

Manuscript received January 24, 2024; revised January 30, 2024; accepted February 30, 2024; date of publication February 29, 2024

Digital Object Identifier (DOI): <https://doi.org/10.35882/ijahst.v4i1.313>

Copyright © 2024 by the authors. This work is an open-access article and licensed under a Creative Commons Attribution-ShareAlike 4.0 International License ([CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/))

How to cite: Lena Atoy, Dewi Sartiya Rini, Rusna Tahir, and Dewi Nurviana Suharto, "ENSS (Expanded Nursing Stress Assessment) version 1.0: An Android-Based Mobile Application Efficient Stress Assessment in Nurses", International Journal of Advanced Health Science and Technology, vol. 4, no. 1, pp. 19-24, February 2024

ENSS (Expanded Nursing Stress Assessment) version 1,0: An Android-Based Mobile Application Efficient Stress Assessment in Nurses

Lena Atoy^{ID}, Dewi Sartiya Rini^{ID}, Rusna Tahir^{ID}, Dewi Nurviana Suharto^{ID}

Department of Nursing, Poltekkes Kemenkes Kendari, Kendari, Indonesia

Corresponding author: Lena Atoy (e-mail: lenaatoykdi@gmail.com).

ABSTRACT The nursing profession is a profession that is prone to experiencing stress. Long work duration in accompanying patients is one of the factors that causes stress in nurses. To anticipate work-related stress problems, it is necessary to periodically identify the level of stress experienced by nurses. The use of mobile applications needs to be developed for easy and efficient stress assessment Android-based which are expected to help nurses identify the stress they are experiencing. The aim of this study was to developing a stress assessment application android-based to identify stress levels efficiently and effectively. This research uses design Research and Development (R&D) with a product development and validation approach through use trials on 34 nurses with a sampling method that is the total sample. Test use using the instrument System Usability Scale (SUS). The research developed an Android-based stress analysis application called ENSS version 1.0 with login features, stress questionnaire main menu and load interpretation. The test was tested by respondents with a score of 74.78 in the category of Acceptable or Admissible. The ENSS application has been developed and is suitable for use in the identification of stress levels in nurses. The application of ENSS is an assessment of the stress level of nursing so that proper management can be carried out.

INDEX TERMS Android application, stress assessment, nurse

I. INTRODUCTION

Stress is defined as a psychobiological reaction of the body to physical or psychological demands that threaten or challenge the organism's well-being [1]. Stress is particularly acute among people who work in the 'helping professions'[2][3][4] and can have devastating effects on healthcare staff and their working environments[5]. Caring for patients is a stressful job, so the nursing profession is a profession that is vulnerable to stress [6][7].

While working, nurses not only provide care and assistance to patients but are also involved in the recovery process, provide support to patients and families, provide health education regarding disease and care to patients and families, and are involved in health promotion efforts [8]. A lot of time is spent caring for and assisting patients, so nurses have a high workload and are vulnerable to work stress [9]. Prolonged stress can reduce concentration, make nurses irritable with patients, increase absenteeism, disrupt sleep patterns, and reduce the quality of nursing work [10][11].

The work stress experienced by nurses will have an impact on the organization in the form of reduced resources, decreased nurse productivity, poor nursing care and resulting in financial losses [12]. Stress has a negative impact on the physical and mental health of nurses and affects the quality of nursing services [13][14]. The effects of stress are not addressed causing nurses to no longer be able to work professionally in carrying out their duties and responsibilities [15][16].

