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Values and beliefs on trainee selection: What counts in the eye of the selector? A qualitative study exploring the program director's perspective

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ABSTRACT

Objectives: Postgraduate trainee selection is a high-stakes process. While many studies focused on selection methods and psychometrics, little is known about the influence of selectors' personal values and beliefs in the judgment and decision-making process. A better understanding of these factors is vital since selectors determine the future workforce.

Methods: We interviewed programme directors (PDs) from 11 specialties in one University Hospital. Thematic analysis was conducted with a combined approach of generic and in-vivo coding.

Results: PDs value excellence, 'fit' and personal characteristics. The content of these values are subject to personal interpretation and differ between PDs. PDs use various 'proxies' as alternative indicators of performance. They consider intuition, teamwork and autonomy important in judgement and decision-making. PDs find selection challenging and feel great accountability towards candidates and society.

Conclusions: Selectors criteria of judgement- and decision-making often remain implicit and focus on prior achievements and 'fit' with the current trainee-pool, possibly compromising the workforce's diversity. Implicit 'proxies' and intuitive decision-making may be an unwitting source of judgemental bias. 'Making the implicit explicit', by increasing awareness of personal values and beliefs and structuring the selection interview, may improve the quality of trainee selection.

KEYWORDS
Selection; postgraduate; medicine; decision-making

Introduction

A sustainable, well-prepared and qualified medical specialist workforce starts with proper selection of trainees. Selection and admission is a high-stakes process for both candidate and selection committee, and it is an important transition moment in the medical education continuum (Roberts et al. 2018). Selection should be fair and transparent and reliably predict future performance (Plint and Patterson 2010; Bandiera et al. 2015; Patterson et al. 2016). Yet, subjective factors such as the personal opinion of the selector may affect the selection process. Despite a large body of literature on psychometrical aspects of selection methods (Stephenson-Famy et al. 2015; Patterson et al. 2016; Roberts et al. 2018) little is known about the influence of selectors' personal values and beliefs in the judgement- and decision-making process. As these selectors are key players in deciding who will be admitted to postgraduate training programs, a better understanding of their values and beliefs in this process is vital.

Considering selection procedures in the context of Postgraduate Medical Education (PGME), two types of selection frameworks emerge (Roberts et al. 2018). The first framework uses locally defined criteria, subject to personal opinions of the selectors and emphasizes past academic achievement. Roberts refers to such a framework as 'subjective'. The second framework applies well-defined criteria and multiple selection methods, based on principles of organizational psychology. It is considered more 'objective'.

Practice points

- The PDs personal values and beliefs are important determinants of the selection process outcome.
- PDs embrace the importance of intuition, yet acknowledge that it can fail.
- PDs show various types of bias when deciding who to admit.
- Tension occurs when selectors negotiate between values relating to different selection principles.
- 'Making the implicit explicit' may improve the quality of trainee selection.

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A review conducted by Stephenson-Famy et al. (2015) shows the complexity of the selection process and the fact that procedures vary greatly between specialties and programmes. Even though numerous instruments are being used (e.g. cognitive performance indicators (grades), letters of recommendation, personal statements), the traditional interview is most common (Stephenson-Famy et al. 2015). Studies investigating predictive validity and reliability of the traditional (unstructured) selection interview have disappointing outcomes though (McDaniel et al. 1994; Huffcutt et al. 2001; Stephenson-Famy et al. 2015). This is due to its non-structured content and the possibility of (interviewer-)bias. Selection methods that structurally assess non-cognitive skills, including a structured interview, seem promising regarding the prediction of clinical performance and are being recommended (Patterson et al. 2000; Stephenson-Famy et al. 2015; Gardner et al. 2018; Roberts et al. 2018). Various scholars therefore propose a structured, competency-based selection procedure which combines several selection methods and aligns with curricular learning objectives (Patterson et al. 2000; Plint and Patterson 2010; Bandiera 2013; Patterson et al. 2013; Bandiera et al. 2015; Roberts et al. 2018).

