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MEDICAL DOCTORS' SPECIALTY CHOICE - IN RELATION TO PERSONALITY, CULTURAL CAPITAL AND SOCIAL BACKGROUND

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Medical doctors' specialty choice – in relation to personality, cultural capital and social background

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To Mika and Karin, the stars in my life.

PROLOGUE

“We learned more from a three-minute record, baby, than we ever learned in school.”

Bruce Springsteen

My dad once said to me, “You can only take one step up the educational ladder per generation”. Now, with a written dissertation and many steps taken up that ladder, I wish he were here with me because I know he would have loved that I proved him wrong.

Growing up in a neighbourhood with a relatively low educational level and in a family where no one had gone to university, my own education journey was not self-evident. When I graduated from upper secondary school, I felt a vague longing for higher education. However, university still appeared mysterious and scary, and it took me more than 10 years to overcome those feelings.

I became a student at Stockholm University and fell in love with my main subject, sociology. The reason that I fell in love with the subject was significantly tied to a teacher, now late lecturer Ulla Bergryd, who always challenged my thinking while still encouraging me. This thesis shows that role models can play a vital role for individuals who are choosing their educational path.

Since I started at university, I have had an interest in class, social stratification and the role of education. In 2019, the probability of a person completing a higher education degree in Sweden is related to their parents’ educational level. The official statistics have remained relatively the same over the last 20 years. This thesis should be seen in light of my interest in equal access to higher education and the right to climb the educational ladder for those who wish to do so. Education may not be the answer to everything, but I am convinced that education is key to social mobility and striving for a more just and equal society.

ABSTRACT

Globally and in Sweden, there is a lack of doctors in some medical specialities. With a growing population and increasing demand for a functional healthcare sector, there is a need to understand more about medical doctors' specialty choices.

The aim of this thesis is to obtain a deeper understanding of the processes that precede medical doctors' specialty choice and to investigate how factors such as personality, cultural capital and social background have bearing on that choice. The four studies included in the thesis achieved this purpose.

The studies were conducted in the same order as they are presented in the thesis, and studies I and II were completed before studies III and IV were designed. The first two studies were conducted with quantitative methods, whereas studies III and IV were conducted with qualitative methods. The results from studies I and II guided the research questions and methods for studies III and IV. An interpretative and pragmatic research tradition was adopted.

In study I, the well-established research instrument Big Five Inventory was used to examine personality traits. In studies II and III, Pierre Bourdieu's theoretical concepts of field, habitus and different forms of capital were used to interpret the findings. No particular theoretical framework was used in study IV, as the results were instead discussed in relation to previous research.

The findings of this thesis suggest that many factors are at play in medical doctors' specialty choice. Upbringing, school achievements, medical school and encounters with the healthcare system all have bearing on specialty choice. Furthermore, study I concluded that there are significant associations between specialty choice and personality. Surgeons had higher scores in conscientiousness and lower scores in agreeableness. Psychiatrists had higher scores in being open to new experiences, but this was not significant when adjusting for confounding factors. Study II established that medical doctors ranked perceived status differently for different specialities. Perceived status was also related to one's own choice of specialty.

The content analysis in study III revealed two themes: *toward an understanding of the medical profession and different specialities* and *positions in the medical field*. The first theme showed that social background plays a part in gaining access to medical education in the first place. Furthermore, parents who are medical doctors transfer knowledge about the specialties to their children - interpreted in this thesis as cultural capital. In the second theme, it became clear that the investments needed to become a specialist vary among specialities. It is difficult to gain access to education in the surgical specialities, whereas for other specialities there are more opportunities. The findings from study II about perceived status were reinforced, and surgical specialities stood out as having more prestige than any of the other specialities. Social networks, role models and being seen by superiors were also part of this theme.

Three themes were established in study IV. In the first theme, *to be invited or not*, encounters with the healthcare system were important. Role models and a good work environment were positive aspects, whereas a poor work environment was a reason for rejecting a choice. In the second theme, *to fit in or not*, the importance of having a personality that was in line with one's chosen specialty was explored. The third and last theme, *to contribute or not*, illuminated the desire to contribute to the medical field within a chosen specialty. Thoughts about disadvantaged patient groups and types of patient relations were at the core of this theme.

This thesis concludes that medical doctors' specialty choice is a long-term, complex and sometimes contradictory process in which many factors are considered. These dimensions include personal characteristics such as personality traits, social background and the formation of habitus as well as characteristics of patient relations and the type of medicine. In addition, positive and negative encounters with the healthcare system increase or decrease the likelihood of choosing a particular specialty. Finally, perceived status and prestige are central to understanding the attractiveness of different specialties.

LIST OF SCIENTIFIC PAPERS

- I. Bexelius T, **Olsson C**, Järnbert-Pettersson H, Parmskog M, Ponzer S, Dahlin M
Association between personality traits and future choice of specialisation among Swedish doctors: a cross-sectional study
Postgraduate Medical Education Journal 2016;92(1090), 441
- II. **Olsson C**, Järnbert-Pettersson H, Ponzer S, Dahlin M, Bexelius T
Swedish doctors choice of medical specialty and associations with cultural capital and perceived status: a cross-sectional study
Submitted
- III. **Olsson C**, Kalén S, Ponzer S
Sociological analysis of the medical field: using Bourdieu to understand the processes preceding medical doctors' specialty choice and the influence of perceived status and other forms of symbolic capital on their choices
Advances in Health Sciences Education 2019 <https://doi.org/10.1007/s10459-018-09872-3>
- IV. **Olsson C**, Kalén S, Mellstrand Navarro C, Ponzer S
Swedish doctors' experiences and personality regarding medical specialty choice: a qualitative study
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LIST OF ABBREVIATIONS

SweSat Swedish National Admission Test for Higher Education

BFI Big Five Inventory

1 INTRODUCTION

I have a background in sociology, educational sociology and gender studies in combination with a long-term work relationship with Karolinska Institutet (a medical university in Stockholm, Sweden). I became interested in medical students and their journeys to medical school and wrote a master's thesis on the subject (Olsson, 2013). However, I realised that medical students' educational journeys seldom stop upon receiving a licence to practise. I wanted to know what happens later on in medical doctors' careers: what is the nature of stratification within the medical profession? I discussed the matter with Professor Sari Ponzer, who later became my main supervisor for my doctoral education, and the idea of this thesis was born.

All research should be conducted as rigorously as possible; thus, the transparency of the research process is essential (Patton, 2015) and it has therefore been my ambition to describe my theoretical underpinnings, the context of the studies, my methodological choices and the implications of these choices in as much detail as possible.

2 BACKGROUND

2.1 SWEDISH MEDICAL EDUCATION

Sweden has a relatively egalitarian education system with no fees for higher education (Börjesson, Broady, Le Roux, Lidegran, & Palme, 2016). The undergraduate medical programme is provided by seven universities in close relation with the healthcare sector where students undertake their clinical practice (Lindgren et al., 2011). Approximately 1,700 students per year are admitted, about 56% of whom are women (UKÄ, 2018b). The competition is fierce, and the highest grades or high results on the Swedish scholastic aptitude test are required for admission (Lindgren et al., 2011).

The medical programme is 11 semesters long and consists of pre-clinical theoretical courses and clinical courses with rotations at hospitals, healthcare centres and other places. Students either pass or fail, and no other grades are used. An 18–21-month mandatory medical internship follows (AT-tjänstgöring). After graduating, many students have to wait 6–12 months before beginning their internship, during which time they often work as junior doctors. After the internship, they must take an oral and written exam before receiving a medical licence for independent practice (Lindberg, 2012).

Today, the county councils and regions are responsible for the internship periods, but the Swedish government is currently investigating ways to meet new EU demands to integrate the internship period into the medical programme. The universities will then be responsible for the entire education chain, and the medical programme will be extended from 11 semesters to 12 (SOU, 2013).

2.2 MEDICAL SPECIALISTS IN SWEDEN

Specialty choices occurs after finishing medical school, and the licence to practise gives the opportunity to apply for any specialty. The positions are advertised by hospitals or other healthcare providers, and all doctors with a licence to practise can apply. The process is similar to applying for a work position. Applicants who are competing over a position cannot use their grades from medical school to their advantage since they are just pass or fail. Once an applicant has been accepted, specialty training is undertaken within the framework of employment. County councils and regions are responsible for all postgraduate medical education in Sweden. Specialty training normally lasts for five years, but for some sub-specialties two additional years are needed (Lindgren et al., 2011). A certificate for specialist competence is provided by the National Board of Health and Welfare (Socialstyrelsen) to those who finish specialist training. There are only small differences in salary among specialties in Sweden (SKL, 2018) compared to, for instance, the United States (Kalter, 2018).

There are approximately 35,000 specialty-trained doctors in Sweden (2014), of which about one-quarter are women. More than 28% of specialist-trained doctors have dual specialist

certifications (Socialstyrelsen, 2014a). The number of specialists compared to the Swedish population increased by 36% from 1995 to 2014, with 286 specialists per 100,000 inhabitants in November 2014 compared to 210 per 100,000 in 1995 (Socialstyrelsen, 2016b). Even with this increase, the National Board of Health and Welfare (Socialstyrelsen, 2014b) has claimed that there are future challenges to securing competence provisions for some of the specialties at the national level.

According to the estimates', between now and 2025 there will continue to be a lack of primary care specialists and psychiatrists. There will also be regional difficulties in recruiting and retaining specialists. Psychiatry and geriatrics are specialist areas that some county councils identify as difficult to recruit doctors into (Socialstyrelsen, 2012). Currently, local authorities (county councils and regions) are responsible for planning and carrying out the training of new specialists; therefore, a national perspective is missing (Socialstyrelsen, 2016a).

2.3 PREVIOUS RESEARCH ABOUT SPECIALTY CHOICE

There are a variety of studies in the literature about medical doctors' specialty choice, most of them conducted in a quantitative research tradition investigating specialty selection and its association with various factors using statistical models. However, many of these studies have been criticised by researchers in favour of a qualitative research approach. In the following chapter, the most important reviews on specialty choice will be presented, including the results of the review and criticisms the authors have declared.

As early as 1995, Bland and colleagues (Bland, Meurer, & Maldonado, 1995) summarised the explanatory factors dominating research about specialty choice, focusing on the choice to become a primary care physician. They conducted a literature review with articles from 1987 to 1993 and concluded that much of the research was inadequate in terms of quality. They showed that the studies had low numbers of participants, lacked explanatory theories or focused on only one or a few specialties. Bland et al. expressed the need for research that could investigate the underlying processes of how choices are made. They created a theoretical model with two categories—perception of specialty characteristics and personal needs—and transformed results from earlier research into these categories to show how multiple variables work together to determine specialty selection. The model illustrates the complexity of the research topic. Specialty choice can be associated with many explanatory factors from student characteristics and student values to the type of medical school and curriculum. Given the model, these factors should be understood as part of the two themes. Further, the review suggested that choosing primary care was associated with student characteristics such as being female, being less interested in status, having non-physician parents, being interested in diverse patients and being interested in a variety of health problems. However, the strongest association with choosing primary care was not a student characteristic-related factor but the effect of being exposed to primary care environments during clerkships and clinical rotations. The same

authors also concluded that the impacts of personality and life situations were not yet fully examined (Bland et al., 1995).

Twenty years later, Querido and colleagues (Querido et al., 2016) reached nearly the same conclusion. They saw that there was extensive research about how different factors relate to specialty choice, but they argued that the research did not contribute to explaining the *process of choice*. They conducted a review from January 2008 to November 2014 using the same model as Bland et al. Studies focusing on medical students were selected, while students who had chosen a specialty were excluded. They found that factors investigated in earlier research about specialty choice could be divided into five categories: medical school characteristics, student characteristics, student values, career needs and perception of specialty characteristics. The authors supported Bland et al.'s idea that students choose a specialty by matching their personal career needs with their perceptions of the specialty's characteristics. They suggested that a qualitative research approach would be necessary to understand the full nature of specialty choice because it would make it possible to explore the intersections between different factors, which is necessary to understand the complexity of specialty choice (Querido et al., 2016).

In 1990, Schwartz and colleagues (Schwartz et al., 1990) created a model with two categories central to explaining specialty selection. The categories were *controllable lifestyle*, defined as those specialties that “allow the physician to control the number of hours devoted to practicing the specialty” (Schwartz et al., 1990, p. 207), and *non-controllable lifestyle*. The authors' classified specialties into one of these categories based on a factor analysis of empirical data from a survey that investigated different factors' associations with a preferred specialty. This model has since been used in several studies with modified definitions of the original concepts. Controllable lifestyle has to do with working hours, night shifts and the number of nights on call (Schwartz et al., 1990). Recent research has shown that controllable lifestyle seems to have a great impact on specialty selection and also seems to be more important now than it was before, perhaps as a result of a new generation of physicians with interests other than developing a career (Dorsey, Jarjoura, & Rutecki, 2003, 2005; Lefevre, Roupert, Kerneis, & Karila, 2010).

