Case-based Learning Video and Learning Motivation among Midwifery Students

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ABSTRACT

Case-based learning is commonly used in various settings, including the medical field. This study aims to determine the effect of case-based learning video on learning motivation among midwifery students. This was a quasi-experimental study with pre-test and post-test approach. This study was conducted at the Bachelor of midwifery study program, Faculty of Medicine, Andalas University from August to October 2021. Forty-nine student midwives were selected through total sampling technique. Demographic information and motivation data were collected using the Motivated Strategies for Learning Questionnaire (MSLQ). Descriptive statistics, ANOVA/Kruskal-Wallis test, and Paired T-Test/Wilcoxon Rank-sum test were applied to analyze the data. A p-value of <0.05 was considered statistically significant. This study reported no significant differences between age and the MSLQ value components. Nonetheless, significant differences were found between parents' income with intrinsic motivation (p=0.012), task value (p=0.044), and self-efficacy (p=0.02). Furthermore, there was a significant difference between intrinsic motivation and residence (p=0.012) among the other value components. The mean scores for all value components of motivation increased after the case-based learning video intervention. Two value components (task value and efficacy) showed a significant difference (p-value 0.026 and 0.000). In conclusion, case-based learning video effectively improved motivation among students. Such finding is essential to developing suitable learning method for students.

Case-based learning umumnya digunakan dalam berbagai setting, termasuk bidang medis. Studi ini memiliki tujuan untuk mengetahui pengaruh case-based learning video terhadap motivasi mahasiswa kebidanan.Penelitian ini menggunakan design kuasi eksperimen dengan pre-test dan post-test dilaksanakan di Program Studi S1 Kebidanan Fakultas Kedokteran Universitas Andalas (Agustus – Oktober 2021). Empat puluh sembilan mahasiswa kebidanan dipilih menggunakan total sampling. Pre-test dan post-test mengumpulkan informasi demografis dan motivasi menggunakan Motivated Strategies for Learning Questionnaire (MSLQ). Penelitian ini menggunakan analisis data statistik deskriptif, uji ANOVA/Kruskal-Wallis, dan uji Paired T-Test/Wilcoxon Rank-sum test. Nilai p <0,05 dianggap signifikan secara statistik.Studi ini mengungkapkan tidak ada perbedaan yang signifikan diantara usia dan subskala MSLQ. Namun, ada beberapa perbedaan yang signifikan antara pendapatan orang tua dan motivasi intrinsik (p=0,012), nilai tugas (p=0,044), dan efikasi diri (p=0,02). Motivasi intrinsik dan tempat tinggal ditemukan memiliki perbedaan yang signifikan (p=0,012) di antara subskala lainnya. Skor rata-rata untuk semua subskala motivasi meningkat setelah intervensi, yaitu pembelajaran menggunakan case-based learning video. Dua subskala (nilai tugas dan efikasi) berbbeda signifikan dengan nilai p 0,026 dan 0,000. Case-based learning dengan menggunakan video efektif dalam meningkatkan motivasi di kalangan siswa. Temuan ini penting untuk mengembangkan metode pembelajaran yang cocok untuk siswa.

Introduction

Case based-learning (CBL), also known as case study teaching or case learning approach, is an inquiry-based learning method that encourages students to be more involved to learn in the real life condition to improve communication skills, critical thinking, and motivation (Thistlethwaite et al. 2012; Gholami et al. 2021; Yoo, Yoo, and Lee 2010). CBL was firstly used by Dr. James Lorrain Smith in 1912 at the University of Edinburgh to teach pathology topics to the students (Sturdy 2007). Later, this method has been widely used in medical fields such as medicine, dentistry, pharmacology, occupational and physical therapy, nursing, allied health fields, and child development (McLean 2016). CBL aims to help students prepare themselves in clinical practice that links their knowledge to practice using clinical scenarios (McLean 2016). In CBL, students focus on solving various case-based scenarios involving self-directed learning, collaborating with friends, developing strategic thinking and problem-solving skills (Thistlethwaite et al. 2012; Yoo, Yoo, et al. 2010).

Previous studies have shown that CBL effectively enhanced learning motivation (Gholami et al. 2021; Kantar and Massouh 2015; Yoo, Park, and Lee 2010). A study conducted in South Korea reported that 59% of respondents had a positive impression of CBL due to a perceived sense of accomplishment and enthusiasm to strengthen their characteristics as nursing students (Kim, Park, and Jun 2015). Case studies nurtures an individual's responsibility for learning and creates a better insight into the given scenarios to improve learning motivation (McMellon 2013). Furthermore, using CBL facilitates the elevation of students' satisfaction and motivation for learning, which leads to better learning outcomes (Heinrich, Pennington, and Kuiper 2012).

Both written and video case studies have been used in the CBL approach. Several studies reported that a video format in case-based learning helps students to demonstrate their empathy, improve clinical reasoning skills , integrate different information, increase understanding of the cases, and motivate them to improve their knowledge (Wong and Purdy 2021; Chan et al. 2010; Shevell, Thomas, and Fuks 2015). Students also found that the video was appealing, engaging, interesting, and entertaining (Chan et al. 2010; Shevell et al. 2015). In addition, they believed that illustrating the essential clinical competencies through video could effectively transmit knowledge and communicate information (Shevell et al. 2015).

