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NARRATIVE REVIEW: THE IMPACT OF PROGRESS TEST EXAMINATIONS ON CUMMULATIVE GRADE POINT AVERAGE (GPA) AMONG MEDICAL FACULTY STUDENTS

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ABSTRACT
The Progress Test (PT) is a standardized assessment tool used in medical education to evaluate cumulative knowledge and predict academic achievement, including Grade Point Average (GPA). This narrative review aims to examine the relationship between PT scores and the GPA of medical students. The literature search was conducted across PubMed, Embase, and manual sources, yielding 101 articles. After applying inclusion and exclusion criteria, 44 full-text articles with free access were reviewed, and 10 articles were selected for in-depth analysis. The selected studies discuss the impact of PT on learning strategies, knowledge retention, academic stress, and GPA outcomes. Most studies (9 out of 10) reported a positive correlation between PT scores and GPA, indicating that PTs can reflect students' cognitive development and academic readiness. However, factors such as test structure, learning approaches, and students' understanding of PT purpose may influence its effectiveness. Overall, this review supports the role of PT as a formative and summative tool in assessing and enhancing academic performance.

Keywords: grade point average (GPA); medical students; progress test

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INTRODUCTION

The Progress Test (PT) is recognized as a tool for measuring competencies in the field of education. The PT is administered to all medical students simultaneously and periodically, usually two to four times in a year, throughout on the academic curriculum. The PT Assesses the comprehensive knowledge of medical students upon their completed academic record, regardless of their academic year. The resulting scores provide longitudinal assessments, repeated measurements, and independent evaluations of the curriculum based on the knowledge objectives of the entire medical program (Möltner et al., 2020; Tio et al., 2016). This test was first introduced in Missouri and Maastricht in the 1970s and has since been widely adopted in various countries. Although some countries implement PT Consistently, its application in Indonesia especially yet is not uniform across all medical education institutions (Cahyono et al., 2022; Dewi, 2021). In higher education institutions, academic achievement serves as a key indicator for evaluating the success of the teaching and learning process. One metric used to assess student achievement is the Cumulative Grade Point Average (GPA). The GPA is a numerical record representation of academic performance, this calculated by dividing the total grade points by the total credit hours (Febrianti et al., 2017; Utami et al., 2017).

The introduction of the progress test as a formative assessment, designed to provide continuous feedback, is closely linked to academic achievement outcomes, including students' GPAs. The inclusion of progress test in the curriculum significantly influences study patterns,

students perceptions of learning, and their preparation time for academic performance. Progress tests reflect the understanding of learning and the retention of knowledge stored in long term memory (Heeneman et al., 2017). Research by Favier et al. (2017) demonstrated that the PT can be utilized as both a formative and summative assessment tool within academic systems, irrespective of curriculum differences among institutions. Similarly with study by Utami et al. (2017) indicated that PTs help students integrate knowledge and enhance understanding and showing a correlation between PT Scores and GPA (Ningrum & Ekayani, 2022). Based on the aforementioned review, the researchers aim to further explore the impact of progress test on the Cumulative Grade Point Average (GPA) of medical students through a Narrative Review.

METHOD

This research using a observational research with literature review, this method is an involves identification, evaluation, and interpretation of all relevant research finding related to a specific research question, topic, or phenomenon. Individual studies represent primary research, whereas a literature review is considered secondary research. In the methodology, this study using quantitative and qualitative approaches, using Randomized Control Trials (RCTs), Cohort Studies, Case-Control Studies, or Prevalence Studies. The statistical approach for synthesizing quantitative research findings is known as meta-analysis.

Search Strategy

The type of data used in this study is the secondary data, obtained through observation studies from various literature available on the internet, such as theses, journals, textbooks, and e-books. A search of PubMed, Embase, and most of manual search in other source of Indonesian journal from 2014 up to 2024, written in Indonesian and English. Search terms were confined to the progress test examination, cumulative grade points, and medical student. Keyword included Progress Text, Cumulative Grade Point, and Medical Student. The references from identified articles were manually searched for articles potentially not captured by electronic search. The article with non free access were excluded in this study. For the specific flowchart, see Figure 1.