Previous research focused on the process of choice

As early as in 1997 Burack and colleagues (Burack et al., 1997) raised the issue that choice should be understood as a *process of choice* using a theoretical framework. They concluded that there was extensive research about specialty choice determinates, but almost nothing had been written about the process of choice itself: “little attention has been paid to how choosers choose” (Burack et al., 1997, p. 534). With a constructivist perspective of specialty choice, they set out to better understand the process behind students' choice of specialty. They used focus groups in which students were allowed to “try on possible selves” (Burack et al., 1997, p. 535) by projecting oneself onto hypothetical medical careers and professional roles. Their findings

were consistent with earlier research using a quantitative approach while providing more information about the differences behind those determining factors. For instance, students thought that lifestyle was an important factor when choosing a specialty, regardless of whether they selected primary care or non-primary care. With a qualitative approach, Burack et al. showed that lifestyle meant different things for those who had chosen primary care and those who had not, something that might be overseen in a survey where respondents simply tick how important lifestyle is (Burack et al., 1997).

Lepiece and colleagues used the subjective expected utility theory (SEU) (Lepiece, Reynaert, van Meerbeeck, & Dory, 2016; Reed, Jernstedt, & Reber, 2001) to investigate specialty choice. SEU is a well-established decision theory that was developed from a rational choice perspective (Hedström & Stern, 2016). Three criteria need to be fulfilled when analysing individuals' choices according to this theory. First, the assets of the chooser in the form of finances and other capital like knowledge, relationships, capacities, etc. when he or she is making a (rational) choice should be considered. Second, the decision maker must consider the consequences of a particular choice. Third, the likelihood or probability of fulfilling one's wishes needs to be considered. In terms of specialty selection, the decision maker must consider the likelihood of getting a residency placement in the desired specialty. Reed et al. (2001) analysed the literature on specialty choice using SEU as a model, showing that students appear to make rational specialty choices and that approximately 25% of students change their minds during medical school. The authors suggested that future research "explore ways to gather contemporaneous information about the actual components of the decision process students use as they progress through medical education" (Reed et al., 2001, p. 128).

Previous research using Bourdieu to understand specialty choice

Bourdieu's theoretical framework could be useful to understanding the underlying characteristics that influence an individual to choose a specialty. It would make it possible to go beyond the idea of choice as something entirely rational while simultaneously addressing the opposite idea that individuals are trapped within social structures (Dehn & Eika, 2011). While there is not much research about the medical field or about specialty choice using this framework, there are a few examples.

With a two-fold aim, Dehn and Eika (Dehn & Eika, 2011) examined "the coherence between the shaping of the habitus and the choice of specialty" (Dehn & Eika, 2011, p. 37) and "explore[d] how characteristics of specific specialties influence the choice of specialty" (Dehn & Eika, 2011, p. 37) using Bourdieu's theoretical framework. Data were gathered by interviewing nine study participants from three different specialities. Each specialty included two doctors and one consultant in charge of specialty training in Denmark. The three specialities—gynaecology and obstetrics, vascular surgery and general practice—were chosen to generate diversity and variance. In the interviews, information about upbringing and school experiences was collected to be analysed in accordance with Bourdieu's thoughts on habitus.

Dehn and Eika showed differences between the informants related to “taught values, family practices and attitudes toward education, and social skills” (Dehn & Eika, 2011, p. 39) and that the shaping of habitus made some life choices possible and others not. Dehn and Eika argued that participants of different specialties expressed different values and attitudes. The gynaecology and obstetrics participants were connected to values such as equality, empathy and solidarity, whereas the vascular surgery participants stressed teamwork and visible results; the general practice participants were associated with family values and close relationships. An individual’s habitus is shaped during upbringing and later in life (for instance, during medical school). Different values and attitudes or, in Bourdieu’s words, group habitus are produced and reproduced within different specialities. Dehn and Eika concluded that some harmony between an individual doctor’s habitus and the specialty’s group habitus are necessary to shape an attractive choice.

The most comprehensive attempt to analyse the medical profession using Bourdieu’s method was made by Haida Luke (Luke, 2003) in her book *Medical Education and Sociology of Medical Habitus: ‘It’s not about the Stethoscope’*. Luke described Australian junior doctors’ socialisation of norms and values in the medical field and how this socialisation forms their medical habitus. She also demonstrated how young doctors are aware of the high competition for medical specialties such as surgery. To get a position, the doctors try to adopt to behaviours that will increase their chances of being seen and appreciated by superior doctors who are in charge of admission. The junior doctors pick up hidden messages transmitted via the comments and actions of senior doctors on how to behave to be more “likeable” (Luke, 2003, p. 75). This included not only actions and behaviours to be a good doctor but also personal traits such as liking cricket.

Time and context

The reasons for career choice have changed over time. There were substantial differences between a student cohort from 1999 to 2002 and a cohort from 2008 to 2012 in the United Kingdom. In the latter cohort, enthusiasm and commitment to the specialty and a desire to be able to combine work with personal life had a greater impact on choice. Prospects for promotion and financial prospects, however, declined as important factors (Smith, Lambert, & Goldacre, 2015).

Although most studies have been conducted in North America or the United Kingdom, there are other examples. In a survey from France, students were set to choose three items they found most relevant from a list of 11 motivating factors. The following five items comprised almost 80% of the responses: interesting diseases (28.3 %), private practice (15.6 %), patient contact (13.7 %), good quality of life (12.8 %) and intellectual challenge (9.3 %). The students were then asked to select three factors that would put them off when choosing a specialty. Poor quality of life (15.4 %), exclusive hospital-based career (14.1 %), loss of patient contact (12.3 %) and no technical activity (10.2 %) were the dominant answers. The most interesting result,

however, was that the researchers found major gender differences in relation to which specialties the respondents preferred and motivating or drawback factors. Men more often chose surgery and were more interested in technical activities, status and income than women were (Lefevre et al., 2010).

In 2017, Saima Diderichsen, published her dissertation “It's just a job: a new generation of physicians dealing with career and work ideals” at Umeå University in Sweden (Diderichsen, 2017). In the thesis, which includes both quantitative and qualitative studies, Diderichsen concluded that there are initially only small differences in specialty preferences between men and women. Then the differences grow during clinical rotations in medical school and internships as junior doctors, because women are exposed to poor work climates more often than men are, which decreases their interest in some specialties.

Limitations of previous research

There are some general limitations to earlier research about specialty choice that need to be highlighted and problematised.

First, as shown above, most studies use methods that measure the associations between single or multiple factors and one or a couple of specialties, although there were some early attempts to view choice as a process.

Second, most studies use medical *students* as a research population, meaning that the respondents have not yet selected a specialty. This implies that conclusions can only be drawn from how students think about their future choice and not their actual choice. This methodological problem is backed by other studies suggesting that students tend to change their minds several times about their future specialty choice, even during medical school (Reed et al., 2001). Woolf and colleagues (2015) investigated the *stability* of specialty choice by comparing students' preferences in their fourth year of medical school with their actual choice made in their second Foundation Year. Their main finding was that 65% of specialty choices were considered *stable*, meaning that 65% of students did not change their minds (Woolf, Elton, & Newport, 2015). This indicates that more than every third respondent chose a different specialty than the one they considered as a student.

Third, specialty choice is related to gender, but the interpretations and analyses of this topic in the literature are insufficient and contradictory. The literature is consistent about two facts: the number of women among medical students and physicians has increased over the last decade in the Western world, and there is an imbalance between the sexes regarding the chosen specialty. In terms of *why* women and men choose differently and how to interpret important factors of that choice, the literature is more diverse. Some research (Dorsey et al., 2003; Querido et al., 2016; Smith et al., 2015) has suggested that lifestyle factors and domestic responsibilities are much more important to women than to men, but according to other studies, these factors have an increased meaning for both sexes (Diderichsen, 2017).

3 THEORETICAL FRAMEWORK AND CONCEPTS

According to Reeves and colleagues theories can provide the researcher with different lenses and contribute to different perspectives which can improve research quality in medical education research (Reeves, Albert, Kuper, & Hodges, 2008).

The studies in this thesis draw upon two major theoretical frameworks: the Big Five Inventory (BFI) implemented in study I and concepts from Pierre Bourdieu's educational sociology used in studies II and III. The theoretical stance to view choice as an ongoing process was also adopted. The following is a review of relevant theoretical concepts used in the literature as well as the definitions used in the thesis.

3.1 CHOICE AS A PROCESS

There are many theories of how choices are made in the literature, but it is not possible to determine a consensus in researchers' definitions of choice, which can be related to different research traditions. In many previous studies about medical doctors' specialty choice, the term is not defined at all.

A common model in economics and in some areas of sociology is the rational choice theory (Hedström & Stern, 2016), which has been developed and used in many studies but has also been criticised by other sociologists who argue for the view of choice as a combination of rationality and unconscious decisions.

In this thesis, choice is defined as a long-term, ongoing process that involves both conscious and unconscious decisions. It is a multi-dimensional and complex process involving both structural and personal components. This definition is based on Malach-Pines and Yafe-Yanai's description of choice (Malach-Pines & Yafe-Yanai, 1999).

3.2 PERSONALITY TRAITS

Several theories about human personality has been developed in modern psychology, and medical education research has borrowed theories and methodologies to investigate various aspects of medical education. One aspect is the relationship between medical doctors' specialty choice and personality.

Although there are many instruments that measure personality, some have been used more frequently than others to investigate medical doctors' specialty choice. The Myers-Briggs Type Indicator (MBTI) (Yang, Richard, & Durkin, 2016) developed in the 1940s has been used in many such studies. However, a general problem with those studies is that they often included small numbers of participants. Another limitation is that most studies (Boyd & Brown, 2005;

Swanson, Antonoff, D'Cunha, & Maddaus, 2010; Zardouz, German, Wu, & Djalilian, 2011) examined personality associations with one medical specialty rather than examining a range of specialties.

According to Borges and Savickas (Borges & Savickas, 2002), who conducted a systematic review of personality and specialist choice in 2002, the variation of research instruments has led to uncertainty in the field, and that lack of cohesion makes it difficult to compare results from different studies. To combat this issue, Borges and Savickas converted earlier research about personality and specialty choice into the Five-Factor Model (FFM) of personality. They concluded that none of the specialties have a unique pattern of personality traits, but certain personality characteristics can be found in different specialties. Even if there is no evidence for clear and unique personality patterns, Borges and Savickas still considered it a useful research tool. They concluded that research using FFM can often find significant associations between different specialties and personality.

Big Five Inventory

The Big Five Inventory (BFI) is a well-established instrument to measure personality traits. It has developed in an almost organic way since the 1920s. Stemming from a range of different research initiatives John and Srivastava (1999) conclude that there is now almost consensus of the taxonomy of personality traits, in the use of the Big Five personality dimensions (John & Srivastava, 1999).

The personality dimensions were derived from empirical analyses of the *natural language*. The term natural language implies that the BFI was created with terminology that ordinary people use to describe themselves and others. The assertions are therefore easy to understand, which adds to its usability. The BFI departs from the FFM. However, it is important to understand that the BFI is still under development and that various attempts have been made by researchers to improve the instrument to better measure human personality (John & Srivastava, 1999).

The BFI consists of 44 items measured with a six-point Likert scale, and five personality traits are used in the model: 1. extraversion—someone who is social, active and likes to have fun; 2. agreeableness—someone who is helpful, forgiving and honest; 3. conscientiousness—someone who thinks before acting and is good at organising and prioritising; 4. neuroticism—someone who feels anxious, nervous, sad and tense; and 5. openness to experience—someone who is curious, interested in new things and intellectual (John & Srivastava, 1999). The BFI has been validated in a Swedish context (Zakrisson, 2010).

3.3 BOURDIEU'S THEORETICAL FRAMEWORK

The French anthropologist and sociologist Pierre Bourdieu was one of the most respected and cited social scientists in the world. His scientific contributions included both empirical work

and the development of theoretical perspectives. He published approximately 30 books and more than 300 articles on topics such as art, kinship, religion, science, language, social classes, political institutions and the role of education. His sociology sought to overcome the division between a structuralist objectivism and constructivist subjectivism (Etienne, 2014). To Bourdieu, the social world is ordered by structures, and individuals are born into social positions; however, they are also agents with opportunities to move up and down the social hierarchy (Bourdieu, 1998).

Bourdieu's sociology is relational, and social positions within a field are valued in relation to other agents' (individuals') positions in the same field. Competition and power struggles occur within the field by agents who gather assets (capital) to maintain or improve their position and gain prestige (Bourdieu, 1998). In this thesis, three interlinked concepts from Bourdieu are applied to better understand medical doctors' specialty choice: field, habitus and different forms of capital.

Field

Field is the context or social space in which agents act and invest to be successful. It must be autonomous from other fields and is defined by the idea that relations between individuals within the field are more important than relations outside the field (Broady, 1990). The agents within a field struggle for different forms of capital (i.e., cultural, economic or social) and positions in their field using these assets (Witman, Smid, Meurs, & Willems, 2011). It has been argued that the medical world could be defined as a field - the field of medicine (Carlhed, 2007, 2011) - or as a field with several subfields such as nursing and other healthcare professions (Hindhede & Larsen, 2018).

