



## The impact of the medical school admissions interview: A systematic review

## L'impact de l'entrevue d'admission à la faculté de médecine : une revue systématique

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Résumé de l'article

**Contexte :** Les entrevues sont considérées comme une composante importante du processus d'admission dans les facultés de médecine, mais elles ont été critiquées depuis les années 1950 sur la base de préoccupations liées à la partialité et à la fiabilité. Afin de déterminer l'impact de l'entrevue, nous avons étudié dans cette revue systématique les caractéristiques et les résultats des étudiants en médecine admis ayant passé ou non une entrevue.

**Méthodes :** Nous avons effectué des recherches dans quatre bases de données bibliographiques depuis leur création jusqu'à août 2022; toutes les études comparant les étudiants en médecine admis avec ou sans entrevue ont été incluses. Nous avons exclu les études réalisées en dehors du cadre des facultés de médecine et les rapports ne relevant pas de la recherche. Nous avons examiné le type d'entrevue, la conception de l'étude, la qualité et les résultats.

**Résultats :** Huit études provenant de cinq établissements dans cinq pays ont été incluses. Six d'entre elles ne font état d'aucune différence démographique entre les étudiants admis avec ou sans entrevue ; l'une d'entre elles a révélé que davantage d'hommes étaient admis sans entrevue qu'avec une entrevue semi-structurée, et que les deux cohortes présentaient des rendements universitaires et cliniques similaires. Les entrevues structurées ont permis d'admettre des étudiants qui ont obtenu de meilleurs résultats aux examens cliniques et compétence sociale et de moins bons résultats aux examens universitaires. Les cohortes admises avec et sans entrevues structurées présentaient des problèmes de santé mentale similaires lors de leur dernière année d'études de médecine.

**Discussion :** Cette étude suggère que les étudiants admis avec et sans entrevues non structurées et semi-structurées étaient similaires d'un point de vue démographique, universitaire et clinique. En outre, les entrevues structurées ont permis de sélectionner des étudiants plus compétents sur le plan social, qui ont obtenu de meilleurs résultats cliniques, mais avec une moins bonne performance sur le plan académique. D'autres recherches sont nécessaires pour déterminer l'impact de l'entrevue de sélection sur les admissions dans les facultés de médecine.

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## The impact of the medical school admissions interview: a systematic review

## L'impact de l'entrevue d'admission à la faculté de médecine : une revue systématique

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### Abstract

**Background:** Interviews are considered an important part of the medical school admissions process but have been critiqued based on bias and reliability concerns since the 1950s. To determine the impact of the interview, this systematic review investigated the characteristics and outcomes of medical students admitted with and without interviews.

**Methods:** We searched four literature databases from inception through August 2022; all studies comparing medical students admitted with and without interviews were included. We excluded studies from outside the medical school setting and non-research reports. We reviewed interview type, study design, quality, and outcomes.

**Results:** Eight studies from five institutions across five countries were included. Six reported no demographic differences between students admitted with and without interviews; one found that more men were admitted without than with semi-structured interviews, and both cohorts had similar academic and clinical performance. Structured interviews admitted students who scored higher on clinical exams and social competence and lower on academic exams. Cohorts admitted with and without structured interviews had similar mental health issues by their final year of medical school.

**Discussion:** This review suggests that students admitted with and without unstructured and semi-structured interviews were similar demographically, academically, and clinically. Moreover, structured interviews selected more socially competent students who performed better clinically but worse academically. Further research is needed to determine the impact of the selection interview in medical school admissions.

### Résumé

**Contexte :** Les entrevues sont considérées comme une composante importante du processus d'admission dans les facultés de médecine, mais elles ont été critiquées depuis les années 1950 sur la base de préoccupations liées à la partialité et à la fiabilité. Afin de déterminer l'impact de l'entrevue, nous avons étudié dans cette revue systématique les caractéristiques et les résultats des étudiants en médecine admis ayant passé ou non une entrevue.

**Méthodes :** Nous avons effectué des recherches dans quatre bases de données bibliographiques depuis leur création jusqu'à août 2022; toutes les études comparant les étudiants en médecine admis avec ou sans entrevue ont été incluses. Nous avons exclu les études réalisées en dehors du cadre des facultés de médecine et les rapports ne relevant pas de la recherche. Nous avons examiné le type d'entrevue, la conception de l'étude, la qualité et les résultats.

**Résultats :** Huit études provenant de cinq établissements dans cinq pays ont été incluses. Six d'entre elles ne font état d'aucune différence démographique entre les étudiants admis avec ou sans entrevue ; l'une d'entre elles a révélé que davantage d'hommes étaient admis sans entrevue qu'avec une entrevue semi-structurée, et que les deux cohortes présentaient des rendements universitaires et cliniques similaires. Les entrevues structurées ont permis d'admettre des étudiants qui ont obtenu de meilleurs résultats aux examens cliniques et compétence sociale et de moins bons résultats aux examens universitaires. Les cohortes admises avec et sans entrevues structurées présentaient des problèmes de santé mentale similaires lors de leur dernière année d'études de médecine.

