



## SIDE: An Application-Based Happy Spiritual Intervention For Emotion Regulation Among Nursing Students During Online Learning

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### ABSTRACT

Background: Problems and uncertainty during online learning often cause negative emotions among nursing students, such as anxiety, anger, stress, and confusion. A comprehensive treatment is needed to help students cope with uncertain situations. One strategy that can be implemented is to regulate emotions using the Emotion Detection Information System (SIDE) application. SIDE contains some features of emotion detection and happy spiritual intervention for regulating emotions. Objective: This study aimed to determine the effect of the SIDE application on emotion regulation among nursing students. Methods: This research was a quantitative study with a one-group pretest-posttest design without a control group. This study described its data in one group before and after the intervention using a modified Emotional Regulation Questionnaire (ERQ). This study was conducted among 46 nursing students. Results: The paired sample t-test showed a significance level of 0.000 ( $p < 0.005$ ), indicating a significant effect of the SIDE application on the emotional regulation ability of nursing students. Conclusion: The SIDE application had a positive effect on emotional regulation among nursing students. The students had better emotional regulation abilities so that they could minimize the symptoms of mental disorders while facing uncertainty during the COVID-19 pandemic.

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### Kata kunci:

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### ABSTRAK

Latar belakang: Problematika dan ketidakpastian selama pembelajaran *daring* seringkali menimbulkan emosi negatif seperti kecemasan, marah, stres, dan bingung pada mahasiswa keperawatan. Penanganan yang komprehensif diperlukan untuk membantu mahasiswa mengatasi situasi-situasi yang tidak menentu. Salah satu cara yang dapat dilakukan adalah pengaturan regulasi emosi dengan bantuan aplikasi Sistem Informasi Deteksi Emosi (SIDE). SIDE berisi beberapa fitur deteksi emosi serta intervensi *happy* spiritual dalam regulasi emosi. Tujuan: Penelitian ini bertujuan untuk mengetahui pengaruh penerapan aplikasi SIDE terhadap regulasi emosi pada mahasiswa keperawatan. Metode: Penelitian ini merupakan penelitian kuantitatif dengan desain *one group pretest-posttest without control*. Dimana penelitian ini menggambarkan data pada satu kelompok sebelum dan sesudah diberikan intervensi dengan menggunakan alat ukur berupa kuesioner modifikasi *The Emotional Regulation Questionnaire* (ERQ). Hasil: Penelitian yang dilakukan kepada 46 mahasiswa keperawatan menunjukkan hasil uji *paired sample t-test* dengan nilai *sig.* 0,000 ( $p < 0,005$ ). Hal ini menunjukkan adanya pengaruh yang signifikan dari penerapan aplikasi SIDE pada kemampuan regulasi emosi mahasiswa keperawatan. Kesimpulan: Penerapan aplikasi SIDE terhadap regulasi emosi mahasiswa keperawatan

menunjukkan hasil adanya pengaruh yang positif, dimana mahasiswa keperawatan memiliki kemampuan regulasi emosi yang lebih baik sehingga dapat meminimalkan gejala gangguan mental selama menghadapi ketidakpastian di masa pandemi COVID-19.

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## INTRODUCTION

The COVID-19 pandemic has created uncertainties. Several policies, such as the lockdown to minimize the spread of the COVID-19 virus, have affected various aspects of life, especially education. The COVID-19 pandemic has forced many schools, especially universities, to close temporarily, stop face-to-face learning, and replace it with an online learning system (Şentürk & Bakir, 2021; Dhawan, 2020).

