

Effective Maternal Care Application Increases Knowledge of Intranatal Standard Operating Procedures

Wieda Widyatry Qarragita¹, Yayat Suryati^{2*}, Juju Juhaeriah³, Ida Maryati⁴, Murtiningsih²

¹Nursing Science Program, STIKes Karsa Husada Garut, Garut, West Java, Indonesia.

²Master of Nursing Study Program, Faculty of Health Science and Technology, UNJANI, Cimahi, West Java, Indonesia.

³Nurse Professional Study Program, Faculty of Health Science and Technology, UNJANI, Cimahi, West Java, Indonesia.

⁴Nursing Science Program, Faculty of Nursing, Universitas Padjadjaran, Sumedang, West Java, Indonesia.

Received: June 7, 2023

Revised: August 11, 2023

Accepted: August 25, 2023

Published: August 31, 2023

Corresponding Author:

Yayat Suryati

ysuryati065@gmail.com

DOI: [10.29303/jppipa.v9i8.4159](https://doi.org/10.29303/jppipa.v9i8.4159)

© 2023 The Authors. This open access article is distributed under a (CC-BY License)



Abstract: Not optimal information system facilities have become one of the obstacles in the learning process so that in some courses the failure rate is still high, one of which is maternity nursing so that effective and interesting learning media is needed, one of which is the Maternal Care Application. The purpose of this study was to determine the effectiveness of the Maternal Care Application in increasing knowledge of Intranatal Standard Operating Procedures (SPO) in Undergraduate Nursing Students. The type of research used is quantitative experimental in nature, using quasi-experimental rankings, with the form of pre-test and post-test with control group design, with the experimental group using applications and controls using power point. The population in this study was 144 active students in the second semester of the Bachelor of Nursing Study Program using simple random sampling of 60 students. Normalized gain test (N-Gain) is used to determine the score of knowledge before and after treatment. The results showed that the application of Maternal Care was quite effective in increasing knowledge of intranatal SPO with a gain score of 0.588. In this application the researcher presents material and videos about SPO at any time with the hope that it will make it easier for students to memorize so that student knowledge increases.

Keywords: Intranatal standard operating procedures (SPO); Knowledge; Maternal care

Introduction

As these indicators are sensitive to improvements in the accessibility and quality of health services, they can also assess the degree of public health (Indonesian Health Profile, 2021). Information Technology system facilities that were not yet optimal were one of the obstacles in lectures during the pandemic, even though they gradually continued to adapt to technological developments such as developing an LMS (Learning Management System). As a tertiary institution in the health sector, of course, in addition to increasing knowledge, it is also necessary to improve in terms of skills, especially in the Nursing study program where the curriculum includes theory, practicum and field learning. Additionally, Widiyono et al. (2022) on the impact of online instruction through Zoom meetings on

nursing students' critical thinking abilities revealed an improvement in those abilities. Apart from the campus side, also from the student side, not all of them don't have special devices to carry out online learning so that when studying online, many students still use mobile phones/smartphones when attending lectures.

Research on the use of android applications such as Uma et al. (2022) regarding the use of android applications on plant-producing material with the result that there is a significant influence between before and after the use of the android application. Also in Fitriani et al. (2022) regarding the effectiveness of training and the use of the Si Centing application on the knowledge and skills of posyandu cadres, there is a difference in the average value of the knowledge and skills of volunteers before and after training and the use of the centing application. However, from the several

How to Cite:

Qarragita, W.W., Suryati, Y., Juhaeriah, J., Maryati, I., & Murtiningsih, M. (2023). Effective Maternal Care Application Increases Knowledge of Intranatal Standard Operating Procedures. *Jurnal Penelitian Pendidikan IPA*, 9(8), 6300-6305. <https://doi.org/10.29303/jppipa.v9i8.4159>

studies that have been carried out, there is still little that is related to learning media that can be utilized by nursing students. Learning media can be used for the purposes of teaching and learning activities and conveying messages to be used by educators (Suryadi et al., 2018).