**Discussion :** Cette étude suggère que les étudiants admis avec et sans entrevues non structurées et semi-structurées étaient similaires d'un point de vue démographique, universitaire et clinique. En outre, les entrevues structurées ont permis de sélectionner des étudiants plus compétents sur le plan social, qui ont obtenu de meilleurs résultats cliniques, mais avec une moins bonne performance sur le plan académique. D'autres recherches sont nécessaires pour déterminer l'impact de l'entrevue de sélection sur les admissions dans les facultés de médecine.

## Introduction

Interviews are part of the admissions process at many medical schools worldwide, including all schools in Canada and the United States (US).<sup>1-2</sup> The interviews help gather and verify information about applicants and recruit students,<sup>3-5</sup> and are weighted highly by medical school admissions committees, faculty and staff.<sup>6,7</sup> However, interviews have been controversial since the 1950s, when “A Critique of the Interview” was published describing the paucity of evidence supporting the utility of the admissions interview.<sup>8</sup> Since then, research has determined that interviewers generally have low reliability<sup>7</sup> and may be biased against applicants based on age, gender, language, race/ethnicity, religion, sexual orientation, and socioeconomic status.<sup>9</sup>

Previous systematic reviews have examined the utility of the multiple mini-interview (MMI, originally developed to resemble the Objective Structured Clinical Examination [OSCE] in 2004) in health professions education<sup>10,11</sup> as well as the acceptability, feasibility, reliability, and validity of the admissions interview for medical schools.<sup>12</sup> To our knowledge and based on a PubMed search up to August 2022, no systematic reviews have investigated if the admissions interview helps select better qualified medical students.

In this systematic review, we compared multiple characteristics (demographics, academic performance, clinical skills, personality, and mental health) of medical students admitted with and without interviews.

## Methods

We consulted a Brown University health sciences librarian to design this literature search (Appendix A) of Embase, ERIC, PubMed, and Web of Science from inception through August 17, 2022. To identify additional papers for consideration, we used backward reference searching by reviewing the reference lists of included articles to identify potential eligible studies and forward reference searching by examining articles that cited major literature reviews in the field.<sup>13-18</sup> Older studies identified in this search were not excluded based on age if their methodologies were valid and sufficient for inclusion.

In accordance with Preferred Reporting Items and Meta-Analyses (PRISMA) guidelines,<sup>19</sup> two investigators (JL/CS) independently screened titles and abstracts, reviewed full texts, and extracted data using Covidence (Covidence, Melbourne, Australia) software and assessed study quality

with the Medical Education Research Study Quality Instrument (MERSQI); all disagreements were resolved by the senior investigator (PG). In the literature, MERSQI scores above 12.5 have been considered the cut-off for high-quality studies.<sup>20</sup>

We included all studies that compared medical students who were admitted with and without a selection interview, encompassing any eligible randomized controlled trials (RCTs) and cohort studies. Any interview format was eligible, including but not limited to the MMI, unstructured interviews (no standardized questions), semi-structured interviews (some standardized questions, with conversation permitted), and structured interviews (only standardized questions). We excluded articles that were: (1) not relevant to medical school settings, (2) did not examine characteristics of medical students admitted with and without consideration of their interview performance, and (3) literature reviews, editorials, and case studies.

We developed a standard coding sheet to extract data on study design, institution, location, interview type, variables of interest, and main findings. We contacted one study author for missing information to determine the type of interviewing used in that study,<sup>21</sup> and we contacted another author to confirm information due to their study's hybrid publication in English and Swedish.<sup>22</sup> We summarized study findings by outcome and planned to quantitatively analyze data if methodologies were sufficiently consistent.

## Results

Following duplicate removal, title/abstract screening, and full-text review, four studies were included in the review (Figure 1).<sup>21,23-25</sup> Forward reference searching identified two additional studies;<sup>22,26</sup> backward reference searching identified two eligible studies.<sup>28,28</sup> No RCTs were identified. Meta-analysis was not possible due to study heterogeneity.

Characteristics of included studies are outlined in Table 1. Five (62.5%) studies were conducted in high-income countries: two (25%) in Australia,<sup>24,25</sup> one (12.5%) in the US,<sup>21</sup> and two (25%) in Sweden.<sup>22,23</sup> Three (37.5%) were conducted in Malaysia, classified by the World Bank as upper middle-income.<sup>26-28</sup> Seven (87.5%) studies were conducted at public medical schools.<sup>22-28</sup> Four (50%) studies used semi-structured interviews,<sup>22,23-25</sup> three (37.5%) used structured interviews,<sup>26-28</sup> and one (12.5%) used unstructured interviews.<sup>21</sup> All eight studies used nonrandomized comparative observational study design; one (12.5%) admitted students with and without

interviews in the same cohort,<sup>23</sup> and seven (87.5%) compared students admitted with and without interviews in several cohorts.<sup>21,22,24-28</sup> These multiple cohort studies either compared students admitted to the same class years with and without interviews, or compared students admitted to different class years with and without interviews.