Medical doctors fight over capital to be successful and to gain or remain in attractive positions in the medical field. Maintaining or gaining positions is also related to social status and prestige (Bourdieu, 2011; Brosnan, 2010). In many studies, medical doctors and students rank specialties similarly in terms of social status and prestige, these studies put surgery at the top of the ranking and psychiatry at the bottom (Norredam & Album, 2007). This status ladder can be seen as an indicator of social prestige within the medical field (Hindhede & Larsen, 2018).

Habitus

In habitus, people's experiences are embodied, and it can be defined as "systems of dispositions that enable individuals to act, think and navigate in the social world" (Broady, 1990, p. 225). Habitus is shaped in relation to the different fields a person is part of and habitus cannot be understood without consideration to the context. The foundation of habitus formation is laid during upbringing and family origins play an important role in the creation of one's habitus, however it is not static and it develops through life. The education system is central in the

developing of individuals habitus (Bourdieu & Passeron, 1977, 1979) and medical school is no exception (Lindberg, 2012). On the contrary, professions that are well defined (you need a special license as a doctor) can shape a professional habitus and there are several studies that conclude that doctors develop a medical habitus (Dehn & Eika, 2011; Luke, 2003). Dehn and Eika even argue that there are specific habituses developed in accordance with chosen medical specialty (Dehn & Eika, 2011).

Bourdieu has sometimes been criticised for being deterministic, that his sociology leaves no room for change. However, in his book *Pascalian Meditations*, he argues for another interpretation saying that there is a false dualism between the world (the objective) and peoples experience of the world (the subjective). Research should overcome this dualism and study structures (the field) and the agents' positions and experiences within the structure. In empirical research agents with similar habituses can be classified into groups, possible to investigate with statistical measures (Bourdieu & Rafalko, 2000).

Capital

Bourdieu used three main forms of capital when analysing the social order of a field: economic capital, social capital and cultural capital (Bourdieu, 2011). These forms of capital can also generate other forms of capital, so in that sense, they are intertwined. For instance, a degree from university, which is a form of institutionalised cultural capital, can give access to professions with high salaries and create economic capital. Social capital such as being part of networks, groups or other important relations can create career opportunities (Guttman & Lingard, 2010).

Cultural capital can be institutionalised; one example of this is formal education. Cultural capital can also be embedded, which has to do with taste or manners. It can also be objectified in books, art, design, etc. These concepts are intertwined similarly to the main forms of capital (Börjesson et al., 2016). One form of cultural capital is educational capital. Educational capital can be described as inherited educational capital, meaning assets that are given to you by upbringing, like parents' education or profession. Acquired educational capital are instead own investments in education, such as grades or diplomas (Lidegran, 2009).

Central to the understanding of Bourdieu's concepts of different forms of capital is also symbolic capital. Symbolic capital is the context-based aspects of capital, which means that an asset needs to be given value within a specific context (or to use Bourdieu a specific field) to be meaningful. In other words, symbolic capital is constituted of what is recognised as important within a specific field and therefore indicates prestige or high status for those who operate within that field (McDonald, 2014). This means that something that is considered valuable within one context is not entirely individual but related to what counts as important and valuable within a social group (Redelius, Fagrell, & Larsson, 2009). For instance, in the field of science a degree from a prestigious university has more value than a degree from a

university with less prestige, and being published in a highly ranked scientific journal has more value than being published in one with a lower ranking (Guttman & Lingard, 2010).

4 RATIONALE

The shortage of doctors in some medical specialties is a long-term problem reported all over the globe (Kawamoto et al., 2016; Malhi et al., 2011; Schneider et al., 2017; Wright, Scott, Woloschuk, & Brenneis, 2004). The three specialties that face the largest problem in terms of recruiting and retaining doctors on a global level are primary care (Pfarrwaller et al., 2017), psychiatry (Mahoney, Katona, McParland, Noble, & Livingston, 2004) and geriatrics (Curran et al., 2015); (Maisonneuve, Pulford, Lambert, & Goldacre, 2014). This holds true even in Swedish contexts (Socialstyrelsen, 2014b, 2017).

Medical specialties differ widely, and when recruiting new doctors they sometimes compete with each other. In the Swedish system, all doctors who have a licence to practise have the opportunity to apply for any specialty. For a nation like Sweden, a balance in the numbers of doctors within each specialty is necessary to build a sustainable and complete healthcare system (Socialstyrelsen, 2014b, 2017). However, adjusting the numbers is not the entire solution. From a societal perspective, it is also essential to employ doctors who can contribute to a particular medical field (Al-Ansari & Khafagy, 2006). For individual doctors, there are incentives to make a good choice, as it can be crucial to their likelihood of remaining in the profession for their entire career. Being in the “wrong” specialty can lead to dissatisfaction, stress and exhaustion (Landon, Reschovsky, Pham, & Blumenthal, 2006).

For these reasons, medical doctors’ specialty choices have been examined from many perspectives and with different methodologies. However, even though most studies contribute important knowledge, there are some general limitations:

- Most studies lack a theoretical perspective and comprehensive descriptions of the context. These shortcomings make it difficult to understand the contextual limitations of findings as described in the literature; e.g., to let the result of one study “talk to” the bulk of other findings. Furthermore, findings are contradictory, and without a theoretical perspective these contradictions are difficult to interpret.
- Most studies face methodological problems because students comprise the study population. As a result, most studies that claim to investigate medical doctors’ specialty choices are actually investigating *future* specialty choices. Additionally, up to 25–30% of students change their minds about their future specialty selection during medical school (Woolf et al., 2015).
- Career choices are complex, long-term processes (Malach-Pines & Yafe-Yanai, 1999), but most research about medical doctors’ specialty choices does not take this process into consideration. Therefore, studies measure events or attitudes at single moments in

time. Instead, choice should be regarded as a complex phenomenon, and the entire chain of events that lead to a choice must be taken into account.

- A gender perspective is often missing in the bulk of research, even though some studies specifically investigate gender. Gender seems to play an important role in specialty selection, which is evidenced by the proportions of men and women in different specialties (Diderichsen, Johansson, Verdonk, Lagro-Janssen, & Hamberg, 2013).

The purpose of this thesis is to address these limitations and contribute deeper knowledge grounded in a more holistic perspective of the process of medical doctors' specialty choice.

5 AIM

The overall aim of this thesis was to obtain a deeper understanding of the processes that precede medical doctors' specialty choice and to specifically investigate how different factors, such as personality, cultural capital and social background can have bearing on that choice.

Specific aims of the four studies:

I - To investigate whether personality traits affect the choice of medical specialty.

II - The aim of this study was threefold. Firstly, to investigate associations between medical doctors' educational capital and their choice of specialty. Secondly to investigate doctors' perceptions of status regarding specialties. Thirdly, to analyse these associations by applying some of the theoretical concepts developed by Pierre Bourdieu.

III - To obtain a deeper understanding of processes that precede medical doctors' choice of specialty and to investigate the influence of perceived status and other forms of symbolic capital on that choice.

IV - To gain an understanding of medical doctors' entire process of specialty choice with a focus on the influence of personal experiences and personality traits on choices made.

6 RESEARCH APPROACH

The objective of this thesis was to investigate various aspects that may be relevant for medical doctors when selecting a specialty. Studies I and II were planned, designed and completed before studies III and IV were designed and conducted. Studies I and II had a quantitative research approach, while studies III and IV had a qualitative research approach and were designed to enhance the knowledge acquired in studies I and II.

The four studies are meant to complement each other and address the research purpose from different perspectives. As (Patton, 2015) concluded, qualitative and quantitative approaches are often combined to integrate an in-depth qualitative understanding with broader generalisations. Even if none of these single studies includes both approaches, the comprehensive findings can be understood as being produced with methodological triangulation (Patton, 2015).

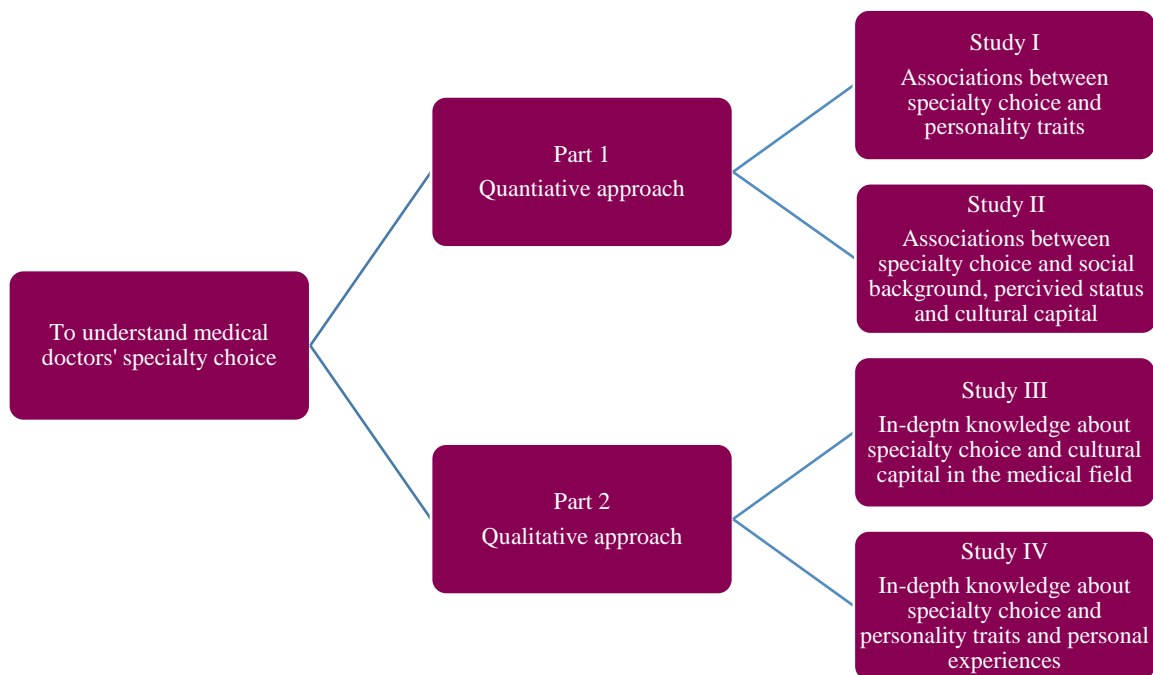


Figure 1 – Overview of the four studies

In studies I and II, a quantitative research approach was used with measures well-suited for statistical analyses to investigate the frequencies, proportions and associations between different factors in relation to specialty choice. Based on previous knowledge and prior research, the research group discussed which factors to include in an investigation of specialty choice. Two major areas were decided upon: personality and cultural capital.

The research group designed a questionnaire that included questions about specialty choice, social background including earlier education and a Likert scale question about perceived status

for different medical specialist areas. To measure personality traits, the BFI was used (John & Srivastava, 1999; Zakrisson, 2010). Research protocols were created but not published. The research was conducted in accordance with the protocols.

For studies III and IV, a qualitative research approach was chosen. The purpose of these studies was to enhance the results from studies I and II. A qualitative research approach can generate in-depth knowledge about various aspects of people's experiences, feelings and perceptions (Patton, 2015). Furthermore, qualitative methods can yield an understanding about the context of a studied phenomenon. According to Patton (2015), context sensitivity is essential in qualitative research, meaning that the researcher should consider how context might influence the study participants in relation to the studied phenomenon and include that in the analysis. Qualitative approaches also provide an opportunity to discover patterns and themes across cases (like study participants) by comparing similarities and differences in the data. Open-ended interviews rather than fixed-choice questions can generate access to unexpected data. Participants who can shed light on the research question are recruited with a purposeful sampling strategy so that rich and deep data can be collected (Patton, 2015).

6.1 ONTOLOGY AND EPISTEMOLOGY

The term ontology refers to how reality should be understood. This meta question of how to understand the world and what constitutes reality has been discussed by philosophers since the beginning of mankind, and no complete description or standpoint can be made in this thesis. Instead, the knowledge produced in this thesis was based on the view of the sociologists Berger and Luckmann and their statement on ontology. They claimed that even if we cannot solve the ongoing debate about what reality is, we can produce knowledge about matters that people consider to be real and that is what sociological research should be about. Since the layers of people's interpretations of this reality make it impossible to claim something as the one and only truth. Knowledge production then becomes a way of understanding those interpretations and their meaning to people (Berger & Luckmann, 1991).

Tom Andrews' (Andrews, 2012) interpretation of Berger and Luckmann suggested that there is a philosophical misunderstanding, saying that social constructivism makes ontological claims. Instead, social constructivism is only an epistemological issue, meaning that knowledge is constructed. Berger and Luckmann declared that "the sociology of knowledge is concerned with analyses of the social construction of reality" (Berger & Luckmann, 1991, p. 15). In line with this standpoint, we can and should investigate what is socially established as reality. The risk of relativism in the sense that any claims of how to understand reality or a specific phenomenon would be as adequate as another should be solved with the recognition of the meaning of context and of the perspectives that people in that context share (Berger & Luckmann, 1991). Therefore, all analyses should be context-sensitive (Patton, 2015).