Previous research shows the high incidence of stress in nurses who work in hospitals [17], especially in nurses who work in the emergency department [1]. Empirical studies indicate that there are 3 factors related to stress events in nurses, especially nurses who work in emergency departments, namely organizational character, patient care and interpersonal environment [18][19][20]. Other factors that also cause nurses to be vulnerable to stress are fatigue due to long work durations, demands for collaboration with colleagues and other health workers which often trigger

conflicts between professions [21]. Nurses are responsible for providing the best care to patients and their families, namely humane, responsive, empathetic, collaborative and culturally sensitive care [22]. High expectations of being able to provide quality nursing care despite all limitations can trigger stress in nurses. A study regarding the incidence of work stress experienced by nurses in Indonesia was 42.55% experiencing heavy work stress and 89.9% of nurses experiencing light work stress [23]. Previous research the use of android to measure stress using a mobile app using the DASS version 42's Kuisoner (Depression Anxiety Stress Scale) [24].

To anticipate work-related stress problems, it is necessary to periodically identify the level of stress experienced by nurses. Currently available stress assessments are still based on questionnaire documents, so it is considered less efficient to use periodically and continuously ([13]. Currently internet technology is widely available on smartphones which are equipped with software applications. Android is one of the developments in internet technology today, where everyone can use the internet to obtain the information they need [24]. Android is a collection of software for mobile devices that includes an operating system, middleware and main mobile applications [25]. There are several components of an Android application, namely: activity, broadcast receiver, service and content provider. Android software development kit is a tool used to create Android platform applications with the Java programming language which includes development tools, emulators and libraries needed to build Android applications [26].

The use of smartphones and tablets has now begun to be used in providing health services [27]. The use of mobile devices has been used by nurses, doctors and other health professionals in health services and medical record data maintenance [28]. Based on these facts, it is necessary to develop an Android-based stress assessment application that is easy and efficient which is expected to help nurses identify the stress they are experiencing. The assessment method developed is assessing the stress level of nurses who work in jobs with a high risk of stress. Assessments must be easy and efficient, accessible anytime and anywhere and provide fast interpretation. Through this research an application has been developed *assessment stress* Android-based for implementing nurses in the isolation room at Bahteramas Regional Hospital. The aim of the research is to develop an application for assessing stress levels (*assessment stress*) Android based on nurses.

II. METHOD

A. STUDY DESIGN

The method used in this research is *Research and Development* (R&D). This research method is a research method used to develop and validate products and the effectiveness of the application of the resulting products.

The sample in this study was all 34 nurses in the Isolation Room at the Bahteramas Kendari General Hospital. Sampling in this study used technique total sampling is a sampling technique where the sample size is the same as the population (Dharma, 2013).

The preliminary stage is a field study to assess the needs in the field for the product being developed. Field studies are carried out by interviews or direct interviews with research subjects regarding the need for an assessment of the stress they experience. Next, at the Android-based application development stage, the design and application preparation process is carried out in developing an Android-based stress assessment application. The final stage is the trial stage by conducting socialization on the use of the application and trialling the application involving subjects, namely 34 nurses who work in the isolation room at RSU Bahteramas Kendari.

B. DATA ANALYSIS

1. Validate Product Design

Validation is carried out in 2 stages, namely Multimedia Expert Validation and Practitioner Expert Validation. The multimedia expert validation process involves 2 experienced experts. Determining the level of validity and product revision is described in the table below:

TABLE 1
Criteria for Validity Level and Product revision

Percentage (%)	Eligibility Category
81 – 100	Very Worth It
61 - 80	Worth it
41 – 60	Decent Enough
21 – 40	Not feasible
0 - 20	Totally Not Worth It

In the Validation Process, expert practitioners involve lecturers teaching Psychology and Mental Nursing at the Kendari Ministry of Health Polytechnic to assess the content used in Android-based stress assessment application products.