Learning media aims to fulfill basic competencies and core competencies in a subject. Learning media can be understood as anything that can convey or channel messages from a source in a planned manner, resulting in a conducive learning environment where recipients can carry out the learning process efficiently and effectively (Sitepu, 2022). Making learning media must be in accordance with learning objectives, especially learning related to knowledge and skills that must be in accordance with Standard Operating Procedures (SPO). Nursing procedures are a set of instructions or steps to complete routine work processes carried out by nurses to achieve the goal of meeting the needs and independence of patients/clients in caring for themselves (PPNI, 2021). The impact of standard operating procedures (SOPs) on staff performance in attaining their objectives is evident. Standard Operating Procedures (SOPs) are a compendium of established protocols utilized as instructional frameworks for the execution of recurring duties (Wahongan et al., 2021). Meanwhile, labor can also be said to be a stage in the release of the results of pregnancy, namely a living or dead baby and placenta from the uterus which is removed from other ways or the birth canal (Diana et al., 2019).

Almost all courses in the Bachelor of Nursing program have theory, practice and field work so that when compiling instructional media you have to really pay attention to these aspects, especially those related to SPO, one of which is in the Maternity Nursing course. This design focuses on material called the Maternal Care Application which contains material about Intranatal, there is also a learning video related to Intranatal Period I-IV, with an attractive and interactive appearance that aims to attract students' interest in reading, learning and also to add flexible learning media so that it is hoped that it can increase the knowledge of students who will be conducting research, so that researchers are interested in researching the effectiveness of maternal care applications for increasing knowledge of standard intranatal operational procedures in Nursing Science Program, STIKes Karsa Husada Garut.

Method

This type of research is experimental quantitative research using quasi-experimental design, with the

form of pre-test and post-test with control group design. The design of this study is to describe the level of knowledge of students about Standard Operating Procedures (SPO) Intranatal Care consisting of Period I to Period IV in Maternal Care application users before and after using the application, and analyze the extent of the effectiveness of the application on the level of knowledge of S1 Nursing Study Program students at STIKes Karsa Husada Garut. As for the control class by providing material through power point. According to Sugiyono (2019), variables that affect or cause the dependent variable to change or appear are referred to as independent variables. Simple random sampling is taking sample members from the population randomly without regard to population levels, so that each sample unit as a component of the population has an equal chance of being sampled or representing the population. This happens when all people in the population are considered equal (Sugiyono, 2019).

The population in this study were active students of semester II of the S1 Nursing Study Program at STIKes Karsa Husada Garut who would take Nursing Matenitas I courses consisting of classes A, B and C as many as 144 students, The sample used for each group was 30 students for each group. Experimental class of 30 with learning media using android-based application Maternal Care and intervention class (control group) of 30 students without using android applications (using power point). The sampling technique used was Simple Random Sampling. The normalized gain test (N-Gain) was conducted to determine the increase in student cognitive learning outcomes after treatment. This increase is taken from the pretest and posttest scores obtained by students. Normalized gain or abbreviated as N-Gain is a comparison of the actual gain score with the maximum gain score. The actual gain score is the gain score obtained by students while the maximum gain score is the highest possible gain score obtained by students. The measured values are the overall pretest and post test scores including Period I to Period IV and the calculation for the knowledge score of each Period.

Result and Discussion

Research on the effectiveness of using the Maternal Care application on the level of knowledge of Standard Operating Procedures for Intranatal Period I-IV in Undergraduate Nursing Students of STIKes Karsa Husada Garut was conducted on May 8-12, 2023.

Overview of the level of knowledge of Standard Operating Procedures Intranatal Period I-IV before giving Maternal Care Application. Students' knowledge of Standard Intranatal Operational Procedures before giving the application is generally poor knowledge (36.79), with the lowest score of 17.86,

the highest score of 53.57 and the highest average at Stage I which is 41.43 (less). The data indicates discernible disparities in knowledge categories prior to and subsequent to the implementation of Maternal Care programs. This phenomenon aligns with the findings of Turnip et al. (2022) study on the impact of offering android applications in enhancing awareness about anemia. The study observed a significant difference in the mean scores of adolescent girls' knowledge levels before and after the intervention.

Overview of the level of knowledge of Standard Operating Procedures Intranatal Period I-IV after giving Maternal Care Application. Students' knowledge of Standard Intranatal Operational Procedures after the provision of Maternal Care applications is generally sufficient knowledge (73.93), with the lowest score of 60.71, the highest score of 89.29 with the highest average score at Stage III which is 79.52 (Good).

Cognitive processes based on Anderson's Bloom Taxonomy theory (Cressa et al., 2023) are divided into 6 levels, namely remembering (C1), understanding (C2), applying (C3), analyzing (C4), evaluating (C5), and creating (C6). For knowledge of the Standard Operating Procedures for Intranatal Period I-IV, the researcher limits this research to the level of remembering (C1).