With these assumptions follows an interpretive framework (Bunniss & Kelly, 2010; Creswell, 2013). For this thesis, pragmatism is the gathering link (Creswell, 2013) in the sense that

pragmatism allows the researcher to use different methods and to focus on “what works” to best answer the research questions. Creswell also take into account that a pragmatic view recognise the social, historical and other context based circumstances in research (Creswell, 2013).

This thesis derives its standpoint from Berger and Luckmann’s understanding of reality and knowledge production and adopts a pragmatic stance. This has made it possible to use different research tools such as questionnaires and interviews. Furthermore, it has contributed to an awareness of knowledge as context-related and determined that the findings should be understood as interpretations of studied phenomena.

7 METHODS AND MATERIALS

7.1 RESEARCH DESIGN

The four studies were conducted in the order they are presented in the thesis. Studies I and II were planned, designed and completed before studies III and IV were designed. Studies I and II had a quantitative research approach, while studies III and IV had a qualitative research approach and were designed to deepen the knowledge produced in studies I and II.

In this thesis, personality in relation to medical doctors' specialty choice was part of the investigation in studies I and IV. In study I, the BFI was used to measure personality traits. In study IV, no particular theories were used to interpret personality. The study participants were instead asked to describe their personality using their own words and to reflect on if and how their personality had any bearing on their specialty choice.

In studies II and III, specialty choice was examined in relation to social background and cultural capital, and both studies used concepts from Bourdieu to analyse the results.

Table 1 – Overview of research design for studies I–IV

Study	Focus of inquiry	Research approach	Data collection and participants	Theoretical framework	Method of analysis
I	Associations between chosen specialty and personality traits	Quantitative	Questionnaire Medical doctors who have chosen specialty (n=262)	Big Five Inventory	Descriptive and analytical statistics
II	Associations between chosen specialty and cultural capital	Quantitative		Concepts from Bourdieu's sociology	
III	Specialty choice and its relation to cultural capital in the medical field	Qualitative	Semi-structured in-depth interviews 15 medical doctors	Concepts from Bourdieu's sociology	Inductive content analysis partly theory-driven
IV	Specialty choice and its relation to personality and personal experiences	Qualitative	undergoing specialty training	Findings are discussed in relation to previous research on specialty choice	Inductive content analysis

7.2 PARTICIPANTS

Study I and II

The study participants were former medical students from Karolinska Institutet. As students they had participated in studies (Dahlin, Fjell, & Runeson, 2010; Dahlin, Joneborg, & Runeson, 2005) about mental health and stress, and for those studies data were collected during the years 2002–2006. All 450 students enrolled in the investigated terms were included in the original studies. 426 participated in at least one study.

The 426 (90%) who had participated in at least one of these previous surveys were contacted for studies I and II in this thesis. Out of these, 27 were excluded for non-traceability ($n = 10$), not working as a doctor ($n = 1$) or being registered as living abroad ($n = 16$). Hence, 399 former students were eligible for inclusion. 289 participated in studies I and II, and after one reminder the response rate was 72% ($n = 289$). Of these 289 participants, 27 had not yet started their specialty training, and for six respondents, data on specialty choice were missing, hence the data analyses of specialty choice in studies I and II were based on 262 individuals.

Table 2 - Overview of the participants for studies I and II

Previous used cohort	Studies I and II				
450 eligible for the original studies on mental health; of these, 426 participated in at least one of those studies.					
→	426 individuals in the sample				
	27 drop outs				
	399 eligible for studies I and II				
	289 participated in studies I and II (72% response rate)				
	The participants were 31–59 years old, and the mean age was 37.9				
	64% ($n=186$) were female and 36% ($n=103$) were male				
	27 had not yet started specialty training, six answers about specialty were missing				
	262 respondents remained for analysis on specialty choice:				
		N	Proportion of specialty (%)	F (%)	M (%)
	Primary care	67	24	64	36
	Internal medicine	71	25	68	32
	Surgical specialties	84	30	56	44
	Psychiatry	21	7	81	19
	Hospital service	19	7	53	47
	Total 262				

Study III and IV

For studies III and IV, a purposeful sample strategy (Patton, 2015) was used to get as rich and deep data as possible about medical doctors' specialty choices. According to this sampling strategy, the researcher searched for participants who could contribute in-depth information about the studied phenomena (Patton, 2015). To ensure that the study participants could contribute such information, it was necessary for them to have made such a choice and to have done so within a reasonable timeframe to remember all the steps taken toward their chosen specialty. Therefore, the following inclusion criteria were developed:

1. Participants should be undertaking specialty training at the time of the interview
2. The participants should have done so for at least 18 months
3. An equal number of men and women should be interviewed
4. All specialist areas from studies I and II should be covered

The participants were 30–41 years old, and the median age was 33. An almost equal number of men and women were interviewed. The distribution of participants' gender and specialty is depicted in Table 3.

Table 3 – Overview of the participants in studies III and IV

Speciality	Female	Male
Primary care	1	1
Internal medicine	1	2
Geriatrics	2	1
Psychiatry	2	1
Surgical specialities	2	1
Hospital service specialities	0	1
Total	8	7

To maintain anonymity, the participants were recruited in two steps. First, information about the studies was sent to the heads of departments of medical units that provide and are responsible for specialty training. They then forwarded the invitations to doctors in specialty training. The research team contacted the doctors in training directly. The heads of departments were unaware if any of their doctors participated in the studies.

7.3 DATA COLLECTION

Study I and II

Data collection for study I and II was done in 2013.

Studies I and II were cross-sectional studies based on a postal questionnaire sent to former medical students at Karolinska Institutet, Stockholm. At the time of data collection, the respondents were working as medical doctors in Sweden. As inclusion criteria, the respondents should have chosen a specialty (e.g., they should be in specialty training or have completed specialty training). The same questionnaire was used for studies I and II, and it included 12 sections of questions: profession and work, life events, mental illness, state of mind, thoughts of suicide, medical drugs and illegal drugs, health and habits, somatic inconvenience, alcohol and tobacco, personality traits, education and origins. Some sections were based on validated instruments such as the BFI, whereas others were developed by the research group (Dahmström, 2000).

Study I

For study I, the section on personality traits was included in combination with an open-ended question about the chosen specialty and demographic questions (such as sex and age). Personality traits were measured by the BFI (John & Srivastava, 1999; Zakrisson, 2010). The BFI consists of 44 items measured with a five-point Likert scale, where 1 indicates 'I strongly disagree'; 2, 'I disagree'; 3, 'I neither agree nor disagree'; 4, 'I agree'; and 5, 'I agree strongly'. Each personality dimension's overall score is calculated by adding the Likert scale scores of the 8–10 assertions specific for each dimension. Sixteen of the assertions need to be reversed before the summation if the statement runs counter to the dimension (Bexelius et al., 2016; John & Srivastava, 1999; Zakrisson, 2010).

Study II

From the same questionnaire as in study I, the following question categories were included: profession and work, education and origins. The questions in these sections were either used in previous research (for instance, questions about parents' professions) or constructed by the research group based on previous knowledge or the literature. Most questions included a list of fixed responses to choose from (Dahmström, 2000). A question about perceived status was a six-point Likert scale ranging from very high to very low. Demographic questions and an open-ended question about specialty were also included.

Study III and IV

For studies III and IV, data were collected using individual, semi-structured interviews (Lingard & Kennedy, 2010). Data collection was completed in 2017 and consisted of 15 interviews with medical doctors undergoing specialty training in the Stockholm area. The same dataset was used in studies III and IV.

When studies III and IV were planned, the research group estimated that 12 to 18 interviews would provide enough data to answer the research questions while remaining manageable. During the data collection, the research group discussed the amount and quality of data, and after 15 interviews, the research group concluded that there were sufficient data to answer the research questions (Bengtsson, 2016). The interviews lasted between 39 and 100 minutes, which in total provided 15 hours and 40 minutes of research material. The interviews were audio recorded and later transcribed verbatim.

Participants were recruited from the six different specialty areas corresponding to the question about perceived status in study II: primary care, internal medicine, geriatrics, psychiatry, surgical specialties and hospital service. The aim was to investigate the same phenomena with different methodologies, also referred to as triangulation in methodologies (Patton, 2015). Furthermore, representation from different specialties allowed us to obtain broad data (Elo et al., 2014; Patton, 2015), as did the intention to include both male and female participants in all specialist areas. Interviews were conducted until further interviews did not yield additional information (Kvale, 2009).

Semi-structured interviews (Lingard & Kennedy, 2010) were chosen for their ability to produce a rich description (Kvale, 2009) of all sorts of aspects that matter in the choice of a specialty. The interview guide was designed in line with Patton's (2015) description that an interview guide gives structure to the interview and security that all topics are covered. As it is merely a guide, there is no obligation to follow it strictly throughout the interview, and the interviewer can jump between sections or add questions during the interview as necessary. The author of this thesis constructed the interview guide and it was discussed by the research group several times until consensus was reached. A few changes were made after two pilot interviews (Elo et al., 2014).

The interview guide began with two open questions: "Tell me about your specialty choice" and "Describe how you came to the conclusion that you wanted to become an X-specialist; what was important to you?" The interview then continued with more specific questions concerning several areas including status and prestige, networks within the profession, personality, encounters with the healthcare system, experiences from school and medical school and what specialties the study participant had considered.

All interviews were conducted by the author of this thesis. Most took place at the interviewee's workplace, but some were conducted in the interviewer's office at Karolinska Institutet.

7.4 ANALYSIS OF STUDY I AND II

The statistical analyses of studies I and II were performed in a similar way. First, we coded the open-ended question about specialty into five categories—primary care, internal medicine specialties, surgical specialties, psychiatry and hospital service specialties—based on

recommendations from the Swedish National Board of Health and Welfare (Socialstyrelsen, 2008), as described in Table 4.

Table 4 - Categorisation of medical specialties

Specialty categories	Included in the category
Primary care	Primary care
Internal medicine specialties	Paediatrics, Geriatrics, Cardiology, Neurology, Gastroenterology, Dermatology, Infectious diseases, Oncology, Haematology, Rheumatology, Allergology
Surgical specialties	Thoracic surgery, Trauma surgery, Plastic surgery, Neurosurgery, Otorhinolaryngology, Ophthalmology, Urology, Anaesthesiology, Emergency medicine, Orthopaedics, Obstetrics, Gynaecology
Psychiatry	Child psychiatry
Hospital service specialties	Radiology, Clinical pathology, Clinical genetics, Clinical chemistry, Forensic medicine, Occupational medicine, Environmental medicine

Demographic data were presented for the five specialty categories. For comparisons of the proportional size of the groups and other background variables, we used Pearson's chi-square two-sided test, Chi2, with a significance level of $p < 0.05$ in study I and Fischer's Exact test (Monte Carlo) with a significance level of $p < 0.05$ in study II (Bring, 2015).

To analyse associations between medical specialties (outcome variable, categorised in five groups) and different exposure variables, a univariable analysis was performed to test associations for each exposure variable and medical speciality. Second, variables that showed a significant association with medical specialties were analysed using a multinomial regression analysis. The results are presented as odds ratios (ORs) with 95% confidence intervals (CIs) as an estimate of the odds that a certain specialty is chosen compared to surgery (Edling & Hedström, 2003; Malmquist, 2002).

Study I

To investigate the associations between personality traits and a chosen specialty, the following variables were included in the univariate analyses and in the multinomial regression analysis. A p-value of < 0.05 was considered significant, as described in Table 5.

Table 5 – Overview of included variables

Univariate analyses to investigate associations between independent and dependent variables according to the study protocol		Multinomial regression analyses to investigate associations between personality traits and specialty choice and to control for confounding factors from univariate analysis or <i>a priori</i> decided (indicated with *)	
Independent variables		Independent variables	Dependent variable
Admission type (significant) →→→→→→→→ Mental health (significant) →→→→→→→→		Admission type Mental health Age* Gender* Previous higher education* Research education* Personality traits (BFI)	Chosen specialty

The calculation of BFI was done in accordance with the instructions in Zakrisson (Zakrisson, 2010). For each personality dimension, it is stated which of the 44 items should be included and that for 16 of them there is a need to reverse the scale before summation. The personality traits were analysed as continuous variables (Bring, 2015).

The calculations were performed in Statistical Packages for Social Sciences (SPSS), version 22.0 and Stata version 11.

Study II

The dependent variable was medical specialty (five categories), and the independent variables were parents' highest education levels (secondary school, university or doctoral studies), having at least one parent who is a medical doctor (yes/no), type of school (public/private), upper secondary programme (natural science, social science or technical/other), grades (20.0–19.0 or 18.99–0.0), SweSats - Swedish scholastic aptitude test used for admission- results (2.0–1.8 or 1.7–1.0), previous higher education (none, up to three years, or three years or more), research education (yes/no), and perceived status (high or low). There were no significant associations between doctors' specialty choices and the independent variables with the exception of perceived status; therefore, only perceived status was included with the three *a priori* decided variables of personality traits, age and gender in the adjusted multivariable model. A p-value of < 0.05 was considered significant, as described in Table 6.

