



## HEALTH EDUCATION ON THE HALODOC APPLICATION TO IMPROVE MENTAL HEALTH IN STUDENTS

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### ABSTRACT

Mental health is an important component of individual well-being that affects the ability to learn, work, and adapt to life's demands. Students, as a group of young adults, are vulnerable to mental health problems due to academic pressure, social issues, and demographic factors. Digital interventions, such as the Halodoc application, can be a strategic alternative to improve access to information, education, and mental health services. This study aims to analyze the effect of health education through the Halodoc application on improving students' knowledge and mental health. The study used a quasi-experimental design with 51 students from the Nursing Study Program at Muhammadiyah University Surakarta as respondents. The instruments used were the Halodoc application knowledge questionnaire and PHQ-9, both of which have been proven to be valid and reliable. Analysis using the Wilcoxon Signed Ranks Test showed a significant increase in knowledge scores from 16.9 to 34.49, as well as a decrease in depression scores from 9.39 to 2.73 ( $p < 0.05$ ). The results of this study prove that health education through the Halodoc application is effective in increasing students' understanding while reducing symptoms of depression. In addition, digital intervention encourages students to be more proactive in seeking information, managing stress, and building sustainable healthy behaviors.

Keywords: halodoc; health education; mental health

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## INTRODUCTION

Mental health is a state of psychological well-being that helps individuals cope with life's challenges, recognize their potential, learn, work, and contribute to society (Dewi, 2012). According to the WHO, individual, family, community, and structural factors can influence mental health, while poor mental health can disrupt personal, social, educational, and work life (WHO, 2019). According to data from the World Health Organization/WHO, the prevalence of mental disorders shows significant variation across geographical regions, with the highest rates recorded in Southeast Asia (11.2%) and Africa (10.3%) (WHO, 2023). The highest risk of mental disorders that have undergone screening in Indonesia is recorded in the provinces of Bangka Belitung and South Sulawesi, with percentages of 53.8% and 46.6% respectively (Kemenkes, 2022). In Central Java, the city of Semarang has the highest prevalence of mental disorders (Kemenkes, 2018).

The mental health of students is influenced by a combination of family, psychological, and demographic factors. Authoritarian or permissive parenting styles increase the risk of emotional problems (Suryanto Aloysius & Nada Salvia, 2021). Meanwhile, gratitude has been proven to play a protective role in supporting positive mental health. Additionally, women are more prone to depression than men due to biological and social factors (Rahmawaty et al., 2022). Students in early adulthood are a group that is vulnerable to various physical, emotional, and social changes. Inability to adapt during this phase can trigger depression, which is characterized by prolonged sadness, low self-esteem, and a tendency to withdraw from social environments. Factors influencing students' vulnerability to depression include academic demands such as final assignments, financial problems, family conflicts, friendship dynamics, organizational involvement, and romantic relationships. These findings emphasize the importance of a mental health monitoring system that is

integrated with academic services, involving supervisors, counselors, psychologists, and medical personnel so that treatment can be carried out in a promotive, preventive, and curative manner (Setyanto et al., 2023).

In this context, health promotion plays a role as a systematic effort to increase awareness, capacity, and independence of individuals, families, and communities in realizing healthy living behaviors through conducive environmental support (Gerung, 2021). This effort has received policy support from the government in the implementation of health programs (Nurmala et al., 2018). Through health education, health promotion aims to increase knowledge and shape positive attitudes related to mental health. Mental health education in various universities also tends to focus on prevention and treatment, with the aim of reducing the risk of psychological problems faced by students (Gao et al., 2022). Advances in digital technology in the health sector have further strengthened the role of health promotion, one of which is through the Halodoc application, an application launched in 2016 by MHealth Indonesia, designed to make it easier for the public to obtain health information (Refianti et al., 2024). The availability of telemedicine services within the app has had a positive impact on the effectiveness of healthcare services globally, as patients can make appointments with doctors online via electronic devices without the need for face-to-face consultations (Chandra & Tan, 2022).

Furthermore, the use of health applications contributes positively to improving mental health by facilitating access to professional help, providing education, and building social support communities (Yanti et al., 2022). In its implementation, communication is a key factor, because the interaction between doctors and patients is an important aspect of health services. Therefore, health workers need to ensure the quality of both verbal and non-verbal communication so that a therapeutic relationship can be established optimally (Nugraha & Djuwita, 2023). In line with previous literature reviews, health promotion has been proven effective in improving knowledge, attitudes, and skills in both individuals and groups, thereby encouraging more positive and sustainable health behavior changes (Widodo et al., 2023).

