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REVIEW ARTICLE

Attitudes of medical students and junior physicians towards working self-employed in private practice in Northern and Western Europe: a systematic review

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Abstract

Aim A shortage in primary care physicians has been a well-known challenge in many Western countries for several years. In addition, we currently see a trend in primary care, where an increasing number of physicians work as employees instead of being self-employed, even among general practitioners. To address this shortage, knowledge of the future specialists' attitudes toward working self-employed is needed. This qualitative systematic review aims to explore the attitudes of future specialists towards self-employment in private practice, and what factors influence these attitudes.

Subject and methods We conducted a systematic search using PubMed, Embase, and Web of Science. We developed a search strategy that collected terms for future specialists, career choices, and self-employment and linked these with the Boolean operator "AND". We analysed the results using a qualitative content analysis, as both qualitative and quantitative studies were included in the research.

Results Self-employment is less attractive to future specialists. In particular, women prefer to be employed and receive a fixed salary. The main factors that influence the decision as to whether to become self-employed or not are financial conditions, bureaucracy and non-medical tasks, organisation, job satisfaction during residency, personal responsibility, career opportunities, specialty-dependent factors, personal environment, and education.

Conclusion Among future specialists, being self-employed is less attractive than being an employee. Students should be better informed about future career opportunities to make an informed decision. However, it should be examined whether other forms of organisation are more in line with the wishes of future specialists.

Keywords Private practice · Career choice · Self-employment · Future specialists · Prospective physician

Background

Health systems in Europe are facing the problem of physician shortage (Berthier 2018; Mohammadiaghdam et al. 2020). Indeed it is controversial whether there is a real shortage of physicians or an allocation problem, as the number of doctors per capita has increased in most European countries over the last few years (OECD 2022a). It is a matter of fact that demographic aging and medical progress are increasing the demand for health care services, and many doctors will retire shortly (eurostat 2020). If this demand is not met through recruitment, it may lead to a real shortage of doctors in the near future (Pedersen et al. 2012). However, it could be possible that the problem does not lie in the total amount of doctors but in their distribution. Some geographical areas are experiencing an oversupply of physicians in certain specialisms, while others have a shortage. General medicine and rural areas are most affected by shortages (Behmane et al. 2019; Chevreul et al. 2015; Bachner et al. 2018; Gerkens and Merkur 2020; Habicht et al. 2018; Kroneman et al. 2016; Olejaz et al. 2012; DePietro et al. 2015; Saunes et al. 2020). Due to the ageing population, the demand for health services is increasing (Gerlach et al. 2018). Thus, by acting as a gatekeeper in many countries, general practitioners (GP) in particular will see an increasing demand in the future (Siewert et al. 2013).

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In many countries in Northern and Western Europe, both GPs and other specialists have the opportunity to work self-employed. Self-employment is for example a general career option in the following countries: Austria, Belgium, Denmark, France, Germany, Ireland, Netherland, Norway, Switzerland, and the United Kingdom (Bachner et al. 2018; Gerkens and Merkur 2020; Kringos et al. 2015; Tikkanen et al. 2020). The remuneration of self-employed physicians differs. In Germany and Switzerland, for example, physicians are mainly remunerated via fee-for-service. Norway and Denmark use a mixture of capitation and fee-for-service, with a user-charge being added in Norway (Tikkanen et al. 2020). An overview on the structure of the different health care systems can be found in International Profiles of Health Care Systems from the Commonwealth Fund (Tikkanen et al. 2020).

A self-employed physician in private practice is a physician who runs their own practice, either alone or in a partnership, and is, thus, responsible for its long-term success. The physician also bears the full economic risk of their practice. A self-employed physician in private practice could be remunerated through the statutory health insurance or the national health system. They are not directly bound by instructions and are free to choose the time and place of their work, within the limits of the law (Becher 2022). In some European countries, however, restrictions exist on the choice of practice location (Nüsken and Busse 2011). These restrictions are based on demand planning, which is carried out for example in Germany by the Federal Association of Statutory Health Insurance Physicians (Kassenärztliche Bundesvereinigung (KBV) 2022a).

The proportion of self-employed physicians within the total number of physicians in Germany decreased from 37% in 2010 to 28% in 2020 (Bundesärztekammer 2011, 2021). GPs, who are mainly affected by the shortage of doctors, can work as employees or as self-employed in their own practices. Most GPs in Northern and Western Europe are self-employed in single-handed or group practices, and the proportion of group practices vs single-handed practices has increased in recent years in many countries (Gerkens and Merkur 2020; Olejaz et al. 2012; DePietro et al. 2015; Kroneman et al. 2016; Kassenärztliche Bundesvereinigung (KBV) 2022b). In France and Germany, approximately 67% of GPs were self-employed in 2020 (Tikkanen et al. 2020; Bundesärztekammer 2021). However, the proportion of GPs within the total number of physicians has decreased significantly in most countries in Northern and Western Europe (eurostat 2020). Rural areas are also severely affected by the shortage of doctors. These regions are sparsely populated and fewer patients are available in the catchment area, leading to more self-employed physicians in single-handed practices (Pedersen et al. 2012). Hence, the specialties and regions most affected by the shortage of doctors are thus those in which physicians work mainly self-employed.

