiety is a significant problem and requires attention in the management of pneumonia patients (Pakhale et al., 2021)

Anxiety in pneumonia patients results in restlessness and worry, and causes unstable vital signs (Hasina et al., 2021). Triggers for anxiety disorders are prolonged stress and maladaptive body responses (Wu et al., 2021a). Anxiety conditions in pneumonia patients if they last a long time can trigger activation of the sympathetic nerves which causes tachycardia, increased respiratory rate, blood pressure and narrowing of the airways (Mo et al., 2020). Treatment of pneumonia is not only focused on treating physical conditions but also involves psychological aspects, in accordance with the psychoneuroimmunology theory which states that psychological responses will improve the patient's immune system (Alimuddin, 2020).

Anxiety in pneumonia patients has so far been treated using pharmacological therapy and supportive non-pharmacological therapy is needed (Rahi et al., 2023), because it is easier, safer, cheaper, more enjoyable and does not cause dependency effects (Alsubaie et al., 2020). Many non-pharmacological therapies such as aromatherapy, music therapy, guided imagery, autogenic, virtual reality have been proven to reduce patient anxiety, but do not affect vital signs (Argyriadis et al., 2024). Based on several studies, it has been shown that spiritual mindfulness and self-regulation therapy have a significant influence in reducing anxiety and vital signs in patients and provide a calmer impact on patients with chronic diseases (Alimuddin, 2020; Puspitasari et al., 2023; Wang et al., 2021; Zhang et al., 2020).

In recent years, there has been growing interest in both spiritual mindfulness and self-regulation as separate practices for improving mental well-being and personal growth (Argyriadis et al., 2024; Bringmann et al., 2021). However, there exists a gap in our understanding of how these two approaches can be effectively combined to create a more holistic and powerful method for personal development. Spiritual Mindfulness provide a practice that involves cultivating awareness of one's thoughts, feelings, and surroundings with a focus on spiritual or existential aspects of life (Bechard et al., 2021). Self-Regulation becomes the ability to monitor and manage one's own behavior, emotions, and thoughts in relation to situational demands (Birditt et al., 2021). The self-regulation concept focuses on the ways individuals direct the course of their development as they select and pursue goals and modify goal pursuit based on personal and environmental opportunities and constraints. Spiritual mindfulness that is fully oriented towards the concentration of individual thoughts is in line with self-regulation which also focuses on the regulation of the individual's self, researchers are interested in combining the two concepts (Byrow et al., 2020). While research is needed to confirm, the combination of spiritual awareness and self-regulation can provide increased intelligence and emotional regulation such as providing focus to individuals, so that individuals show their ability to concentrate and be confident in dealing with illness (Hodge et al., 2020; Marciniak et al., 2020). Individuals can also improve their ability to align actions with personal values and spiritual beliefs because through spiritual awareness the combination of self-regulation can grow the patient's spiritual soul and be more confident in getting closer to God. Through all of that, resilience will be formed which makes them more resilient in facing life's challenges and more effective in managing individual stress (Sugama & Kakinuma, 2020; Xing et al., 2020).

Spiritual mindfulness combined with self-regulation will affect several areas in the brain, including the pre-frontal cortex (attention area) which can reduce emotional responses, activate the

amygdala and affect the response of the midbrain as a regulator of breathing and heart rate as well as blood pressure, so that the patient's psychological coping will form an adaptive condition of the patient's self (Cahyani et al., 2022; Puspitasari et al., 2023). The concept of spiritual mindfulness focuses on the psychological aspects of patients in the form of conscious breathing to reduce patient anxiety accompanied by providing motivation in the form of sentences and statements of support and religious beliefs which are expected to increase awareness, inner peace and self-acceptance of patients towards the disease conditions they are experiencing (Sugama & Kakinuma, 2020). Meanwhile, self-regulation itself focuses on individual coping in modulating thoughts, emotions and actions to solve health problems to achieve goals maximally and optimally (Nursalam et al., 2020a; Zhang et al., 2020). The purpose of this study was to analyze the effect of spiritual mindfulness combined with self-regulation in dealing with anxiety and improving vital signs in pneumonia patients.