TABLE 2
Validity Level Criteria and Product Revisions

Percentage (%)	Eligibility Category
81 – 100	Very Worth It
61 - 80	Worth it
41 – 60	Decent Enough
21 – 40	Not feasible
0 - 20	Totally Not Worth It

2. Analysis of Trial Use of Application Products

The data analysis used in this research is descriptive analysis with one product quality variable which is measured using an instrument *System Usability Scale* (SUS) uses a Likert scale with the following scores: Strongly Agree (5), Agree (4), Nertal (3), Disagree (2), and Strongly Disagree (1). Instrument *System Usability Scale* (SUS) makes it possible to evaluate a wide range of products and services, incl *hardware*, *software*, *website* and applications. The SUS instrument was adopted from previous research with reliability *Alpha Cronbrach* 0.717 (>0.6) so it is declared reliable as a data collection instrument in this research. The interpretation of the SUS instrument can be seen in (TABLE 3) below:

TABLE 3
Interpretation of SUS Instruments

Shoes SUS	Score Interpretation
0-50,9	Not Acceptable
51-70,9	Marginal
71-100	Acceptable

III. RESULT

This assessment application is named ENSS (*Expanded Nursing Stress Scale*). The application can be installed via Play Store, in search mode using the keyword "enss". The main function of this application is to make it easier to identify the level of stress experienced by nurses. The installed application can be seen in the image below. Figure 1. Display of the installed application on the smartphone

How to use this application after it is installed starts with the user registration stage, namely filling in Name, Gender, Education, Length of Work, Position, Email. After the form has been filled in completely, press the check button in the top right corner of the screen, to enter the application's main menu. The main menu screen in this application consists of the history of the last questionnaire that has been filled in by the user, the average score from the results of all questionnaires filled in by the user which includes the monthly questionnaire score and explanation of the interpretation table.

The next stage is filling out the questionnaire. To start filling in the questionnaire, press the "Start Questionnaire" button on the main menu. The screen display for filling out the questionnaire, which consists of 4 parts, can be seen in Figure 2 below:

The answer choice button that has been selected will have a different appearance from the other answer choice buttons. The "next" switch button will be active if the next question has already been answered in one questionnaire filling session. The model for filling out a questionnaire is that when the question that appears is answered, the screen will automatically display the next question, and so on until the last question on the questionnaire. Users cannot go to the

next question before the question displayed on the screen is answered.

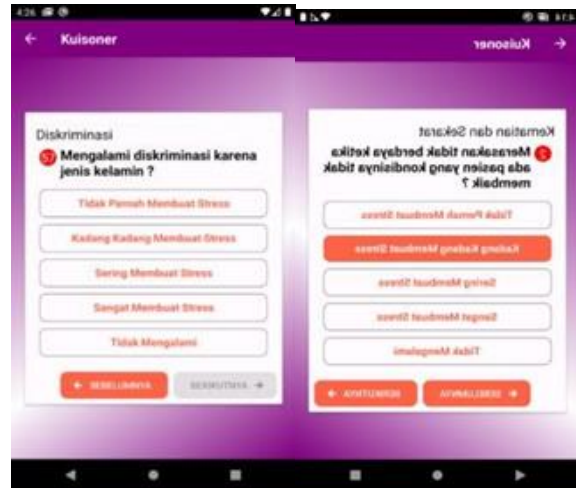


FIGURE 2. Display of filling out the questionnaire

Interpretation of the results of filling out the questionnaire is obtained by looking at the score results of filling in the questionnaire and interpretation of the results obtained.



Figure 2. Display questionnaire

3. Application Product Validation

The results of validation by multimedia experts on 4 component aspects, namely appearance aspects, user-friendliness aspects, language aspects, and implementation aspects using a validation questionnaire consisting of 14 total questions can be seen in (TABLE 4) below.

TABLE 4
Multimedia Expert Validation Analysis (n = 2)

Aspect	Score (%)	Category
Views	95	Very decent
User convenience	90	Very decent
Language	85	Very decent
Implementation	90	Very decent
Average	90	Very decent

The table above shows that the appearance aspect received a score of 95%, the ease-of-use aspect received a score of 90%, the linguistic aspect received a score of 85% and the implementation aspect received a score of 90%. Based on the scores from the four aspects, an average score of 90% is obtained so that this Android-based stress assessment application meets the very feasible category.