The question then arises as to whether self-employment discourages future specialists. This qualitative systematic review will examine how medical students and junior physicians who have not obtained specialist registration imagine their future working conditions. Including attitudes towards self-employment in rural areas due to the physicians' shortage. The aim of the study is to describe the attitudes of future specialists toward self-employment in Northern and Western Europe. The results can be used to form recommendations to ensure demand-oriented care.

Methods

The study was conducted as a qualitative systematic review, where the PICo framework was used to frame the literature searches. The population (P) was defined as medical students and junior doctors not yet holding specialist registration, for example resident. The interest (I) was the attitude towards self-employment including attitudes towards self-employment in rural areas. The context (Co) was Northern and Western Europe. With these aspects in mind, we developed the following research question: *What attitudes do future specialists in northern and western Europe have towards self-employment and what factors influence these attitudes?*

Search strategy

The search strategy consisted of three keyword blocks linked to each other with the Boolean operator "AND". The first section dealt with the population and collected various terms for medical students and junior doctors and linked them with "OR". We collected different terms for future specialists by checking the literature. Preliminary we used the study by Wijnen-Meijer et al. (2013) to find relevant search terms, since it describes the different processes of medical education in different countries and also presents an overview of the terminologies. The second considered keywords related to career choice. The last considered self-employment in private practice. We also collected these keywords by checking the literature. The search strategy can be found in the supplementary information.

Identification and screening of studies

We performed a systematic literature search in the PubMed, Embase, and Web of Science. Two reviewers (JM and SG) performed title/abstract screenings and full-text screenings independently. Only JM understood the German studies. In order to make a reasoned decision about these studies, the abstract had to be in English. Additionally, JM presented

the contents of the German-language articles to SG. We conducted an unsystematic search alongside the systematic literature search. The reviewers checked the references of studies dealing with self-employment in private practice and searched in Google Scholar using the same keyword as in the systematic search.

Inclusion and exclusion criteria

The inclusion and exclusion criteria were determined according to PICo before screening the texts. The search only considered studies from 2011 to 2021 that were available in German, Danish, Swedish, Norwegian, or English and that had an English abstract available. Since the mind-sets of the generations change (Parment 2013) and the components of health care systems are constantly being modified, a longer period of time did not seem reasonable. Studies that did not unambiguously deal with self-employment in private practice were excluded. This led to the exclusion of descriptive studies that examined the choice of specialisation, without looking at self-employment. Both qualitative and quantitative studies on the topic of self-employment were included. The included studies had to examine the population of future specialists in countries in Northern and Western Europe. However, studies in countries where self-employment in private practice is not a general career option were excluded. This led to a possible inclusion of studies from Austria, Belgium, Denmark, France, Germany, Ireland, Netherland, Norway, Switzerland, and the United Kingdom. Systematic reviews were not included, as results should only be considered from the primary source. In addition, no quality assessment tools were used to select the studies.

Evaluation

We did a qualitative content analysis in which we compared both qualitative studies and quantitative studies. Qualitative as well as quantitative results were assigned to the categories. In conducting this qualitative content analysis, we followed recommendations of Kuckartz (2018). JM inductively formed categories while reading the studies. After reading half of the studies, JM and SG made the first summary of the categories. During further reading, the text passages and results were then assigned to these categories. If necessary, we created a new category. JM and SG further summarised the categories and generalised them as far as possible. Differences in the category summary were discussed and debated together. The category system (shown in Table 1) consists of various subcategories that have been arranged hierarchically, and represents all factors mentioned in the included studies.

Results

The PRISMA diagram in Fig. 1 presents the study selection process. We analysed a total of 19 full texts, 13 of which come from Germany and four others from German-speaking Switzerland. The remaining two studies are from Denmark and Norway. Eleven of the 19 studies examined the field of general medicine, while six publications conducted a survey independent from the field. These were mostly concerning medical students who had not yet chosen a specialisation. One study was from the field of rheumatology and one was related to the field of primary care. The surveys were mostly conducted via a questionnaire that used open questions. Approximately equal numbers of studies looking at medical students and residents were included. The included studies are listed in Table 2, and the results of the qualitative content analysis are presented below. An overview of all factors discussed in the following results can be found in Fig. 2.

Intention to work as self-employed in private practice

The intention to work as self-employed is considered in 14 of the included studies (Barth et al. 2017; Cerutti et al. 2015; Deutsch et al. 2013; Gedrose et al. 2012; Gibis et al. 2012; Gisler et al. 2017; Heinz and Jacob 2012; Pfeil et al. 2020; Roick et al. 2012; Schneider et al. 2013; Steinhäuser et al. 2013; Streit 2011; Ziegler et al. 2017; Zupanic et al. 2011). The proportion of future specialists who want to work as an employee was found to be higher than the proportion of those who want to pursue a career as a self-employed physician. A large proportion of the students surveyed stated that they found employment in a hospital very attractive. With regard to this, the results of Gibis et al. (2012) (78.1%) and Heinz and Jacob (2012) (77.3%) were similar. Surveyed students rated self-employment as a medical specialist other than GP (non-GP specialist) as almost as attractive as being employed at a hospital. Both career paths were described to be more attractive than working as a self-employed GP (Gibis et al. 2012; Heinz and Jacob 2012). According to Roick et al. (2012), the proportion of residents in general medicine who want to work self-employed (87.1%) is higher than that of non-GP residents (46.6%). However, Streit (2011) found that only 59% of the surveyed residents in general medicine wanted to work self-employed. This result is supported by Barth et al. (2017).

