Overview Of Nursing Students' Knowledge About Hypoglycemia

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ARTICLE INFO	ABSTRACT
  Corresponding author e-mail **brputra88.bp@gmail.com**	*Introduction. Hypoglycemia is often found in cases of diabetes mellitus and non-diabetes mellitus. Recognizing the signs and symptoms and proper treatment of hypoglycemia is one of the competencies that must be mastered by nursing students. However, even though students have studied the concept of hypoglycemia, they still have difficulty understanding it. The purpose of this study was to explore nursing students' knowledge of the concept of hypoglycemia. Method. The design of this study was a descriptive design with a target population of 249 nursing students at the Faculty of Health Sciences, Tribhuwana Tunggadewi University. A sample of 91 students was taken using a stratified sampling technique. The variable in this study was knowledge of hypoglycemia which was measured using a questionnaire developed by the researcher. Data were analyzed using descriptive statistics. Results. The results of this study showed that almost all respondents did not know the concept of hypoglycemia (91.2%) even though they had previously studied the concept of hypoglycemia in lectures using lecture methods and PowerPoint presentation. Conclusion. Lecturers need to adjust learning methods and media that are more interesting and effective in achieving learning outcomes based on the characteristics of students.*

1. **INTRODUCTION**

Hypoglycemia is one of the study materials that must be studied by nursing students (AIPNI, 2021). This study material is important for nursing students to understand because hypoglycemia is an emergency condition that often occurs in the community (Hasna et al., 2021). Hypoglycemia can occur due to endocrine system disorders (diabetes mellitus) (Rusdi, 2020) or due to insufficient glucose intake (Choeron & Nofiana, 2024). If hypoglycemia is not treated immediately, it will trigger serious complications (Riduansyah et al., 2023). In lectures, material on hypoglycemia is usually delivered using the lecture method (AIPNI, 2021). The lecture method is often chosen by lecturers because it is more practical for delivering content (Kafa, 2022). However, the lecture method is often less effective in achieving a good level of knowledge and understanding (Panjaitan et al., 2023). In fact, there are still many nursing students who have studied the concept of hypoglycemia, but remain confused in handling cases of hypoglycemia.

The success of learning outcomes is highly dependent on the learning process implemented (Andriani & Rasto, 2019). Learning methods play an important role in achieving learning outcomes. Conventional methods have been shown to be less effective than expository learning methods (Yuwanita et al., 2017). Internal and external factors also significantly influence learning outcomes. Some internal factors include learning motivation, interest, perseverance, intelligence, and physical condition (Yeni et al., 2022), while external factors include learning methods, learning media, facilities, and other supporting infrastructure (Siregar, 2024).

In general, nursing students today are Generation Z. Generation Z has a different learning style from the millennial generation. Generation Z prefers an interactive and technology-based learning style (Bafadal & Rosyid, 2025). The media that Generation Z prefers is media that combines audio and visuals that can be accessed online or digital-based media (Urba et al., 2024). Generation Z prefers independent learning using videos on YouTube or other platforms that provide flexibility and adaptability (Hayati, 2024). However, the current lecture method still uses many lecture methods and PowerPoint presentation (Alawiyah & Santoso, 2021). Therefore, the effectiveness of the lecture method and PowerPoint presentation in the learning process needs to be reviewed.

The purpose of this study was to explore the knowledge of nursing students about the concept of hypoglycemia after receiving lectures using lecture methods and PowerPoint presentation. The results of this study are expected to provide contributions to educational institutions in evaluating the learning methods and media used.

2. **METHODS**

2.1 Research design

This study used a descriptive design, so the researcher did not provide any intervention to the respondents, but only collected data to find out to describe a variable. The variable in this study is knowledge about the basic concepts of hypoglycemia.