4. Validation by expert practitioners

Practitioner experts validated 6 component aspects, namely appearance aspects, application menu aspects, content aspects, user friendliness aspects, usefulness aspects, implementation aspects using a validation questionnaire consisting of 17 total questions.

TABLE 5
Expert Practitioner Validation Analysis (n = 2)

Aspect	Score %	Category
Views	95	Very decent
Application Menu	90	Very decent
Content	97,5	Very decent
User convenience	90	Very decent
Benefits	100	Very decent
Implementation	95	Very decent
Average	92,5	Very decent

The table above shows that the display aspect gets a score of 95%, the application menu aspect gets a score of 90%, the content aspect gets a score of 97.5%, the onvenience aspect users 90%, usefulness aspect 100% and implementation aspect got a score of 95%. Based on the scores from the six aspects, an average score of 92.5% was obtained so that this Android-based stress assessment application meets the very feasible category

5. Characteristics of respondents based on gender and education

This product testing was carried out to determine the feasibility and effectiveness of the product that had been developed by researchers. Product trials were carried out on respondents consisting of 34 executive nurses at RSU Bahteramas Kendari.

The description of the results of the usage trial analysis will be described as follows:

The table above shows that the majority of respondents were 30 women (88.2%) and 4 male respondents (11.8%).

Respondents with nursing education amounted to 17 people (50%) and 17 people (50%) with a Diploma 3 in Nursing.

The table above shows that the majority of respondents were 30 women (88.2%) and 4 male respondents (11.8%).

Respondents with nursing education amounted to 17 people (50%) and 17 people (50%) with a Diploma 3 in Nursing

TABLE 6
Frequency Distribution of Respondents Based on Gender and Education

Characteristics	Frequency	%
Gender		
Male	4	11,8
Female	30	88,2
Education		
Ners Profession	17	50
D3 Nursing	17	50

6. Characteristics of respondents based on age and length of work

TABEL 7

Respondent characteristics based on age and length of work

Characteristics	Mean	Minimum	Maximum
Age	37	27	55
Length of work	11	3	30

The table above shows that the average age of respondents is 37 years, the minimum age is 27 years and the maximum age is 55 years. The average length of work of respondents is 11 years, the minimum length of work is 3 years and the maximum is 30 years.

Based on the distribution of answers of *System Usability Scale*, then the results of the usage trial analysis are obtained as follows:

TABLE 10
Analysis of product use Trial

Average	Score	Interpretation of score
N (34)	74,78	Acceptable

The table above shows that this Android-based stress assessment application received an average score of 74.78 by category *acceptable*

IV. DISCUSSION

Stress levels can be measured based on self- assessment questionnaires, where the information is subjective [29]. The development of science and technology has encouraged the development of various Android-based applications. In a study conducted by the Information Systems department at the University of Wisconsin, it was reported that mobile Information systems are very important to include in health services, with an emphasis on the use of Android-based smartphones [30].

The development of an Android-based stress assessment application makes it easy for nurses to identify the level of stress they are experiencing. It is important to identify stress levels in nurses periodically so that treatment can be provided. This is because the effects of stress on nurses can influence the performance and quality of nursing services provided. Stress is a natural, but complex reaction of the body in accordance with some environmental threat, also termed stressor, causing the so-called "fight or flight" response phenomenon [25].

7. Analysis of trials with System Usability Scale (SUS)

This test uses instruments *System Usability Scale (SUS)*. The distribution of respondents' answers is as follows:

TABLE 9
Analysis of trials with System Usability Scale (SUS)

Statement	Totally disagree	Don't agree	Neutral	Agree	Totally agree
I think I will use this system again	0	0	0	20	14
I find this system complicated to use	26	8	0	0	0
I find this system easy to use	0	0	0	18	16
I need the help of somebody else or a technician in setting up this system.	18	16	0	0	0
I feel the features of this system run properly.	0	0	0	21	13
I feel the features of this system run properly.	17	17	0	0	0
I feel like someone else will understand how to use this system quickly	16	18	0	0	0
I feel this system is confusing.	0	0	0	19	15
I feel there are no obstacles in using this system	16	18	0	0	0

This research was conducted to develop a stress assessment application based on ENSS. ENSS is a digital assessment application for identifying stress levels in nurses which has an assessment function with content in the form of login, main menu, filling out questionnaires and interpretation of results which will provide an overview of the user's stress level. This research consists of three stages, namely preparation, design stage and product testing stage.