Ten of the included studies examined gender differences in attitudes towards self-employment (Barth et al. 2017; Cerutti et al. 2015; Gedrose et al. 2012; Gibis et al. 2012; Gisler et al. 2017; Heinz and Jacob 2012; Pfeil et al. 2020; Schneider et al.

Table 1 Category system

Category building on the text	1. Generalisation	2. Generalisation	3. Generalisation
Intention to work self-employed comparison of time	Intention to work self-employed in general	Intention to work self-employed	Intention to work self-employed
Intention to work self-employed			
Intention to work self-employed type of practice	Intention to work self-employed type of practice		
Intention to work self-employed type of practice and gender differences			
Intention to work self-employed gender differences	Intention to work self-employed gender differences		
Intention to work self-employed parent doctor	Intention to work self-employed parents		
Intention to work self-employed rural area	Intention to work self-employed location		
Intention to work self-employed school grade	Intention to work self-employed school grade		
Income	Income	Financial conditions	Working conditions
Financial risk and appreciation	Financial and entrepreneurial risk		
Financial risk			
Claim of health insurance, level of debt			
Claim of health insurance			
Take over price			
Financial support			
Entrepreneurial risk			
Financial risk, claim of health insurance			
Bureaucracy	Bureaucracy	Bureaucracy	
Support in legal questions			
Accounting			
Support in business			
Work commitments	Work commitments	Organisation	
Professional cooperation opportunities	Professional cooperation opportunities		
Working conditions	Working conditions		
Small work place	Small work place		
Environment/framework	Environment		
Planning uncertainty	Planning uncertainty		
Working conditions in hospital	Working conditions in hospital	Job satisfaction and practical experience	
Comparison of hospital vs. practice leads to a consolidation of motives			
Appreciation	Appreciation		
Torn between claims and views	Torn between claims and views		
Motivation	Stabilise motives		
Job satisfaction	Jb satisfaction		
High workload	High workload		

Table 1 (continued)

Category building on the text	1. Generalisation	2. Generalisation	3. Generalisation
Flexible working hours	Flexibility	Autonomy	
Self-determined work	Self-determined work		
Independence			
Autonomy			
Professional exchange	Self-responsibility		
Self-responsibility			
Leadership for the staff	Leadership for the staff		
Career opportunities	Career opportunities	Career opportunities	
Open workplaces	Open work places		
Specialisation factors	Specialty-dependent factors	Specialty-dependent factors	Specialty-dependent factors
Patient–doctor relationship			
Patient centred			
Broad spectrum of patients			
Outpatient spectrum of diseases			
Personal role models	Personal role models	Personal environment	Personal environment
Compatibility of work and family	Family		
Framework conditions for family			
Quality of life in the environment	Quality of life in the environment		
Support	Support		
Educational set-up	Education	Education	Education
Residency			
Absence of information on practice takeover			
Practical experience tranineeship	Practical experience tranineeship		
Support	Support	rural area	rural area
Practical experience	Practical experience		
Colleges	being on their own		
Distance to next hospital, colleges			
Individual working style			
Frequency of service			
Appreciation	appreciation		
Income	income		
Work–life balance	Work–life balance		
Spectrum of patients	Spectrum of patients		
Work environment	Work environment		

2013; Steinhäuser et al. 2013; Ziegler et al. 2017). Half of the studies concluded that the desire to work in an employment setting was greater among women and to work self-employed was greater among men (Barth et al. 2017; Gibis et al. 2012; Gisler et al. 2017; Schneider et al. 2013; Ziegler et al. 2017). Two studies found no significant difference between the genders (Heinz and Jacob 2012; Steinhäuser et al. 2013). Another two studies specifically focused on being self-employed as a non-GP specialist (Gedrose et al. 2012; Pfeil et al. 2020). Here, more women than men could imagine themselves working as a non-GP specialist in private practice. Gedrose et al. (2012) found that the proportion of female students considering self-employment as a non-GP specialist was 1.3 times higher than their male counterparts. However, there was no significant difference between the genders in the study from Gedrose et al. (2012) when it came to the general willingness to work as self-employed. Only one study indicated that more female students want to work self-employed in primary care (Cerutti et al. 2015).

Gisler et al. (2017) examined the question of when medical students and residents decide to become self-employed. Ninety-three percent of the female participants stated that they wanted to work as salaried employees in their first job, in comparison to 80% of their male counterparts. Sixty-four percent of the men wanted to work as an employee for less than 2 years before setting up a practice, while 64% of women wanted to be employed for 2 to 5 years first (Gisler et al. 2017). One study takes this aspect into account; Zupanic et al. asked students about their long-term expectations. In this survey, only 4% stated that they could not imagine working as self-employed in private practice in the long term (Zupanic et al. 2011).