Preliminary interviews have been conducted to five midwifery students. The researchers found that around 20% of students were dissatisfied with the problem-based learning process that had been carried out due to the lack of focus in the discussion process and lack of motivation in learning. We are interested in conducting a study on Case-based Learning (CBL) method, which is expected to solve such problem. CBL has various advantages including flexibility in using cases and offers the same "reality" principles as adult learning (Thistlethwaite et al. 2012). CBL differs from PBL in that it provides more learning structures to enhance student development and achievement of specified learning outcomes (Ridley et al. 2018). Several studies reported that CBL had a significant effect on student learning motivation (Wospakrik 2019; Yoo, Park, et al. 2010). In addition, there is lack of studies on the relationship between the implementation of case-based learning method and motivation among midwifery students. Only one study in Japan that observed the impact of CBL on clinical decision-

making (Nunohara et al. 2020). Therefore, this study aims to determine the effect of case-based learning video on learning motivation among midwifery student.

Methods

This was a quasi-experimental study with pre-test and post-test design to assess students' motivation toward case-based learning video. This study was conducted at the Bachelor of Midwifery study program, Faculty of Medicine, Andalas University, from August to September 2021. A non-probability of the total sampling method was applied in this study. Forty-nine students in the third grade enrolled in professional ethics, health law, politics, and policy in the midwifery block were invited to participate and asked to fill out an informed consent form (100%). With a lottery method, students were assigned into five groups consisted of 9-10 respondents, respectively.

The researchers assessed participants' motivation using a motivation subscale adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) (31 items), with scores on a 7-point Likert scale (from 1 = not at all true of me to 7 = very true of me). This instrument was applicable in higher education settings and in medical education research in Indonesia with Cronbach alpha values from 0.89 to 0.972 on the motivation scale (Faradila, Pramono, and Firmansyah 2020; Lisiswanti, Sanusi, and Prihatiningsih 2015; Ningrum 2021). All students were given information about the present study on the day of the introductory session. Pre-test questions using MSLQ were also distributed to know the student's motivation about the upcoming block they would undertake.

We provided five case videos from the paper scenarios for five weeks (one video for one week). We created 15-minute videos which converted written cases into a video format using dialogues. After watching the video with the group members, the participants were asked to actively assess the case, create an analysis, and decide on an action plan. There was a meeting between students and a facilitator of each group. The facilitator made corrections and provided feedback to students about the learning process, starting from developing analysis and planning action. In the fifth week, after completing all the topic discussions, students were distributed a post-test questionnaire using MSLQ to assess the motivation regarding their learning activities.

Quantitative data were analyzed using IBM SPSS version 23. The descriptive statistics were presented with percentages, mean, and standard deviation. ANOVA/Kruskal-Wallis test was applied to determine whether there was a difference in the means of the scores between demographic characteristics (age, residence, and parent's income) and students' motivation before the Intervention. Moreover, we applied Paired T-Test/Wilcoxon Rank-sum test to compare the motivation scores before and after the Intervention. The p-value of <0.05 was considered statistically significant. All participants gave voluntary informed consent to participate in this study, and the participants' information was kept anonymous.

Results

Demographic Characteristics and Motivation of Respondents Before the Intervention

Table 1. Bivariate Analysis between Demographic Variables and MSLQ Scores (pre-test)

Variable	N (%)	(P-value)					
		Intrinsic Motivation	Extrinsic Motivation	Task value	Control of learning beliefs	Self-efficacy	Anxiety
Age		0.875*	0.245*	0.385*	0.146*	0.534*	0.325**
19 years old	7 (14.3)						
20 years old	32 (65.3)						
21 years old	10 (20.4)						
Parents' income		0.012*	0.842*	0.044*	0.573*	0.020*	0.815**
<IDR 2,500,000	18 (36.7)						
IDR 2,500,000-IDR 5,000,000	19 (38.8)						
IDR 5,000,000-IDR7,500,000	7 (14.3)						
>IDR 7,500,000	5 (10.2)						
Residence		0.012*	0.996*	0.873*	0.837*	0.686*	0.371**
Lived alone	32 (65.3)						
Lived with friends	13 (26.5)						
Lived with family members	4 (8.2)						

* = Kruskal Wallis analysis, **=ANOVA

The demographic data of the subjects are described in Table 1. Of 49 eligible respondents, 49 (100%) agreed to participate and completed the MSLQ before and after the Intervention. 49 respondents aged 19 years to 21 years. At the time of their enrolment into the study, 32 respondents lived alone, 4 respondents lived with family members, and 13 respondents lived with friends. The mean MSLQ scores (Table 2) ranged from 5.0490 to 5.6633 (pre-test) and from 5.0735 to 6.4519 (post-test). MLSQ questionnaires comprised six value components: intrinsic motivation, extrinsic motivation, task value, control of learning beliefs, self-efficacy, and anxiety.