The application product developed by researchers has several advantages and disadvantages, namely making it easier for nurses to obtain the results of assessing the level of stress experienced, this Android-based assessment is easier, more practical and efficient to carry out to always monitor the level of stress experienced by nurses, helping hospital management to obtain data on the level of stress experienced by nurses working at the hospital, the application is equipped with quite complete features, the application is installed on each smartphone so it can be accessed anytime and anywhere. This application also still has shortcomings, namely that it can only be used on Android-based smartphones, it requires an internet connection to access the application.

The Indonesian version of the ENSS instrument has been tested for validity and reliability in Harsono's [31] research. The Cronbach value of the Indonesian version of ENSS is 0.956 and the test-retest reliability test obtained an Intra-Class Correlation value of 0.939, which means that the Indonesian version of ENSS has good internal stability. Indicators for this instrument include: death and dying, conflicts with doctors, insufficient preparation, problems with co-workers, problems with supervisors/superiors, workload, unclear treatment, problems with patient families and discrimination [26].

Table 9 regarding the product usage trial analysis shows that this Android-based stress assessment application received an average score of 74.78 in the category *acceptable*. This shows that the use of the ENSS application is considered good as an instrument for

determining stress levels in nurses. Previous research the use of android to measure stress using a mobile app using the DASS version 42's Kuisoner (Depression Anxiety Stress Scale) [24].

The use of an Android-based stress assessment application has been implemented by [32] to measure stress levels in students. Several previous studies have shown that the use of stress assessment instruments Android-based can measure levels of depression, anxiety and stress and is good for implementation [19][33]. Android is a mobile application that is quite popular because of the speed factor, namely the efficiency of the application in providing data according to the user's wishes [34]. It's just that there is a weakness in using web-based Android, namely that its use is very dependent on the availability of a good and stable internet network to access the applications being created [35].

V. CONCLUSION

The Android-based ENSS application development has been developed and can be installed via the Play Store, where this application has passed validation by multimedia experts and practitioners with a very worthy category. Product usage trial analysis shows that this Android-based stress assessment application received an average score of 74.78 in the category *acceptable*. This shows that the use of the ENSS application is considered good as an instrument for determining stress levels in nurses.

The use of this ENSS needs to be applied to measure the difference stress levels at the nurses working in the station with those working in emergency units.

ACKNOWLEDGMENT

We would like to thank all participants who contributed their valuable time to this study.