Financial conditions

The financial conditions were considered in eight of the included studies (Abelsen and Olsen 2012; Barth et al. 2017; Buddeberg-Fischer et al. 2011; Deutsch et al. 2020; Gibis et al. 2012; Heinz and Jacob 2012; Pfeil et al. 2020; Roick et al. 2012). Both students and residents rated the financial conditions of self-employed physicians as poor (Barth et al. 2017; Heinz and Jacob 2012; Gibis et al. 2012). Financial conditions should be considered carefully, given the results of Roick et al. (2012) which concluded that financial conditions are of high importance for future physicians. Students in Germany estimated the median monthly income of a GP to be €4500 (Deutsch et al. 2020). According to Deutsch et al. (2020) this was around €2000 less than the actual income at that time. The income level considered adequate by female students surveyed was €1000 lower than that of male students (Heinz and Jacob 2012). They also preferred receiving a fixed salary, while their male counterparts were more satisfied with activity-based remuneration (Abelsen and Olsen 2012). Almost half of the students in the study carried out by Abelsen and Olsen (2012) preferred a mixed remuneration system consisting of a fixed salary and activity-based remuneration. Only 20% preferred a pure activity-based remuneration or pure fixed salary (Abelsen and Olsen 2012). Financial risk was frequently named as a disadvantage of self-employment by both students and residents (Barth et al. 2017; Heinz and Jacob 2012; Gibis et al. 2012). High investment costs involved in setting up and taking over a practice were mentioned, among other things (Gibis et al. 2012; Buddeberg-Fischer et al. 2011). In German studies, the fear of recourse claims by health insurance was also mentioned (Barth et al. 2017; Heinz and Jacob 2012; Pfeil et al. 2020; Gibis et al. 2012).

Bureaucracy and non-medical tasks

Four studies addressed bureaucracy, which was named as a negative factor of self-employment by both students and residents (Barth et al. 2017; Gibis et al. 2012; Heinz and Jacob 2012; Pfeil et al. 2020). Students noted the lack of experience with bureaucracy as discouraging when setting up a practice (Gibis et al. 2012; Heinz and Jacob 2012). Germany's accounting system was also highlighted by the surveyed students and residents as being a negative factor (Heinz and Jacob 2012; Pfeil et al. 2020). Interviewed students wanted targeted support and advice about administrative and legal issues (Gibis et al. 2012).

Organisation

Five of the studies deal with different aspects of the organisation (Barth et al. 2017; Buddeberg-Fischer et al. 2011; Gibis et al. 2012; Lillevang et al. 2019; Roick et al. 2012). In a German study, residents in general medicine stated that there are no externally-created circumstances within the scope of being a GP that are attractive (Barth et al. 2017). They also mentioned uncertainties with regard to planning at all levels and being torn between different claims and views. Thus, the surveyed residents wanted transparent professional framework conditions provided by politicians (Barth et al. 2017). Among the residents in general medicine surveyed by Buddeberg-Fischer et al. (2011), 51.2% stated that the restrictions on acquiring a practice license negatively influence opening their own practice.

Professional collaboration opportunities were important to respondents in the included studies. For example, residents in general medicine in the study by Lillevang et al. (2019) valued the close relationship with their colleagues in small group practices. Cooperation opportunities seemed to be more important to female residents, and

they seemed to be more relevant for physicians who want to work as an employee (Roick et al. 2012).

Job satisfaction during residency

Job satisfaction during residency was primarily examined in two studies, one from Germany and one from Denmark both looking on residents in general medicine (Barth et al. 2017; Lillevang et al. 2019). Here the experiences were very contradictory. Danish respondents spoke of a high level of satisfaction in their jobs and a good sense of well-being (Lillevang et al. 2019), while German respondents were very dissatisfied. In an interview, one GP resident stated that they felt like being "trampled underfoot". However, changing from working in a hospital to private practice encourages residents to work in private practice (Barth et al. 2017). For example, Buddeberg-Fischer et al. (2011) also indicated that 48.2% of surveyed residents viewed being a deputy GP in family practice as a positive influence on opening their own practice.

Personal responsibility

Personal responsibility were considered in four studies all looking at residents and was seen as an advantage of self-employment (Barth et al. 2017; Buddeberg-Fischer et al. 2011; Lillevang et al. 2019; Pfeil et al. 2020). Self-determined work and the more flexible working hours associated with it were seen as clear advantages (Barth et al. 2017; Buddeberg-Fischer et al. 2011; Lillevang et al. 2019; Pfeil et al. 2020). Respondents to Lillevang et al. (2019) also appreciated the responsibility they took over for the staff.

Career opportunities

Two studies addressed career opportunities by looking at GPs and primary care physicians (Barth et al. 2017; Cerutti et al. 2015). The unanimous opinion of the students and residents was that GPs and primary care physicians have good career opportunities with many job openings (Cerutti et al. 2015; Barth et al. 2017). Primary care physicians' career paths appeared to be diverse for the surveyed students (Cerutti et al. 2015).

Specialty-dependent factors

Four studies look at factors that deal with the medical work of a self-employed physician (Cerutti et al. 2015; Heinz and Jacob 2012; Lillevang et al. 2019; Pfeil et al. 2020). The influencing factors differ depending on the specialty considered. In regard to the specialty of general medicine, a broad and diverse patient spectrum was mentioned. This was linked to a unique long-term doctor–patient relationship (Cerutti et al. 2015; Lillevang et al. 2019). The specialty-dependent factors in general medicine were rated positively. In contrast, surveyed rheumatologists in residency rated the outpatient spectrum of rheumatologic diseases as a negative point for self-employment (Pfeil et al. 2020).