2.2 Setting and Sample/Participants

The population in this study was nursing students of the Faculty of Health Sciences, Tribhuwana Tunggadewi University who met the criteria. The population criteria in this study were as follows; nursing students who had completed at least five semesters, had active student status, and had studied the concept of hypoglycemia previously. The researcher determined these criteria with the intention of evaluating the methods and media used thus far to convey the concept of hypoglycemia to students. The sample in this study consisted of 91 respondents taken using a stratified sampling technique, namely by taking several respondents from students in the fifth, seventh, and ninth semesters, as well as students currently enrolled in the Nursing Profession Education program.

2.3 Intervention (Applicable to Experimental Studies)

In this study, no intervention was given, because the researcher only explored nursing students' knowledge about hypoglycemia.

2.4 Measurement and Data Collection

Knowledge about hypoglycemia was measured using a questionnaire compiled by the researcher and validity and reliability tests were conducted involving 10 respondents. The validity test used the Pearson test with a calculated r-value of 0.911. This value is greater than the t table value (0.576), so this instrument is valid. The results of the Cronbach Alpha test obtained a value of 0.87. This value is greater than 0.7, so this instrument is reliable.

2.5 Data analysis

Knowledge about hypoglycemia is divided into 3 categories; good knowledge if the value is >76, sufficient knowledge if the value is between 56-75 and poor knowledge if the value is <56. Then the data were analyzed using descriptive statistics, to determine the proportion in each category.

2.6 Ethical considerations

This research was conducted after obtaining a research permit from the Dean of the Faculty of Health Sciences.

3. RESULTS

Table 1. General Characteristics of Respondents

Characteristics	f	%
Gender		
Male	26	28,6%
Female	65	71,4%
Age		
20 years	7	7,7%
21 years	61	67,0%
22 years	23	25,3%
Semester		
5th	23	25,2%

7th	24	26,4%
9th	20	22,0%
Nurse profession	24	26,4%
Total	**91**	**100%**

Based on Table 1, it was found that the majority of respondents were female (71.4%), the majority of respondents were 21 years old (67.0%) and almost half of the respondents were in their seventh semester and Nursing profession (26.4% each).

Table 2. Respondents' Knowledge about Hypoglycemia

Variable	f	%
Knowledge of hypoglycemia		
Good	0	0%
Enough	8	8,8%
Not enough	83	91,2%
Total	**91**	**100%**

Based on table 2, it shows that almost all respondents have knowledge in the less category (91.2%)

Table 3. Analysis of Hypoglycemia Indicators

Indicators	f	%
Blood glucose level limits	53	58%
Identify signs and symptoms	42	46%
Hypoglycemia monitoring	9	10%
Complications of hypoglycemia	34	37%
Initial actions for conscious hypoglycemic patients in the Emergency Room	40	44%
Actions for severe hypoglycemia in Diabetes Mellitus patients	27	30%
Initial actions in prehospital hypoglycemia patients	12	13%
Indicators of successful treatment of hypoglycemia	41	45%
Action of an unconscious patient with hypoglycemia using an IV catheter	17	19%
Route of administration of glucagon	27	30%

Based on table 3, it shows that only 58% of respondents know the blood glucose level limit for hypoglycemia, only 46% of respondents can identify the signs and symptoms of hypoglycemia, only 10% of respondents know what should be monitored in patients with hypoglycemia, only a few respondents know the complications of hypoglycemia (37%), only

44% of respondents are aware of the initial management of conscious patients with hypoglycemia in the Emergency Room, only a few respondents know the actions for diabetes mellitus patients with severe hypoglycemia (30%), very few respondents know the initial actions to overcome hypoglycemia before the patient is taken to the hospital (13%), only 45% of respondents can identify the indicators of successful hypoglycemia treatment, very few respondents know the actions that must be taken to overcome hypoglycemia in unconscious patients and using intravenous catheters (19%) and few respondents know the route of administration of glucagon in patients with hypoglycemia (30%).