## **METHOD**

This study used a quantitative approach with a quasi-experimental design that aimed to analyze the effect of health education through the Halodoc application on students' knowledge and mental health. The study was conducted in the Nursing Study Program, Faculty of Health Sciences, Muhammadiyah University Surakarta, from July 4 to July 12, 2025. The study population included all 1,090 active students in the nursing study program, with a sample size of 51 students selected through purposive sampling based on the following inclusion criteria: (1) Students aged 18–25 years, (2) Actively attending lectures at the university, (3) Willing to participate in the entire series of research activities including pre-test, post-test, counseling, discussion, and question and answer sessions, and (4) Having or not having a history of depression. Exclusion criteria included (1) students who could not participate in face-to-face activities, (2) having certain health conditions that hindered active participation, or (3) unwillingness to participate in any stage of the research.

Data collection was conducted using a structured questionnaire consisting of three main instruments: a questionnaire on knowledge about the Halodoc application, a PHQ-9 mental health questionnaire, and educational media in the form of leaflets and the Halodoc application. The knowledge questionnaire contained 10 questions with a 1–4 Likert scale (STS–SS), which were categorized as poor (10–19), fair (20–29), and good (30–40). The PHQ-9 consists of nine questions based on DSM criteria for detecting symptoms of depression, with scores classified from 0–4 (no symptoms) to  $\geq 20$  (severe depression) (Daniyati Kusuma et al., 2018). Leaflets and the Halodoc application were used as educational media to strengthen students' understanding and encourage the application of health information in their daily lives. The validity and reliability of the instruments were tested prior to conducting the study. The validity test results showed that all items were valid,

while the reliability test yielded a Cronbach's Alpha value of 0.900 for the knowledge questionnaire and 0.936 for the PHQ-9, indicating that the instruments had very high reliability (Khumaidi et al., 2023).

Data analysis was performed through univariate analysis to describe the characteristics of the respondents and the frequency distribution of the answers, as well as bivariate analysis using the Wilcoxon Signed Ranks Test to assess the difference between the pre-test and post-test scores. This approach was chosen because the sample size was relatively small compared to the population, thus requiring an appropriate non-parametric statistical method to ensure that the research results remained valid and representative (Notoatmodjo, 2010). Data analysis in this study was conducted through univariate and bivariate analysis. Univariate analysis was used to describe the frequency distribution and characteristics of respondents, while bivariate analysis was conducted to test the differences between pre-test and post-test scores. The difference test was performed using the Wilcoxon Signed Ranks Test non-parametric test. This study has obtained ethical approval from the Health Research Ethics Committee of the Faculty of Medicine, Muhammadiyah University Surakarta, with number 5691/B.1/KEPK-FKUMS/V/2025.

## RESULT

Tabel 1.  
Respondent Characteristics

Component	f	%
Gender		
Male	16	31,4
Female	35	68,6
Age		
21	18	35,3
22	26	51
23	7	13,7
Semester		
6	51	100

Based on the data in the table, the majority of respondents in this study were female, numbering 35 people (68.8%), while male respondents numbered 16 people (31.4%). This proportion shows that the number of female respondents was more dominant than male respondents. In terms of age, most respondents were in the 22-year-old age group with a percentage of 51%, while the age group with the lowest number was 23 years old at 13.7%. This finding indicates that the majority of respondents were in a relatively homogeneous age range, namely productive age for final year students. In addition, all respondents were recorded as being in semester 6, with a total of 51 people (100%), confirming that this study was specifically aimed at semester 6 students as the target population.

Tabel 2.  
Frequency Distribution Pretest and Posttest

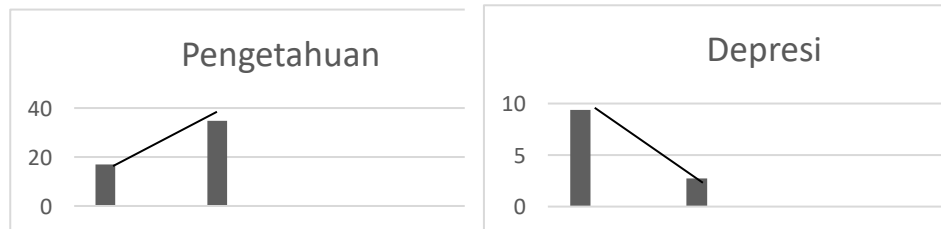
Component	Pre	Test	Post	Test
	f	%	f	%
Knowledge of the Halodoc app				
Insufficient	42	82,4	0	0
Adequate	5	9,8	1	2
Good	4	7,8	50	98
Health status				
No symptoms of depression	8	15,7	47	92,2
Mild symptoms of depression	21	41,2	4	7,8
Mild depression	7	27,5	0	0
Moderate depression	14	13,7	0	0
Severe depression	1	2	0	0

