

THE EFFECT OF MENTEE AND MENTOR FACTORS ON SUCCESS AND IMPACT OF MENTORING ACTIVITIES – A SYSTEMATIC REVIEW

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Abstract.

With the progress of the times, everyone will compete in making the best achievements, as well as medical students or residents. One way to do this is to adapt and create mentoring activities. The purpose of this study is to discuss the mentee and mentor factors that influence the success and impact of mentoring activities. Data sourced from Science Direct and Pubmed, we identified all studies that evaluated the influence of mentee and mentor factors on the success and impact of mentoring activities on medical students or residents. The results of this study obtained from 2 databases are 1636 literature. The researcher excluded 370 subjects other than medical faculty students, 36 duplicates and 0 literature other than English. Screening titles and abstracts according to the screening of 1094 literature was excluded and the remaining 136 literature, removing research that was not free full text as many as 58 pieces so that the remaining 78 literature to be analyzed. Researchers released 72 literatures that did not discuss the influence of mentee and mentor factors on the success and impact of mentoring activities in medical schools. In this study, 6 literatures were selected. There are mentee and mentor factors that influence the success and impact of mentoring activities. The conclusion in this study is that the success of mentoring activities is inseparable from the influence of mentor and mentee factors, one of the most important factors with mutual respect between mentor and mentee.

Keywords: Mentee and Mentor Factors, Mentoring, Systemic Review

1. INTRODUCTION

With the passage of time all humans will compete with each other to get the best results. There are many things that every human being does to make the dream he wants to achieve come true. Just like students who want the best results in education. Students are a transitional period at the beginning of education, so that adaptation in learning will be very important in this transition process. This adaptability is the key for a student to get the best achievement results. As with medical students, one of the achievements that students want to achieve is graduating with the best grades. However, because the material at the medical faculty is complex material and students are required to understand the material, it is not uncommon for there to be differences in how to learn and understand it, an activity is needed, namely mentoring activities.

Mentoring is one of the activities contained in the medical faculty. Mentoring comes from the word mentor, based on the English dictionary mentor is a mentor or adviser. Mentors are people with an intermediary role in terms of helping and guiding others with the aim of sharing experiences and skills (Anwar, Ikawati and Syarifah, 2018). *Mentoring* is a process of improving individual quality in the field of education and work that is carried out in an emotional relationship between the mentor and mentee (Sutrisno and Cokro, 2018). Mentoring in medical faculties also has the same goal, namely

through mentoring activities it is hoped that medical students will be able to become better individuals and be able to adapt to medical faculties.

The majority of medical students come from different individuals whose social culture, student lifestyle, way of thinking and expressing opinions will also be different. Not infrequently sometimes in the delivery of opinions there will be a difference, so that adaptation is needed. To assist students in their adaptation, mentoring activities are needed where the mentor will guide the student. In these activities there will be factors that will influence the success and impact of mentoring activities. Through this research the authors try to compile a systematic review that examines mentoring activities in medical faculties with a mentor and mentee focus on the success and impact of mentoring activities in medical faculties as a basis for research in Indonesia.

II. METHODS

The design of this research is a systematic literature review or also called a systematic review which is a method of literature review by identifying, analyzing and interpreting available evidence and related to specific research questions that are unbiased and repeatable to a certain degree (Kitchenham and Charters, 2007). The data used in this study is secondary data obtained not from direct observation, but obtained from the results of research that has been conducted by previous researchers. Sources used can be high-reputation academic databases such as Scopus or Web of Science Clarivate Analytics, medium-reputation academic databases such as Proquest or EBSCO, low-reputation academic databases such as Google Scholar, published journals, theses, dissertations, scientific magazines, pamphlets, clippings, research abstracts, and proceedings (Nursalam, 2020). The research population is literature in the Pubmed and ScienceDirect databases.