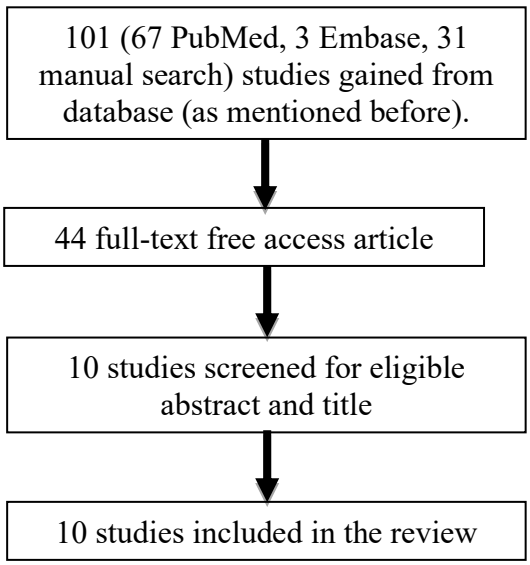

Figure 1. Flowchart of search strategy

Study Selection

Studies were included if they mention about the Impact of Progress Test on Medical Student Grade. All study types were included as long they reported the Important of Progress Test for Medical Student. All the duplicates of article were removed and independently screening the title and abstract of article for inclusion or exclusion.

Data Extraction

Data and information that was extracted included, study year, study title, study method, author, study result, and study conclusion. Each study was assessed by all author (3 person) as investigators independently, and conclusion were obtains from discussion. The analysis steps are, summarize to rewrite or describe the information from the literature sources, synthesize to draw conclusions based on data from the analysis of several theories or previous studies. Compare or identify similarities between literature or previous studies using comparative analysis.

RESULT

The literature used after filtering are amounts to 10 sources related to the topic and title of this study, chich are then used as references. The selected literature is summarized after reviewed followed by discussion and conclusion. The literature details are presented in Table 1.

Table 1. Literature Details

Year	Tittle	Method	Author	Result	Conclusion
2017	The Relationship Between Progress Test Scores and Cumulative Achievement Index Scores of Dentistry Graduates of the Dentistry Professional Education Study Program, Muhammadiyah University of Yogyakarta	Observational Analysis	Sri Utami, Indri Kurniasih, and Arina Ismah Afiati	There is a positive correlation between progress test score and the GPA of dentistry graduates in the Professional Dentistry Education Program at UMY. The higher the progress test score synergic with the GPA achieved by the graduates. The progress test serves as a tool to measure students performance, skills, and decision-making abilities. Thus a high GPA reflects that the students posses a good skills.	There is a correlation between progress test scores and the GPA of dentistry graduates in the Professional Dentistry Educational Program at UMY
2024	Progress Test Scores as Predictors of Academic Achievement Index of Medical Students Academic Stage	Descriptive Analysis	Putu Ayu Krisna Widiantari, Rima Kusuma Ningrum, and Ni Wayan Diana Ekayani	The research shows that progress test scores correlate with students GPA, supporting the evaluation of cognitive abilities and learning responsibility. Regular implementation of a progress test is improve retention, academic and deep learning performance. Retentions are influenced by learning strategies, intelligence and material characteristics, which also determine the success of progress test and GPA	There is a relationship between progress tests and semester grade point average (GPA), with the strength of the relationship ranging from weak to very strong.
2018	Impact of Progress Testing on the Learning Experiences of Students in Medicine, Dentistry and Dental Therapy	Statistical Environment	Kamran Ali, Josephine Cockerill, Daniel Zahra, Christoper Tredwin and Colin Ferguson	Students from various programs generally perceive the Progress Test (PT) as a useful learning tool; however, medical students (BMBS) tend to view it less positively compared to dental (BDS) and dental therapy/hygiene students (BScDTH). This difference is attributed to the more	Medical, dental, and dental therapy/hygiene students consider the Progress Test (PT) useful, but medical students have a less positive perception compared to the

				structured clinical exposure in the dental program, where students begin handling patients as early as their first year. Additionally, the format, frequency, and standards of PT vary across programs, influencing students' perceptions and stress levels. Well-structured PTs have been shown to encourage deep learning and reduce stress when students understand the objectives and strategies for answering the questions. Nevertheless, students' perceptions of PT tend to improve as they progress through their academic programs.	other two programs.
2015	Progress Testing in the Medical Curriculum: Students' Approaches to Learning and Perceived Stress	Descriptive and Preliminary Analysis	Yan Chen, Marcus Henning, Jill Yielder, Rhys Jones, Andy Wearn, and Jennifer Weller	No significant differences were found between the two groups in their learning approaches at both time points, nor significant changes in learning approaches over time within each group. Stress levels increased significantly at the end of the year (Time 2) for students in the traditional assessment group, but not in the PT group. In the PT group, shallow learning approaches, rather than stress, were significant negative predictors of students' PT scores.	There is a relationship between shallow learning approaches and lower PT scores; however, we failed to demonstrate an influence of PT on learning approaches.
2021	The Correlation of Regional Stage Exam (UTB) and Progress Test (PT) to Grade Point Average (GPA) of Medical Students at Faculty of Medicine, Universitas Islam Indonesia	Observational Analysis	Khadafiant o	The results of this study indicate that, in general, medical students continue to participate in the assessments earnestly and with their best abilities, which reflects their actual cognitive abilities. This may occur because students need this formative assessment to receive feedback or to evaluate their cognitive abilities [7]. UTB II and the 4th PT in this study were conducted in a relatively short time frame, both during the 4th year of study. This may have influenced the level of seriousness with which students approached the formative assessments. This could be because students at this level already possess a good understanding and responsibility for their	UTB II and the 4th PT are correlated with the achievement of cognitive competencies in medical students, and testing the relationship between UTB I, II, and III is needed.