Online learning has caused many problems that trigger mental disorders among students. These problems may include students' difficulties in understanding the materials, limitations in communication with lecturers, inadequate learning facilities, difficulties in discussing with friends, unstable internet conditions, and financial limitations to support online learning (Yanti & Nurwulan, 2021; Khawar et al., 2020). Nursing students tend to have a higher level of anxiety when compared to students of other disciplines. It happens due to the workload of courses and clinical practices that nursing students should undertake. In addition, nursing students also often face indecision. They fear the risk of infection when attending clinical practices, but at the same time, they also feel anxious about inadequate training and costs of discontinuing clinical practices (Kim & Park, 2021). Such conditions can lead to uncertainty about academic and professional careers (Hoque et al., 2021). During this pandemic, uncertainty about the educational process has triggered students to experience mental and emotional disorders, such as anxiety, anger, stress, and confusion (Şentürk & Bakir, 2021; Dhawan, 2020).

Uncertainty and various problems during online learning require comprehensive treatment to help overcome the existing situation. Emotions that are not immediately controlled may result in dangerous anger; therefore, there is a need for effective coping strategies to regulate emotions in the face of uncertainty (Pramono, 2021).

Emotions are described as responses generated by a noticed and assessed situation that will eventually create emotional responses. Emotions represent a coordinated yet flexible multisystem response, including changes in the autonomic nervous system, facial expressions, non-verbal behavior, actions, and subjective feelings. This multisystem response will direct an individual to change the focus of his attention and modify the situation to create a new cycle for emotion generation. Negative emotions that arise, such as sadness, anger, disappointment, and hopelessness, cannot be completely avoided. To deal with and minimize negative psychological impacts, individuals need emotional regulation (Gross, 2014; Zhao, Fu, Lian, Ye, & Huang, 2021).

Emotion regulation is a process that can affect when and how individuals experience and express certain emotions. This emotion regulation does not prohibit individuals from feeling their emotions but regulates the intensity and expression of their emotions not to harm themselves or others. Emotion regulation can impact the formation of the physical, mental, social, and spiritual systems. The ability to

manage emotions properly will improve the psychological well-being of individuals. Therefore, monitoring and interventions to control and manage emotions are required (Lee & Jang, 2021; Behrouian, Ramezani, Dehghan, Sabahi, & Zarandi, 2019; Hasmarlin & Hirmaningsih, 2019).

Various strategies can be implemented to help individuals have good emotional regulation, one of which is monitoring and providing interventions for the emotions they experience. In the digital era as of today, it is necessary to develop a new technological innovation to facilitate the management of emotion regulation among individuals. This technological innovation is carried out by considering the nursing paradigm, which is about human nature that should be viewed holistically, not only physically. Human emotions and reactions are constantly changing and unpredictable. Therefore, it is necessary to have a technological innovation that can understand the moment-to-moment experiences of an individual.

In this study, the researchers have developed a technological innovation known as SIDE (*Sistem Informasi Deteksi Emosi*/Emotion Detection Information System). SIDE is an application that has been developed since 2020. It not only functions as a detector of emotions from facial expressions but also serves as a new development of the *happy* spiritual intervention. SIDE can do facial scans and further monitoring of several physical and psychological complaints, as well as follow-up monitoring with the emotion regulation questionnaire to describe an individual's overall condition. This feature can help nurses determine the appropriate interventions related to emotional regulation, one of which is the *happy* spiritual intervention.

## METHODS

### Research design

This research was a quantitative study with one group pretest-posttest research design without a control group. This study was conducted from October to November 2021.

### Sample selection

The subjects in this study were selected using a randomized controlled trial technique that began with a survey of 182 students. Participants with poor emotion regulation and who were willing to participate in the study were recruited, with a total of 46 students.

### Instruments

The instrument used in this study was a modified version of the Emotional Regulation Questionnaire (ERQ). This instrument had been tested for its validity and reliability by the researchers with a validity value of 0.3 and a Cronbach's

alpha of 0.873, indicating that the questionnaire was considered valid and reliable. The instrument consisted of 10 questions with Likert scales. The ratings for each question were “never” (1), “rarely” (2), “often” (3), and “always” (4). A total score of 0-20 indicated poor emotional control, 21-30 indicated moderate emotional control, and 31-40 indicated good emotional control.