III. RESULTS AND DISCUSSION

This research is in the form of a systematic literature review to see the influence of mentee and mentor factors on the success and impact of mentoring activities in medical schools. The initial stage is to identify literature by entering the keywords ("Mentoring" OR "Tutoring") AND ("Mentor factors") AND ("Mentee factors") AND ("Successfully mentoring" OR "Unsuccessful mentoring") into a predetermined database, namely PubMed and ScienceDirect. Based on the results obtained from the 2 databases, there are 1636 literatures. Furthermore, the researchers issued 370 studies with subjects other than medical faculty students, 36 duplicates and 0 literature other than English. The initial stage of screening is to designate a study with an appropriate title and abstract. After screening, 1094 literatures were excluded and the remaining 136 literatures according to title and abstract. After that the researcher issued 58 pieces of research that were not free full text so that the remaining 78 literature would be analyzed. The researcher found that 72 literatures did not discuss the influence of mentee and mentor factors on the success and impact of mentoring activities in medical schools.

Literature Quality Assessment

Literature quality assessment uses a tool, namely the Mixed Method Appraisal Tool (MMAT) which is a critical assessment tool that has been designed for the evaluation stage of a systematic study review which includes qualitative, quantitative and mixed methods studies. So this tool makes it possible to assess the methodological quality of five categories of studies: qualitative research, quantitative randomized controlled trials, quantitative non-randomized, quantitative descriptive, and mixed methods studies (Hong et al., 2018). The MMAT tool has been validated and tested for reliability by Hong et al., (2018). There are three categories of this tool which are designed based on different methodological quality criteria whose use depends on the study and method, including qualitative, quantitative (randomized controlled, nonrandomized and descriptive) and mixed methods. Before entering into the assessment, all literature will be given a screening question to show that the literature includes empirical studies and can be assessed using the MMAT (Souto et al., 2015). After the screening process, each literature will be assessed by answering a number of questions contained in the MMAT. Each literature will be given the answer 'Yes', 'No', or 'Can't Tell' according to the question for each type of research method. The overall score for each methodological quality varies from 0% (low quality), 25% (low quality), 75% (moderate quality), and 100% (high quality) (El-Awaisi et al., 2018). the entire literature will be given a screening question to show that the literature includes empirical studies and can be

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Research by Giancola, Whitman and Wilmott, (2020) and Myers, Littleton, Katherine, et al., (2019) uses qualitative research methods. The questions asked are whether the qualitative approach is appropriate or not, qualitative data collection methods, findings are sufficient, data interpretation, and the relationship between data sources, collection, analysis, and interpretation. The results of the MMAT score in this study were 100%. Research by ElHawary et al., (2022) and Miller et al., (2021) used a non-randomized quantitative research method. The questions asked were regarding the target population, the type of measurement used for the research results, complete data, confounders in the design and analysis, and the interventions given. The result of the MMAT score of ElHawary et al., (2022) is 50% and Miller et al., (2021).

Table 1. Assessment of Literature Quality

No.	Author, year	MMAT score (%)	Quality Score
1.	(Bingmer et al., 2019)	100%	Tall
2.	(ElHawary et al., 2022)	50%	Reasonable
3.	(Giancola, Whitman and Wilmott, 2020)	100%	Tall
4.	(Miller et al., 2021)	75%	Reasonable
5.	(Myers, Littleton, Katherine, et al., 2019)	100%	Tall
6.	(Stolarski et al., 2020)	75%	Reasonable

Literature Characteristics

The characteristics of the literature used in this systematic review include the name of the researcher, title, year of publication, research location, research design, and number of samples which can be seen in Table 5.2. Of the 6 literatures 2 literatures used a descriptive quantitative research design, 2 used a qualitative research design, 2 non-randomized quantitative research designs. Years of publication ranged from 2019 – 2022. The number of samples also varied, from a minimum of 25 people (Stolarski et al., 2020) to a maximum of 249 people (ElHawary et al., 2022).

