Effectiveness of Small Group Discussions (SGD) to Improve Learning Outcome and Critical Thinking in Medical Student: a Literature Review

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ABSTRACT

The challenges in the health sector are getting tougher with the opening of the ASEAN Economic Community. Health workers do compete not only domestically but also abroad. To create Indonesian health workers who have good knowledge and skills, think critically, and can make good use of technology, the education process since undergraduate must be continuously improved. Various innovations have been made to form graduates who can compete in the future, including implementing SGD. This review aims to assess the effectiveness of SGD in improving student learning outcomes and critical thinking. The method in this study was a literature review, with 16 articles that met the inclusion criteria. A review of several studies found that SGD can improve medical students’ learning outcomes and critical thinking if the process is carried out effectively.

Keywords: Critical Thinking, Learning Outcome, Medical student, Small Group Discussions (SGD).

METHOD

Type of review
This type of study is a literature review that uses the literature study method. The literature search was carried out for 3 months, from January to March 2023.

Literature Search
The sources used in this review consist of relevant journals from search engines such as Pubmed, Google Scholar, ScienceDirect, and Cochrane Library. Journal searches used Boolean terms (AND, OR, NOT). The author uses journals that only focus on keywords, namely Critical Thinking, Learning Outcome, Medical student, and Small Group Discussions (SGD), into account titles and abstracts that are appropriate to the topic of the review.

Inclusion and Exclusion Criteria
The inclusion criteria in this review are all studies that discuss Critical Thinking, Learning Outcomes, Medical students, and Small Group Discussions (SGD). The references used must not exceed the last ten years unless there is no recent research related to these references. The exclusion criteria are those that discuss topics not related to Critical Thinking, Learning Outcomes, Medical students, or Small Group Discussions (SGD).
criteria in this review are paid or not free journals and do not contain information relevant to the topic of the study. Twenty-five journals were reviewed, 16 of which met the criteria as references for this review.

RESULTS AND DISCUSSION

The author has summarized several previous studies evaluating the effectiveness of Small Group Discussions (SGD) in improving learning outcomes and critical thinking in medical students (Table 1.)

Small Group Discussion (SGD)

SGD is a type of active learning that utilizes the interaction between students. SGD is an example of a student-centered learning that groups students into small groups of 5-10 people. A facilitator will accompany each group, but usually, the facilitator only serves as the supervisor of the discussion. Students will be given several cases to be solved together, and then group representatives will present the discussion results in a larger forum. Through these discussions, it is hoped that each student can learn to express opinions, share information obtained, combine ideas from various sources to produce new views, increase self-confidence and learn to respect the opinions of others. Generally, in discussions, differences of opinion will be found in responding to a topic, so students will learn to think critically to make the right decision. However, in practice, SGD can have weaknesses, such as participants who are not enthusiastic about preparing SGD beforehand so that during the discussion, no one wants to express their opinion, there is the domination of some students and does not provide opportunities for other students to have an opinion, unable to decide on the results of the discussion or discussions that deviate. So, it still needs awareness from students and supervision from the facilitator to realize the ideal SGD.4

Effectiveness of Small Group Discussions (SGD) to Improve Learning Outcome in Medical Student

Medical education is a complex process. In addition to requiring a long education, becoming a doctor involves combining knowledge and art or skill. The method of medical education is divided into two stages, namely the pre-clinical stage, which will teach theory or knowledge about various diseases and the clinical setting, which prioritizes teaching skills and practice according to the theory that has been obtained. Knowledge of a disease is the basis for becoming a doctor, but the material and lecture schedule is quite dense, and sometimes it burdens some students. Not infrequently, students have difficulty adapting to the medical education system, as shown by the final exam scores that are not optimal.14 Therefore, various learning system innovations were carried out, one of which was to combine a conventional learning system where students only listen to material provided by lecturers with an SGD learning system where students can discuss with their friends regarding cases that lecturers have given.15

Several studies have shown that applying SGD can improve student learning outcomes. Research in Pakistan showed that in the SGD group, as many as 95.5% of students were able to pass the exam, while only 72.2% of students in the conventional lecture group were able to pass a similar exam (p<0.000). In addition, the scores of students who take SGD are higher.4 Research on medical students in Bali and nursing students and midwives in Iran also shows that discussion is a better learning method than conventional methods in improving learning outcomes.6,9 This is because when discussing, students will prepare themselves to read, analyze, and evaluate new material so that they can solve cases well. This condition will cause students to remember the material more because they will read it repeatedly, making it easier when facing exams. But this can be achieved if the discussion is carried out effectively, where every student listens and gives their opinion.6 Although most of the research shows positive results, studies show that SGD does not have a good impact and only wastes students’ time, so the tutor or facilitator is needed to oversee the course of the discussion and provide feedback. In addition, it should be noted that there are many internal and external factors that influence student learning outcomes, such as the nature of student discipline and persistence in learning, health factors, activities outside of learning, etc. So, SGD is one of the learning methods that can be applied to medical students.7

Effectiveness of Small Group Discussions (SGD) to Improve Critical Thinking in Medical Students