REFERENCES

- [1] L. M. Fullerton, "Work Stress and Posttraumatic Stress Disorder in ED Nurses/Personnel," *J. Emerg. Nurs.*, vol. 29, no. 1, pp. 23–28, 2003, doi: 10.1067/men.2003.7.
- [2] V. Isikhan, T. Comez, and D. MZ, "Job Stress and Coping Strategies in Health care Professionals working with Cancer patients," *Eur. J. Oncol. Nurs.*, vol. 8, no. 3, pp. 234–244, 2004.
- [3] D. Gilibert and D. L., "Disorders associated with burnout and causal attributions of stress among health care professionals in psychiatry," *Rev. Eur. Psychol. Appl.*, vol. 58, no. 4, pp. 263–274, 2008.
- [4] J. Siegrist, R. Shackelton, and C. Link, "Work stress of primary care physicians in the US, UK and German health care systems," *Soc. Sci. Med.*, vol. 71, no. 2, pp. 298–304, 2010.
- [5] V. Lambert, C. Lambert, and H. Yamase, "Psychological hardiness, workplace stress and related stress reduction strategies," *Nurs. Health Sci.*, vol. 5, no. 2, pp. 181–184, 2003.
- [6] C. Sudaryanti and Z. Maulida, "Faktor-Faktor Penyebab Stress Kerja Perawat Dalam Merawat Pasien Covid-19," *Adi Husada Nurs. J.*, vol. 7, no. 2, p. 57, 2022, doi: 10.37036/ahnj.v7i2.201.
- [7] S. Healy and M. Tyrrell, "Stress in emergency departments : experiences of nurses and doctors," *J. Emerg. Nurse*, vol. 19, no. 4, pp. 31–37, 2011.
- [8] Fajrillah and Nurfitriani, "Hubungan Stres Kerja Dengan Kinerja Perawat Pelaksana Dalam Rumah Sakit Umum Anutapura Palu," *J. Keperawatan Sriwij.*, vol. 3, no. 2355, pp. 17–24, 2018.
- [9] S. Maharaj, T. Lees, and S. Lal, *Prevalance and Risk factors of Depression, Anxiety, and Stress in a Cohort of Australian Nurses*. 2019.
- [10] H. Miaofen and Y. Susan, "Predictors of Burnout Among Nurses in Taiwan," 2014.
- [11] M. Maharani, "Hubungan antara Stres kerja Perawat dengan Kualitas Proses Keperawatan yang diberikan kepada Pasien," Semarang, 2023.
- [12] L. Labrague and DMM-P, *Job Stress in New Nurses During the Transition Period: an Integrative Review*. 2017, pp. 1–14.
- [13] X. Luan, P. Wang, M. Candidate, and H. Hou, *Job Stress and burnout: A Comparative Study of Senior and head nurses in China*, vol. 44, 2017, pp. 163– 169.
- [14] C. Ginting, *Strategi Manajemen Stress Perawat di Tempat Kerja*. 2020.
- [15] M. B. P. Atmaji, "Hubungan Faktor Individu Dan Organisasi Rumah Sakit Dengan Kinerja Asuhan Keperawatan Perawat Pelaksana Di Ruang Rawat Inap RSUD Dr. Soegiri Lamongan," Universitas Indonesia, 2008.
- [16] E. Maria, C. Isabel, S. Fonseca, C. Maria, and L. Queirós, "Artigo Original Fadiga por compaixão em enfermeiros de urgência e emergência hospitalar de adultos *," *J. Rev.Latino-Am.Enfermagem*, vol. 27, 2019, doi: 10.1590/1518-8345.2973.3175.
- [17] J. Adriaenssens, V. De Gucht, and S. Maes, "International Journal of Nursing Studies The impact of traumatic events on emergency room nurses : Findings from a questionnaire survey," *Int. J. Nurs. Stud.*, vol. 49, no. 11, pp. 1411–1422, 2012, doi: 10.1016/j.ijnurstu.2012.07.003.
- [18] K. L. Keller and W. J. Koenig, "Sources of stress and satisfaction in emergency practice," *J. Emerg. Med.*, vol. 7, no. 3, pp. 293–299, 1989, doi: 10.1016/0736- 4679(89)90367-3.
- [19] D. A. Revicki, T. W. Whitley, and M. E. Gallery, "Organizational characteristics, perceived work stress, and depression in emergency medicine residents," *Behav. Med.*, vol. 19, no. 2, pp. 74–81, 1993, doi: 10.1080/08964289.1993.9937568.