Table 2. General Characteristics of Literature

No.	Researcher	Title	Year of Publication	Background scene	Research design	Number of Samples
1.	(Bingmer et al., 2019)	A Model for a Formal Mentorship Program in Surgical Residency	2019	Survey to all general surgery residents at a single academic institution	Descriptive Quantitative	46
2.	(ElHawary et al., 2022)	Medical Student Mentorship in Surgery: Lessons Learned and Future Directions	2022	McGill University Institutional Research Board (IRB)	Quantitative Non-randomized	249
3.	(Giancola, Whitman and Wilmott, 2020)	Establishing a Mentoring Culture within the Department: The Role of the Chair	2020	Saint Louis University Department of Pediatrics	Qualitative	76
4.	(Miller et al., 2021)	Current Resident and Faculty Mentorship Satisfaction and Important Mentee Functions in Orthopedic Surgery: An American Orthopedic Association North American Traveling Fellowship Project	2021	Eleven tertiary orthopedic surgery training programs during the 2017 American Orthopedic Association (AOA) North American Traveling Fellowship Tour	Quantitative Non-randomized	176
5.	(Myers, Littleton, Hill, et al., 2019)	Perceptions Regarding Mentorship Among General Surgery Trainees With Academic Careers Intentions	2019	University of Pittsburgh Medical	Qualitative	34
6.	(Stolarski et al., 2020)	Mentorship of Surgical Interns: Are We Failing to Meet Their Needs?	2020	Four academic medical centers in Boston, Massachusetts	Descriptive Quantitative	25

The Effect of Mentoring Factors on the Success and Impact of Mentoring Activities in the Faculty of Medicine

The influence of mentoring factors on the success and impact of mentoring activities in medical faculties in the 6 selected literatures will be described as follows. Research by Bingmer et al., 2019 found that mentees met mentors less than twice ($n = 20$, 63.5%) and mentees met mentors twice or more ($n = 12$, 37.5%). Mentees who met mentors more than two times or more felt that they received support and care from mentors (3.5 versus 4.6; 3.6 versus 4.6 so they got p – value $P < 0.001$). Mentees felt able to talk about job performance (3.8 versus 4.6, $P < 0.02$) and non-work (3.2 versus 4.3, $P < 0.01$). The mentee also felt an increase in operative and clinical skills (3.5 versus 4.1, $P < 0.002$).

Research by ElHawary et al., (2022) found that mentors recommended communication via email (46.2%) or meeting in person (43.2%), followed by communication via cellphone (10.7%). Mentors and mentees feel that the frequency of meeting is once a month and once every three months, there is no difference in the frequency of communication in the prevalence so that they get $p = 0.39$. Mentors believed that the qualities of a good mentee in this study were a willingness to learn, hard work, and curiosity. While mentees considered hard work and a willingness to learn to be two important qualities, only 18.4% of mentees considered curiosity to be a quality to look for in mentees, compared to 60.5% of mentors' answers, yielding $p < 0.001$. Both the mentor and mentee feel that innovation is a secondary quality. Mentees reported the impact they felt after carrying out mentoring activities, namely increasing

the interest of mentees in specialties (n = 86; 83.5%), facilitators in specialization programs (n = 69; 67%), and facilitators in research experience (n = 63; 61.2%).

Research by Giancola, Whitman and Wilmott, (2020) found that mentees felt that they were making progress in clinical practice, research, teaching, administrative services and self-confidence. In this study, mentoring activities were most often carried out for research. The mentees felt they had an increase in work interest (n = 42, 38%), work commitment (n = 42, 69%), and work motivation (n = 42, 67%). In addition, the mentee was asked to rate the qualities of the mentor such as expertise in bringing material, supportive, professional guidance, feedback, constructive and accessibility. Not only that, the mentor was also asked to rate the mentee's qualities such as accessibility, initiative, follow-up, and feedback acceptance. The mean results were quite high from 2.8 – 4.3.