Overview of the level of knowledge of Standard Operating Procedures Intranatal Period I-IV before giving power point. Students' knowledge of Standard Intranatal Operational Procedures before giving power points in general knowledge is less (37.74) with the lowest score of 25.00, the highest score of 46.43 with the highest average score in Period III which is 44.29 (less).

Overview of the level of knowledge of Standard Operating Procedures Intranatal Period I-IV after giving power point. Students' knowledge of Standard Intranatal Operational Procedures after giving power points is generally sufficient knowledge (65.36) with the lowest score of 50.00, the highest score is 78.57 with the highest average score in Period III which is 70.00 (sufficient). These results are in line with Suharti et al. (2022) research on the effect of interactive media and PowerPoint presentations on motivation and anatomy learning outcomes, which showed that the use of interactive media and motivation affects how well students learn anatomy.

The first stage starts from the SPO of labor, uterine contractions and opening of the cervix until full opening (10 cm) and at this stage a Leopold examination is performed. Stage II begins with the full opening of the cervix and ends with the birth of the child, stage III lasts from the exit of the fetus to the birth of the placenta, and stage IV is the recovery period which is an important stage to determine complications. occur after childbirth as abnormal bleeding (Fauziah, 2015).

Analysis of the effectiveness of the Android-based Maternal Care Application on Increasing Knowledge of Intranatal Standard Operating Procedures. Providing material using power point media is less effective (44.4%) to increase student knowledge about Intranatal Standard Operating Procedures. Providing material using the Maternal Care Application is quite effective (58.88%) to increase student knowledge about Standard Intranatal Operational Procedures.

From the data it is clear that there are different categories of knowledge between before and after the provision of the Maternal Care application, this condition is in line with Turnip et al. (2022) on the effect of providing android applications on increasing anemia knowledge that there are different average values before and after giving applications to adolescent girls. Likewise, in line with Wahyuni et al. (2023) on the provision of android applications on knowledge of breast self-examination with the results there are different values between before and after giving the application.

As is known that knowledge is the sensing of a particular object that a person does and produces knowledge, through the five human senses, namely sight, hearing, smell, taste and touch (Notoatmodjo, 2019). A person's knowledge is usually obtained from experiences that come from various sources, such as mass media, electronic media, instruction manuals, health workers, poster media, close relatives, and so on (Notoatmodjo, 2012). Meanwhile, ways of obtaining knowledge include trial and error, by chance, power and authority, based on personal experience, common sense and others. As is known, the factors that influence knowledge include two factors, namely internal factors and external factors, one of which is the information factor.

Information is data that has been processed into a form that has meaning for the recipient and has real and felt value for current satisfaction or future satisfaction, information that comes from the sender of the message addressed to the recipient of the message, such as printed media (booklets, leaflets, posters, rubric), electronic media (television, radio, video) and non-media (family, friends). According to Naktiany et al. (2022) on the level of knowledge of mothers about nutritional status of toddlers states that information obtained from formal and non-formal education can have a short-term influence resulting in changes or increases in knowledge. The existence of new information about something provides a new cognitive foundation for the formation of knowledge on this matter, so that in this study there is a different range of values between before and after the provision of Maternal Care applications. They can do positive

activities with the app and feel satisfaction and comfort when using mobile learning apps (Sarkadi et al., 2020).

Based on the results of research that has been conducted on the effectiveness of the Maternal Care application on the level of knowledge of Standard Operating Procedures Intranatal Period I-IV in S1 Nursing Students of STIKes Karsa Husada Garut, it shows that providing material using the Maternal Care Application is effective enough to increase student knowledge about Standard Operating Procedures Intranatal with a gain score of 0.588.

From these data, it is clear that the provision of Maternal Care applications can increase student knowledge. This application consists of 5 main menus, namely Period I, Period II, Period III, Period IV and about the application. On the menu of each stage, the researcher presents text containing information about the definition and stages of the procedure at that stage. In addition to the material menu, researchers also added a video menu about SPO at each time that researchers made, with the aim of making it easier for students to understand what was conveyed.

According to Abdurrahman in Rahyudi et al. (2022) the application is a ready-made program that can be used to carry out commands from the application user with the aim of getting more accurate results in accordance with the purpose of making the application, the application has the meaning of problem solving using one of the application data processing techniques which usually races to a desired or expected competency or expected data processing. The Maternal Care application is designed to make it easier for students to understand the stages when later carrying out practicum in the laboratory.