With regards to human judgement and decision-making in selection, Slaughter and Kausel (2013) differentiate between 'judgemental' (intuitive) and 'mechanical' (analytical) approaches. This distinction applies both to how predictive information is collected and used to form an *opinion* of the candidate (*the process of judgement*), and to how this information is subsequently weighed and used to make the *decision* (*the process of decision-making*). The distinction between 'intuitive' and 'analytical' relates to the dual process of 'System 1' versus 'System 2'-thinking (Kahneman 2011). System 1 is automatic, involuntary and almost effortless whereas System 2 is controlled, voluntary and effortful. Intuitive judgements have the characteristics of System 1 activity (Kahneman and Klein 2009). The approach most commonly used in selection decisions is the 'judgemental composite' form. This approach combines intuitive (e.g. general impression) and analytical (e.g. personality assessment scores) information and weighs this information in an intuitive manner (Slaughter and Kausel 2013).

In general, selectors tend to prefer intuitive judgement (Kleinmuntz 1990; Grove et al. 2000; Miles A and Sadler-Smith 2014; Hubbard 2015) and show scepticism towards analytical decision-making (Grove et al. 2000; Highhouse 2008; Kahneman and Klein 2009). This is an important observation since intuition may be based on biases and heuristics rather than on skills or experience. These bias and heuristics may, in turn, lead to severe and systematic errors in judgement and decision-making during the selection process (Tversky and Kahneman 1974; Kahneman and Klein 2009).

Looking beyond methods and psychometrics, the high stakes decision on who to admit to postgraduate training is entrusted to the people in the selection committees. But *how* do selectors use the selection instruments, and what is their preferred way of decision-making? What do they value and take into account when judging candidates? Scarcity of insight into how the selector's personal values and beliefs affect the selection process is an important gap in the medical education selection literature (Miles and Sadler-Smith 2014; Posselt 2014; Roberts et al. 2018). We consider values as principles, standards or qualities that individuals or groups hold in high regard and influence judgement, preference and actions (Rokeach 1973). Beliefs are defined as concepts, convictions or assumptions that people hold to be true but may not be based on evidence or logic. Beliefs often serve as a frame of reference through which we interpret our world (McLean 2002).

If we want to improve the selection process, it is vital to look into these values and beliefs. In this study we studied the following research question: 'Which values and beliefs of selectors play a role in the judgement- and decision-making process of trainee selection'?

Methods

Study design

We conducted an interview study using an explorative, inductive and qualitative approach. In line with the naturalistic paradigm (Cohen et al. 2002), we investigated the program directors (PDs) values and beliefs regarding the selection and admission of trainees, acknowledging that their perspective is a social construction of reality, based on their experiences and interpretation.

Setting

Undergraduate medical education in the Netherlands takes 6 years. After graduation, most doctors acquire work-experience as a doctor not in training (DNIT) or as a PhD-candidate, before applying for specialty training. The time-interval between graduation and start of residency training is on average two to three years (Soethout 2007). Postgraduate training programs are either 'hospital-based specialties', lasting four to six years, or 'non-hospital based' specialties, e.g. general practice and public- and occupational health, lasting three years. We chose to focus on the context of 'hospital-based' specialties, as different training programs of these specialties have similar curricula and work-environments.

Selection and admission procedures are mostly designed according to local preferences, referred to as the 'open market policy' (Weggemans et al. 2017). Some specialties use a centralized procedure whereas others select their candidates either regionally, i.e. university hospital with affiliated partners, or locally, i.e. university hospital only. The core of the procedure is the job-interview, comparable to procedures in countries as the UK, US and Canada. After screening application letters and resumes, applicants are invited for a job-interview. Additional instruments, e.g. an electronic assessment centre, personality assessment, portfolio, aptitude test or reflection report, may be used. A selection committee consists of programme directors (PDs) and staff members, trainees and occasionally members of the Human Resource department.

Participants

We investigated the perspective of the PDs as they are the key member of the selection committee and have final

responsibility for the quality of postgraduate training. We invited potential participants by email, through the secretaries of the Central Board for Postgraduate Education (in Dutch: Centrale Opleidings Commissie, COC). Of those who were willing to participate, we purposively sampled PDs from different types of specialties in order to obtain a broad and heterogenous sample. Participation was voluntary and PDs were able to withdraw at any time. Written informed consent was obtained from all participating PDs.