Material and Methods

Design

This type of research uses experimental quantitative research using a quasi-experimental with pre and post-test control group design. The study aims to evaluate vital signs and anxiety of pneumonia patients with spiritual mindfulness intervention combined with self-regulation. The study was conducted in two groups, namely the control group and the intervention group, which were determined according to the criteria and the selection of respondents was carried out randomly according to respondents in the inpatient room with pneumonia cases. This research was conducted between August - October 2024 by taking samples of pneumonia patients in the inpatient room of one of the regional hospitals in Gresik Regency, East Java, Indonesia.

Sample and Setting

The sample included 62 respondents recruited using consecutive sampling which were then divided into intervention and control groups. The treatment group in this research design was given a spiritual mindfulness intervention combined with self-regulation, while the control group was given independent nursing actions to reduce anxiety consisting of distraction and relaxation and improve vital signs according to hospital standards. The criteria for determining respondents were patients aged >18 years, conscious, cooperative and able to communicate fluently, patients with one of the changes in the results of vital sign examinations (blood pressure, respiratory rate, pulse and SpO2) not within normal limits, patients experiencing anxiety (mild, moderate and high) and not in acute or emergency conditions. Pneumonia patients who met the criteria for prospective respondents were then given an explanation of the research procedure until they understood it and then at the end of the session, the researcher asked for informed consent from the patient as a sign that the patient agreed to be a research respondent.

Variable, Instruments and Data Collection

The provision of spiritual mindfulness intervention combined with self-regulation was given through direct action accompanied by a guidebook and audio to guide patients in the Exercise and make them more relaxed. The choice of a combination of spiritual mindfulness and self-regulation intervention was chosen because patients who experience anxiety due to pneumonia need positive self-reinforcement and provide a religious-based approach to make patients more confident that God Almighty is with them. Spiritual mindfulness intervention combined with self-regulation was given with a frequency of 2 times a day in the morning before activities and in the afternoon before resting for 7 full days, the intensity of therapy was light and provided a relaxing effect on patients so that anxiety improved, and the administration time was carried out for 15 minutes. Vital signs measured included blood pressure, respiratory rate, pulse and SpO2 which were observed through the researcher's observation sheet and anxiety was measured using the Zung Self-Rating Anxiety Scale (SRAS) instrument which evaluates physiological, psychological, cognitive and affective responses. The Zung SRAS anxiety questionnaire consists of 22 questions using a Likert scale, answers very rarely feel given a value of 1, sometimes feel given a value of 2, often feel given a value of 3 and a value of 4 for the category always feel. The final interpretation for anxiety is categorized into normal conditions, mild, moderate and severe anxiety. All questionnaires have been tested for validity first with 32 respondents, all questions show valid results, the calculated r value is between 0.772 to 0.985 so that it is greater than the r table value of 0.306. While the questionnaire shows reliable with Cronbach's Alpha value was 0.995. Respondents who have agreed to the informed consent were then divided into treatment groups and control groups, during the study all respondents have followed the study until completion and none have dropped out. Before spiritual mindfulness combined with self-regulation was given, the respondents' blood pressure, respiratory rate, pulse, SpO2 and anxiety levels were measured first. For 7 days the respondents received the intervention given by the researcher and during that time the respondents' responses were also observed by the researcher. On the 7th day after the respondents were given spiritual mindfulness combined with self-regulation, at that time measurements were also taken for blood pressure, respiratory rate, pulse, SpO2 and anxiety of pneumonia patients.

Data Analysis

This study was analyzed using descriptive and

Table 1. Sociodemographic characteristics of respondents (n=64)