From the control class Gain score data at Periods I-IV shows in the less effective category, in contrast to the data displaying the experimental class Gain score at Period I, Period III and Period IV displays data in the moderately effective category, while at Period II is in the less effective category, so that the intervention and control classes are in the same category even though there is a difference in the gain score of 8% higher for the intervention class. Stage II is the SPO stage which begins with the complete opening of the cervix and ends with the birth of the baby, so the steps that must be remembered by students are quite long and require more time compared to Stage I, Stage III and Stage IV which have not as many stages as Stage II.

The results of this maternal care application research are in line with Fitriami et al. (2022) on the use of android applications for stunting education, the results of which showed an increase in knowledge after using the android application, as well as Susindra et al. (2023) on android-based learning media on obesity knowledge which concluded that adolescent girls

experienced increased knowledge after being given an android application media intervention. Similarly, Darwitri et al. (2022) on the "Si-RAJA" application showed that there was an influence on the use of the application with the bisan attitude in monitoring fetal growth and development.

In addition, Mulyani et al. (2023) showed that pharmacology learning outcomes were influenced by multimedia-based learning videos. The group of students who received multimedia-based videos showed better learning outcomes than the group of students who received text learning media. The results of Hasbi (2019) on the Nursing Diagnostic Mobile application also showed that there was an increase in documentation skills between before and after using the application. The increase in knowledge of the respondents proves that the android application media can be used regularly to support the learning process. These results show that the mean value of the level of knowledge after the android application is given is greater than before it is given.

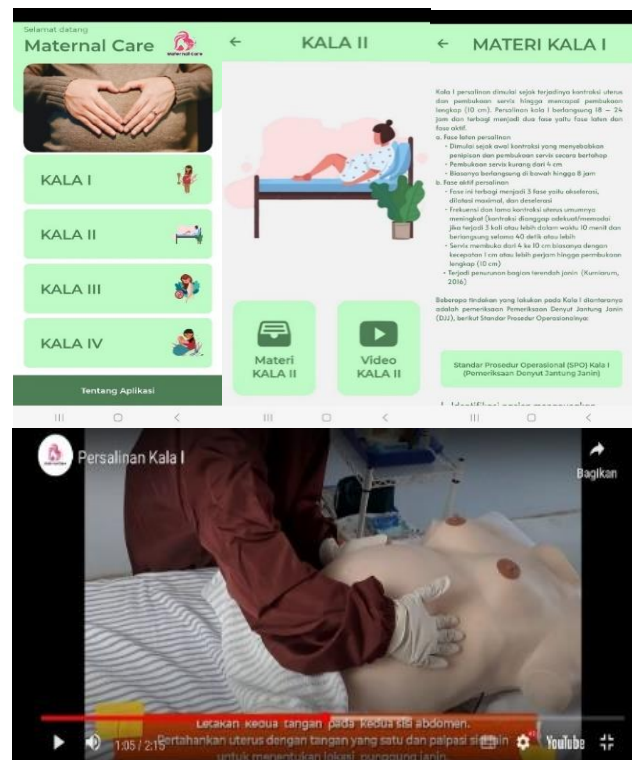


Figure 1 Maternal care app screen display

In addition to utilizing android applications, researchers also use video media as a supplement to intranatal material. Video media is media that presents information in sound and visual form. As stated by Wati in (Aliyah & Purwanto, 2022) states that audiovisual media (video) is a tool used in learning to assist writing and words that convey knowledge, attitudes, ideas, in learning. The findings of this study on video-based

learning media align with the research conducted by Wijastuti et al. (2022) about the impact of SADARI films on knowledge and skill levels. Wijastuti's study shown that the average knowledge and skill scores exhibited an increase following the implementation of the media. Then, with this research which is assisted by audiovisual media, it is hoped that abstract learning will become concrete and will stimulate student curiosity. In other words, with the use of audiovisual media (video), students will be more active, motivated, and enthusiastic in attending class lectures (Nadia et al., 2022).

By combining text, audio and video, students can more easily remember what they learn. The benefits of learning media include a clearer presentation of messages and information, which can facilitate and improve the learning process and results, direct and increase students' attention so that they are more motivated to learn, and increase the possibility of more direct interaction between students and their environment. Visit to Arsyad Animal Park or Museum in Wulandari et al. (2023).

