

CHAPTER 9

Summary

High stakes are involved in medical school selection as only 6% to 30% of applicants can get admitted and selection is generally costly. It is the responsibility of medical schools to ensure that the most suitable students are selected, i.e. well-performing and motivated students. This is challenging, however, because the available tools vary greatly in their ability to reliably discriminate between applicants and there are concerns that selection jeopardizes the desired diversity of the student population and the future health care workforce. This thesis aims to enhance our understanding of the effects of selection on the motivation of the medical student population and the applicant pool. Both quantitative and qualitative research methods were deployed in these investigations.

Chapter 1 The introduction provides the rationale for the research described in this thesis. It contains a brief overview of the selection tools that are frequently used to assess academic and non-academic qualities and addresses the potential consequences of selection for the diversity of the student population. Next, selection is placed in the context of the Dutch admissions system, which comprises a national weighted lottery based on pre-university GPA, direct admission for top performing students and selection. Motivation is the key concept in this thesis and is described from the perspective of the Self-determination Theory (SDT). It states that autonomous motivation, which originates from within the person, is the most desirable type of motivation, compared to controlled motivation, which results from internal and external pressures. Autonomous motivation benefits from the fulfilment of students' needs for autonomy, competence and relatedness. Evidence for the importance of motivation for medical education and medical school selection is discussed. In addition, student performance and engagement are elaborated upon as outcomes of medical school selection. The introduction concludes with a general problem definition, the aims and the research questions, followed by an outline of the thesis.

Chapter 2 This chapter describes a first exploration of the effect of selection on the motivation of the student population and the applicant pool. While medical schools attempt to select the most motivated students, motivation, and especially the quality of motivation, remains understudied in selection research. The study described in this chapter tries to elucidate the association between selection and the strength and type of motivation. This survey study among 357 (61.4%) first and fourth year students in the six-year regular medical education programme and first year students in the graduate entry programme compared the motivation of selected and non-selected students to examine the effect of selection on the student population. The motivation of recently

selected students was compared with the motivation of students who were selected longer ago and non-selected students to examine the effect of selection on motivation over time. The results indicate that selection, compared to weighted lottery, does not yield a student population with better quality of motivation. Selection may, however, temporarily enhance students' motivation. Triangulation by combining quantitative and qualitative methods provided insight into the mechanism through which selection sparks student motivation. It appears that being selected fulfils students' needs for autonomy, competence and relatedness. This study was conducted in a situation in which lottery and selection coexisted. It is the question whether these findings can be generalised to a situation in which only selection is applied.

Chapter 3 This chapter presents a quantitative multi-site study which further investigates the relation between selection and motivation. More specifically, this chapter explores the associations of various admissions processes (i.e. selection, weighted lottery and direct admission based on top performance), various combinations of selection tools and participation in a voluntary selection procedure (as opposed to refraining from participation) with student performance, motivation and engagement across different medical schools. A total of 666 first and fourth year students (35%) from three medical schools completed an online survey comprising measurements of student motivation and engagement, as well as demographic data. In line with previous literature, top performers in pre-university education were also top performers in the pre-clinical and clinical phases of the medical study, but showed lower motivation than selected students. Selected students did not outperform lottery-admitted students, nor did their motivation and engagement differ. The weak evidence across the literature for the added value of selection relative to weighted lottery has led scholars to seek an explanation in the voluntary nature of selection. Making the effort to participate in selection is suggested to be more important than being successful in selection and may therefore be a proxy for motivation. However, this study did not support that assumption. Findings indicate that selection attracts students who perform better and are more engaged in the clinical phase of the medical study, but this effect may diminish when selection is more prevalent and participating in selection becomes appealing to a wider range of applicants. The study further aimed to compare the outcomes of different combinations of selection tools, i.e. different selection procedures. While no differences were anticipated, some performance differences and differences in strength of motivation at the beginning of the medical study were found. The difficulty in interpreting these findings pertains to the possible influence of curricular differences between the medical schools. These differences cannot

be controlled for as each selection procedure is used at a different medical school. In addition, the different medical schools may appeal to different types of students, which inspired the investigation of how people choose to apply to a particular medical school, described in the next chapter.