Ethical considerations

The study was ethically approved by the Ethical Review Board of the Dutch Association of Medical Education; NVMO-ERB protocol number: 00297.

Sampling and data collection

We conducted semi-structured interviews in one University Hospital in the Netherlands. We purposively sampled PDs from different specialties: medical and surgical, more- and less competitive and large and small program size. The principal investigator (KD) and one research-assistant (CN) conducted the interviews (Interview protocol is included in Appendix 1). The interviews lasted an hour on average, were audio-recorded and transcribed verbatim. Data were collected between January and June 2017. We included 11 PDs (four women, seven men), five were from surgical specialties, six from medical specialties.

Data analysis

Three researchers (KD, JB & MvdB) conducted the qualitative thematic analysis. We conducted first cycle coding while using general codes as described by Miles and Huberman (1994). These general codes are 'not content-specific but point to the general domains in which codes can be developed inductively' (Miles and Huberman 1994). This approach enhances an analytical view in order to determine how a relevant passage is categorized according to the general codes. This step of first cycle coding could be viewed as the first phase of Braun and Clarke's thematic analysis: familiarizing ourselves with the data. The first three interviews were coded according to these general codes. Afterwards, four researchers, KD, JB, MvdB and AJdB, transformed the general codes into meaningful content-specific codes relevant to selection and admission. This is in line with the second phase of thematic analysis as described by Braun and Clarke (2006). Interviews were coded using this specified code list by two researchers (KD and JB); any discrepancies were discussed until consensus was reached. In case of disagreement or doubt, the third researcher (MvdB) was consulted. MvdB mediated by enhancing an analytical view of 'what the data told us'. In all cases then consensus could be reached. After coding all interviews, second cycle coding was conducted; also known as 'pattern coding' (Miles and Huberman 1994). This is in line with phase three to six of thematic analysis (Braun and Clarke 2006). In this phase, themes were identified, graphically put into a mind-map and extensively and repeatedly discussed and rearranged with the team and reviewed on relevance and fit with the data. It took several iterations to complete this phase. The report was drafted, discussed with the research team and presented to the participating PDs for member check. The member check yielded no adjustments.

KD kept a research diary documenting all steps and decisions. Saturation was reached after eight interviews, when we were confident of having achieved sufficient depth of understanding of the existing themes and no new themes emerged (Saunders et al. 2018). We then conducted three more interviews to verify this. During the analysis-process all members of the research team discussed preliminary and final themes. Data analysis was supported by MAXQDA® software (MAXQDA Verbi Software GmbH, Berlin, Germany).

Reflexivity

We acknowledge that the background of our research group has influenced collecting, analyzing and interpreting the data. In order to reduce bias, we worked as a multidisciplinary research team. KD, the lead researcher, is a trainee in Obstetrics and Gynaecology (O&G) and thus was once candidate in a selection procedure. As the data collection took place in another training region, KD had no working relationship with the interview participants. JB has a background in educational sciences and is a senior consultant in PGME. Both KD and JB are involved in redesigning the current selection procedure for their region's O&G-training program. MvdB is an experienced researcher in higher education, an expert in qualitative data analysis and program director of the teacher education program at a Technical University. She was engaged in data analysis and interpretation to provide us with an outsider perspective. JvL is a trained gynaecologist, full professor at the Obstetrics department and program director of the regions' O&G training program. At the national level, he is the Chair of the Dutch Association of Gynecologists. EWD is a renowned expert in the field of medical education, department chair and full professor at Maastricht University. AJdB is a trained pediatrician, holds a PhD in Medicine, is co-director of the Medicine Master Program and senior researcher. We maintained critical dialogue as a team regarding the meaning and interpretation of our data in order to minimise unwarranted assumptions.

Results

Thematic analysis revealed that the PD's values and beliefs relate to two constructs: (1) the ideal candidate and (2) challenges for the selector. Judgement- and decision-making is intertwined in both themes. We describe the most relevant themes and subcategories, illustrated with quotes. Table 1 shows an overview of themes and subthemes.