Conclusion

The level of knowledge of standard operational procedures for Intranatal Period I-IV before giving the android-based Maternal Care application to Undergraduate Nursing Students of STIKes Karsa Husada Garut is in the insufficient category, after giving the android-based Maternal Care Application to Undergraduate Nursing Students of STIKes Karsa Husada Garut is in the sufficient category. The level of knowledge of standard operational procedures for Intranatal Period I-IV before giving Power Point media to undergraduate nursing students of STIKes Karsa Husada Garut is in the insufficient category, after before giving Power Point media to undergraduate nursing students of STIKes Karsa Husada Garut is in the sufficient category. The android-based Maternal Care application is effective enough to increase knowledge of Standard Operating Procedures for Intranatal Period I-IV in Undergraduate Nursing Students of STIKes Karsa Husada Garut.

Author Contributions

The roles of the authors in this research are divided into executor and advisor in this research.

Funding

This research received no external funding

Conflicts of Interest

The authors declare no conflict of interest.

References

- Aliyah, A. A., & Purwanto, S. E. (2022). Pengaruh Media Pembelajaran Powtoon Terhadap Hasil Belajar Matematika Pada Materi Perkalian Siswa Kelas II Sekolah Dasar. *Ideas: Jurnal Pendidikan, Sosial, Dan Budaya*, 8(3), 921. <https://doi.org/10.32884/Ideas.V8i3.946>
- Cressa, J., & Mukhlis, M. (2023). Level Kognitif Taksonomi Bloom pada Soal Mata Pelajaran Bahasa Indonesia. *J-LELC: Journal of Language Education, Linguistics, and Culture*, 3(1), 55–62. <https://doi.org/10.25299/j-lelc.v3i1.12094>
- Darwitri, D., Respatiningrum, R., Sihalo, M., & Marella, M. (2022). Si-Raja" Android Application (Estimated Fetal Weight) Improves Midwife's Attitude In Monitoring Fetal Growth In Health Centers Throughout Tanjungpinang City, Riau Islands Province. *International Journal of Social Science*, 1(6), 1077–1082. <https://doi.org/10.53625/ijss.v1i6.2426>
- Diana, E. (2019). *Buku Ajar Asuhan Kebidanan Persalinan dan Bayi Baru Lahir*. CV OASE Group.
- Fauziah, S. (2015). *Keperawatan Maternitas Volume 2: Persalinan*. Kencana.
- Fitriani, E., & Galaresa, A. V. (2021). Edukasi Pencegahan Stunting Berbasis Aplikasi Android Dalam Meningkatkan Pengetahuan Dan Sikap Ibu. *Citra Delima: Jurnal Ilmiah STIKES Citra Delima Bangka Belitung*, 5(2), 78–85. <https://doi.org/10.33862/citradelima.v5i2.258>
- Fitriani, S. F., Zahra, A. S., & Rahmat, A. (2022). Effectiveness of Training and Use of Si Centing Application on Knowledge and Skills of Posyandu Cadres. *Jurnal PROMKES*, 10(1), 24. <https://doi.org/10.20473/jpk.V10.I1.2022.24-29>
- Mulyani, E., & Putra, C. A. (2023). Pengaruh Video Pembelajaran Berbasis Multimedia Terhadap Hasil Belajar Farmakologi. *Jurnal Teknologi Pendidikan*, 12(1), 10–21. <https://doi.org/10.32832/tek.pend.v12i1.9114>
- Nadia, N., Wardiah, D., Kuswidyanarko, A., & Kuswidyanarko, A. (2021). Pengaruh Penggunaan Media Audio Visual Animasi Terhadap Kemampuan Berpikir Kreatif Siswa Materi IP. *Innovative: Journal Of Social Science Research*, 2(1), 133–139. <https://doi.org/10.31004/innovative.v2i1.157>
- Naktiany, W., Yunita, L., Rahmiati, B., Lastyana, W., & Jauhari, M. T. (2022). Hubungan Tingkat Pengetahuan Ibu Tentang Gizi Dengan Status Gizi Balita. *Nutriology: Jurnal Pangan, Gizi, Kesehatan*, 3(2), 57–62. <https://doi.org/10.30812/nutriology.v3i2.2468>
- Notoatmodjo, S. (2019). *Metode Penelitian Kesehatan*. PT