Table 6 - Overview of included variables

Univariate analysis to investigate associations between independent and dependent variables according to the study protocol		Multinomial regression analysis to investigate associations between personality traits and specialty choice and to control for confounding factors from univariate analysis or <i>a priori</i> decided (indicated with *).	
Independent variables		Independent variables	Dependent variable
Perceived status (significant) →→→→→→→ Parents' highest education Parent who is a medical doctor Type of school Grades SweSats results Previous higher education Research education		Perceived status Age* Gender* Personality traits (BFI)*	Chosen specialty

The calculations were performed by SPSS version 22.0.

7.5 ANALYSIS OF STUDY III AND IV

There is no single definition of *content analysis* that is accepted by the entire research community, partly because content analysis is used in many academic disciplines with different traditions (Patton, 2015). One broad way to define content analysis would be that it is a variety of methods with the common aim of taking an extensive amount of data to “identify core consistencies and meanings” (Patton, 2015, p. 541). In this thesis, content analysis should be understood as a means to analyse data based on individual, in-depth interviews in a structured yet innovative way. In studies III and IV, Graneheim, Lundman and Lindgrens’ (Graneheim, Lindgren, & Lundman, 2017; Graneheim & Lundman, 2004) description of how to use inductive content analysis was generally followed. However, study III was partly theory-driven and thus “not by the book” but rather innovative. Study IV, however, was a more traditional analysis with an inductive approach. The analysis for study III was completed before the analysis for study IV started.

Description of the analysis process

After each interview, short notes were taken to recall details of the interview. These notes consisted of descriptions of the context (such as the location and venue for interview) and personal feelings about the interview situation and the study participant (for instance, if the study participant was talkative, not talkative, etc.). Other events that mattered were also described, such as if the study participant needed to take a break during the interview to give another doctor medical advice or if the interview was interrupted for any other reason. During

the analysis phase, the analyst returned to these notes. The circumstances of the interviews were also discussed in the research group.

The interviews were transcribed verbatim. All steps in the analysis process were conducted by the author of this thesis and discussed with the research group (Elo et al., 2014). The analysis process was iterative, going back and forth between the interviews and the coded content (Graneheim et al., 2017).

Table 7 - Example of the analysis process, from study IV

Codes (examples)	Sub-category	Main category	Theme
-Personality did matter for my choice - Personality, calm - Personality, does not like conflict -Personality, accurate - Personality, easy to talk to people ...and more codes.	Positive or negative perceptions of personality traits	Self-perception in relation to what type of a doctor I think I can be	To fit in or not

Study III

The content analysis in study III was done with an inductive approach that was partly theory-driven, meaning that it was decided *a priori* that theoretical concepts from Bourdieu would be used as analytical tools. Lingard and Kennedy described how theories like, feminist or Marxist theory can be used as lenses in the analysis (Lingard & Kennedy, 2010) and in study III Bourdieu was used this way.

The analysis process started by reading the transcripts to grasp the entirety of the content (Graneheim & Lundman, 2004). Then, the transcripts were reread to mark meaningful data in the margins. After these procedures, the transcripts were imported into Nvivo 11 Pro for Windows for the content analysis. In Nvivo, the author of this thesis manually coded the content, and codes with similar content were grouped together in categories. The codes and categories were used for the manifest analysis. The manifest analysis stays close to the interview data and does not take account of abstract meanings in the text, but rather takes what the participants actually say into account. The analysis process then continued to a latent phase where the categories were interpreted into themes. The greater level of interpretation makes it possible to capture underlying meanings (Bengtsson, 2016). This is sometimes referred to as the *red thread* of the data and captures what “the text is talking about” (Graneheim & Lundman,

2004, p. 111). Finally, all interviews were reread to ensure meaningful content was not missed. The audio recordings served as support during the analysis and contributed to capturing the underlying meanings expressed through sighs, laughter, hesitation and other nonverbal communication.

The analysis was inductive in the sense that codes were not created beforehand but emerged from the collected data, and no predefined coding schemes were used. The analysis was also theory-driven in the sense that the theoretical framework from Bourdieu's sociology was allowed to be reflected throughout the study process, including the analysis (Lingard & Kennedy, 2010). One example to illustrate the procedures would be to look at the codes "networks, professional" and "networks, private" that generated the sub-code "the meaning of networks" that was part of the theme "positions in the medical field". The inclusion of a question in the interview guide about *personal and professional networks* was theory-driven. Networks and the meaning of having or not having access to networks are of great importance in Bourdieu's sociology as it contributes to social and cultural capital. On the other hand, the codes "To operate" and "Not to operate" in the meaning to do surgery or not are not in themselves concepts used by Bourdieu. In the analysis, however, it became clear that the study participants constructed the specialities by creating dichotomies and, these became part of the theme "the making of different specialities" that were analysed by applying concepts from Bourdieu.

The analysis resulted in two themes: *toward an understanding of the medical profession and different specialties* and *positions in the medical field*.

Study IV

The content analysis in study IV was done similarly to study III with the exception that no specific theoretical framework was applied; instead, data were analysed in relation to previous research about specialty choice. Both latent and manifest analyses were conducted, resulting in three themes: *to be invited or not*, *to fit in or not* and *to contribute or not*.

7.6 REFLEXIVITY

Reflexivity in research could start with the question of why one is interested in the studied subject - What brought me here? For me, it started with my own educational journey. As the first academic in my family, I took an interest in how and why the distribution of education varies depending on social stratification.

Guillemin and colleagues captured the meaning and importance of reflexivity in research, and the following quote has guided my own research: "Reflexivity involves critical reflection of how the researcher constructs knowledge from the research process what sorts of factors influence the researcher's construction of knowledge and how these influences are revealed in

the planning, conduct, and writing up of the research. A reflexive researcher is one who is aware of all these potential influences and is able to step back and take a critical look at his or her own role in the research process” (Guillemin & Gillam, 2004, p. 275).

Any choice of enquiry should include reflections on how to best understand the research topic (Illing, 2010). Thinking about ontology (view of reality) and epistemology (view of knowledge) takes time and must be thorough. In sociology and gender studies, this is part of the curriculum and something that I was happy to discuss further with colleagues in the medical education research course at Karolinska Institutet. I take a pragmatic view and appreciate the writings of Berger and Luckman (1991), who concentrated on epistemology rather than ontology when discussing the role of scientific enquiry. They claimed that reality has been discussed for thousands of years by philosophers. We as sociologists will not solve that problem, so we should concentrate our efforts on what knowledge is and how to contribute to it (Berger & Luckmann, 1991).

This thesis includes two quantitative and two qualitative studies. In my bachelor’s and master’s theses, I used qualitative methods and thus, I have some experience designing and conducting such research. Working with quantitative methods was a new adventure for me, and I have learned a great deal during my doctoral education. Patton (2015) wrote that qualitative inquiry is personal and that reflexivity is therefore necessary (Patton, 2015). This is true, but reflexivity is as important in quantitative methods as in qualitative ones. My choice of methods was based on the research questions, but it was also based on an opportunity I was given by working at Karolinska Institutet, to get access to the research field is the first requisite to be able to do research (Walford, 2001). My interest in medical doctors’ specialty choices was shared by other researchers at Karolinska Institutet, and we decided to design a quantitative study to examine specialty choices from different perspectives, leading to studies I and II. After the initial studies, I wanted to continue, and because the new research questions were better answered by qualitative methods, we designed a study based on interview data.

Access to study participants was made possible by my contacts with senior researchers at Karolinska Institutet (Walford, 2001). Their reputation made it possible to collect data and led to a high response rate for the questionnaire used in studies I and II and to acquire doctors in specialty training for the interviews in studies III and IV. I also think that my insider perspective from working at Karolinska Institutet for many years and my outsider perspective from not being a medical doctor was helpful. I believe that it contributed to good relations with the study participants in studies III and IV. When collecting interview data, it is necessary to build confidence and trust (Walford, 2001). It is possible that it was easier for the study participants to talk to someone who was not part of the medical field yet was knowledgeable about the system and working conditions for medical doctors. Bourdieu and Accardo (Bourdieu & Accardo, 1999) stated that one problem with interviews is the unequal power relations between researchers and study participants, as the researcher often has more cultural capital. However, this was not the case in studies III and IV since medical doctors possess a high degree of cultural capital.

From my gender studies, I carry with me an understanding of gender differences and similarities and how gender patterns (re-)produce themselves in every context. There are both horizontal and vertical gender differences in the medical context (Kristoffersson et al., 2018). However, I decided early in this project that I would not use gender theories explicitly, partly because there was a substantial amount already written about specialty choice and gender and partly because of that I deal with those issues on a daily basis since I work at the university as a coordinator for equal opportunities. I felt a desire to do something else with this thesis. Still, I bring with me a gender awareness in all my work, including the production of this thesis.

7.7 TRUSTWORTHINESS

The quality and trustworthiness of this thesis can only be judged by others, yet some reflections on the steps taken to increase *credibility* and *dependability* can provide the reader with additional information that might be useful. This section also contains thoughts about *transferability* (Graneheim & Lundman, 2004). All three concepts were originally developed by Guba and Lincoln (Lincoln & Guba, 1985).

Credibility (Lincoln & Guba, 1985) has to do with all the choices made in the research process, such as what methods are used, what sampling strategies will get the right kind of participation and what analysis methods will best serve the purpose. It also has to do with the quality of the performance of all elements in the research process. To make these choices, the researcher must be familiar with the research field. In all four studies, we strived for credibility; the following are examples of the measures taken:

- Triangulation of researchers: The researchers involved in the four studies were all familiar with the research topic and the medical field as most were clinical doctors who at one point had chosen their specialty. The medical researchers in this project came from different specialties including psychiatry, paediatrics, orthopaedic surgery and hand surgery, and a majority had extensive experience with medical education research. There was also a medical student involved in the first study and a statistician involved in the two quantitative studies. In the two qualitative studies, a registered nurse with plenty of research experience was part of the team. The author of this thesis, a PhD student in medical education research with a background in educational sociology, was part of all four studies. At some stages of the research project other experts were involved. During the years of research, the researchers had plenty of discussions about how to design the studies, how to collect data, how to interpret the results and how to write and publish the manuscripts. The varied backgrounds of the research team offered a variety of perspectives and ideas.
- Triangulation of research methods: In studies I and II, the purpose was to examine associations; therefore, it was decided to gather data via a questionnaire. This method gave us the opportunity to gather data from many participants. Thoughtful statistical measures allowed us to analyse the frequencies, mean values, percentages and OR

suitable for our aim. In studies III and IV, a qualitative approach best served our purpose; therefore, we conducted an interview study and analysed the results with a content analysis.

- In all four studies, limitations were identified and described.

Dependability (Lincoln & Guba, 1985) has to do with transparency and means that all steps taken in a study must be reported clearly to enable future researchers to repeat them (but not necessarily to reach the same result). It has been the ambition to describe in detail the entire research process in all four studies and in this thesis.

Transferability (Lincoln & Guba, 1985) refers to whether findings from a qualitative study can be transferred to another context. Transferability can be facilitated by rich descriptions of the research process, including all steps, but the reader determines whether the findings are applicable to other (studied) settings.

7.8 ETHICAL CONSIDERATIONS

Ethical considerations in research must be adopted at all stages of the research process. The researcher is responsible for ensuring that the research is conducted in line with an ethical standard and with high quality. Research also comes with a societal responsibility of asserting oneself as an expert (Vetenskapsrådet, 2016). This research project is situated in the intersection of medical education research and social sciences, and it is therefore necessary to be familiar with ethical guidelines from the two areas. The project was conducted in accordance with the Declaration of Helsinki ("World Medical Association International Code of Medical Ethics ", 1964) and in consideration of the Code of Conduct ("International Sociological Association Code of Ethics," 2001).

All participants in studies I–IV received written information about the research project, the researchers in charge, the aim of the study and that participation was voluntary. They were also informed about the right to withdraw their participation at any time without explanation or consequences.

For studies I and II, the respondents gave their consent by sending in the questionnaire. For studies III and IV, the respondents received an information letter via e-mail with a section on consent well in advance of the interview. At the time of the interview, the participants also received oral information that the data were confidential and that consent could be withdrawn at any time without explanation. All participants signed a paper version of the letter of consent at the time of interview.

Studies I and II have been approved by the Regional Ethical Review Board in Stockholm under registration number (00-403 & 854-32). For studies III and IV, the Regional Ethical Review

Board in Stockholm concluded that no ethical permission was required according to Swedish law (registration number 2017/699-31/5).

8 FINDINGS

The overall aim of this thesis was to obtain a deeper understanding of the processes that precede medical doctors' specialty choices and to investigate how factors such as personality, cultural capital and social background have bearing on that choice.

The four studies in this thesis contribute different findings that together generate knowledge about this process. The results of the four studies will be presented one at a time.