### Intervention

The intervention in this study was given using the SIDE application. It is a website-based intervention containing a mental health service package that focuses on emotion detection and the happy spiritual intervention. This application offers features that make it easier for individuals to detect their emotions through facial scans and monitor physical and psychological signs and symptoms, bad behaviors, and emotion regulation questionnaire scores. These features were developed based on the agreement of the experts through a series of meetings. The patent for the SIDE application manual has been granted by the Director-General of Intellectual Property, Ministry of Law and Human Rights, Indonesia (Number: EC00202114478). The following are the features of the “SIDE” application:

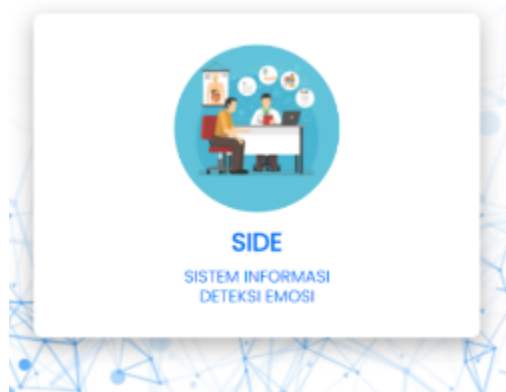


Figure 1. Homepage of the SIDE Application



Figure 2. The SIDE Application Features

Further explanation of each feature is described below.

#### History of disease

This feature identifies the history of the disease that a user suffers. It contains medical history assessment items, including (1) cholesterol, (2) chronic heart disease, (3) kidney failure, and others, as well as a column to write another history of diseases that are not included on the list.

#### Face scan

This feature serves to scan the face by inserting a photo so that the system will detect emotions from facial expressions at that time, whether the user is happy, sad, or angry.

#### Physical symptoms

This feature identifies the presence of physical symptoms that the user is experiencing. It contains 13 items about physical symptoms and columns to write down symptoms that are not on the list. Some of these symptoms include (1) cold sweats, (2) palpitations, (3) shaking, (4) getting tired quickly, (5) decreased activity levels, (6) disturbed sleep patterns, (7) drowsiness, (8 ) insomnia, (9) headache, (10) difficulty of breathing, (11) joint pain, (12) nausea/vomiting, and (13) tingling.

#### Psychological symptoms

This feature identifies the feelings that the user is currently expressing or feeling. It contains 13 items about psychological symptoms and a column to write down symptoms that are not on the list. Some of these symptoms include (1) anger, (2) offended, (3) sad, (4) resentment, (5) negative thinking, (6) overthinking, (7) confusion, (8) jealous, (9) anxious, (10) distrustful of others, (11) fearful, (12) easily blames others and (13) self-withdrawal.

#### Symptoms of bad behavior

This feature identifies how far a user can remember and admit (in a conscious state) the bad behavior he has committed. It contains 16 items about bad behavior to oneself and 14 items about bad behavior to others. Some of the bad behaviors to oneself include (1) rarely praying, (2) negative thinking, (3) jealousy, (4) offended, and (5) committing sins. While some bad behaviors to other people include (1) being arrogant, (2) showing off, (3) being vindictive, (4) liking to lie, and (5) talking dirty.

#### Emotion regulation questionnaire

This feature contains 10 assessment items related to individual emotion regulation. It has the choices of “never”, “rarely”, “often”, and “always” on each item and shows the final result of regulatory interpretation with a total score of 0-20 indicating poor emotional control, 21-30 indicates moderate emotional control, and 31-40 indicates good emotional control.

#### Happy spiritual intervention

This feature contains a step-by-step tutorial/ standard operating procedure (SOP) on the *happyspiritual* intervention that has been previously identified by the researchers. In this SOP, individuals are invited to consciously clean up negative

emotions resulting from past events that have not been resolved. This feature is wrapped in videos and audio that the individuals can watch and listen to. This exercise contains nine steps: intention, reflection/self-evaluation, repentance, sincere, prayer, body scan, detoxification, relaxation, and surrender. This procedure can be performed in 30 to 45 minutes.