- Rineka Cipta.
PPNI. (2021). *Pedoman Standar Prosedur Operasional Keperawatan*. DPP PPNI.
- Rahyudi, S., R., & Sulaeman, B. (2022). Aplikasi Media Pembelajaran Sistem Fotosintesis Pada Tumbuhan Berbasis Android Kelas Viii Smp Negri 4 Wotu. *Indonesian Journal Of Education and Humanity*, 2(1), 20-33. Retrieved from <http://ijoehm.rcipublisher.org/index.php/ijoehm/article/view/41>
- Sarkadi, A. R. C., Cahyana, U., & Paristiowati, M. (2020). The Application of Mobile Learning for University Students in the Pancasila Education Modul in Developing Character of Students' Empathy. *Universal Journal of Educational Research*, 8(9), 3825 - 3833. <https://doi.org/10.3389/feduc.2022.849218>
- Sitepu, E. N. (2022). Media Pembelajaran Berbasis Digital. *Mahesa*, 1(1), 242-248. <https://doi.org/10.34007/ppd.v1i1.195>
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan Tindakan*. Alfabeta: Bandung.
- Suharti, S., Daryono, D., Abbasiah, A., & Masyitah, D. (2022). Media Interaktif dan Power Point terhadap Motivasi dan Hasil Belajar Anatomi Fisiologi Mahasiswa. *Jurnal Keperawatan Silampari*, 5(2), 796-803. <https://doi.org/10.31539/jks.v5i2.3466>
- Suryadi, E., Ginanjar, M. H., & Priyatna, M. (2018). Penggunaan Sosial Media Whatsapp Pengaruhnya terhadap Disiplin Belajar Peserta Didik pada Mata Pelajaran Pendidikan Agama Islam (Studi Kasus Di SMK Analis Kimia YKPI Bogor). *Edukasi Islami : Jurnal Pendidikan Islam*, 7(01), 1. <https://doi.org/10.30868/ei.v7i01.211>
- Susindra, Y., & Permatasari, R. A. W. (2023). Pengaruh Media Pembelajaran Infografis Berbasis Aplikasi Android Terhadap Tingkat Pengetahuan Mengenai Obesitas Pada Remaja Putri. *ARTERI : Jurnal Ilmu Kesehatan*, 4(2), 81-86. <https://doi.org/10.37148/arteri.v4i2.269>
- Turnip, M., & Arisman, Y. (2022). The Impact of the use of Video Through the Android Application as an Anemic Educational Media on Increasing Knowledge about Anemia On Adolescent Girls. *Jurnal Kebidanan Kestra (JKK)*, 4(2), 52-57. <https://doi.org/10.35451/jkk.v4i2.973>
- Uma, E. R. A., Makaborang, Y., & Ndjoeroemana, Y. (2022). Pengaruh Penggunaan Media Pembelajaran Berbasis Aplikasi Android Terhadap Hasil Belajar Siswa Kelas IX pada Konsep Perkembangbiakan Tumbuhan. *Jurnal Pendidikan Indonesia Gemilang*, 2(1), 9-16. <https://doi.org/10.53889/jpig.v2i1.58>
- Wahongan, E. P. T., & Dotulong, L. O. H. (2021). Pengaruh Standar Operasional Prosedur (SOP), Fasilitas, dan Disiplin Kerja Terhadap Kinerja Pegawai di RSUD Noongan. *Jurnal EMBA*, 9(3). <https://doi.org/10.35794/emba.v9i3.34541>
- Wahyuni, S., & Arisan, G. (2023). Efektifitas metode aplikasi android sebagai media edukasi pemeriksaan payudara sendiri pada remaja di Palangka Raya. *Jurnal Kebidanan Malakbi*, 4(1), 01-16. <https://doi.org/10.33490/b.v4i1.600>
- Widiyono, Aryani, A., & Putra, F. A. (2022). The Effect of Online Learning Methods Via Zoom Meeting on Critical Thinking Ability of Nursing Students. *Jurnal Keperawatan Malang*, 7(1), 1-9. <https://doi.org/10.36916/jkm.v7i1.147>
- Wijiastuti, R., Azzahroh, P., & Silawati, V. (2022). Pengaruh Metode Video SADARI Terhadap Peningkatan Pengetahuan dan Keterampilan Karyawan. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal*, 13(1), 101-108. <https://doi.org/10.32583/pskm.v13i1.661>
- Wulandari, A. P., Salsabila, A. A., Cahyani, K., Nurazizah, T. S., & Ulfiah, Z. (2023). Pentingnya Media Pembelajaran dalam Proses Belajar Mengajar. *Journal on Education*, 5(2), 3928-3936. <https://doi.org/10.31004/joe.v5i2.1074>