Characteristics of Respondent	Intervention Group	Control Group
Ages		
19 – 30 years	1 (3.1)	5 (15.6)
31 – 40 years	2 (6.3)	3 (9.4)
41 – 50 years	7 (21.9)	8 (25.0)
51 – 60 years	11 (34.4)	7 (21.0)
60 years and above	11 (34.4)	9 (28.1)
Gender		
Male	16 (50.0)	19 (59.4)
Female	16 (50.0)	13 (40.6)
Education Level		
Elementary school	5 (15.6)	4 (12.5)
Junior High	2 (6.3)	0 (0.0)
Senior High	21 (65.5)	25 (78.1)
University	4 (12.5)	3 (9.4)
Marital Status		
Divorced dead	1 (3.1)	1 (3.1)
Divorced alive	3 (9.4)	3 (9.4)
Not married	1 (3.1)	2 (6.2)
Married	27 (84.4)	26 (81.3)
Job		
Unemployed	6 (18.8)	1 (3.1)
Housewife	9 (28.1)	8 (25.0)
Private Employee	11 (34.4)	6 (18.8)
Entrepreneur	4 (12.5)	17 53.2)
Student	1 (3.1)	0 (0.0)
Civil Servant	1 (3.1)	0 (0.0)

Table 2. Results of vital signs and anxiety values of pneumonia patients before and after intervention (n=64)

Variable	Intervention group		Control Group	
	Pretest	Posttest	Pretest	Posttest
Systolic Blood Pressure	140.38±24.563	123.81±22.657	116.97±23.760	114.19±19.529
Diastolic Blood Pressure	78.06±11.595	69.97±8.090	69.09±17.519	66.41±13.970
Respiratory Rate	21.38±0.942	20.13±0.492	21.38±1.385	95.81±15.991
Pulse	95.94±19.579	83.59±17.324	102.66±18.363	20.88±1.129
Saturation	97.09±1.634	99.83±1.431	97.94±1.343	98.06±1.162
Anxiety				
Normal	0 0.0	8 25.0	0 0.0	0 0.0
Mild	5 15.6	16 50.0	2 6.3	4 12.5
Moderate	19 59.4	8 25.0	24 75.0	20 62.5
Severe	8 25.0	0 0.0	6 18.8	8 25.0

Table 3. The effect of spiritual mindfulness combined with self-regulation on vital signs and anxiety.

Variable	Intervention group			Control Group		
	(Mean ± SD)	Effect size	p	(Mean ± SD)	Effect size	P
Pre and Post Systolic BP Test	16.563±12.43	0,751	0.000*	2.781±14.659	5,271	0.291*
Pre and Post Diastolic BP Test	8.094±8.84	1,093	0.000*	2.688±11.206	4,169	0.185*
Pre and Post Pulse Rate Test	12.344±10.89	0,882	0.000*	6.844±14.952	2,185	0.115*
Pre and Post Respiratory Rate Test	1.250±0.984	0,787	0.000*	0.500±1.016	2,032	0.209*
Pre and Post SPO2 Test	-1.031±1.492	-1,449	0.000*	-0.125±1.497	11,976	0.640*
Pre and Post Anxiety Test	67.09±6.306	0,094	0.000**	52.16±11.64	0,223	1.000**

*** Paired t-test ** Wilcoxon signed rank test**

Table 4. Inter-group test of the influence of spiritual mindfulness combined with self-regulation on vital signs and anxiety

Variable	Intervention group			Control Group			p value
	Mean	Min	Max	Mean	Min	Max	
Pretest							
Systolic Blood Pressure	134.50	92	196	116.97	74	169	0.560*
Diastolic Blood Pressure	78.06	57	105	69.09	38	106	0.131*
Pulse Rate	95.94	54	142	102.66	74	155	0.860*
Respiratory Rate	21.38	20	22	21.38	20	24	0.211*
SPO2	97.09	93	100	97.94	96	100	0.198*
Anxiety	67.09	57	77	45.34	27	66	0.888**
Posttest							
Systolic Blood Pressure	123.81	85	177	114.19	70	150	0.036*
Diastolic Blood Pressure	69.97	54	92	66.41	41	90	0.001*
Pulse Rate	83.59	48	130	95.81	75	149	0.034*
Respiratory Rate	20.13	20	22	20.88	20	24	0.000*
SPO2	98.13	95	100	98.06	96	100	0.035*
Anxiety	52.16	31	74	50.69	27	98	0.000**

* Independen t-test ** Mann Whitney test

inferential analysis. Compliance test for normal distribution was applied using Kolmogorov–Smirnov test with the results of blood pressure, respiratory rate, pulse, and SpO2 data were normally distributed and anxiety scores showed non-normal distribution. Descriptive values such as means, standard deviations, frequencies and percentages were analyzed with frequent distribution. The effect of spiritual mindfulness combined with self-regulation to vital sign was analyzed using paired t-test for paired samples and independent t-test for two independent samples. While the effect of spiritual mindfulness combined with self-regulation on anxiety was analyzed using Wilcoxon signed rank test for two paired samples and Mann Whitney test for two independent samples. Statistically significant this study uses p value <0.05. The analyzes were conducted with SPSS® for Windows® version 22.0.