8.1 STUDY I – ASSOCIATIONS BETWEEN SPECIALTY CHOICE AND PERSONALITY TRAITS

Study I was a cross-sectional study based on a postal questionnaire, and the respondents were medical doctors who were either undergoing specialist training or who had completed the training. The response rate was 72% ($n = 289$), and the average age was just under 38 years. 103 (36%) respondents were male and 186 (64%) were female.

The results were presented as mean values for the five personality traits. For each mean value, a CI was also included. The associations were presented as OR. There were no statistically significant associations between a chosen specialty and neuroticism or extraversion. Psychiatrists had statistically significantly higher levels of openness to experience in the univariable analysis (OR 1.15, 95% CI 1.05–1.27), but this did not reach statistical significance in the full model (OR 1.10, 95% CI 0.98–1.24). Surgeons differed from other specialists regarding conscientiousness and agreeableness. Agreeableness was higher for doctors in primary care (OR 1.16, 95% CI 1.05–1.29), internal medicine (OR 1.13, 95% CI 1.02–1.24) and hospital service (OR 1.19, 95% CI 1.02–1.38) compared to surgeons (reference category).

Conscientiousness was lower among psychiatrists with an OR of 0.86 (95% CI 0.75–0.99) and hospital service physicians (OR 0.84, 95% CI 0.73–0.97) compared to surgeons. The OR result was adjusted for educational background, family status and admission type.

The main findings of study I were that surgeons reported higher conscientiousness than psychiatrists and hospital service specialists and that surgeons had lower agreeableness than hospital service specialists. These findings were significant even when adjusting for potential confounding factors. Psychiatrists had a higher score for openness to experience, but this result was not significant when adjusting for other factors.

The significant associations indicate that personality traits influence medical doctors' specialty choices. While a cross-sectional study design does not allow conclusions about causality, the BFI establishes that personality traits should be seen as stable over one's lifespan (John & Srivastava, 1999).

8.2 STUDY II – ASSOCIATIONS BETWEEN SPECIALTY CHOICE AND CULTURAL CAPITAL

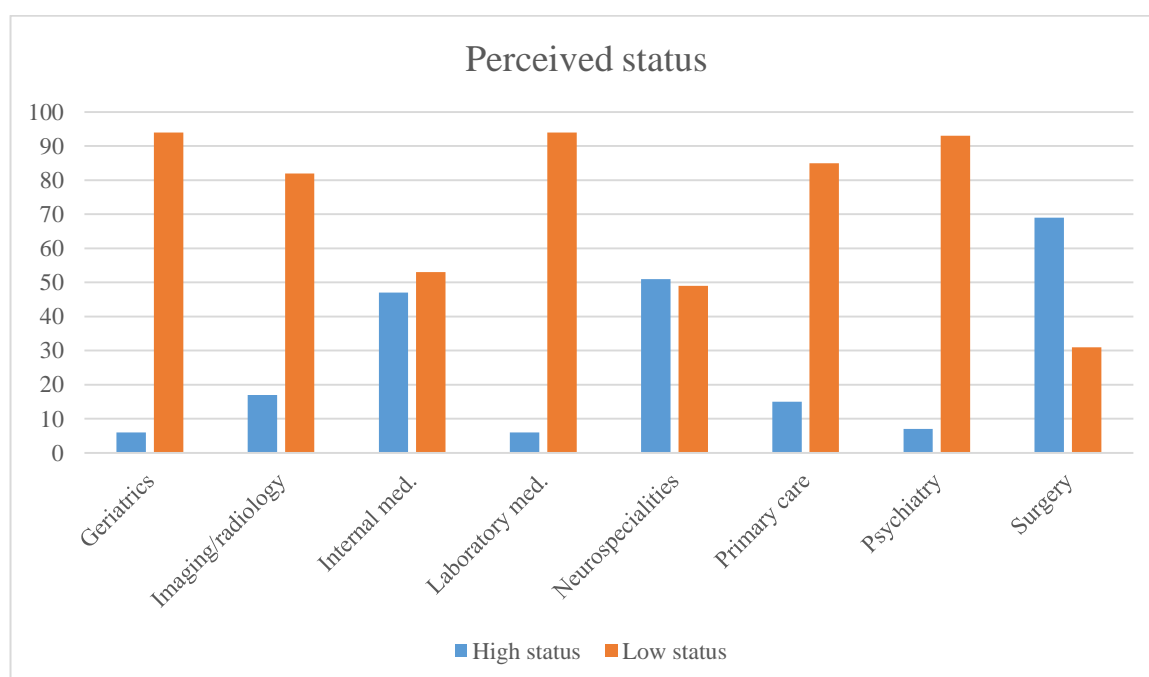
Study II was based on the same cross-sectional data collection as in study I. In study II, we applied theoretical concepts (field, habitus and different forms of cultural capital) developed by Bourdieu to analyse the statistical findings.

In the univariate analyses, there were no significant associations ($p\text{-value} < 0.05$) between a chosen medical specialty (five categories) and *inherited educational capital*, which we had operationalised as “parents’ highest education” and “having parent(s) who work as a medical doctor”. In addition, there were no significant associations for acquired educational capital, which was operationalised as “type of school”, “upper secondary programme”, “grades”, “the national admission test”, “previous higher education” and “own research education”. There were, however, differences in the mean values for grades, results on the national admission test and for type of upper secondary programme.

We also analysed how the respondents perceived status for eight different specialties using a six-point Likert scale ranging from very high status to very low status. We categorised the two highest response options as high status and the other four as low status. The reason for this categorisation was that we had an interest in high status as a phenomenon.

Surgical specialties were considered to have a high status by 69% (n=186) of respondents, and the percentage for neuro-specialists was 51% (n=137), followed by internal medicine at 47% (n=127), imaging/radiology at 17% (n=47), primary care at 15% (n=41), psychiatry at 7% (n=18), geriatrics at 6% (n=17) and laboratory specialists at 6% (n=16). The results are summarised in Diagram 1.

Diagram 1 - Percentage of high and low status for eight different specialties as perceived by medical doctors



Surgeons provided more diverse scores regarding status when ranking their own and other specialties. 83.5% of surgeons' ranked surgery as having a high status, while only 2.5% ranked geriatrics with a high status and 6% ranked psychiatry and laboratory specialties as having a high status.

To analyse associations between perceived status and a chosen specialty, a univariate analysis was conducted which showed significant associations between a chosen specialty and perceived status. In the full model, the result was adjusted for personality traits, age and gender. The associations were presented as an OR with a 95% CI. The results indicate that perceived status might influence doctors' specialty choices. However, a cross-sectional study does not allow conclusions about causality.

Our main findings in study II were that there were distinctive differences in the perceived status of different specialties, ranging from rankings of high status by 69% of respondents for surgery to rankings of high status by 6% of respondents for laboratory specialties and geriatrics. The statistical results were analysed with Bourdieu's concepts, and it was concluded in study II that specialty choice and its relation to perceived status is an important factor when analysing doctors' positions and investments within the medical field (Bourdieu, 2011).

8.3 STUDY III – SPECIALTY CHOICE AND THE MEDICAL FIELD

The analysis resulted in two themes that were interpreted using Bourdieu's concepts of field, habitus and different forms of capital (Bourdieu, 2011). The findings from study III are illustrated with quotes from the study participants.

Figure 2 - The two themes with underlying main categories, from study III.



Towards an understanding of the medical profession and different specialities

In the first theme, the analysis showed that early thoughts about the medical profession *per se* were of importance to the participants when they described their way to chosen specialty. To describe the way to become a medical specialist where for many of the participants inseparably from becoming a medical doctor in the first place. These processes were intertwined.

The study participants gave evidence about the meaning of their social backgrounds and how their parents valued hard work in school. This was also interpreted as the beginning of shaping a medical habitus.

“It was at home – my mother was a teacher and my father an engineer, or chemist, actually, before. And both of them had been to university. And everyone on my Mum’s side of the family and Dad’s, also, really, have been to university, so that was something, we had a culture at home that school was important and you should go on to higher education or similar. And I wanted to, too. But I didn’t know what I wanted to do, and it was first towards the end of school, really, when I finally finished, that I felt I wanted to become a doctor.” (Interview with man in geriatrics).

The theme also showed that early thoughts about different specialities had connections to the presence or absence of cultural capital. Participants who did not have parents or other close relations with medical doctors when growing up lacked knowledge about how the medical field is organised and the division into different specialities, as illustrated by the following quote:

“I had no clue about the medical profession, really. I’ve got no doctors amongst my relatives and family or the like. I don’t think I even knew that you chose a speciality, but maybe I had a vague idea that you could focus on one area. But I didn’t have any ideas about what that involved when I started. I don’t think so. I don’t really know when I began to understand how the whole thing is structured. I knew that you could be a paediatrician. I knew that; I’d come across that earlier in life. Yes, as a patient or with my siblings. Yes, so I knew you could be that. But otherwise, I had no idea about all the subdivisions: internal medicine, cardiology and so on. I didn’t really know how it was organised.” (Interview with woman in internal medicine).

Positions in the medical field

In the second theme, it became apparent that the recognition of others in the medical field contributed to the participants' choices. The participants shared stories about their role models, being valued by superiors and having professional and private networks with other doctors. These relations were interpreted as forms of social capital. Another important aspect of this theme had to do with the various characteristics of medical specialties. The participants often used dichotomies and contrasts to describe the specialties. According to a Bourdieuan perspective, these dichotomies cannot be considered value-free, and in combination with other coded content such as "not worth the effort, investments", it became clear that the study participants were well aware of the value differences, among other aspects expressed through an articulated awareness of the higher competition that characterises a specialty involving "to operate" compared to specialties that do not. To be a good surgeon, a lot of practice is necessary, but according to the interviewed doctors there is also a need to "use your elbows" to get access to the operating theatre. Some of the participants who were interested in surgery and had been offered specialist training positions had declined this choice because of this competition.

"At the surgical and orthopaedic departments where I've been, you need to be fairly assertive, even bullish, to somehow get the educational experience you need. You have to make sure you get into theatre, struggle, really, and hinder others in your way to becoming a specialist. And that was not something I had any desire to do. Being somewhere where there was a lot of competition, I wasn't interested in that. At all." (Interview with woman in internal medicine).

Regarding competition, surgery is distinguished from the other specialties in terms of getting access to the specialty in the first place. One of the interviewed doctors stated that an informal recruiting process begins in medical school. To stand a chance to compete for a specialty training position in the future, one must be identified as extraordinary during rotations in medical school and perform well during temporary work as a junior doctor.

"The simple reason is that I ended up here as a resident because I'd worked here previously. It's hard to get in as a resident if you haven't worked here. It's kind of a prerequisite...//... It's the chicken and the egg problem – how do you get your first temporary job? Is it just chance? Presumably, those students that shine have a better chance. But it can be completely unfair. If somebody happens to have a sick child when they take that course and can't show themselves to be a budding surgeon, something like that, but might

otherwise have been the world's best surgeon. That's the thing with chance. Who gets to excel at surgery as a medical student? I think it's a bit of a shaky foundation to base the surgical profession on." (Interview with man in surgery).

Under this theme, the participants described a major division between more intellectual parts of medicine and more hands-on specialties. It was indicated that the choice of a specialty had to be in line with one's habitus. Habitus was defined in the study as "systems of dispositions that enable individuals to act, think and navigate in the social world" (Broady, 1990, p. 225). Study participants from internal medicine and psychiatry highlighted the importance of intellectual and analytical aspects for their specialties:

"Understanding context, complexities, this I thought was kind of fun. This is why I liked physiology, and cardiology as well, that there was a kind of a logical coherence that one had to sort of grasp. ...///...And that is, to a large extent, the character of psychiatry, that it is kind of unexplored, that it is complex, sort of a unity and so many factors that matter." (Interview with man in psychiatry).

For participants from surgery and hospital service specialties, hands-on work was described as more attractive:

"I have to do something with my hands; I have to. We spend limited time seated. We examine quite a lot with our hands, and we actually touch the patients now at the lab. But yes, I have to do something, you know, not just sit and think." (Interview with man in laboratory medicine).

To understand the medical field, questions about perceived status or prestige were included in the investigation. The analysis showed that some participants felt embarrassed to talk about social status and prestige, however this feeling were only expressed by participants that had chosen a specialty with high prestige. In Sweden, which has a largely egalitarian educational system (Börjesson et al., 2016), social status and prestige can be awkward to talk about. In contrast, participants from lower status specialties did not have a problem talking about social status and prestige. In fact, some brought up the topic themselves.

"No, psychiatry is not something you choose for status, really. If you present yourself for somebody else, you say you're a doctor rather than a psychiatrist."

Or that you're a doctor in psychiatry. It's not really so positive in many people's eyes." (Interview with man in psychiatry).

8.4 STUDY IV – SPECIALTY CHOICE AND PERSONALITY AND PERSONAL EXPERIENCES

In study IV, no particular theoretical framework was used when analysing the data; instead, previous studies about medical doctors' specialty choices were used to guide the process. The drive to further understand the meaning of personality as investigated in study I was also a precondition for study IV. The findings were presented in three themes: *to be invited or not*, *to fit in or not* and *to contribute or not*. The findings from study IV are illustrated with quotes from the study participants.