**Data Collection**

The data in this study were collected through the SIDE website ([www.sideku.org](http://www.sideku.org)) with one of its features, i.e., detection of emotion regulation using the Emotional Regulation Questionnaire (ERQ). Data collection was carried out to nursing students by sharing the SIDE website link via WhatsApp with the help of two research assistants who had previously received training related to SIDE. The participants were requested to complete a pretest questionnaire before applying the Happy spiritual intervention three times. Furthermore, they were also requested to perform the intervention independently two times before a posttest was conducted. The collected data were stored in the application that could only be accessed by the researchers and its administrators.

**Data Analysis**

The descriptive statistics with a bivariate analysis were performed for data analysis. The normality test was

conducted, and the results showed a normal distribution of the data. Therefore, the paired sample t-test was used to determine the effect of the happy spiritual intervention on emotion regulation in the group.

**Ethical Considerations**

This study received ethical approval from the Health Research Ethics Committee of the Department of Nursing, Faculty of Medicine, Diponegoro University, with a reference number of 136/EC/KEPK/D.Kep/XII/2020. All participants signed informed consent for their voluntary participation in this study. Each respondent had the right to withdraw from the study at any time without any sanctions. The confidentiality of the recorded data was also guaranteed.

**RESULT AND DISCUSSION**

The study was conducted among 46 nursing students. All participants were in early adulthood, ranging from 18 to 24 years old. Differences in the emotion regulation between the pretest and posttest can be seen in Table 1. Table 1 shows the results of the pretest and posttest. The mean score of the pretest was 48.7 ± 5.8, while the posttest was 55.7 ± 5.5. The t-value was 2.015, indicating a difference in the ability to control emotions between the pretest and posttest ( $p < 0.05$ ).

**Table 1. Results of the pretest and posttest**

Intervention group	Variable	Intervention		t	p
		Pretest	Post-test		
Nursing students	Emotion regulation	Mean±SD	48.7 ± 5.8	2.015	0.000
		Min-Max	35-58		
			55.7 ± 5.5		
			44-68		

**DISCUSSION**

This study aimed to determine the effect of the SIDE application on emotion regulation among nursing students. The paired sample t-test showed a difference in the emotional control between the pretest and posttest ( $p < 0.05$ ). This result is in line with a previous literature review by Eisenstadt et al. (2021) on the use of Mental Health Applications (MHapps) to manage emotion regulation, positive mental health, and well-being. This review, which involves 48 research articles, shows that MHapps are proven to be able to provide support to individuals in improving and promoting mental health and well-being (Eisenstadt, Liverpool, Infanti, Ciuvat, & Carlsson, 2021).

Online learning during the COVID-19 pandemic has created various problems and uncertainty about academic and professional careers (Hoque et al., 2021). This uncertainty causes nursing students to experience mental and emotional disorders (Şentürk & Bakir, 2021; Dhawan, 2020). The emotions that arise and are not controlled immediately can result in dangerous anger, so effective coping strategies to regulate emotions in the face of uncertainty are required (Pramono, 2021). Students need proper emotional regulation to deal with stressful situations and minimize any negative psychological impacts (Gross, 2014; Zhao, Fu, Lian, Ye, & Huang, 2021). Emotion regulation is considered a focal point for overcoming psychological disorders and promoting well-being (Eisenstadt, Liverpool, Infanti, Ciuvat, & Carlsson, 2021).

This study employed an innovative intervention of the Emotion Detection Information System (SIDE). It not only functions as emotion detection but also provides a *happy* spiritual intervention for emotion regulation. Internet/mobile-based interventions make it easy for users to access so that they allow users to integrate the interventions in daily life more flexibly without limitations and are cost-effective in reducing stress related to academic problems in college (Sander, Rausch, & Baumeister, 2016; Harrer et al., 2018). This application helps students detect emotions independently so that they can have awareness, be able to solve problems independently and prevent mental disorders. This application also practically helps and allows researchers to monitor and assist students' conditions, especially during the pandemic.