Ethical Consideration

This research has obtained ethical feasibility from the Ethics Commission of the Ibnu Sina Hospital, Gresik Regency with certificate number 071/060/437.76/2024 by observing the ethical principles of beneficence, anonymity, and confidentiality and respecting human dignity. The researcher ensures that respondents participate in the study voluntarily without causing any harm from the researcher and all data related to respondents is kept completely confidential by the researcher.

Result

Table 1 shows the results of the characteristics of the research respondents who have participated in the research until completion. In the intervention group, it was shown that the most dominant age was 51-60 years old as much as 34.4% and age> 60 years with the same number of 34.4%. The gender of the respondents was the same between men and women as much as 50.0%, the highest level of education was at the high school level as much as 65.6%, the marital status was 84.4% married and 34.4% were private employees. While in the control group, it was shown that 25.0% were 41-50 years old, the most gender was male as much as 59.4%, the education level was 78.1% high school, the marital status was 84.4% married and 56.3% were unemployed (Table 1).

Measurement of research variables of anxiety and vital signs showed the best changes or decreases in the intervention group, while the control group did not show much difference. The intervention group showed a significant decrease in systolic blood pressure, namely from 140.38 mmHg to 123.81 mmHg, diastolic blood pressure also showed a greater decrease, namely decreasing from 78.06 mmHg to 69.97 mmHg. Respiratory frequency showed a decrease to 20.18 x / minute and the average pulse rate was around 83.59 times / minute, oxygen saturation also showed an improvement of 99.83%. The results of anxiety measurements also showed better results in the intervention group, anxiety after being given the intervention did not show any severe anxiety at all and showed 25.0% moderate anxiety and 50.0% mild anxiety, while those who were no longer anxious were 25.0%. In the high anxiety control group, there was a significant increase from 18.8% to 25.0%, respondents with moderate anxiety also still showed a fairly high number, namely 20 pneumonia patients (62.5%) (Table 2).

Paired test on the group showed that the intervention group on the variables of systolic blood pressure, diastolic, pulse rate, respiratory rate, oxygen saturation and anxiety showed a significant effect as evidenced by the p value <0.05. While in the control group did not show a significant effect on all variables, including changes in variable values were also not too large. So it can be shown that the test of the influence of spiritual mindfulness combined with self-regulation on vital signs and anxiety is effective (Table 3).

Table 4 shows the statistical test for between groups, the purpose is to evaluate the pre of each group and the post of each group, so that a more significant value result will be obtained between pre and post. The test results show that all pretest data show p>0.05, so it does not affect the value of the variable before the intervention is given, while the variable after the intervention shows a significant difference with a value of p<0.05.

Discussion

The levels of anxiety experienced by pneumonia patients in this study ranged from mild to severe anxiety. However, most respondents with pneumonia experienced moderate anxiety. Anxiety is a normal psychological symptom caused by threatening and unexpected situations such as pneumonia. In patients with pneumonia, conditions especially severe anxiety can have an impact on worsening hemodynamics (Sands et al., 2021; Schulte-Frankenfeld & Trautwein, 2022). Anxiety will stimulate the nervous system so that it affects the work of the autonomic nerves in increasing heart performance, so that the heart rate rhythm will increase, central blood pressure will also increase, including the respiratory system will be faster because the need for oxygen increases (Sugama & Kakinuma, 2020; Wu et al., 2021b). Excessive anxiety and lasts for a long time can cause congestion in the emotional realm and make the patient always restless, this is an alarm of the body that causes hemodynamic instability (Zhang et al., 2020). Anxiety has a close impact on the psychological condition of the patient, negative reactions that arise in response to clinical manifestations of pneumonia can include changes in concentration, changes in vital signs, irritability, stress, insomnia, decreased productivity, and interpersonal conflict. The patient's physical condition, namely the body's immune system, has an impact on the patient's psychoneuro, according to the science of psychoneuroimmunology, apart from the physical symptoms of pneumonia, pneumonia also poses the threat of negative psychological impacts and worsens stress symptoms, thus affecting changes in the patient's vital signs (Puspitasari et al., 2023).