The ideal candidate

PDs seem to have clear, yet varying, views on the features they seek in a candidate, e.g. cognition, personality, competencies, motivation, fit. Underlying values guiding their judgement were: excellence, competence, fit and personal characteristics. The content of these values is subject to personal interpretation of the PDs, though common

Table 1. Themes and subthemes.

Theme	Subtheme	Category
The ideal candidate	1. Merit	1.1. Research participation / PhD-trajectory
		1.2. Extracurricular activities
		1.3. Clinical work experience
		1.4. Grades/Cognition
	2. "Fit in"	2.1. Fit into existing group
		2.2. Contributing to heterogeneity of group (diversity)
	3. Competencies/ Attributes /Characteristics	3.1. At present (e.g. gender, age, manual dexterity, authenticity, motivation, resilience, perfectionism etc.)
		3.2. Potential for the future
	4. Pre-selection	4.1. Knowing the candidate
		4.2. Indirect routes
Challanges for the selector	5. Judgement and Decision-making	5.1. Intuition
		5.2. The use of proxies and rubrics
		5.3. Judgemental biases
		5.4. Teamwork and (in)equality of committee members
	6. The complexity of selection	6.1. General unreliability or difficulty
		6.2. Unreliability or difficulty of selection instruments
		6.3. Selectors' uncertainty / Insufficient training of the selector
	7. Responsibility & accountability	7.1 Emotions related to selection
		7.2 Transparency and fairness
	8. Improvement/Professionalisation	8.1 Training the selector
		8.2 Structuring the procedure
		8.3 Share best practices

ground was seen in past research- or clinical performance, grades and extracurricular activities. The following quotes illustrate the different perspectives on the meaning and importance of previous research experience. While some PDs believe that merit in research, e.g. PhD degree, implies the mastery of critical thinking skills: 'I believe that, to be a competent physician, you should be trained as a scientist. I think you learn a lot from this [research] … it will make you a better professional because you understand what is described in literature and because you can participate in many scientific discussions' (PD8). Other PDs weigh research- and clinical skills quite differently: 'I consider that [the prerequisite of having conducted research] to be over the top, as in, I do not train scientists, I train doctors and they do not need to have a PhD' (PD4). Some PDs perceive the 'research-candidates' without clinical experience as a risk group prone to dropout and impaired clinical performance.

In addition to features that reflect 'merit' through past performance, PDs also pay attention to what the candidate could bring to the workforce. Values involved here are growth, learnability, adaptability and contribution. PDs use 'past performance' to predict 'future performance'. This past performance is assessed by observing candidates during clinical duties, e.g. DNIT-employment or elective rotation, and research activities, e.g. PhD-trajectory. PDs seem to look for certainty and control regarding the future performance of candidates. They expect to achieve this by admitting candidates they 'know'. 'When in doubt, a candidate from our own region is preferred over a candidate from outside the region …. because we can be more certain in that case' (PD1). PDs vary in the extent to which they value 'knowing the candidate', ranging from requirement, i.e. exclusively selecting from their own pool of PhD students or DNITs, to preference.

PDs value the candidate's 'fit' into the group. This fit is perceived as a prerequisite for successful completion of residency. The judgement of the peer-trainees in the selection-committee has specific significance to the PDs as 'they [the trainees] need to work with them [the candidates] directly' (PD11).

PDs have strong beliefs regarding the value of specific personal characteristics and they weigh these differently, for example when it comes to gender, age and medical school grades. These beliefs can play a role in the final decision to admit a candidate: 'We rather admit a 25 year old, … because at 30 ….we consider that to be way too old. That is not going to work. Someone can only be a specialist for a short time then. And the ability to learn is much easier for someone between 25 and 30 than between 32 and 37' (PD1), whereas sometimes the belief is explicitly stated not to be a factor in the final decision: 'But the manual dexterity, that is just more prominent in boys than girls …. [Later on in the interview:] But look, a guy that just hasn't got his ducks in a row, is useless to me too. So in that sense gender doesn't matter much' (PD9).