Personal environment

Five of the included studies considered the personal environment (Barth et al. 2017; Buddeberg-Fischer et al. 2011; Heinz and Jacob 2012; Lillevang et al. 2019; Roick et al. 2012). Compatibility with the family and work–life balance were important for all specialists (Barth et al. 2017; Heinz and Jacob 2012; Lillevang et al. 2019; Roick et al. 2012), but were stronger deciding factors for women than men (Barth et al. 2017; Roick et al. 2012). Moreover, these conditions were especially important for younger physicians. Quality of life within the environment was more important for men than women, as well as for physicians who grew up in the city rather than in a rural region (Roick et al. 2012).

The positive influence of personal role models who are self-employed in private practice was also mentioned by residents in general medicine. Thus, personal role models could motivate others to establish their own practice (Barth et al. 2017; Buddeberg-Fischer et al. 2011).

Education

Education was considered in six of the included studies (Abelsen and Olsen 2012; Buddeberg-Fischer et al. 2011; Deutsch et al. 2013; Heinz and Jacob 2012; Lillevang et al. 2019; Ziegler et al. 2017). Students described practical experience and teaching content during training as influencing career choice (Abelsen and Olsen 2012; Heinz and Jacob 2012). The lack of information about taking over a practice was one of the six most frequently chosen reasons against setting up a practice in the survey from Buddeberg-Fischer et al. (2011). Heinz and Jacob (2012) reported a positive influence of practical experience during their studies. In the Danish study, residency in general medicine is described as very attractive and seems to help residents prepare well for later career opportunities (Lillevang et al. 2019). Ziegler et al. (2017) noted a contrary trend among students undertaking their residency in outpatient care. Here, attitudes towards self-employment changed during the residency, moving away from self-employment toward being employed. Deutsch et al. (2013) investigated the influence of an early community-based family practice elective with one-to-one mentoring on the students' attitudes towards general practice.

The proportion of those who favoured general medicine as a specialisation increased from 26% to 32.7%. Willingness to work as self-employed was neither positively nor negatively influenced by the course.

Rural area

Rural areas were considered in three of the included studies (Heinz and Jacob 2012; Steinhäuser et al. 2013; Wilhelmi et al. 2018). The most frequently described aspect of setting up a practice in rural areas is the personal context. Steinhäuser et al. (2013) found a positive significant correlation between the idea of being self-employed in a rural area and a family-friendly environment. Another aspect was the physician's personal connection to the region. Coming from a rural area increased the probability that a resident will work as self-employed in a rural area more than twofold (Steinhäuser et al. 2013). According to Heinz and Jacob (2012), 76.2% of medical students who came from a village with less than 5000 inhabitants would also settle in a similar-sized village. However, a personal connection to the region does not only have to be linked to where the physician comes from. Friends, hobbies, vacations, or other stays in rural regions can also create such a relationship (Wilhelmi et al. 2018).

Another important factor was the collegial environment. The respondents of Wilhelmi et al. (2018) and Heinz and Jacob (2012) stated that they would feel more alone in rural areas. Lack of professional exchange with colleagues would deter them from settling in rural areas. Long distances to the nearest hospital and colleagues was also mentioned. Future specialists would have to become more confident and self-assured to dare to take this step. The lack of further training in rural areas was also criticised. However, the perceived lack of support from colleagues contrasts with the significantly higher perceived support from the communities (Wilhelmi et al. 2018).

The financial situation of rural physicians in private practice is assessed differently. Wilhelmi et al. (2018) describe the financial situation as positive, while medical students who responded to Heinz and Jacob (2012) state that it is poor.

Rural areas were described as boring working environments where there is a danger of routinisation of work that may arise due to a narrow patient spectrum. It was mentioned that the patient spectrum includes many old patients and that there is little freedom of therapy (Heinz and Jacob 2012; Wilhelmi et al. 2018).

Discussion

This is the first systematic review of the attitudes of future specialists towards self-employment in private practice, to the best of our knowledge. One of the most frequently mentioned factors was work–life balance and the associated compatibility with family. This also coincides with the results of studies on generational research. Ernst and Young (2013) found that family and friends are of the greatest value to the younger generation. In addition to this, work–life balance and compatibility with the family is more important for women than men (Diderichsen et al. 2013). Due to the increasing proportion of female physicians, the work–life balance might also be considered to be more important.

It can also be seen in entrepreneurship research that more men than women start their own businesses. The proportion of self-employed women is lower than that of men in all OECD countries (OECD 2022b). In the included studies, we noticed a security aspect, which was particularly important for women. Women are more likely to be employed and prefer a fixed salary. Employment promises a high degree of security due to fixed salaries and good cooperation opportunities. It should also be taken into account that in families, even today, it is often the women who tend to stay at home when a child falls ill (Hobler et al. 2017). Employees receive their income even in the event of illness. Thus, employment is increasingly attractive, especially for young women with children. Gisler et al. (2017) came to the same conclusion, as future female specialists want to work longer in employment than men.

Flexibility is often rated as a positive aspect of being self-employed in private practice. This refers to the flexibility of the work itself. Flexibility with regard to a quick change of job is not guaranteed when self-employed. However, this type of flexibility is important to Generation Y. They have grown up with a multitude of choices and want to keep them open (Parment 2013). This could also explain Zupanic et al.'s results (2011), according to which only 4% of students would not want to be self-employed for their entire career. Young doctors want to keep their choices open. Moreover, Generation Y changes its attitudes and views more quickly (Parment 2013). These aspects contradict the idea of opening a practice and spending one's whole professional life in the same place.