4. DISCUSSION

The description of the results of this study revealed that almost all respondents were had a very poor understanding of the concept of hypoglycemia, even though all respondents had studied the concept of hypoglycemia in previous lectures using he lecture method and PowerPoint presentations. This can be seen from the consistently low scores across all indicators, namely the threshold blood glucose level for diagnosing hypoglycemia, signs and symptoms of hypoglycemia, actions taken to treat hypoglycemia before and during hospitalization, both in conscious and unconscious patients, what should be monitored in hypoglycemia patients, the potential complications of hypoglycemia, and what are the indicators of successful hypoglycemia treatment. The results of this study are supported by previous research which found that public knowledge about hypoglycemia is still low (Nurhayati & Sari, 2020).

Learning methods are very important to be adjusted to students. Today's students belong to generation Z who have the characteristics of learning independently by relying on social media as their preference (Hayati, 2024). So, the lecture method is less engaging and less effective in achieving learning achievement targets compared to other methods such as the demonstration method (Sebe, 2024). The conventional/lecture method is also less effective than the group work method (Khotimah, 2017). In addition, the lecture method is also less effective in building student learning motivation compared to the problem-solving method (Rahmatiah et al., 2020). Learning outcomes using the practical method have been shown to be higher than learning outcomes using the lecture method (Hapsari et al., 2023).

In addition to learning methods, learning media has an equally important role in the learning process (Mardatillah et al., 2023). Learning media need to be adjusted to the target or students. Students who are generation Z prefer learning media in the form of videos (Alawiyah & Santoso, 2021). Video media has been proven to be effective in the learning process for generation Z (Marliani, 2021), because it can provide a clear picture of the material (L. D. Putra et al., 2023). Learning video media has an impact on increasing students' learning motivation (Mendrofa et al., 2024). The right learning video media also makes it easier for students to understand the material given (Mardatillah et al., 2023). In addition to video media, interesting learning media that can increase interest and learning outcomes include graphic media (Metrikayanto et al., 2020), video tutorials (Choeron & Metrikayanto, 2022; Komariah & Lutfi, 2024; Motoh et al., 2022; I. B. A. Putra & Sutrisna, 2022), flashcards (Azzahra et al., 2024; Irada & Setiawan, 2024; Krisdiana & Jamaludin, 2023; Pradana & Santosa, 2020; Shafa et al., 2022; Wahyuni, 2020), tabletop (Babang et al., 2024; Suleman et al., 2023).

Currently, nursing students are included in the Generation Z category, where generation Z prefers to learn using short videos, so it does not take too long to take up attention and concentration. However, in fact, there are still many lecturers who deliver material in lectures using PowerPoint media. This makes it less interesting for students to learn. Thus, the target learning achievement is difficult to achieve. The results of this study prove that nursing students' knowledge of the concept of hypoglycemia is still very weak even though they have studied it before. Very few people know the important things about hypoglycemia, starting from identifying signs and symptoms of hypoglycemia, early treatment of hypoglycemia both prehospital and intrahospital, both conscious and unconscious victims, things that need to be monitored in hypoglycemia patients, and indicators of successful treatment of hypoglycemia. Therefore, lecturers need to adjust the learning methods and media used to deliver material in lectures according to the characteristics of students.

5. CONCLUSION

The conclusions are answers to hypotheses that lead to research objectives. Researchers need to state the implications of the research results. Suggestions for further research can be written in this section. This section is only 2-3 paragraphs long.

6. ACKNOWLEDGMENTS

7. REFERENCES

AIPNI. (2021). Kurikulum Pendidikan Ners Indonesia 2021. Asosiasi Institusi Pendidikan Ners Indonesia.