				learning needs [8]. Therefore, further research is needed to evaluate assessments conducted in the earlier years, such as UTB I (2nd year) and PT (1st to 3rd years), to measure whether these assessments can predict students' cognitive abilities, both at the end of the undergraduate learning process or during the clinical rotation stage.	
2022	Progress Testing in Medical Education: A Reflection on Implementation Ability and Benefits for Medical Students	Experimental	Agus Cahyono, Astrid P. Susilo, Aking, S. Probadi, and Dwi M.N Aditya	The results of the PT show that the scores improve in line with the students' cohort year. This is indeed expected. In line with this, several institutions that administer PT also report the same, indicating the growth of knowledge over time. The results of the PT implementation evaluation through a questionnaire show that students' perceptions of their academic learning abilities are neutral (3.17±0.35), students' perceptions of the role of PT in supporting clinical learning are agreeable (2.18±0.44), and students' perceptions of preparation for the PT are neutral (3.33±0.38).	The improvement in PT scores is consistent with the students' cohort year. The questionnaire results show that students have a positive response to the PT.
2023	Relationship Between Medical Programme Progress Test Performance and Surgical Clinical Attachment Timing and Performance	Longitudinal Observational Retrospective Analysis	Andy Wearn, Vanshay Bindra, Bradley Patten, and Benjamin P.T. Loveday	This study shows a relationship between PT performance and GSA results. Specifically, students who scored high on the PT in Years 2–3, before entering the clinical stage, were more likely to receive honors grades in their GSA. The sequence of GSA administration had a positive effect on the performance of surgical PT items in Year 4, but this effect diminished throughout the year and disappeared by the final exam. This finding is important for several reasons: First, students who perform well in knowledge tests early in the medical program are likely to achieve high levels in subsequent experience-based learning. Second, discipline-specific experience-based learning enhances specific disciplinary knowledge.	PT performance in Years 2–3 is associated with GSA honors, while the sequence of GSA administration affects surgical PT performance in Year 4, although the effect diminishes over time. Experience-based learning accelerates discipline-specific knowledge, but its benefits are temporary.

				Finally, the timing of clinical placements has a temporarily beneficial effect on discipline-based knowledge performance, but this advantage disappears once all students in the cohort have undergone placement.	
2024	Hubungan Gaya Belajar Dengan Hasil Progress Test Pada Mahasiswa Tahap Akademik Fakultas Kedokteran Universitas Abdurrab	Observational Analysis	Susiana Anggraini, Huda Marlina Wati, and Sonia	The results of the Spearman correlation test showed a p-value of 0.939, indicating no significant relationship between learning styles and progress test results among students at the Faculty of Medicine, Universitas Abdurrab. This finding is consistent with Khairunnisa's (2020) study, which also reported no significant relationship between learning styles and cumulative grade point average (GPA). However, studies by Dobson (2010) and Jiraporncharoen et al. (2015) found a relationship between learning styles and academic performance. This difference may be due to other factors influencing exam results.	The results of this study indicate that there is no significant relationship between learning styles and academic performance, specifically in the progress test results of students at the Faculty of Medicine, Universitas Abdurrab.
2022	Overview of Progress Test Scores for Medical Students	Observational Analysis	Rima Kusuma Ningrum and Ni Wayan Diana Ekayani.	The research results show that preclinical students at the Faculty of Medicine and Health Sciences, Universitas Warmadewa, experienced an improvement in their progressive scores upon entering the clinical block in their fourth year. In the first to third years, students were still focused on biomedical and transition blocks, whereas in the fourth year, they began integrating preclinical and clinical knowledge. However, knowledge improvement tended to slow down in the fifth year, which is their first year in clinical clerkships, as students were adapting and developing their clinical reasoning skills. This difference was also reflected in how students answered PT questions, with preclinical students using more low-level cognitive processing, while clinical students more frequently used high-level cognitive processing.	The progress test results of medical students at the Faculty of Medicine and Health Sciences, Universitas Warmadewa, continue to improve each year across each cohort. The progress test reflects the learning progress and knowledge accumulation of medical students at FKIK Universitas Warmadewa.