As previously mentioned, future specialists seem to prefer more cooperation opportunities. This was also seen in studies on Generation Y (Parment 2013; Brinkmann 2020). These cooperation possibilities promise support in the event of unclear questions. Young physicians often leave their residencies with low levels of self-confidence. Cooperation opportunities provide more security in many respects. Physicians can discuss medical issues and exchange experience in practice management. In the case of a group practice, patient care can be organised easier in the event of physician illness. Responsibility for staff and the financial and economic risks can also be shared. A trend towards group practices can be seen in many countries (Gerkens and Merkur 2020; Olejaz et al. 2012; DePietro et al. 2015; Kroneman et al. 2016; Kassenärztliche Bundesvereinigung (KBV) 2022b). This trend is likely to continue due to the increasing attractiveness of collaborative opportunities, especially among women. Group practices also have economic advantages. For example, health care efficiency could be improved and resources are saved by

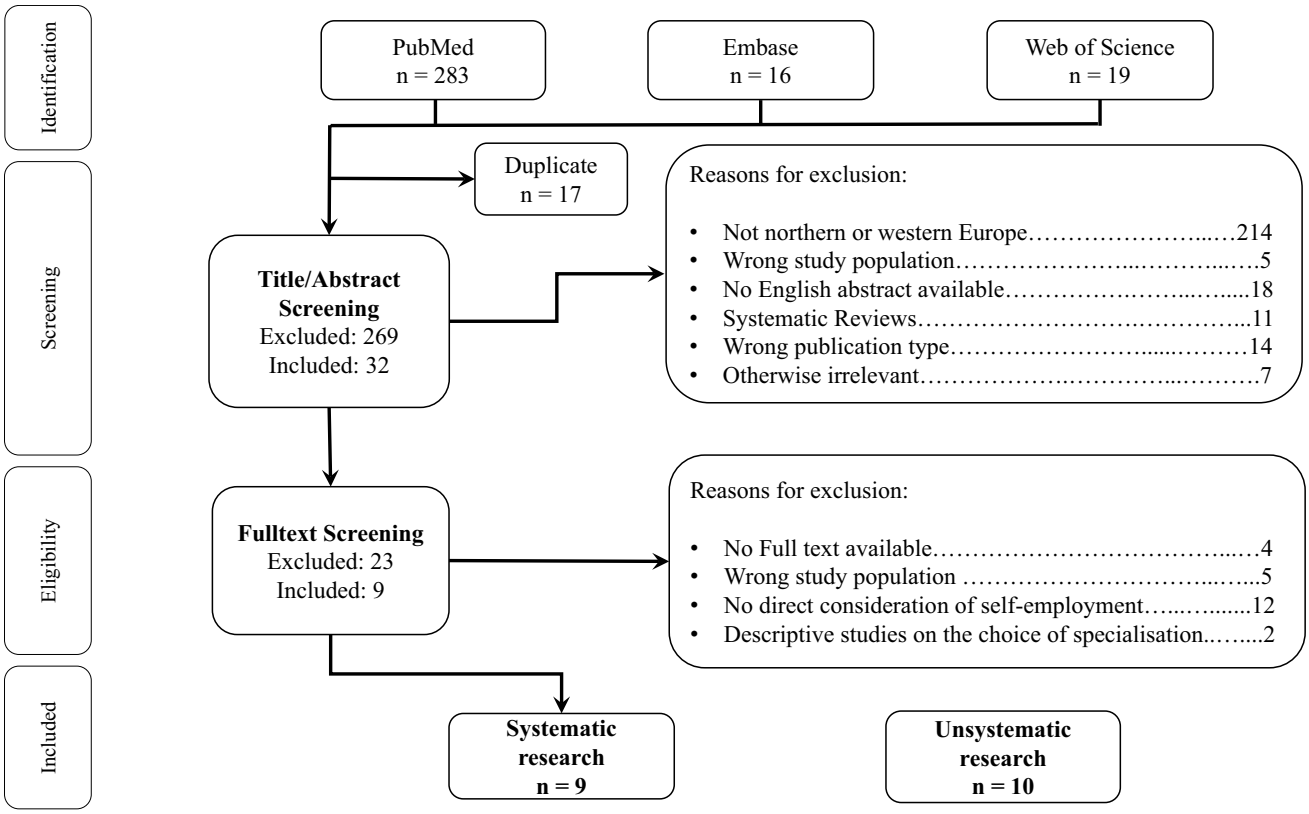

Fig. 1 PRISMA diagram

sharing equipment. In rural areas, establishing a group practice is likely to be more difficult due to the sparse population (Pedersen et al. 2012). In these cases, a mentor could support the young physicians. The mentor can help build a communication infrastructure with colleagues and answer important questions (Wilhelmi et al. 2018). Generation Y also wish to received direct feedback on their work (Evans et al. 2016; Brinkmann 2020).