Alawiyah, P., & Santoso, B. (2021). Video pembelajaran sebagai alternatif dalam meningkatkan motivasi belajar. Jurnal Pendidikan Manajemen Perkantoran, 6(2), 157–176. https://doi.org/10.17509/jpm.v4i2.18008

Andriani, R., & Rasto, R. (2019). Motivasi belajar sebagai determinan hasil belajar siswa. Jurnal Pendidikan Manajemen Perkantoran, 4(1), 80. https://doi.org/10.17509/jpm.v4i1.14958

Azzahra, A., Lestariningsih, D. S., & Sucahyanto. (2024). Pengaruh Media Pembelajaran Flashcard Terhadap Hasil Belajar Kognitif Siswa Pada Materi Hidrosfer Di Kelas X Sman 54 Jakarta. Jurnal Ilmiah Wahana Pendidikan, 10(1), 69–77. https://doi.org/10.5281/zenodo.10464464

Babang, P. S. R., Metrikayanto, W. D., Choeron, R. C., Sutriningsih, A., & Ardiyani, V. M. (2024). The Effect of Earthquake Disaster Triage Simulation Using Tabletop Media on

Knowledge Among Nursing Students. Care: Jurnal Ilmiah Ilmu Kesehatan, 12(3), 508–516. https://jurnal.unitri.ac.id/index.php/care

Bafadal, R., & Rosyid, F. (2025). Memahami Kebutuhan Belajar Generasi Z melalui Asesmen Personal Berbasis Artificial Intelegence. Journal of Innovation and Teacher Professionalism, 3(1), 182–188. https://doi.org/10.17977/um084v3i12025p182-188

Choeron, R. C., & Metrikayanto, W. D. (2022). Improving The Skill Lab of Syringe Pump Through Video Tutorials. Jurnal Ilmiah Keperawatan (Scientific Journal of Nursing), 8(1), 159–165.

Choeron, R. C., & Nofiana, I. (2024). Literature Review: Teh Manis Kurang Efektif Untuk Menangani Hipoglikemia. Care : Jurnal Ilmiah Ilmu Kesehatan, 12(1), 11–19. https://doi.org/10.33366/jc.v12i1.5673

Hapsari, Y. D., Rahmawati, S. A., Sani, F. A., Baskoro, A. P., Lestari, R., & Nadia, S. (2023). Pengaruh Metode Pembelajaran Praktek dan Ceramah pada Pembelajaran Seni Kelas III SD 6 BulungKulon. Jurnal Ilmiah Profesi Guru (JIPG), 4(2), 137–145. https://doi.org/10.30738/jipg.vol4.no2.a15396

Hasna, Dharmawati, T., & Narmawan. (2021). Analisis Faktor-Faktor yang Berhubungan dengan Hipoglikemia Pada Pasien Diabetes Melitus Tipe 2 di IGD RSU Bahteramas Provinsi Sulawesi Tenggara. Jurnal Ilmiah Karya Kesehatan, 2(1), 66–71. https://stikesks-kendari.e-journal.id/jikk

Hayati, E. N. (2024). Karakteristik Belajar Generasi Z Dan Implikasinya Terhadap Desain Pembelajaran Ips. Jurnal Pembelajaran, Bimbingan, Dan Pengelolaan Pendidikan, 4(8), 4–8. https://doi.org/10.17977/um065.v4.i8.2024.8

Irada, C. Y., & Setiawan, H. R. (2024). Hubungan Penggunaan Media Flashcard dengan Hasil Belajar Peserta Didik pada Mata Pelajaran Ilmu Tajwid di SMP IT Iqra' Medan. Journal of Education Research, 5(2), 1850–1860. https://doi.org/10.37985/jer.v5i2.1087

Kafa, A. M. (2022). Studi Komparatif Antara Pendekatan Kontekstual Dan Metode Ceramah Terhadap Kemampuan Ranah Kognitif Pembelajaran Fiqih Materi Haji dan Umrah di MTs Al-Islam Gunungpati. Jurnal Pendidikan Agama Islam Universitas Wahid Hasyim, 10(1), 400–437. https://doi.org/10.31942/pgrs.v10i1.4501

Khotimah, S. H. (2017). Pengaruh Penggunaan Metode Pembelajaran Terhadap Hasil Belajar Matematika Ditinjau dari Sikap Siswa Pada Pelajaran Matematika. Hikmah: Journal of Islamic Studies, 13(1), 95–114. https://doi.org/10.47466/hikmah.v13i1.83