Research by Miller et al., (2021) there were two respondents who came from the resident and lecturer groups. Residents consider that mentors are role models when providing counseling (5.2 ± 0.8), role models in balancing work life (5.2 ± 0.9), and are able to be aware of current issues contained in their specialization program (5.2 ± 0.9), while lecturers feel that a mentor can provide counseling regarding a mentee's problems (5.4 ± 0.6), improve the professional quality of the mentee (5.1 ± 1.0), and involve the mentee in subspecialty activities (5.1 ± 1.0). The majority of residents considered a mentor to be a role model in work life ($p = 0.01$), while lecturers considered mentors to accept the strengths, weaknesses, goals and priorities of a mentee ($p = 0.03$). Residents and teaching staff did not feel that gender (1.3 ± 1.2 , 1.1 ± 1.3), ethnic background (0.9 ± 0.8 , 0.9 ± 1.2) and religious affiliation (0.9 ± 0.7 , 0.6 ± 0.8) were the same as theirs. important. Residents feel the impact of mentoring activities is the existence of a role model in work life, professional, and ethical behavior. Whereas the lecturer respondents felt that the mentor could provide counseling when the mentee felt there was a problem (5.6 ± 0.8), privately or publicly supported the mentee (5.6 ± 0.8), and the mentor accepted the mentee's strengths, weaknesses, goals and priorities (5.6 ± 0.6). Statistically, mentors felt more satisfied than resident respondents in mentors who privately or publicly supported the mentee ($p < 0.001$), involved in selected subspecialty activities that the mentee wanted ($p < 0.001$). 01) and protect the mentee from exploitation or non-productive collaboration ($p = 0.01$). In addition, according to the lecturer's assessment, the involvement and participation of a mentee is considered important for the success of mentoring activities, while the importance of mentee recognition of time and effort is considered not too important (4.5 ± 1.3).

Research Myers, Littleton, Hill, et al., (2019) was conducted in a focus group and obtained results that there were still many mentees who could not identify mentors, did not have adequate interaction, hierarchical culture, and gender dynamics so that mentees did not have initiative and could fail mentoring activities. Mentees rely on mentors to make clinical decisions, provide advice beyond their career (family), and assist with professional and academic development. Mentees who have advice on assisting with professional and academic development also add to the need for advice from mentors regarding their desired subspecialty, developing or implementing their research agenda, and establishing relationships with senior members of the specialization community. In the implementation of mentoring activities, Mentees think that they do not have adequate time or attend mentoring activities until they are finished, which hinders their meetings with mentors. In this study the mentoring relationship will be said to be successful if there is mutual respect between the mentee and mentor, there are forms of friendship such as investment, support, and availability that make mentoring activities run well, but there are some residents who disagree and say that friendship cannot Combined with mentoring activities, there is no problem regarding gender issues in giving advice, but the tendency is that when mentors and mentees are of different genders when they start mentoring activities, most of them will approach it in a flirty way. The concrete thing to measure mentoring activities is going well, namely when a mentor begins to give responsibility to the mentee, the manufacture of manuscripts, and the resulting conference presentations. However, in this study it was stated that there are characteristics of failure of a mentoring activity, namely the mentor who ignores the mentee (disappears and does not provide advice), the mentor does not provide solutions, and the mentee seeks mentoring elsewhere.

Research by Stolarski et al., (2020) found that 80% of mentees had mentors and 90% of mentees felt the guidance and advice they received was very helpful. Gender selection and mentor status are the

most important factors in mentor selection (4.67/5 and 4.33/5). Face-to-face meetings were the most common way of communication (80%), followed by email (20%), but some mentees still felt that these meetings were not what they wanted. Some mentees feel that they rely on mentors for career planning (55%), clinical training (25%), research guidance (10%), and work/life integration (10%).

Characteristics of Research Subjects

Based on the characteristics of the research subjects, most of the respondents came from the age group of 25-30 years, except for the research by Bingmer et al., 2019 and Myers, Littleton, Katherine, et al., (2019) which did not include the age of the respondents. In general, the sex of most research subjects is male, except for the study by Bingmer et al., 2019, which does not display the number of genders. The highest level of education in this study was resident

The Influence of Mentee Factors on the Success and Impact of Mentoring Activities

The influence of mentee factors that can influence the success of mentoring in this study includes a willingness to learn, hard work, curiosity, innovation, accessibility, initiative, follow-up, acceptance of feedback, participation involvement, recognition of time and effort. As found in research (Straus, Chatur and Taylor, 2009) mentee requires commitment and the need for self-awareness so that mentoring activities run well. In addition, it also requires a pro-active nature, a desire to learn, and be selective in accepting advice from mentors (Williams et al., 2004). In another study it was stated that mentoring activities required preparation from the mentee, the mentee could explain the outline of the activities to be discussed,

Based on this research, the impact that will be felt can be in the form of the mentee being able to talk about matters around work and outside of work, there is an increase in interest and quality in the mentee, there is progress in clinical skills, research, and the mentee will be promoted by the mentor. This is similar to research (Gagliardi et al., 2014) the benefits obtained from mentoring activities are career development, mentee psychosocial development, reduced stress and conflict, increased job and career satisfaction.