Early information to future specialists about the working conditions of a physician in private practice seems to be very important. Future specialists have no real idea about the financial situation of self-employed physicians. On the one hand, income is greatly underestimated, and on the other hand, financial risk is often a topic of discussion (Deutsch et al. 2020). Targeted information is crucial here. Future specialists' concerns about financial risks could be reduced. Informing future specialists about average income may also increase the attractiveness of setting up a practice. Furthermore, the lack of administrative knowledge was named as an obstacle to setting up a practice (Heinz and Jacob 2012). Medical students are still too far away from opening their own practice. Thus, this knowledge is not yet considered important in their studies. This leads to them mostly having little information about practice management. Many studies have shown that a primary care curriculum positively influences participants' attitudes towards a career in this field. Informing students at an early stage seems to have an impact on their attitudes (Chung et al. 2016; Ford et al. 2018; Hawthorne and Dinh 2017; Phillips and Keys 2018). This indicates that curricula could be developed that also address self-employment in private practice.

Practical experience has been shown to have a positive influence on self-employment in private practice. This could be due to role models, as well as to a better assessment of working conditions. The study by Deutsch et al. (2013) found that an early community-based family practice elective did not affect the idea of setting up a practice. However, this may also be due to the content selected to be part of the curriculum. Further research is needed to find out what information should be displayed and how. Evans et al. (2016) found that moving from pure lecture-based courses to those that incorporate hands-on activities increased the interest and information retention of Generation Y medical students.

Limitations

The strengths and weaknesses of this work lie in the strengths and weaknesses of the included studies. In this regard, the most frequently addressed issue is the study population. Thus, future specialists, who are already interested in self-employment, may have been more likely to participate in these surveys. As a consequence, there might

Table 2 Studies included

Author	Country	Year of publication	Year of data extraction	Study population	Specialisation	Study design	Methods
Systematic research							
Abelsen et al.	NOR	2012	2010	Medical students and internship	General medicine	Cross-sectional survey	Online questionnaire
Barth et al.	GER	2017		Residents	General medicine	Mixed-method survey	Focus group interview, narrative interview and questionnaire
Cerutti et al.	SUI	2015	2010 and 2013	Medical students	Primary care	Cross-sectional survey	Questionnaire with Likert-scale
Deutsch et al.	GER	2013	2008 and 2010	Medical students	General medicine	Longitudinal study	Questionnaire partly with Likert-scale
Gedrose et al.	GER	2011	2009	Medical students after practical year	None	Mixed-method survey	Focus group discussion and questionnaire
Gibis et al.	GER	2012	2009	Medical students	None	Cross-sectional survey	Questionnaire with closed questions
Pfeil et al.	GER	2020	2018	Residents	Rheumatology	Cross- sectional survey	Questionnaire
Schneider et al.	GER	2013		Medical students	General medicine	Cross-sectional survey	Questionnaire with Likert-scale
Wilhelmi et al.	GER	2018		Medical students and graduates	General medicine	Qualitative cross-sectional survey	Focus group interviews, semi-structured interviews and brainstorming
Unsystematic research							
Buddeberg-Fischer et al.	SUI	2011	2009	Residents	General medicine	Longitudinal cohort study	Questionnaire partly with Likert-scale and open-ended questions
Deutsch et al.	GER	2020	2017	Medical students	None	Cross-sectional survey	Questionnaire
Gisler et al.	SUI	2017	2016	Medical students, residents and graduates	General medicine	Cross-sectional survey	Questionnaire
Heinz et al.	GER	2012	2010	Medical students	None	Cross-sectional survey	Questionnaire with open-ended and closed questions
Lillevang et al.	DEN	2019	2015	Residents	General medicine	Cross-sectional survey	Questionnaire with open-ended and closed questions
Roick et al.	GER	2012	2007	Residents	General medicine	Cross-sectional survey	Questionnaire partly with Likert-scale
Steinhäuser et al.	GER	2012	2010	Residents	General medicine	Cross-sectional survey	Questionnaire partly with Likert-scale
Streit	SUI	2011	2011	Residents	General medicine	Cross-sectional survey	Questionnaire
Ziegler et al.	GER	2017	2008–2015	Medicals students in practical year, residents (follow up)	None	Longitudinal study, questionnaire	Questionnaire partly with Likert-scale
Zupanic et al.	GER	2011	2010	Medical students	None	Cross-sectional survey, questionnaire	Semi-standardised online Questionnaire