Komariah, S., & Lutfi, A. F. (2024). Penerapan Media Pembelajaran Berbasis Video Untuk Meningkatkan Hasil Belajar Siswa Di SMK Auto Matsuda. PETIK: Jurnal Pendidikan Teknologi Informasi Dan Komunikasi, 10(2), 183–193. https://doi.org/10.31980/jpetik.v10i2.1663

Krisdiana, M., & Jamaludin, U. (2023). Pengaruh Media Flash Card Untuk Meningkatkan Hasil Belajar Siswa Sekolah Dasar. Jurnal Ilmiah Pendidikan Citra Bakti, 10(2), 341–354. https://doi.org/10.38048/jipcb.v10i2.1257

Mardatillah, A., Putri, H., Nadia, Tanjung, N. K., & Ungu, E. S. (2023). Pengaruh Penggunaan Media Pembelajaran Terhadap Hasil Belajar Peserta Didik. Jurnal Ilmiah Wahana Pendidikan, 9(22), 98–105.

Marliani, L. P. (2021). Pengembangan Video Pembelajaran Untuk Meningkatkan Motivasi Belajar Siswa Sekolah Dasar. PAEDAGOGY : Jurnal Ilmu Pendidikan Dan Psikologi, 1(2), 125–133. https://doi.org/10.51878/paedagogy.v1i2.802

Mendrofa, S. J. P. Y., Mendrofa, R. N., Telambanua, Y. N., & Zega, Y. (2024). Pengembangan Video Pembelajaran untuk Meningkatkan Motivasi Belajar Peserta didik di SMP Swasta Bunga Mawar. Jurnal Cendekia : Jurnal Pendidikan Matematika, 8(1), 591–607. https://doi.org/10.31004/cendekia.v8i1.2946

Metrikayanto, W. D., Choeron, R. C., & Yasin, D. D. F. (2020). Meningkatkan kemampuan mahasiswa dalam menginterpretasikan blood gases analysis melalui media grafis. Healthcare Nursing Journal, Vol. 2 No., 42–47.

Motoh, T. C., Hamna, & Kristina. (2022). Penggunaan Video Tutorial Untuk Meningkatkan Hasil Belajar IPS Siswa Kelas VII SMP Negeri 3 Tolitoli. Jurnal Teknologi Pendidikan Madako, 01(01), 1–17. https://ojs.fkip.umada.ac.id/index.php/jtpm/article/view/14

Nurhayati, C., & Sari, N. A. (2020). Hubungan Tingkat Pengetahuan Hipoglikemia Dengan Kemampuan Deteksi Hipoglikemia Pasien Dm Tipe 2. Indonesian Jurnal of Health Development, 2(1), 1–8.

Panjaitan, R. S., Purwati, Rabima, Zuraida, Fatoni, A. R., Qoonitah, S., Octaviani, E., Sari, D. N., Rahmadani, R., Asha, Sari, Di. S., Vressa, A., Dewanty, J., Farida, H., & Jarwati, R. D. (2023). Penyuluhan Mengenal Hipoglikemia Dan Penanganannya Secara Daring. Kami Mengabdi, 3(1), 9–16. https://doi.org/10.52447/km.v3i1.6771

Pradana, R. A., & Santosa, A. B. (2020). Studi Literatur Media Pembelajaran Flash Card Dapat Meningkatkan Hasil Belajar Pada Mata Pelajaran Perekayasaan Sistem Radio Dan Televisi. Jurnal Pendidikan Teknik Elektro, 09(03), 575–583.