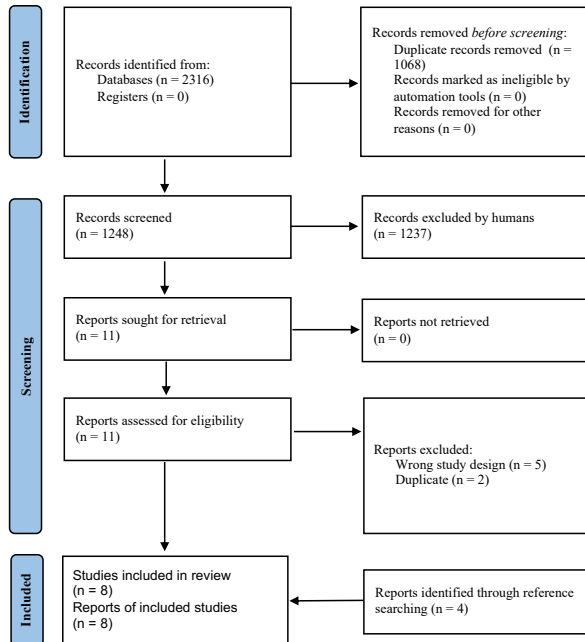


Figure 1. PRISMA flow diagram

We identified five main outcomes from the included studies: demographic equity, correlation with personality traits and emotional intelligence, and predictive validity for academic and clinical scores in medical school, academic and clinical exam scores in internship, clinical evaluations in internship, future residency performance ratings, communication skill ratings, and mental health in medical school. Included studies had moderately high MERSQI scores, averaging a mean (SD) of 12.9 (1.3) out of a maximum of 18.<sup>29,30</sup>

There were few differences between students admitted with and without unstructured and semi-structured interviews. They had similar gender and racial/ethnic demographics,<sup>21</sup> academic and clinical performance in medical school,<sup>21</sup> United States Medical Licensing Examination (USMLE) Steps 1 and 2 scores,<sup>21</sup> and residency program director ratings in post-graduate year 1 (PGY-1).<sup>21</sup> Non-interviewed students were more likely to be older<sup>22</sup> and male<sup>24</sup> in single studies, but another study did not identify any demographic differences.<sup>23</sup> There was a relationship between gender and communication skills in

one study.<sup>25</sup> Comparisons of students admitted with and without semi-structured interviews showed that interviewed candidates had worse grades in secondary school compared to their peers admitted based solely on their grades,<sup>23</sup> but they had statistically similar academic scores and clinical communication skill ratings in internship.<sup>22</sup> In one study, non-interviewed candidates had a higher likelihood of failing a communication-based OSCE,<sup>23</sup> however, other studies showed interviewed and non-interviewed students had similar clinical communication skill ratings in medical school using either OSCEs<sup>23</sup> or a novel and reliable assessment of clinical communication skills.<sup>25</sup>

The three studies that used structured interviews were all conducted at one medical school. There were no age or gender differences between students admitted with and without structured interviews.<sup>26-28</sup> Students in the interviewed cohort scored higher on openness, conscientiousness, agreeableness, and extroversion and lower on neuroticism in self-reported surveys.<sup>26,28</sup> Final-year medical students in the interviewed cohort also had higher levels of global emotional intelligence and social competence.<sup>26</sup> Students admitted through structured interviews had a lower risk of developing psychological distress according to the self-administered General Health Questionnaire two months after enrollment;<sup>27</sup> by the final year of medical school, however, both cohorts had similar levels of stress, anxiety, and depression.<sup>26</sup> Ultimately, relative to their peers without interviews, students admitted with structured interviews scored higher on the clinical component of their final phase exam (including an OSCE) but worse on the theoretical component (including a written exam and essay).<sup>28</sup>