2021	Analysis of Progress Test Results in Medical Faculty Student	Observational and Descriptive Analysis	Ade Pryta R. Samaremare	The graduation rate of students who took the progress test in the even semester of the 2018/2019 academic year was relatively low. However, the students' scores showed improvement in line with the length of their study period. Based on the item analysis, most of the questions were of moderate difficulty, while the discrimination power of the majority of the questions, both in the basic medical science and clinical medical science categories, was at a less than satisfactory level.	The progress test can serve as a tool to monitor the development of students' knowledge, both at the individual level and as a group overall.

DISCUSSION

Research indicates a positive correlation between progress test scores and students' Grade Point Average (GPA). This suggests that the better the progress test (PT) scores achieved by students, the higher their GPA. The progress test serves as a tool to assess not only academic ability but also performance, skills, and decision-making capabilities. In other words, students who score high on the progress test demonstrate superior knowledge and skills, which are reflected in their overall academic achievements (Utami et al., 2017). The progress test functions as an evaluation tool to measure students' cognitive progress during the learning process. The structured and periodic implementation of the progress test has been proven to have a positive impact on students' learning. It enhances knowledge retention and deepens understanding of the taught material. High retention levels are associated with effective learning strategies, the characteristics of the material, and students' intellectual abilities, which encourage them to focus more on their studies and better prepare for exams. The success of progress tests also depends on how well students understand the purpose of the test and the strategies they use when answering questions (Albanese & Case, 2016; Schuwirth & Van der Vleuten, 2018).

The progress test is a comprehensive assessment designed to evaluate students' cognitive abilities and reflect their final learning outcomes within the curriculum. Progress tests can be used to assess and improve teaching and learning processes as well as to evaluate the curriculum. Their inclusion in the curriculum has a significant impact on learning patterns, students' perceptions of education, and their time management for studying. Moreover, progress tests can provide insight into students' understanding of the material and their long-term knowledge retention. In East Asia, students have demonstrated that progress tests help them integrate knowledge and enhance their understanding (Delos Santos & Fiscal, 2024; Matsuyama et al., 2016).

A study conducted by Ali et al. (2018) highlighted differences in perceptions between students in medicine and dentistry regarding the effectiveness of progress tests as a learning tool. Dental students (BDS and BScDTH) tend to have a more positive perception of progress tests compared to medical students (BMBS). This may be due to earlier clinical exposure experienced by dental students. Over time, students' perceptions of progress tests tend to improve as they advance in their programs, suggesting that more experienced students recognize greater benefits from these tests in evaluating their development

Furthermore, another study revealed differences in stress levels at the end of the academic year between groups that underwent progress tests and those that relied on traditional

assessments. In the progress test group, there was no significant increase in stress levels, indicating that these tests might be designed to reduce stress compared to traditional exams. Conversely, the traditional assessment group experienced a significant increase in stress. Additionally, a superficial learning approach was identified as a negative predictor of progress test scores, emphasizing the importance of deeper learning strategies to achieve good results in these tests (Chen et al., 2015).

Another study observed that preclinical students tend to show more significant progressive improvement when entering the clinical block in their fourth year. This is because they begin to integrate preclinical and clinical knowledge while developing clinical reasoning skills. However, this improvement slows in the fifth year, possibly due to the adaptation required to transition from theoretical learning to direct clinical experiences. Differences in how preclinical and clinical students respond to progress test questions also highlight varying levels of cognitive processing used by these groups (Cecilio-Fernandes et al., 2016; Chang et al., 2021).

Further research indicates progressive improvement in scores over time, showing that students become better at handling these tests as they advance in their studies. This aligns with the expectation that longer study periods lead to the development of better knowledge and skills, ultimately impacting their performance on progress tests (Darling-Hammond et al., 2020; Meng, 2023). Overall, progress tests have a significant impact on students' learning and academic performance, particularly in assessing cognitive abilities and preparing them for exams and challenges in their professional lives. However, the effectiveness of these tests depends on several factors, including students' learning approaches, the structure and frequency of the tests, and their understanding of the tests' purpose. By improving the quality of progress tests and increasing awareness of their benefits, students are expected to achieve better academic outcomes and be better prepared to face challenges in the workforce.

CONCLUSION

In general, 9 out of 10 studies said that there is a correlation, relationship and influence of Progress Test (PT) on the Cumulative Grade Point Average (GPA) of Medical Faculty Students. PT measuring students cognitive progress and skills, as well as evaluating learning and curriculum effectiveness. PT has positive correlation with GPA that reflecting knowledge retention, enhances study focus, and reducing stress compared to traditional exams. Further quantitative research, both experimental and observational is needed to measure the extent of the influence of Progress Test on the Cumulative Grade Point Average (GPA) of medical faculty students.

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