Putra, I. B. A., & Sutrisna, I. P. G. (2022). Pengaruh Bahan Ajar Video Tutorial Terhadap Hasil Belajar Pada Pembelajaran Online di Masa Pandemi Covid-19. Jurnal Pendidikan Modern, 7(2), 67–74. https://doi.org/10.37471/jpm.v7i2.427

Putra, L. D., Maghfiroh, P., Pramesti, N. B. A., & Aprilia, D. A. (2023). Analisis Penggunaan Media Video terhadap Motivasi Belajar Peserta Didik SD Kelas V SD Muhammadiyah Karangwaru. Jurnal Ilmiah Profesi Pendidikan, 8(3), 1547–1553. https://doi.org/10.29303/jipp.v8i3.1513

Rahmatiah, R., Rahman, H., & Anis, M. (2020). Perbandingan Metode Ceramah Dan Metode Problem Solving Dalam Meningkatkan Motivasi Belajar Peserta Didik Pada Mata Pelajaran Aqidah Akhlak Di Man 1 Sinjai. Jurnal Al-Ilmi: Jurnal Riset Pendidikan Islam, 1(1), 1–15. https://doi.org/10.47435/al-ilmi.v1i1.401

Riduansyah, M., Eka Fayuning Tjomiadi, C., Suryaningsih, S., & Studi Sarjana Keperawatan Fakultas Kesehatan Universitas Sari Mulia, P. (2023). Faktor-Faktor Yang Mempengaruhi Kejadian Hipoglikemia Pada Pasien Diabetes Mellitus Tipe Ii:

Narrative Review. CNJ (Caring Nursing Journal), 7(1), 7–12. http://journal.mbunivpress.or.id/index.php/cnj/article/view/609

Rusdi, M. S. (2020). Hipoglikemia Pada Pasien Diabetes Melitus. Journal Syifa Sciences and Clinical Research, 2(2), 83–90. https://doi.org/10.37311/jsscr.v2i2.4575

Sebe, K. M. (2024). Studi Komparatif Antara Metode Ceramah dan Demonstrasi Dalam Pembelajaran Fiqih Di Kelas 11 MA Alkharaat Labuha. JIPDAS: Jurnal Ilmiah Pendidikan Dasar, 2(3), 157–164.

Shafa, I., Siregar, Z., & Hasanah, N. (2022). Pengembangan Media Flashcard Materi Pahlawanku untuk Meningkatkan Hasil Belajar Siswa Sekolah Dasar. Jurnal Basicedu, 6(2), 2754–2761.

Siregar, H. T. (2024). Faktor-Faktor yang Mempengaruhi Hasil Belajar. Jurnal Ilmu Tarbiyah Dan Keguruan, 2(2), 215–226. https://psikologi.uma.ac.id/wp-content/uploads/201

Suleman, I., Pomalango, Z. B., & Slamet, H. (2023). Media Tabletop Disaster Exercise Meningkatkan Pengetahuan Tenaga Kesehatan Tentang Manajemen Penanggulangan Bencana. Jambura Journal of Health Science and Research, 5(1), 90–99. https://ejurnal.ung.ac.id/index.php/jjhsr/index

Urba, M., Ramadhani, A., Afriani, A. P., & Suryanda, A. (2024). Generasi Z: Apa Gaya Belajar yang Ideal di Era Serba Digital? DIAJAR: Jurnal Pendidikan Dan Pembelajaran, 3(1), 50–56. https://doi.org/10.54259/diajar.v3i1.2265

Wahyuni, S. (2020). Penerapan Media Flash Card untuk Meningkatkan Hasil Belajar Tema "Kegiatanku." Jurnal Ilmiah Sekolah Dasar, 4(1), 9–16. https://doi.org/10.23887/jisd.v4i1.23734

Yeni, D. F., Putri, S. L., & Setiawati, M. (2022). Pengaruh Motivasi Belajar Siswa Terhadap Hasil Belajar Siswa SMP N 1 X Koto Diatas. PROMOSI (Jurnal Pendidikan Ekonomi), 10(2), 133–140. https://doi.org/10.24127/pro.v10i2.6591

Yuwanita, I., Dewi, H. I., & Wicaksono, D. (2017). Pengaruh Metode Pembelajaran Dan Gaya Belajar Terhadap Hasil Belajar Pendidikan Kewarganegaraan. Jurnal Teknologi Pendidikan (JTP), 10(2), 189. https://doi.org/10.24114/jtp.v10i2.8731