- [20] P. A. Scullion, "An identification of stressors associated with student nurses in an Accident and Emergency department and comparison of stress levels," *Accid. Emerg. Nurs.*, vol. 2, no. 2, pp. 79– 86, 1994, doi: 10.1016/0965-2302(94)90064-7.
- [21] R. F. Abualrub, "Job Stress, Job Performance, and Social Support Among Hospital Nurses," *J. Nurs. Scholarsh.*, vol. 36, no. 1, pp. 73–78, 2004.
- [22] D. N. Rutledge, "Prevalence of Secondary Traumatic stress among emergency nurses," *J. Emerg. Nurs.*, no. May, pp. 199–204, 2009, doi: 10.1016/j.jen.2008.05.003.
- [23] R. Yulianingsih, Y. Agus, and M. Maftuhah, "Stres Kerja Perawat Meningkatkan gejala Sindrom Pra menstruasi di Sumah Sakit X Bekasi," *J. Epidemiol. Kesehat. Indones.*, vol. 4, no. 1, pp. 7–16, 2020.
- [24] Indasyah, Enny and Ananta, Olivia. Rancang Bangun Sistem Informasi dan Monitoring Level Stress Penderita Diabetes Millitus (DM) Berbasis Android. Jurnal Ilmu Komputer dan Desain Komunikasi visual. Vol 3, No.1. 2088.
- [25] M. K. Alzaylaee, S. Y. Yerima, and S. Sezer, "DL- Droid: Deep learning based android malware detection using real devices," *Comput. Secur.*, vol. 89, 2020, doi: 10.1016/j.cose.2019.101663.
- [26] M. K. Moser, B. Resch, and M. Ehrhart, "An Individual-Oriented Algorithm for Stress Detection in Wearable Sensor Measurements," *IEEE Sens. J.*, vol. 23, no. 19, pp. 22845–22856, 2023, doi: 10.1109/JSEN.2023.3304422.
- [27] Hadisumito, I. Labolo, and M. Pomalingo, *Aplikasi Kamus Keperawatan berbasis android*, vol. April. 2015, pp. 1–9.
- [28] P. J. F. White, S. Member, B. W. Podaima, and M. R. Friesen, "Algorithms for Smartphone and Tablet Image Analysis for Healthcare Applications," *IEEE Access*, vol. 2, pp. 831–840, 2014.
- [29] M. R. Friesen, C. Hamel, and R. D. McLeod, "Health application for chronic wound care: findings of a user trial," *J. Environ. Res. Public Heal.*, vol. 10, no. 11, pp. 6199–6214, 2013.
- [30] L. Simoes, J. Goncalves, and J. Silva, "Mobile application for stress
- [31] Y. Park and J. Chen, *Penerimaan dan adopsi penggunaan smartphone yang inovatif*. 2007, pp. 1349–1365.
- [32] H. Harsono, "Uji validitas dan reliabilitas expanded nursing stress scale (ENSS) versi bahasa Indonesia sebagai instrumen penilaian stres kerja pada perawat di Indonesia = Validity and reliability test of Indonesian version of expanded nursing stress scale (ENSS) as a ,," Universitas Indonesia, 2017. [Online]. Available: <https://lib.ui.ac.id/detail?id=20454070&lokasi=loka1>
- [33] I. Ariffudin, A. I. N. Rahmawati, and M. Mulawarman, "Stress meter: Android-based assessment application for academic stress level of students," *J. Phys. Conf. Ser.*, vol. 1402, no. 7, 2019, doi: 10.1088/1742-6596/1402/7/077050.
- [34] M. Mulawarman, L. Ariffudin, A. I. N. Rahmawati, M. E. Wibowo, E. Purwanto, and A. Munandar, "Application of Android-Based Stress Meter as Stress Academic Indicator on College Student with Low Achievement Motivation," vol. 247, no. Iset, pp. 307–313, 2018, doi: 10.2991/iset-18.2018.64.
- [35] C. Lee Ventola, "Mobile devices and apps for health care professionals: Uses and benefits," *P T*, vol. 39, no. 5, pp. 356–364, 2014.
- [36] E. Ozdalga, A. Ozdalga, and N. Ahuja, "The smartphone in medicine: A review of current and potential use among physicians and students," *J. Med. Internet Res.*, vol. 14, no. 5, pp. 1–14, 2012, doi: 10.2196/jmir.1994.