Based on the measurement results, the respondents' level of knowledge about the Halodoc application before the health education intervention (pre-test) showed that the majority were in the poor knowledge category, namely 42 respondents (82.4%), while the good knowledge category

only included 4 respondents (7.8%). After the intervention (post-test), there was a significant increase, with the good knowledge category becoming dominant with 50 respondents (98%), while the sufficient category was left with only 1 respondent (2%). These results prove that health education intervention through the Halodoc application was able to substantially increase the respondents' knowledge. Furthermore, in measuring mental health levels, the condition of respondents before the intervention showed that most were in the mild depression symptom category, with 21 respondents (41.2%), while the severe depression category was only found in 1 respondent (2%). However, after the intervention, the distribution changed significantly, with the majority of respondents falling into the no depression symptoms category with 47 respondents (92.2%), and the mild depression symptoms category decreasing dramatically to 4 respondents (7.8%). These findings show that health education contributes significantly to reducing depression symptoms while improving the overall mental health of respondents. Table 3 illustrates the results of the difference test using the non-parametric Wilcoxon Signed Ranks Test.

Tabel 3.  
Uji non-parametrik *Wilcoxon Signed Ranks Test.*"

Variable	Pre-test	Post-test	Asymp. Sig. (2-tailed)
Pengetahuan Aplikasi Halodoc	Rerata dan sebaran data 16.9±5.668	Rerata dan sebaran data 34.49±3.529	0,001
Tingkat Kesehatan	Rerata dan sebaran data 9.39±4.936	Rerata dan sebaran data 2.73±2.070	0,001



The results of the analysis show significant differences in both the respondents' knowledge and mental health before and after the health education intervention using the Halodoc application ( $p < 0.05$ ). The average knowledge score increased from  $16.9 \pm 5.668$  in the pretest to  $34.49 \pm 3.529$  in the posttest, confirming that this intervention was effective in improving students' understanding of the use of Halodoc as a medium to support health services. In line with previous studies, technology-based education has been proven to improve health literacy and expand access to health information among students. In addition, the average mental health score of respondents decreased from  $9.39 \pm 4.936$  before the intervention to  $2.73 \pm 2.070$  after the intervention, indicating an improvement in psychological conditions, particularly related to symptoms of depression. These findings confirm that health education through the Halodoc application not only has an impact on improving cognitive aspects in the form of knowledge, but also provides significant benefits to the psychological aspects of students, so that it can be seen as a promotional and preventive effort in maintaining mental health in the college environment.

## DISCUSSION

The results of the study indicate that the demographic characteristics of respondents, including age, gender, and semester, have a significant influence on the mental health of students. In terms of age, the 15–24 age group is an important transitional period that is prone to mental disorders. This period is known as late adolescence to early adulthood, during which individuals experience complex psychological, emotional, and social changes (Purnomosidi et al., 2023). Hormonal changes, identity development, and pressure to adjust to academic and social demands pose a high risk for stress, anxiety, and depression. (Rahim et al., 2025). The risk of depression and self-harming behavior among students often arises as a result of the accumulation of various interacting factors (Mutiarani, 2021). Individual factors include psychological aspects such as personality, resilience, traumatic experiences, and coping skills in dealing with daily pressures. Family factors include parenting styles, communication quality, emotional support, and the stability of

relationships between family members, which can affect students' ability to manage stress and life pressures (WHO, 2024). In terms of gender, research shows that women tend to be more prone to depression than men. This vulnerability is influenced by biological factors, including hormonal fluctuations that occur during the menstrual cycle, pregnancy, or menopause, which can affect mood and emotional stability (Rahmawaty et al., 2022). In addition, psychosocial factors also play a significant role, such as pressure related to body image, social roles, expectations from the environment, and the quality of interpersonal relationships with peers, family, or partners (Li & Wuxi, 2021). Meanwhile, final-year students face higher levels of stress due to academic burdens, financial problems, and social adaptation, which can trigger anxiety, depression, and sleep disorders (An Al Rivaldi, 2024).

Mental health is an integral part of quality of life, which encompasses physical, psychological, social, and spiritual aspects (Widodo & Supratman, 2020). Mental health is an integral part of quality of life, which encompasses physical, psychological, social, and spiritual aspects (Tan et al., 2020). This academic pressure can trigger chronic stress, decrease motivation, and affect students' affective, cognitive, and behavioral aspects, thereby increasing their vulnerability to mental health disorders (He et al., 2022). Students with low resilience tend to have difficulty coping with academic pressure, interpersonal problems, and complex life situations, making them prone to depression, anxiety, or other psychological symptoms (Fang et al., 2024). In addition, economic constraints are also a significant factor in worsening students' psychological conditions. Financial pressures, such as difficulties in paying tuition fees, daily living expenses, or family responsibilities, can increase stress and anxiety levels, which in turn reduce overall mental well-being (Siti khadijah et al., 2024).