Critical thinking is the ability to analyze, synthesize, and evaluate information obtained from induction, deduction, classification, and reasoning results to decide what to do. There are several stages of critical thinking, namely: 1) problem identification, at this stage, we will identify problems or gaps in knowledge; 2) analysis, this process includes collecting evidence, data, opinions, and concepts which are then linked and seen which data supports and contradicts. This process requires careful thinking and good basic knowledge of the problem so that you can understand the concept well; 3) make a decision; after considering the results of research or evidence that has been previously analyzed, we can make a choice based on the criteria and consideration of the advantages and disadvantages. Not only that, at this stage, it is necessary to evaluate and monitor decisions, and if there are things that are not desirable, they can be anticipated with other plans.16

Forming critical thinking is a long process because it requires knowledge and experience in solving cases and problems. Therefore, early learning is needed to accustom students to critical thinking, one of which is the SGD learning method. The research results in Thailand show that students who undergo SGD have higher critical thinking than those who experience conventional learning methods.7 This can be caused because conventional learning methods tend to be boring, and students are only required to listen or receive the material.17 Research in England also shows an indirect relationship between the application of SGD and the formation of critical thinking. However, in this study, it was explained that this could be achieved if the discussions were carried out effectively so that the role of the facilitator is needed in supervising the course of the discussion so that it does not save and students are expected to have prepared discussion material beforehand.18,19
## Table 1. Effectiveness of Small Group Discussions (SGD) in improving learning outcomes and critical thinking in medical students

<table>
<thead>
<tr>
<th>No</th>
<th>Author’s Name (year)</th>
<th>Country</th>
<th>Research Design</th>
<th>Number of Samples</th>
<th>Duration of Study</th>
<th>Subject Age (Average)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hameed et al. (2013)⁶</td>
<td>Pakistan</td>
<td>This research is a quasi-experimental study.</td>
<td>100 students</td>
<td>2012</td>
<td>-</td>
<td>Students taught by SGD scored significantly higher on the musculoskeletal system test as compared to the previous batch. Their mean scores on both MCQs and SAQs were significantly higher than students taught by didactic lectures.</td>
</tr>
<tr>
<td>2</td>
<td>Putra and Giri. (2021)⁶</td>
<td>Indonesia</td>
<td>This research design used a quantitative observational cross-sectional study.</td>
<td>151 students</td>
<td>-</td>
<td>-</td>
<td>The results showed that discussion has a significant correlation on the final exam score and discussion method is better than the conventional method in improving learning outcomes</td>
</tr>
<tr>
<td>3</td>
<td>Mahram et al. (2009)⁹</td>
<td>Iran</td>
<td>This research is a semi-experimental study.</td>
<td>32 students</td>
<td>-</td>
<td>-</td>
<td>Learning via group discussion seems to be more profound and effective. The percentage of correct answers in quizzes in methods of group discussion and lecture were 84% and 45%, respectively, which was significantly different (P = 0.0001)</td>
</tr>
<tr>
<td>4</td>
<td>Raut et al. (2014)¹⁰</td>
<td>India</td>
<td>This research is a semi-experimental study.</td>
<td>47 students</td>
<td>2013-2014</td>
<td>-</td>
<td>There was significant increase in scores of students before and after Group Discussion session (with the average score of pre-test is 5.9 and post-test 8.2). Most of the students opined that groups work better as a teaching-learning method. Also there was no confusion during the group discussion regarding the topic.</td>
</tr>
<tr>
<td>5</td>
<td>Rusyani and Issroviantiningrum. (2022)¹¹</td>
<td>Indonesia</td>
<td>This research is a quantitative study with a quasi-experimental design</td>
<td>199 students</td>
<td>15th April to 15th May 2020</td>
<td>-</td>
<td>This research showed that majority of students rate the role of facilitator in group discussion as good (79.9%) and the role of facilitators has an influence the effectiveness of group discussions with a value of R = 0.5832 = 33.99%</td>
</tr>
<tr>
<td>6</td>
<td>Singh et al. (2016)¹²</td>
<td>India</td>
<td>This research is a quasi-experimental study.</td>
<td>80 students</td>
<td>3 months</td>
<td>-</td>
<td>Although the majority (73.7%) of the students in the present study agreed that the small group sessions are more active way of learning yet again the majority of the students (77.6%) agreed that small group teaching sessions are stressful too.</td>
</tr>
<tr>
<td>7</td>
<td>Sanasuttipun et al. (2009)⁷</td>
<td>Thailand</td>
<td>This research is a quasi-experimental study.</td>
<td>68 students</td>
<td>May to October 2006</td>
<td>The mean age in both groups was 20 years</td>
<td>This research showed that a traditional lecturing method tended to decrease students’ critical thinking while small group discussion appeared to enhance students’ self-directed learning</td>
</tr>
<tr>
<td>8</td>
<td>Janelle M. Jones. (2014)¹³</td>
<td>London</td>
<td>This research is a quasi-experimental study.</td>
<td>81 students</td>
<td>-</td>
<td>23.6 years</td>
<td>This study showed a relationship between the effectiveness of discussion groups and critical thinking</td>
</tr>
</tbody>
</table>

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*Note: The numbers in parentheses (e.g., (2013)⁶) indicate the year of publication.*
CONCLUSION
To produce competent doctors to compete in the future, there must be changes in the learning process during college. SGD is an example of student center learning that allows students to discuss in small groups. This review shows that SGD can improve students’ learning outcomes and critical thinking if carried out effectively. Active student participation and facilitators who supervise and provide feedback are the keys to an effective discussion.

AUTHOR CONTRIBUTION
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CONFLICT OF INTEREST
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REFERENCE