To be invited or not

In the first theme, it became clear that both single individuals and the entire work environment of a workplace are important for doctors' specialty choices. For single individuals, positive feelings had the most impact. Role models were important to the doctors, as they made them feel welcomed, trusted and valued and also provided examples of how to be both a professional and a person, as this example indicates:

"...the reason to carry on with surgery. There are lots of aspects. One is all the impressive surgeons I've met...when I was doing surgery as a medical student, there were several who really made an impression on me. They became my idea of how to be...a doctor, and in some way[s] ...an adult." (Interview with man in surgery).

In terms of work environment, both positive and negative encounters had an impact. Stress, too much work and bad attitudes from colleagues were reasons for not choosing a certain specialty.

"Yeah, I think that both positive and negative interactions have affected me. On the negative side, I was on a surgical placement there in city-X and I remember that I had a few negative encounters and experiences while working there, both with the workload, but also with a bit of a lack of support from colleagues, and that made me feel hmm—is this really what I want to be doing? Do I want—do I want this kind of tone, this way of interacting? On the other hand, during medicine I experienced loads of support from my colleagues; you always felt that someone was backing you up and that you could ask questions and get help. That was pretty much the deciding factor." (Interview with man in internal medicine).

To fit in or not

In the second theme, the study participants talked about their personality and said that some traits were more important for certain types of patient work. The ability to keep calm, be accurate and be a good listener were some of the personality traits the study participants thought were beneficial. Some participants described their personalities as problematic for certain specialties. This had to do with sensitivity and a fear of not being able to cope with the requirements of certain specialties; for instance, a fear of being too empathic to cope with difficult patients or a feeling of not wanting to work in specialties where “life and death” decisions must be made. This was illustrated in an interview with a woman training to become an orthopaedic specialist:

“Gynae and general practice are things that I’ve also thought a lot about. But I felt that they weren’t really good for me as a person, because I get too involved and then I don’t think I’d have the energy. I don’t think that—I mean I think I would have been good at it, I don’t know, now maybe I’m being a bit big-headed, but I don’t think it would have been good for me....And I feel it’s quite important to be—be able to last a lifetime.” (Interview with woman in orthopaedic specialty).

Another aspect of fitting in had to do with the characteristics of different specialties. The dichotomy of *broad* versus *narrow* was used as one important description. Some participants would not consider working in a narrow specialty, whereas others would not consider a broad one.

“It’s about feeling that I can manage a broad area of medicine and that I can actually follow my patients and see what happens to them. It’s really that that attracts me, so I hope to be able to work with that.” (Interview with woman in primary care).

To contribute or not

In the third theme, a desire to contribute to the medical field proved to be important for specialty choices as described by the participants. The doctors wanted to make use of their individual personalities, skills and knowledge in a way that would contribute to the healthcare sector. Thoughts about patients and patient relations were core in this theme. Some participants declared that they worked best in short-term relations with patients; they wanted to fix problems and then end the contact. Others thought that they contributed best to patients’ wellbeing in long-term patient relations. For them, it was important to follow patients for a long period of

time. Study participants from geriatrics and psychiatry also described how they wanted to contribute to patient groups that they felt were neglected in society:

“And in some way, I felt that this was kind of a group of patients [with mental health problems] who weren’t so well looked after. There was a lot you could do. And I felt pretty early on that I had something to contribute. And there’s a lot more complexity that is—that is so difficult that sometimes it can be difficult to do so much about it, really. But you can really help these people, and most of them turn out well if you do the right things. And that’s really satisfying. It’s really rewarding to do that.”
(Interview with man in psychiatry).

In study IV, we also concluded that the *length* of the decision-making process must be recognised. The process of specialty choice is a winding road, and it often starts in medical school and continues for years after.

9 DISCUSSION

The overall aim of this thesis was to obtain a deeper understanding of the processes that precede medical doctors' specialty choices and to investigate how aspects such as personality, social background and cultural capital have bearing on that choice. The four studies together are meant to generate this deeper understanding. In the following section, a synthesis of the findings will be presented and discussed.

The results of this thesis point toward an understanding of medical doctors' specialty choices as a long-term, complex and sometimes contradictory process. This characteristic makes the studied phenomena difficult to pin down to a certain moment in time or to identify a single or combination of easily studied variables. However, there are associations on an aggregated level between specialty choice and some factors that can be examined with statistical measures. Previous research has shown that personality traits and social background fall in this category, which laid the foundation for studies I and II. To obtain more in-depth knowledge about the process of choice, studies III and IV were designed.

9.1 PERSONALITY TRAITS AND SPECIALTY CHOICE

In study I, associations between personality traits and specialty choice were examined. The results indicate that personality has some relation to specialty choice. Surgeons had higher scores for *conscientiousness* and lower scores for *agreeableness* than other specialists. It was unexpected that surgeons would score higher for conscientiousness since studies from the US showed opposite results (Borges & Osmon, 2001). These differences could be a result of the different contexts in Sweden and the US.

Psychiatrists had statistically significantly higher levels of *openness to experience*, but the results were not significant after adjusting for other factors. However, this result is consistent with previous research (Borges & Savickas, 2002) and with findings in study IV where psychiatrists described their fondness for more analytical and intellectual parts of medicine.

In study IV, the participants described their personalities and their thoughts about personality in relation to their specialty choice. The interviews showed that various personality traits were seen as having either a positive or negative relation to the characteristics of a specialty. Worries about not being able to cope with some patient categories were described as a personality issue that had a negative meaning for some specialties. However, many personality traits were considered positive and useful for the specialty the doctor had chosen. These included "Being calm, accurate, intellectual, curious, practical, good at listening and communicating and easy to cooperate with" (Olsson, Kalén, Mellstrand Navarro, & Ponzer, 2019). Querido and colleagues showed in a qualitative study from 2018 that being good at communication was seen as a personality trait and was considered important for specialty choice (Querido, van den Broek, de Rond, Wigersma, & Ten Cate, 2018).

The findings in study IV supported the results in study I by indicating that personality meant something to the participants and that they saw connections between their own personality and their choice of specialty.

9.2 SOCIAL BACKGROUND AND SPECIALTY CHOICE

Another area where statistical differences can be interesting to investigate is the impact of social factors such as previous education and parents' professions and educational levels, as done in study II. The analysis showed no significant associations between those factors and specialty choice. However, this must be considered an important result, indicating that these factors are equally high in all specialties simply because they are high for all doctors on an aggregated level. Becoming a medical doctor is highly related to the level of parents' education (UKÄ, 2018a). The probability of becoming a medical doctor is also related to whether one has at least one parent who is a doctor (Peterson, 2016). Despite Sweden's relatively egalitarian education system (Börjesson et al., 2016), the medical profession is to a large extent "inherited" from one's parents. Statistics Sweden (SCB) showed that 23% of medical doctors aged 30–34 years have at least one parent who is a medical doctor compared to the general population in the same age group, where the number is 2% (Peterson, 2016).

This led us to Pierre Bourdieu and his educational sociology. According to Bourdieu (Bourdieu & Passeron, 1977, 1979), unequal distribution of education can be identified in all educational areas and on all educational levels. This has to do with the reproduction of social values and norms transmitted to individuals by family members during upbringing (Bourdieu & Passeron, 1979). Backgrounds where higher education is seen as natural create different expectations than backgrounds without academic traditions. In study III, it was evident that parents' expectations had an impact on the study participants' work ethic during school and their choice to apply to medical school.

It also became clear that having parents that were doctors developed skills and knowledge about the division of medical specialties among the study participants. For Bourdieu, this could be a way for parents to transmit cultural capital to their children in the form of knowledge about the structure of the medical field (Bourdieu & Passeron, 1977). For participants from other backgrounds, knowledge was lacking about the medical profession and specialty divisions.

9.3 CULTURAL CAPITAL AND SPECIALTY CHOICE

Studies II and III both had theory-driven designs. It was decided beforehand that theoretical concepts from Bourdieu would guide the formulation of questions in the questionnaire and the interview guide as well as the analysis and interpretation of the results.

Three interlinked concepts were applied to better understand medical doctors' specialty choices: field, habitus and different forms of capital. According to Bourdieu, agents within a

field struggle for different forms of capital (i.e., cultural, economic or social) to gain the prestige required to be successful within a field (Bourdieu, 2011; Brosnan, 2010).

Study II showed major differences in how medical doctors rank different medical specialties in relation to perceived status. The statistical analysis also showed that the rankings were associated with one's choice of specialty. In study III, different forms of cultural and social capital were captured in the content analysis of the interviews and interpreted as indicators of social status and prestige within the medical field (Hindhede & Larsen, 2018).

In the interviews, the participants described their journeys toward their chosen specialty. The interview guide also had more specific questions about networks, investments and other relevant experiences affecting their decision. When the participants were asked how they perceived status and prestige for different specialties, they reacted differently. The question was considered strange and even difficult to understand by doctors in more prestigious specialties. The reaction was quite the opposite from doctors in specialties that are considered to have a low status and prestige. In some cases, the interviewees preceded the interview questions about prestige and status and brought the topic up themselves. They gave evidence that their chosen specialties were considered to have low status and expressed how they needed to defend their choice to friends, relatives and other doctors. According to participants from specialties that were perceived as having a low status, this was also considered a risk for those specialties in terms of recruiting new specialists. In this sense, the results from study II were that surgery earned the highest ranking of all the specialties regarding perceived status, which was confirmed and reinforced in study III.

The study participants also talked about personal and professional networks with other doctors and superiors, which, according to Bourdieu, is a form of social capital (Bourdieu, 2011). By being part of a network, the members can gain advantages from the cultural and social capital that the other members possess. Investment in networks is important since it can contribute to benefits and future possibilities for all members. Bourdieu called this *magical shareholding* (Bourdieu, 1998). One example could be obtaining good references when applying for a position. Being part of networks also gives social status and prestige in itself.

Other examples of investments in the medical field had to do with competition, and surgery was described as highly competitive and requiring investments over a long period of time. In other specialties, the competition was not so intense, and some of the interviewees talked about being invited to apply for a training position, which was considered to have had a positive effect on their specialty choice.

The findings in study III supported the results in study II. It was evident that surgery stands out from the rest of the specialties to a large extent in terms of social status and prestige.

9.4 SPECIALTY CHOICE AND OTHER IMPORTANT ASPECTS

The interviews for studies III and IV revealed other relevant aspects for medical doctors' specialty choices. The most dominant was related to experiences with the healthcare system.

Work environment had both positive and negative effects on specialty choice. Hearsay or personal encounters with healthcare milieus that were described as having bad working conditions, rough attitudes or otherwise promoting a negative work environment were rejected.

Patient relations and **type of medical condition** were related and of great importance. The doctors expressed strong feelings about what kinds of patient relations they wanted to have. For some it was important to build long-term relationships where they could follow a patient for years. For others it was equally important to have a specialty with short-term patient relations. Patient relations are related to the type of medical condition, since some medical conditions must be treated for a long time whereas others do not.

Type of medicine was often described in dichotomies, as some doctors wanted to work in a narrow specialty while others wanted to work in a broad one, some doctors wanted to work in acute situations while others did not and some doctors wanted to perform surgery while others did not. Many also thought variety was important at work.

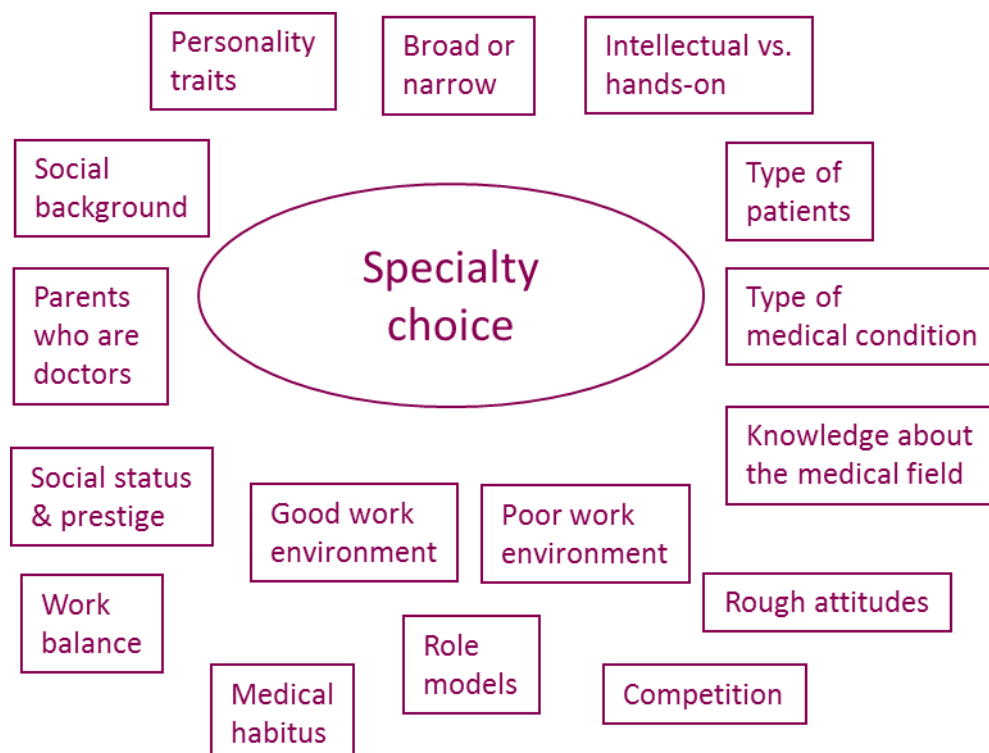
Work balance was important to both female and male doctors and had to do with working hours, time to recover between patients and the amount of on-call duties. The level of importance given to work balance issues varied among doctors.