This study found no significant difference between age and the MSLQ subscales. Nevertheless, some considerable differences were reported between parents' income with intrinsic motivation (p=0.012), task value (p=0.044), and self-efficacy (p=0.02) (see Table 1). Only intrinsic motivation and residence were reported to have a significant difference (p=0.012) among the other value components.

Student's Motivation Before and After the Intervention

Table 2. Bivariate Analysis of Students Motivation Before and After the Intervention

Subscale	Pre-test	Post-test	p-value
	Mean (SD)	Mean (SD)	
Intrinsic Motivation	5.3878 (0.91296)	5.7602 (0.85079)	0.055
Extrinsic Motivation	5.6633 (0.92920)	5.8827 (0.77578)	0.336
Task value	5.4830 (0.92499)	5.8946 (0.81486)	0.026
Control of learning beliefs	5.5918 (0.94606)	5.8112 (0.78980)	0.772
Self-efficacy	5.2391 (0.92278)	6.4519 (0.92827)	0.000
Anxiety	5.0490 (1.08361)	5.0735 (1.15880)	0.357

Table 2 presents the subscales' mean scores, standard deviations, and p-value before and after the Intervention. The mean scores of all subscales after experiencing CBL using a video format were higher than those of all subscales before experiencing CBL, with no differences among four subscales (intrinsic motivation, extrinsic motivation, control of learning beliefs, and anxiety). Nonetheless, there were significant differences in learning motivation value components such as task value and self-efficacy before and after CBL, with a p-value of 0.026 and 0.000, respectively.

Discussion

This study explores the motivation for implementing case-based learning video among midwifery students. Motivation is dynamic because it differs with age and maturity. The results reveal no significant differences between age and motivation. It is possible that we could not find a difference between age and motivation, as the participants' age ranged from 19 to 21 years. This finding differs from another study in the Netherlands, which revealed that age was the most significant predictor of motivation. Furthermore, age has been reported to influence learning methods and performance among medical students (Kusurkar et al. 2010).

Intrinsic motivation describes students perceive to participate in a task for some reasons including obstacle, curiosity and mastery. Our findings reported a significant difference between parents' income and intrinsic motivation, task value, and self-efficacy. High-income parents would provide facilities and a better learning environment for students to increase their learning motivation (Hutasuhut and Wirawan 2019). Family support, including financial aid, was found to have the strongest correlation with all types of motivation (Kunanitthaworn et al., 2018). Additionally, this study revealed a significant difference between intrinsic motivation and residence. In contrast, a previous study reported that residence was not a significant predictor of intrinsic motivation (Wu et al., 2020).

There was a slight rise in the mean scores of all subscales (intrinsic motivation, extrinsic motivation, task value, control of learning beliefs, self-efficacy, and anxiety) before and after experiencing CBL using a video format among midwifery students. Self-efficacy showed the highest increase among the other subscales, from 5.24 to 6.45. Two value components (self-efficacy and task value) showed statistically significant mean scores between the pre-test and post-test. The impact of self-efficacy on motivation is often disregarded in research. However, students' belief in their capability is essential and needs some more attention as self-efficacy is correlated with confidence to reach goals. Students with lower self-efficacy are pessimists related to their potential; therefore, they avoid circumstances beyond their abilities.

On the other hand, students with high self-efficacy think of difficult situations as obstacles they must confront (Javanmard 2013). Students who believe they can do a given task find their class entertaining and pivotal, and once they feel that the lesson is valuable and useful, their motivation increases. Therefore, they prefer a more profound learning method to enhance their learning skills and academic performance (Azar et al. 2010).

Students were pleased and more motivated by the case-based learning video. This is similar to several studies (Gholami et al. 2021; Kantar and Massouh 2015; Yoo, Park, et al. 2010). Case-based learning using video formats can convey the real-life situation in given cases, show empathy, increase clinical reasoning skills, integrate different information, increase understanding of the cases, and motivate learning (Saltan, Özden, and Kiraz 2016; Wong and Purdy 2021; Chan et al. 2010; Shevell et al. 2015). Students also found that the video was appealing, engaging, interesting, and entertaining (Chan et al. 2010; Shevell et al. 2015).

A previous study further found that respondents had a positive impression of case-based learning due to feelings of achievement and enthusiasm to strengthen their identity as nursing students (Kim et al. 2015). Heinrich et al. (2012) reported that the CBL method facilitates students' satisfaction and motivation by participating actively in discussions and sharing their arguments during the CBL (Heinrich et al. 2012). Such approach increases understanding of concepts in a class and develops skills for learners, which consequently improve learning motivation (Raza, Qazi, and Umer 2020). Our findings revealed that there was an increase in students' critical thinking and problem-solving ability. A study conducted in South Korea explained similar result as the CBL was a practical approach to enhance problem-solving skills, motivation, and communication ability (Yoo and Park 2015).

Conclusions

It can be concluded that case-based learning video effectively improved learning motivation among midwifery students. Such finding is essential to developing suitable learning method for students. Furthermore, future research should be conducted to assess other variables that may affect students' motivation while experiencing case-based learning.

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