DEN, Denmark; *GER*, Germany; *NOR*, Norway; *SUI*, Switzerland

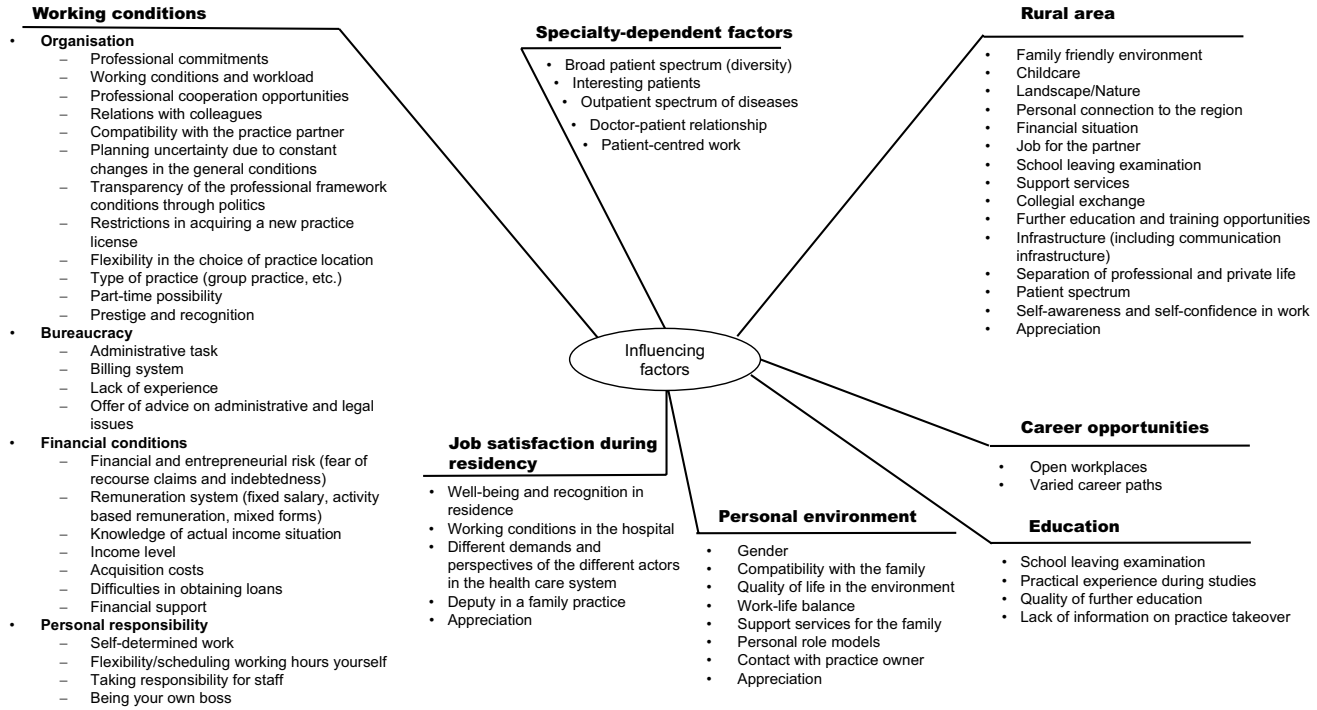

Fig. 2 Influencing factors from the qualitative content analysis

be an overrepresentation of the willingness to work as self-employed in private practice.

Another limitation is the high proportion of studies found via the unsystematic search, as there is a risk that relevant studies were not identified by the search strategy used. A large proportion of the included studies comes from Germany. This could result in a potential bias, as the main author is from Germany. However, the Danish author also conducted the unsystematic search and found studies that were mainly published in Germany. This could be due to the fact that German has a specific term for a self-employed physician in private practice. This may give the topic more attention and make searches more precise. In English, there is only a description of the job profile. For this reason, the commonly used terms for self-employment in private practice were collected in the search strategy. However, it is possible that some countries use terminology that we have not identified, which may have resulted in the loss of studies. In addition, there are different terms for future specialists in different countries, which also may have resulted in the loss of studies.

Creating the search strategy was the biggest challenge in this review due to the incongruence in terminology. We have tried to meet the challenge by carefully working out the keywords. Extensive non-systematic research was carried out to include as many relevant studies as possible. If relevant studies were not found, this may be due to the linguistic diversity of the topic rather than the diligence of the author.

Different definitions of terms also posed a challenge in the evaluation of the studies. For example, the term primary care is used differently in several countries. Cerutti et al. (2015) look at primary care physicians without defining this term. Readers are left to make their own assumptions. Since this is a Swiss study, it is likely that general practitioners, paediatricians, internal medicine doctors, and gynaecologists are considered here (Kringos et al. 2015).

Another limitation is that no quality assessment tools have been used in this qualitative systematic review. We piloted quality assessment, but did not follow through out of concern that only few studies would remain. Given that similar patterns could be observed across the included studies it is likely that our results are reliable. We further believe it is important to provide an overview of all relevant studies conducted on this topic. It is clear that although research has been done in this field, further research with strong methodology is needed. This circumstance could also explain the higher proportion of search results from the PubMed database, which provides larger access to the grey literature.

The health care systems and training of future specialists differ in the countries considered. One difference, for example, lies in the remuneration of self-employed physicians. Also the role of the GPs varies; in some countries, they function as gatekeepers to more specialised treatment. Structural differences in medical training mean that residency is perceived very differently in Germany and Denmark, as suggested by our results. We did, however, exclude

studies from contexts where self-employment is not a general career option (e.g., in Sweden), to diminish the potential effect of structural differences between health care systems.

Conclusion

This work shows a wide range of factors that influence future specialists in terms of self-employment. It can be seen that opportunities for cooperation, compatibility with family, and a need for security are deciding factors for many future specialists. The attractiveness of self-employment could be increased by intervening in education. Universities should be aware of informing medical students about possible career paths to provide an informed decision-making process. Contact with colleagues is also a crucial factor. In rural areas, a mentor could be organised to assist young doctors with any questions they may have. This mentor should be available for all questions (medical and administrative). This would perhaps also reduce the uncertainty of future specialists.

However, Generation Y seem less interested in long-term work commitments. This indicates that it might be time to consider whether self-employment in private practice is outdated and new forms of organisation should be brought into focus in the long term. The focus could be on group practices or medical centres. In sparsely populated regions, several doctors could share practice rooms. Here, different specialists could work on different days to save acquisition costs and have contact with colleagues. New forms of working in outpatient care should be developed, or medical education structured in a way that makes working self-employed in private practice attractive to young physicians, as this will help ensure demand-oriented care.

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