External factors such as being able to work all over the country and having the opportunity to change workplaces were also meaningful.

9.5 SUMMARY

One useful metaphor for understanding medical doctors' specialty choices is a journey. Although the journey does not look the same for all doctors, there are some shared experiences. The journey often starts early, for some as early as childhood, and can be formed by having medical doctors for parents. It is continued with hard work in school to achieve grades that give them access to medical school. Once admitted, discussions with fellow students over future specialty choices can be exciting and helpful but also create stress. Clinical rotations provide opportunities to be involved with specialty-trained doctors and to learn more about the different specialties. Role models who make you feel valued and welcomed, and work environments are central during rotations and temporary work as junior doctors. Thoughts about fitting in and making use of personality traits in combination with thoughts about what kind of patient relations one wants to have and what kind of medicine one prefers are all part of the decision-making process. Finally, the willingness to make investments of time and effort, feelings about competition and the importance of perceived status contribute to the choice of a specialty. The following figure illustrates the many aspects relevant for medical doctors' specialty choices.

Figure 3 – Overview of relevant aspects in the choice of specialty



9.6 METHODOLOGICAL CONSIDERATIONS

Investigating medical doctors' specialty choices was challenging for two main reasons. First, there is a substantial number of studies about this topic, and even if the quality of those studies is sometimes debatable, it is still necessary to incorporate their knowledge into this project. Second, medical doctors' specialty choices have been proven to be a long-term process with many aspects, and it is therefore difficult to derive a straight answer of what determines choice.

The knowledge produced in this thesis is strengthened by the triangulation of the researchers and the different perspectives and experiences they brought to this work; there have been many fruitful discussions over the years. Furthermore, using a combination of methods provided richer opportunities to gain different sorts of knowledge; quantitative methods provided results on an aggregated level, and qualitative methods provided deeper knowledge about the process of choice. However, there are some limitations that should be acknowledged.

First, it should be noted that studies I and II are based on the same data material, as described in the methods section. Data collection was conducted with a questionnaire that contained different sets of questions, some included in this thesis, others not. For quantitative studies, it is not unusual to use the same set of data for different studies, and this was part of the original design for studies I and II. It should also be recognised that studies III and IV are based on the same interview data, as described in the methods section. This was a challenge in the analysis process, but the fact that study III was guided by a theoretical framework facilitated the ability to maintain to the analytical plan and not mix up codes, categories and themes between the two studies.

The quantitative studies could have been improved with a bigger sample. The limited number of respondents ($n = 262$) precluded us from including all different specialities in the statistical analysis; instead, we categorised the specialities into five groups. Still, some questionnaire items only had 7–8 responses. The effect of small numbers in some cells can lead to a type 2 error and the risk of not detecting significant associations in the univariate analysis (Bring, 2015; Edling & Hedström, 2003).

Study II was somewhat experimental, combining a quantitative research approach and theoretical concepts by Bourdieu. Operationalising the used concepts was a delicate matter, and it should be recognised that the results may have differed with other operationalisations.

Moreover, studies I and II were cross-sectional, and this method does not allow claims of causality. This must be recognised even if we assume that personality traits and social background precede specialty choice.

The qualitative studies can be criticised for the fact that all 15 interviews were conducted with doctors living in the area of Stockholm county council (greater Stockholm) and therefore, perspectives from smaller towns and the countryside were missed. This was partly for practical

reasons, as it was easier to access study participants in our area. It was also partly based on the knowledge that only big cities allow doctors to choose from all available specialties. In smaller towns and in the countryside, hospitals cannot provide training for all specialties. The availability of training posts per specialty was not directly investigated in any of the studies; however, this was not discussed by the participants, except that they were aware of the competition for surgical positions.

For studies III and IV, one must remember that small-scale studies do not allow generalisation. Furthermore, there is always a risk when using only interviews as data material in a study; the participants may have a wish, often unconscious, to present themselves in a positive way, so uncomfortable answers may not be given (Kvale, 2009).

Finally, we used Bourdieu's concepts in study III to analyse the results, and other researchers may have interpreted the results differently using the same concepts or by using other concepts by Bourdieu.

10 CONCLUSIONS

Medical doctors' specialty choice is a long-term, complex and sometimes contradictory process involving many factors. These dimensions include personal characteristics such as personality traits, social background and the formation of habitus. The choice of a specialty must feel right on a personal level. Apart from feelings of "fitting in", there are also workplace-related aspects and differences in perceived status.

Encounters with the healthcare system can have both positive and negative implications. Negative work environments and poor attitudes among senior doctors are reasons for not considering a certain specialty. However, good reputations, good work environments and role models all serve as drivers for choice, increasing interest in a specialty.

Type of work and type of patient relations are crucial. Some doctors would only work in a narrow, specific kind of specialty, whereas for others it is equally important to work in a broad specialty. For many, variety at work is important to avoid boredom.

Perceived status and prestige also play a part. Specialties that have difficulty recruiting doctors have low status. Increasing the status of geriatrics, primary care, laboratory specialties and psychiatry is essential to securing a sustainable workforce in the future. Specialties with high status but much competition and requirements for hard work might face recruitment problems in the future if the trend of viewing the medical profession as more of a job than an identity continues.

10.1 FUTURE RESEARCH

One of the themes in study IV had to do with a desire to contribute to the medical field and a chosen specialty. It would be useful to further examine this topic and investigate what preconditions, qualifications and skills are perceived as necessary to make contributions to the development of the study participants' chosen specialties. An interview study with doctors from different specialties and staff responsible for recruiting new trainees could be included in the investigation.

In many of the interviews, the participants talked about the high demands of clinical production. They described how clinical managers saw research as a hindrance for clinical work and were thus standing in the way of doctors who had a desire to conduct (clinical) research. Future research should investigate hindrances and opportunities to conducting research for clinical doctors. A comparative perspective between different specialties could generate interesting findings.

Another question that arose during this project had to do with life as a specialist. Training provides possibilities to participate in educational activities, but the participants shared worries that these opportunities would end once they became specialists. Examining continued learning for specialists could contribute to higher quality healthcare in the future.

Finally, a further investigation of the influence of the work environment for doctors in different specialties would be useful to fully understand how work environments contribute to recruiting new trainees and prevent doctors from dropping out of their chosen specialty.

10.2 PRACTICAL IMPLICATIONS

Although the findings of this thesis show that medical doctors' specialty choice is a long-term and complex process, it is possible to formulate some activities that can improve recruitment to specialties in need.

Raising the status of specialties that are perceived as having a low status is difficult but necessary. Perceived status has to do with the societal status of some patient groups. The governing institutions in Sweden can contribute by giving extra resources to disadvantaged patient groups by, for example, providing better care for the elderly and people with mental health issues. Medical research with a focus on these groups can contribute to the knowledge and inspire doctors to specialise in geriatrics, psychiatry and primary care.

The universities and medical education must promote all specialties and introduce them to students in the theoretical courses. Healthcare providers and clinical educators can help raise the prestige of specialties during students' clinical rotations through how they talk about them.

Specialties with a high status cannot rely on stable or increased application rates if doctors continue to be seen as a profession rather than an identity. Formalising recruitment in surgical specialties may also improve diversity in the discipline.

The impacts of a good work environment and role models demonstrate that all staff that students and junior doctors interact with during clinical rotations and temporary work counts. Therefore senior doctors and other staff must provide an inclusive and encouraging work environment.

11 SAMMANFATTNING PÅ SVENSKA

Både globalt och i Sverige är det svårt att rekrytera läkare till vissa medicinska specialiteter, vilket har skapat ett behov av mer kunskap om hur läkare väljer specialitet. Det övergripande syftet med avhandlingen har varit att få en djupare kunskap om de processer som föregår läkares specialistval.

Tidigare forskning är omfattande men av varierande kvalitet och det är svårt att dra slutsatser av de tidigare studierna. I många studier har man undersökt vad läkarstudenter avser att välja för specialitet i framtiden, detta innebär ett metodologiskt tillkortakommande. Dessutom finns det forskning som visar att studenter tenderar att ändra sig vad gäller specialistval. Majoriteten av studierna är kvantitativa och slutsatser kan endas dras om eventuella samband mellan specialitet och olika faktorer. I de flesta studier saknas en definition av vad ett val faktiskt är. I den här avhandlingen ses val som en lång, komplex och ibland motsägelsefull process.

Avhandlingen innehåller fyra delstudier, de två första har en kvantitativ forskningsansats och de andra två har en kvalitativ ansats. Studierna är genomförda i den ordning som de presenteras i avhandlingen och studie I och II har påverkat forskningsfrågorna och forskningsdesignen för studie III och IV. Datainsamlingen för delstudie I och II genomfördes med en postal enkät. I studie III och IV samlades intervjudata in. I studie I användes ett mätinstrument och dess bakomliggande teori för att mäta personlighet, kallat Big Five Inventory (BFI). I studierna II och III användes de teoretiska begreppen: fält, habitus och olika former av kapital som utvecklats av Pierre Bourdieu. I studie IV diskuterades resultaten i relation till tidigare forskning om specialistval.

I delstudie I framkom att kirurgiska specialister hade högst medelvärde avseende *Conscientiousness* (noggrannhet, organisationsförmåga, uthållighet och målmedvetenhet) men lägst medelvärde avseende *Agreeableness* (godhjärtad, tillitsfull, hjälpsam), dessa resultat var signifikanta också när vi justerat för andra faktorer. Psykiatriker hade det högsta medelvärdet avseende *Openness to experience* (öppen för nya erfarenheter och intellektuell stimulans) men det var inte signifikant när man justerade för andra faktorer. Avseende *Extraversion* (social, aktiv, pratsam) och *Neuroticism* (emotionell instabilitet) fanns det inga signifikanta associationer med någon av specialiteterna.

Delstudie II visade att det inte fanns några samband mellan specialistval och social bakgrund, nedärvt utbildningskapital (föräldrarnas utbildningsnivå och yrke), eller förvärvat utbildningskapital (val av gymnasieprogram eller andra utbildningsmeriter). Däremot fann vi signifikanta samband mellan upplevd social status och medicinska specialiteter. Dessa samband var också signifikanta när vi justerade för andra faktorer. Det var 69 % av respondenterna som rankade kirurgiska specialiteter som att ha hög status, motsvarande siffra för geriatrik, psykiatri och laboratoriespecialiteter var 6-7%. Av kirurgerna var det 83 % som rankade kirurgiska specialiteter som att ha hög status.

Delstudie III vars resultat är baserat på innehållsanalys redovisades i två teman. Det första temat visar hur den sociala bakgrunden har betydelse i valet att bli läkare. Dessutom framkommer att läkarföräldrar överför kulturellt kapital till sina läkarbarn genom att ge dem kunskaper om uppdelningen i de olika specialiteterna. Det andra temat belyser betydelsen av privata och professionella kontakter med andra läkare som skapar karriärmöjligheter. Resultatet visar också på de investeringar i form av tid och arbetsinsatser man måste göra för att få tillgång till de kirurgiska specialiteterna, som präglas av en stark konkurrens.

I Delstudie IV redovisas resultaten i tre teman. Det första handlar om att känna sig inbjuden eller inte till specialiteten. Betydelsen av att känna sig sedd, välkommen och ges tillit av seniora läkare inverkar på specialistvalet. I det andra temat framkommer att den egenupplevda personligheten måste stämma överens med det val man gör. Att känna oro ses som en personlig egenskap och innebär att man inte anser att alla typer av sjukdomar, patientgrupper eller beslut på liv och död passar en, vilket innebär att vissa specialiteter inte känns attraktiva. Vidare framkommer att många personliga egenskaper, såsom att vara lugn, noggrann och kunna samarbeta och kommunicera, anses vara särskilt bra för vissa specialiteter. Av det tredje temat framkommer en önskan om att kunna bidra till specialiteten, till exempel genom att ges möjlighet att värna om vissa utsatta patientgrupper.

Sammantaget visar avhandlingen på att många aspekter samverkar i valet av specialitet. Att det är en lång och komplex process innebär att rekryteringen till olika specialiteter måste ske i flera led. Om man eftersträvar en blandning avseende social bakgrund bland medicinska specialister måste man arbeta med rekryteringen redan till läkarutbildningen. Under läkarutbildningen bör det ges tillfällen att möta olika specialister och ”talet” om de olika specialiteterna måste vara i positiva ordalag om den upplevda statusen ska kunna höjas för de specialiteter som anses ha låg status.

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