Table 1. Characteristics of included studies

Study (Year)	Medical School	Country	Design	Interview Type	Variables of Interest
Smith et al. (1991) <sup>21</sup>	Brown University	United States	Multiple cohorts	Unstructured	Academic scores in medical school; clinical scores in PGY-1; demographics
Bågedahl-Strindlund et al. (2008) <sup>22</sup>	Karolinska Institutet	Sweden	Multiple cohorts	Semi-structured	Academic and clinical exam scores in internship; clinical communication skill ratings in internship; age
Dahlin et al. (2012) <sup>23</sup>	Karolinska Institutet	Sweden	Single cohort	Semi-structured	Academic scores in medical school; communication skill ratings
Yusoff et al. (2012) <sup>27</sup>	University Sains Malaysia	Malaysia	Multiple cohorts	Structured	Mental health
Casey et al. (2014) <sup>25</sup>	University of Queensland	Australia	Multiple cohorts	Semi-structured	Communication skill ratings
Wilkinson et al. (2014) <sup>24</sup>	University of Queensland	Australia	Multiple cohorts	Semi-structured	Demographics
Azman et al. (2014) <sup>28</sup>	University Sains Malaysia	Malaysia	Multiple cohorts	Structured	Personality traits; demographics
Yusoff et al. (2018) <sup>26</sup>	University Sains Malaysia	Malaysia	Multiple cohorts	Structured	Academic scores in medical school; mental health; personality traits; emotional intelligence; demographics

## Discussion

This systematic review suggests that students admitted to medical school with and without unstructured and semi-structured interviews were demographically similar and did not differ substantially with respect to academic scores, clinical performance, and communication skills. However, structured interviews selected students who were more extroverted, had more emotional intelligence, and performed better clinically but worse academically. Overall, the impact of the admissions interview was highly dependent on each school's approach to interviewing.

Our findings suggest several ways to strengthen the evidence base on the selection interview. First, more rigorous studies comparing medical students admitted with and without interviews are necessary. Second, researchers should delineate how interview questions were developed (especially for semi-structured interviews), how interviews were graded, and how interviews were weighted in the admissions process. Third, studies should use existing scales of residency performance and clinical communication skills (i.e., board examination scores or patient outcomes<sup>31</sup>) rather than creating new scales, which makes meta-analysis and direct comparison of study data challenging. Identified studies varied methodologically, temporally, and geographically, although several studies shared cohorts and were conducted at the same institutions. Fourth, researchers should consider training interviewers and using more

structured interviewing—particularly the MMI—to improve interviewer reliability.<sup>11,12</sup>

This systematic review has several limitations. The literature search strategy may not have included all eligible studies, although the authors consulted a health sciences librarian, searched four medical and educational literature databases that have covered nearly all relevant studies for previous Cochrane systematic reviews,<sup>32</sup> and used backward and forward reference searching. Also, the review did not evaluate the weight of the interview in medical school admissions or the role of personal bias in medical school interviews, which may also influence student body composition.<sup>9</sup> Lastly, the review's findings may not be generalizable to selection interviews for graduate medical education.

In 1957, Professor E. Lowell Kelly argued, "All evidence suggests that it gives a great deal of satisfaction to the persons who use it; they usually feel good about it, but we have not been able to demonstrate in any of these investigations the utility of the interview."<sup>8</sup> More than six decades later, the evidence on the utility of the interview in medical school admissions remains limited.

**Conflict of Interest:** P.B.G. is a former ex-officio member of the Accreditation Council on Graduate Medical Education Medically Underserved Areas and Population Advisory Group (MUA/P) in 2022-2023 and received accommodations for the MUA/P meeting. P.B.G. is also a council member for the National Board of Medical Examiners (NBME) and received accommodations and meals for the NBME annual meeting.

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## Appendix A. Literature search strategy

Database	Search Query
PubMed	("education, medical"[MeSH] OR "students, medical"[MeSH] OR "medical school*" [tiab] OR "medical student*" [tiab] OR "medical educat*" [tiab]) AND ("interviews as topic"[MeSH] OR "interview*" [tiab]) AND ("school admission criteria"[MeSH] OR "admission*" [tiab] OR "student select*" [tiab])
EMBASE	('medical education'/exp/mj OR 'medical student'/exp/mj OR 'medical school*':ti,ab OR 'medical student*':ti,ab OR 'medical educat*':ti,ab) AND ('interview'/exp/mj OR interview*':ti,ab) AND (admission*':ti,ab OR 'student select*':ti,ab OR 'school admission'/exp/mj)
ERIC	((DE "Medical Education" OR (DE "Medical Students") OR (TI "medical school*" OR AB "medical school*")) OR (TI "medical student*" OR AB "medical student*")) OR (TI "medical educat*" OR AB "medical educat*") AND ((DE "Interviews" OR DE "Semi Structured Interviews" OR DE "Structured Interviews") OR (TI interview* OR AB interview*)) AND ((DE "Admission Criteria") OR (TI admission* OR AB admission*)) OR (TI "student select*" OR AB "student select*"))
Web of Science	((TI="medical school*" OR AB="medical school*") OR (TI="medical student*" OR AB="medical student*")) OR (TI="medical educat*" OR AB="medical educat*") AND ((TI=interview* OR AB=interview*)) AND ((TI=admission* OR AB=admission*) OR (TI="student select*" OR AB="student select*"))