Some PDs mentioned considerations regarding heterogeneity or diversity: 'I believe diversity is the driving force behind an effective organization. And if you standardize, you just create uniformity' (PD8). For PDs, a heterogeneous group of trainees means balanced numbers of male versus female trainees and trainees with different fields of interest, i.e. the 'researcher' versus the 'clinician' versus the 'manager': 'At times, when we've just admitted five female candidates, we just prefer a male. Or the other way around. While, in the end, we always want to pick the best candidate' (PD4).

Challenges for the selector

When it comes to judgement our analysis revealed that PDs use 'proxies' for the assessment of certain characteristics as alternative indicators of a desired feature: 'Because

musical talent. Perhaps I'm biased as I'm a passionate musician myself. But if you make music you have to be a good collaborator. Otherwise you wouldn't be able to make good music' (PD6). In this quote, practicing music is taken as a proxy for collaboration skills. The factors which are seen as a proxy vary. Some PDs use proxies deliberately and consciously, e.g. because they do not have a better instrument at hand, others seem unaware of proxies they use.

Most PDs stated that, when it comes to decision-making, teamwork is important. The final decision on who to admit is made with the entire selection committee. They value mutual trust, consensus and a broadly supported decision. Criteria upon which to assess the candidates, however, often remain implicit, 'No rules, which candidate gives us a good feeling?' (PD11); sometimes deliberately: 'When you've been collaborating for such a long time you don't need to [discuss criteria of judgement]' (PD9). They acknowledge how all members of the committee value features of the candidates differently and find this autonomy beneficial: 'Every committee member has her own unique contribution and ideas about what the ideal candidate looks like' (PD1). This way of decision-making is also perceived to have certain benefits: 'The view of the group protects you from blunders and blind spots' (PD4). On the other hand, as all selection committee members seem to have equal votes, some implicit exceptions to the rule exist. Exceptions vary from the use of a 'veto' in case of persistent hesitation by one member, to the unwritten rule that the PD has the final say. Additionally, steering the decision in one particular direction and 'political voting' were mentioned: 'We really are a region in which we're very communicative. Where we have a shared responsibility for the decisions and yes, in the end [X] is the boss, that's just how it is. And everybody accepts that' (PD5).

In many interviews the role of intuition emerged. PDs point out how important it is to 'feel good about a candidate' and how they rely on this gut feeling. Intuition emerges quickly after the start of a job-interview, 'Give me three minutes and I know' (PD6), and is considered trustworthy 'I've learned… I have to listen to my gut feeling' (PD11). PDs brought up how they valued intuition as important means of decision-making. Some PDs had worked with a very structured procedure in the past and found this grid very artificial: 'But this led to unnatural and forced conversations, without the freedom to explore other avenues. We stopped doing that…' (PD3).

Our data illustrate how intuition and scoring and ranking systems are intertwined during the decision-making process, with great variation in the extent of structuring. The final scores mostly represent the overall impression of the candidate, by some acknowledged as a potential pitfall: 'But this is all very subjective. Yes, it's tricky, it's that gut feeling if I'm being honest' (PD4). PDs noticed the discrepancy between the sum of the sub scores and the 'overall impression': 'Someone may have excellent scores on all these sub-parts and still be completely unsuitable' (PD9).

PDs acknowledge that selection is complex. Part of this complexity is the difficulty of predicting future performance: 'I hold a PhD on the prognosis of [disease], which is so very complex, that it is practically impossible to predict. You can only provide the certainty that there is no certainty. I think that, when it comes to selection and admissions, that is the main conclusion' (PD8). Another aspect is feeling insufficiently trained as a recruiter. While PDs try their very best to fulfil their role as selector, they are aware of their limitations at the same time. They revealed how they experienced the feeling of failure when one of the candidates they selected performs disappointingly. PDs also experience difficulty with reliability and validity of selection methods. They assume certain methods to be unpredictive for the candidate's performance and express feelings of distrust towards these: 'How can you possibly judge a candidate's competency for the specialty by a single letter and a job-interview? We do not think it's possible' (PD7).