The Influence of Mentor Factors on the Success and Impact of Mentoring Activities

In this study it was found that there are mentor factors that can influence mentoring activities, namely mentors can provide support and care for the mentee, mentors are experts in bringing material, can act in a supportive manner, can guide professionally, mentors can provide feedback with mentees, mentors can be easily accessed, the mentor can act as a role model, and can develop the interests of the mentee. Likewise, as summarized in (Pellegrini, 2006) that the mentor must be committed to the role of mentoring, be able to show empathy, and be skilled in instructional support, as well as being a role model. An effective mentoring relationship can occur when the mentor has a competency that includes a particular skill. Skills are previous experience gained in assisting roles or jobs, the ability to show appreciation for prominent socio-economic and cultural influences in life, as well as the success of being able to become a mentor. In addition, the ability to become a relevant role model is needed, such as skills to achieve good performance in the work environment, and to be able to refrain from actions that are less than commendable so as not to encourage the mentee to follow that behavior (Rhodes, Lowe and Schwartz, 2011). So that the impact obtained based on this research is that the mentee will get a role model in work life, career planning, research guidelines, and promotions carried out by the mentor to the mentee privately or publicly. The benefits of mentoring are not limited to additional creativity,

The Effect of Process on the Success and Impact of Mentoring Activities

Before carrying out mentoring activities there will usually be a process that starts with mentor identification, gender selection, meeting frequency, communication media, hierarchical culture, and gender dynamics. Gender selection is also supported by research (Lin et al., 2021) in which 74.5% of respondents felt more comfortable having a mentor of the same gender. In research (Myers, Littleton, Hill, et al., 2019) it is explained that if at the beginning of the activity the mentee cannot identify the mentor it will result in the loss of the mentee's initiative in mentoring activities, the hierarchical culture of each faculty also influences mentoring activities, plus with gender dynamics where when the mentor and mentee are not of the same gender then one of them will try to approach her in a flirty way. If there

is a failure in the mentoring process, it will result in the mentor ignoring the mentee, the mentor not providing a solution, and the mentee seeking mentoring elsewhere. As in research (Straus, Chatur and Taylor, 2009) the mentee feels the impact of mentoring failure is the lack of mentoring activities, research ideas taken by the mentor, competition with mentors and mentors who ignore the mentee. However, if the mentoring activities are successful, there will be mutual respect between the mentee and the mentor, the mentor gives a responsibility to the mentee and a form of friendship is established (Myers, Littleton, Katherine, et al., 2019). The mentoring activity will develop into an informal activity, as a natural relationship or it can develop into a formal one,

IV. CONCLUSION

Based on the results of a systematic review analysis of the influence of factors that influence the success and impact of mentoring activities, it can be concluded that the mentee factors that influence the success of mentoring are the willingness to learn, hard work, curiosity, innovation, accessibility, initiative, follow-up, acceptance of feedback, involvement participation, recognition of time and effort. Mentor factors that can affect mentoring activities are support and concern for the mentee, experts in bringing material, acting supportively, guiding professionally, mentors can provide feedback with mentees, mentors can be easily accessed, mentors can act as role models, and can developing mentee interests. 3. In the process of mentoring activities if it goes well it will create an impact and satisfaction from mentoring activities. The suggestions are expected for future researchers to expand the reach of the search by looking for literature that has a larger sample so that it can represent the mentoring activity respondent population and it is also hoped that in the future both the mentee and the mentor who will undergo mentoring activities understand and respect each other, communication between the mentee and Mentors also need to be maintained so as to prevent failure of mentoring.

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