The level of anxiety and changes in vital signs of pneumonia patients are influenced by several factors, one of which is the sociodemographics of respondents. In general, different ages have different perceptions of health impacts, anxiety responses that impact on vital signs and coping of each individual (Sands et al., 2021). A person's age will determine how individuals assess and give perceptions about how to address a problem about their health (Rechtman et al., 2020). Most of the respondents in this study were in the late adulthood to advanced age group, which is associated with low negative perceptions of health, resulting in severity in this group when compared to younger ones (Bechard et al., 2021). In line with research that has been conducted, age affects individuals in providing a psychological response to their illness (Birditt et al., 2021; Xing et al., 2020). A positive psychological response will affect the physical examination results of each individual.

The results of this study are in line with previous

studies that showed that education and occupation factors affect changes in vital signs and anxiety in dealing with pneumonia. Other studies also added that lower education levels affect knowledge about health conditions, thus patients' knowledge about pneumonia disease will provide a positive perception of how individuals manage themselves to face pneumonia disease (Chen et al., 2022). A high level of education can affect a person's cognitive and affective abilities in shaping health perceptions and behaviours. Good cognitive and affective abilities will affect increased awareness, understanding of information, and preventive actions to maintain health when individuals are diagnosed with pneumonia (Ye et al., 2022). In addition, the level of education also affects a person's ability to make judgements from the information obtained and then affect the intention or desire to make efforts to improve their health status.

The condition of low income or instability of economic conditions is one of the factors that affect a person's health perception, resulting in anxiety and changes in vital signs of pnumonia patients. In line with previous research, it is revealed that low income is significantly related to the perception of health of each individual (Lee et al., 2021). Low health perceptions can be triggered by a lack of knowledge in groups of people who have low income (Byrow et al., 2020). Poor economic conditions create stressors for individuals. This will cause patients not to focus on recovery from pneumonia, but to think about their economic and work conditions when they are sick (Gong et al., 2020). In addition, unstable economic conditions are one of the causes of individuals' reduced ability to access health facilities, fulfil nutritional needs, and implement health protocols, which will have an impact on the psychological stressors of patient anxiety.

The results showed a significant effect of spiritual mindfulness therapy combined with self-regulation on anxiety and vital signs in pneumonia patients, namely the intervention group compared to the control group. Based on the mean pretest and posttest scores, most of the treatment groups experienced a decrease in anxiety levels and improvement in vital signs after being given a spiritual mindfulness intervention with a combination of self-regulation. The decrease in anxiety levels and improvement in vital signs was characterised by a decrease in anxiety symptoms, patients looked more comfortable, relaxed, and the physical examination of patients showed increasingly better changes (Norweg et al., 2024).

The results of this study are in line with other studies that have shown that spiritual mindfulness interventions have an effect on anxiety levels and changes in vital signs (Dehghan et al., 2021). Previous research has shown that self-regulation interventions can significantly reduce feelings of anxiety and can improve physical examination results (Łakuta, 2020). Another study mentioned that mindfulness with good self-regulation will affect the focus of attention, control, and stress, concluding that in general mindfulness meditation practice can affect the reduction of physiological symptoms of stress (Schulte-Frankenfeld & Trautwein, 2022). Another opinion states that the provision of spiritual mindfulness interventions focused on mindful attention to breath is effective in the regulation of unpleasant emotion regulation and negative coping, decreasing amygdala activation and increasing prefrontal integration (Raugh & Strauss, 2024). This led to changes in vital signs in pneumonia patients.