SIDE has a facial scan feature as an emotion detector and a feature to identify the history of illness, physical and psychological symptoms, bad behavior, and emotion regulation level of its users. The identification of disease history is carried out considering the fact that physical conditions will affect an individual's emotional condition. Emotions that arise also have a very complex impact on the multi-components of the human body as it is directly related to the soul and the physical aspects (Gross, 2014). Emotions tend to trigger various problems in cognitive, motivational, and somatic aspects simultaneously in any competitions, conflicts, and interactions (Moors, Ellsworth, Scherer, & Frijda,

2013). Therefore, this study also identified the emerging physical, psychological and behavioral symptoms.

In this study, the researchers used the *happy* spiritual interventions related to training to regulate emotions. *Happy* spiritual intervention is a mental health therapy that emphasizes the events causing students' emotions that have an effect on life today. These past emotions can shape an individual's personality traits. With spiritual mindfulness, these negative emotions can be removed with the blessing and help of Allah (God). Mindfulness is an exercise that a person does to be aware of his condition so that he is able to set goals and focus on solving the problems that he is experiencing. Good mindfulness can improve physical mental health, self-control, emotional regulation, and interpersonal relationships (Dwidiyanti, Pamungkas, & Ningsih, 2018). At the exercise, students are directed to attempt to eliminate events that could trigger emotions by praying and hoping for a blessing from Allah. In addition, students are also expected to continue practicing the exercises to manage emotions through situation selection, situation modification, change of focus, change of mind, and response modulation (Gross, 2014).

*Happy* spirituality is taught in the moment of awareness to raise intentions and impulses to clean up the soul from negative emotions and get closer to Allah, do self-introspection for any mistakes that have been made, ask forgiveness from Allah for all negative emotions and mistakes that have been made, develop self-acceptance or sincerity in accepting every destiny, pray to ask for Allah's help, do body scan to feel the body's response to the mistakes that have been made, detoxification and relaxation to calm down and feel Allah's help, and surrender to Allah.

Emotion regulation strategies can be used both adaptively and maladaptively, which are often associated with mood disorders. Therefore, being mindful or having emotional awareness can facilitate emotion regulation and is considered an underlying influencing factor to achieve positive mental health and well-being (Eisenstadt, Liverpool, Infanti, Ciuvat, & Carlsson, 2021; Gross, 2014). Mindful individuals will accept the condition they are experiencing full-heartedly; they will do things with full awareness and improve their ability to solve problems (Dwidiyanti, Fahmi, Ningsih, Wiguna, & Munif, 2019).

## IMPLICATIONS FOR NURSING

This study has some practical implications for nursing. Firstly, the results of this study provide evidence that the *happy* spiritual intervention could control emotional regulation among nursing students. Secondly, this study offers an innovative application, i.e., the SIDE application, with a new development of the *happy* spiritual intervention. The last, this study provides additional knowledge for nursing science that combines the concepts of health and spiritual technology to provide comprehensive nursing care.

## RESEARCH LIMITATIONS

This study has limitations. The face scan feature as an emotion detector on the SIDE application is still limited to manual photo uploads instead of the face scans that can be done directly with the camera in the application. It happens due to the limited capacity of the server power. As a result, it has the potential to cause errors or misinterpretation of emotions in users at the time of use.

## CONCLUSION AND SUGGESTION

The SIDE application provided a positive effect on emotional regulation among nursing students, in which the students showed better emotional regulation abilities to minimize symptoms of mental disorders while facing uncertainty during the COVID-19 pandemic. The detection of emotions is essential in health services, so managing emotional disorders becomes the priority in the healing process in health services, both in the institution and in the community settings.

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