Chapter 4 Applicants can have various reasons for deciding which medical school to apply to. While these reasons have been studied before, evidence is lacking with regard to the implications of these different approaches for student motivation during the medical study. Therefore, for the most common reasons, it was investigated to what extent they were the deciding factor in students' medical school choice and whether they were related to motivation during the medical study. This was studied by administering an online survey among first and fourth-year students who had participated in selection at three medical schools ($n = 478$). The first question this study aimed to answer was: do the approaches of applicants match with medical schools' desire to instigate a curriculum-based choice? The study described in this chapter shows a conflict of interest. Only a small proportion of students (5-11%) had based their medical school choice mainly on the curriculum. Applicants most often based their choice on the selection procedure. This appears to have increased parallel to the increase of student uptake through selection. This is hardly surprising, considering the highly competitive nature of selection. The second question this study aimed to answer was: are different reasons associated with differences in motivation during the medical study? A strategic choice, i.e. based on selection, for a particular medical school was not related with poor quality of motivation during the medical study. In fact, differences in strategies were not related with differences in motivation. The third question that was addressed in this study was: are the reasons for medical school choice related with student characteristics? Indeed, different types of students showed different medical school choice strategies. Students with highly educated parents (compared to first generation students) and Dutch students (compared to ethnic minority students) were more likely to have taken into account the curriculum, while males and older students were more likely to have considered the selection procedure in their medical school choice. Students at the different medical schools placed importance on the curriculum to a different extent. Based on the findings, a recommendation was made to align recruitment and selection with the curriculum characteristics and medical school values so that students who make a strategic choice based on selection are also made aware of the curriculum of the medical school.

Chapter 5 Personal statements are widely used in selection to assess non-academic qualities. In an attempt to select motivated students, applicants can be asked to express their motivation in a written statement. This chapter reports on a qualitative study which aimed to determine the suitability of a written statement on motivation in distinguishing between applicants in selection. Thematic analysis of 96 statements of selected and rejected applicants revealed that the validity and reliability of the statement on motivation are questionable. All applicants provided similar responses, which mainly pertained to autonomous motivation. This did not seem to reflect a complete description of their motivation, as some indications of controlled motivation among selected students were also found in another study. Applicants included a lot of additional information beyond the scope of the question, such as their qualifications and previous work experiences. They appear to use the assignment to show their suitability for the medical programme rather than to provide a true reflection of their motivation. This is also referred to as the 'hidden curriculum' of selection. Because the statements often reflected the published programme description, the statement on motivation appears to be a useful tool to encourage applicants to study the programme characteristics. This may help applicants to make a well-informed study choice. Moreover, a written statement enables applicants to provide information they consider relevant to their application but cannot express in other parts of the procedure.

Chapter 6 Concerns exist that students from backgrounds that are underrepresented in medicine refrain from applying for the medical study due to selection. Therefore, the study described in this chapter served to gain insight into what happens in the applicant pool. It was explored how motivation for the medical study is formed and how selection affects the motivation of prospective applicants from various backgrounds. To this end, three high school study counsellors and 24 high school students were interviewed. Students were mainly driven by autonomous motivations, such as sincere interest, although controlled motivations, such as prestige, were also identified. The findings brought to light a complex interplay between healthcare experience, growing up in a medical family, selection and motivation. Exposure to healthcare seems to be a crucial factor for the motivation of students and helps in making an informed choice for the medical study. Growing up in a medical family provides easier access to healthcare internships and assistance in the selection process. Healthcare experience is often one of the selection criteria. Difficulties in gaining healthcare experience, often due to lack of medical professionals in their network, can demotivate applicants. A change from lottery-based to selection-based admissions may induce self-selection among students

without a medical network. The research confirmed the previously suggested inequality due to applicants' socio-demographic background. The inequalities brought to light in this study need attention if medical schools wish to ensure that the medical profession reflects the society it serves. Suggestions are made for how both medical schools and high schools could address these inequalities.

Chapter 7 This chapter poses the question whether medical school selection should be replaced by lottery and considers the issue from two angles: 1) student motivation, engagement, learning and performance outcomes, and 2) diversity of the medical student population. This chapter provides a holistic perspective on this issue grounded in the findings from research. The research, mainly conducted in the Netherlands during the gradual transition from lottery-based admissions to selection-based admissions, indicates that selection yield small gains compared to a lottery procedure. Moreover, the student diversity may be compromised. This chapter concludes with practical implications and recommendations.

Chapter 8 This chapter contains a general discussion about the findings in the thesis. It describes the effects of selection on the student population and on the applicant pool identified in this thesis and elaborates on the implications. The findings indicate that student motivation, as well as performance and engagement, in medical education in the Netherlands can be considered good, irrespective of how students are admitted to the medical study. The findings demonstrate the difficulty of measuring motivation in selection and suggest how selection may jeopardize diversity in the medical study and profession. This thesis highlights the challenges selection committees face in their aim to select the best students from a seemingly equally good applicant pool, while ensuring fairness in selection. The findings raise questions about the suitability of selection in its current form for generating the medical workforce that will serve the society best. This chapter further includes a reflection on the strengths and limitations of the thesis and practical implications. This chapter ends with suggestions for areas of future research.