This intervention The results of the study show that after receiving health education intervention through the Halodoc application, there was a significant improvement in the mental health of students, as indicated by a p-value of 0.001. This study indicates that the intervention was effective in reducing symptoms of depression, reducing anxiety levels, and improving overall psychological well-being. This improvement reflects students' enhanced ability to recognize signs of stress and emotional distress, enabling them to apply appropriate coping strategies. This is consistent with research (Widodo et al., 2019), which found that health education is effective in increasing knowledge, forming positive attitudes, encouraging adaptive behavior, and improving the quality of life of individuals with mental disorders. With the right education, participants become more understanding of their health conditions, able to make appropriate decisions regarding self-care, and better prepared to face psychological challenges in their daily lives. In line with research (Putro & Nurkalis, 2024) education on the use of the Halodoc application has been proven effective in increasing students' understanding of digital health services, while also having a positive impact on their mental health (Farhana et al., 2022). Through this education, students become more capable of accessing valid health information, recognizing symptoms of stress or depression early on, and independently applying prevention and mental health management strategies. Health promotion through an educational approach has proven effective in increasing individual knowledge while encouraging behavioral changes toward healthier habits. This strategy not only raises awareness of the importance of health but also facilitates the consistent application of healthy living practices in daily life (Widodo et al., 2023).

Health promotion through health education aims to equip individuals and groups with the knowledge, skills, and attitudes necessary for them to make appropriate decisions about their own health. This approach encourages independence in maintaining and improving health, while also increasing the ability to adapt to health risks or challenges that may be encountered (Notoatmodjo, 2010). This is in line with research (Sanggalorang et al., 2024), which shows that health education plays an important role in supporting the independence of patients, families, and the wider community. This intervention not only increases awareness of the importance of maintaining mental

health, but also strengthens their ability to manage stress, cope with academic and social pressures, and consistently apply healthy behaviors in their daily lives (Gerung, 2021). In its implementation, this study utilizes a combination of leaflets and the Halodoc application as health promotion media. Leaflets have been proven to be effective as a means of written information that is concise, clear, and easy to understand (Purwanta et al., 2021). This health education approach is in line with the Health Belief Model (HBM) framework, which emphasizes that a person's health behavior is influenced by their perception of vulnerability to disease, the severity of the condition, the benefits of preventive measures, and the barriers they may face in implementing healthy behavior (Nazira et al., 2022).

In line with these findings, women are known to be more vulnerable to mental health disorders. Contributing factors include hormonal changes, higher levels of emotional sensitivity, and psychological aspects that influence responses to stress and social pressure (Rahim et al., 2025). Between the ages of 18 and 23, students are in a transitional stage towards early adulthood, which is marked by various psychosocial challenges. This period involves adapting to academic responsibilities, developing self-identity, and increasingly complex social interactions (Kartika&Susmiatin, 2023). However, mental health is not only influenced by age and gender, but also by cognitive and psychosocial factors. Cognitive factors include how individuals process information, manage emotions, and make decisions related to their well-being (Sari et al., 2025). Internal factors such as self-esteem, spirituality, and positive mental health, as well as external factors such as family support and social relationships, also play a major role in maintaining students' subjective well-being (Rulanggi et al., 2021). Knowledge about mental health is the basis for forming healthy attitudes and behaviors. A good understanding enables students to better manage their emotions, make the right decisions, and appreciate themselves (Rulanggi et al., 2021). The use of information technology such as Halodoc is also an innovative solution for early detection, prevention, and initial treatment of mental health disorders, while encouraging students to be independent in maintaining their psychological condition (Nurhafiyah & Marcos, 2023).

## **CONCLUSION**

The results of the study show that health education interventions through the use of the Halodoc application have been proven effective in improving students' knowledge, awareness, and mental health. This intervention not only provides theoretical understanding of the importance of maintaining mental health, but also encourages students to be more proactive in seeking valid health information, thereby improving their digital health literacy. The increase in knowledge has a direct impact on students' ability to recognize the symptoms of stress, anxiety, and depression early on, enabling them to take appropriate preventive and self-management measures. Increased awareness also encourages students to internalize health information, manage academic and social pressures adaptively, and develop skills in maintaining life balance. In addition to improving cognitive aspects, this intervention strengthens students' independence in maintaining mental health sustainably and encourages positive behavioral changes, thereby creating a healthier lifestyle and more optimal psychological well-being.

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