Practising spiritual mindfulness and self-regulation can help one to have a healthier life and be less anxious, less depressed, have a better outlook on life, improve relationships with others, increase self-esteem, improve the resilience function of the human body and can reduce one's likelihood of using illegal drugs (Krygier, 2022). In breathing exercises that are full of spirituality and good self-regulation, the individual's attention will be directed to the physical sensations associated with breathing that combine with spirituality (Sands et al., 2021; Schulte-Frankenfeld & Trautwein, 2022). When the mind wanders to thoughts other than the breath, the individual will consciously feel the thoughts but only to the extent of feeling them and gently refocus on the sensation of breathing. This is because the provision of spiritual mindfulness and self-regulation therapy will enhance relaxation and comfort through the suppression of threatening stressors as a result of the stress and anxiety experienced.

Spiritual mindfulness combined with self-regulation is more about the aspect of focusing strategies to deal with cognitive problems and reactivating the power of the mind to reduce emotional distress (Grossman, 2022). The therapy is able to help individuals to withdraw from personal problems and inner conflicts with its spiritual approach (Dehghan et al., 2021; Krygier, 2022). During the process of spiritual mindfulness and self-regulation several events occur that influence each other, including the experience of being present, which as an experience, spiritual mindfulness and self-regulation become very subjective, but in general spiritual mindfulness and self-regulation is the ability to maintain the quality of awareness, acceptance, spirituality, coping and attention at all times (Aryawati et al., 2024; Hodge et al., 2020; Liu et al., 2020). Next is awareness, where with this awareness, it is suggested that individuals have a greater ability to reflect and respond in a healthy way to their experiences when symptoms of the disease appear (Hagger & Orbell, 2022). Acceptance, which is being able to accept what is happening without judging, rejecting, or avoiding the pneumonia disease (Dehghan et al., 2021). Attention, which is accepting with awareness that patients with pneumonia can maintain focus on what arises without becoming distracted or losing what is on the mind (Xing et al., 2020). And finally the transformation process, where through spiritual

mindfulness combined with self-regulation one gains direct access to powerful inner and spiritual resources for insight, transformation and healing (Sugama & Kakinuma, 2020). The application of this intervention makes the patient calmer so as to facilitate the process of self-regulation and acceptance which will further impact on reducing anxiety and improving vital signs.

The impact that occurred during the process of spiritual mindfulness therapy combined with self-regulation was very influential in reducing anxiety levels and improving vital signs. When a person feels anxious, the body system will work by increasing the work of sympathetic nerves in response to stress. The sympathetic nervous system works through activation of the adrenal medulla to increase the release of epinephrine, norepinephrine, cortisol and decrease nitric oxide (Sugama & Kakinuma, 2020). This will cause changes in body responses such as increased heart rate, breathing, blood pressure, increased blood flow to various organs and increased metabolism. Spiritual mindfulness techniques combined with self-regulation will stimulate the brain area, namely the prefrontal cortex which is the centre of emotion regulation and assessment to instruct emotional reactions which the body will then respond to by feeling accepting and non-judgmental (Dhamayanti & Yudiarso, 2020). In the hypocampus and amygdala in addition to areas for regulating emotions as well as areas of openness, blackout, and reinforcement that will provide instructions to open up more so that individuals are able to release themselves in awareness, refrain from internal reactivity and be able to increase self-acceptance so as to reduce anxiety (Nursalam et al., 2020b; Pakhale et al., 2021).

This study was conducted in an inpatient ward of a regional public hospital with different accompanying medical diagnoses, clinical symptoms of different pneumonia diseases, low, medium and high anxiety categories. So, in conducting research, it is necessary to provide a detailed and complete explanation of the disease, so as not to get direct rejection and be willing to become research respondents. The confidentiality of the respondents, the effect and impact of the intervention and the compensation of time are the full responsibility of this study.

Conclusion

Spiritual mindfulness combination with self-regulation has effect to vital sign included blood pressure, respiration rate, pulse, oxygen saturation and anxiety of patient with pneumonia. The measurement showed the best changes or decreases in the intervention group, while the control group did not show much difference. The intervention group showed a significant decrease in systolic blood pressure, diastolic blood pressure respiratory frequency, and oxygen saturation. The results of anxiety measurements also showed better results in the intervention group, anxiety after being given the intervention did not show any severe anxiety.

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Declaration of interest

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

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Data Availability

Data availability is available online via the researcher's email, for readers who need data related to the research, they can contact the corresponding author

Reference

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