PDs experience the selection procedure as a high stakes event. They mentioned values such as responsibility to admit the best doctors and accountability towards society, the workforce, their team and the pool of applicants: 'The selection process is of great societal importance; a lot of money is involved in postgraduate education. It's therefore our obligation to hire the best candidates' (PD4). They feel a strong wish to improve the procedure and look for means to achieve this: 'I feel responsible for putting it on the agenda, so that's what we do. I just don't know how to do it. …' (PD8). Many of them expressed the desire to professionalize the selection process. Possible interventions mentioned are training the selection committee, structuring the procedure and sharing best practices. However, some PDs appear to struggle as they have used all possible means and do not see how to improve any further: 'It can't get any better than it is now. I cannot figure out how… But there are dropouts and every dropout is a sign that you failed' (PD7). Overall, quotes show PDs feel a strong drive to perform well as a selector and take cases where selection has failed at heart: 'And you wonder; how could I have been so wrong about that candidate… how could they have seemed so promising at the time, while now I'm thinking, what kind of person is this. I had nightmares for days, no … weeks' (PD7).

Discussion

In this qualitative interview-study, we studied which values and beliefs of PDs play a role in the judgement- and decision-making process of trainee selection. We found that PDs hold values and beliefs regarding qualities of the ideal candidate and challenges for the selector. In candidates they value excellence, competence, 'fit' and certain personal characteristics. The content of these values are subject to personal interpretation and differ greatly between PDs. PDs use 'proxies' as alternative indicators of performance. PDs show various types of (implicit) bias when deciding who to admit to PGME. Intuition, teamwork and autonomy are valued important for judgement and decision-making. PDs perceive trainee selection as a challenging process and feel great accountability towards candidates and society. In the following paragraphs we will set out how our findings relate to several important selection principles.

An important finding from our study is that PDs value intuition highly in judgement and decision-making. Yet, at the same time they acknowledge that intuition can fail.

This is an interesting paradox that deserves elaboration. The PDs indicated to use intuition because they rely on it or because they do not see another way of decision-making. Miles et al. (Miles and Sadler-Smith 2014) reported similar findings in a qualitative study on why and how recruiters use intuition. A wealth of literature describes the successes and limitations of intuitive expertise (Meehl 2015; Kahneman and Klein 2009). For intuitive expertise to flourish and be predictive, pattern recognition is crucial. Gaining this expertise requires an environment of high validity, in which 'cues', signals or prompts of a certain pattern, are consistently followed by an outcome. Moreover, gaining expertise requires an opportunity to learn the cues by enough experience and rapid and unequivocal feedback (Kahneman and Klein 2009). Research has shown that the context of selection is a complex, dynamic and low-validity environment. In this environment, it is difficult to learn the cues and feedback on admission decisions takes time. In addition, hindsight bias reinforces the subjective confidence in the selector's intuitive judgement (Kahneman and Klein 2009; Miles and Sadler-Smith 2014). These factors together limit the validity of intuitive judgement in the context of (trainee) selection.

Our data display the presence of several types of bias during judgement and decision-making, which may affect proper selection. PDs implicitly use 'proxies' to judge or attribute competencies and characteristics. This finding is in line with a study by Posselt (2014) in which she describes how professors understand merit in selecting PhD-students: 'they could evaluate potential as a function of prior accomplishment'. Although this practice makes sense, the reliability of proxies is doubtful as they remain implicit and unverified. PDs usually do not reach consensus on which proxies are valid for measuring which competencies, nor is any empirical evidence taken into account. This makes proxies an unwitting source of judgemental bias. Alongside proxies, judgemental biases as first impression and stereotyping played a role. In addition, PDs seem to prefer candidates with traits similar to them, a phenomenon called similarity-bias (Goldberg 2005; Quintero et al. 2009). Each type of bias may affect fairness, validity, reliability and transparency of the selection process. Moreover, the similarity-bias thwarts the diversity of the workforce.

Our analysis reveals the dilemma PDs face when trading-off conflicting values, e.g. certainty and fairness. The PDs' value certainty regarding future performance. They prefer to hire candidates they 'know', e.g. by having previously worked with them, over unknown candidates. Evaluating candidates' performance by observing them during work could be considered as a 'work sample', which is known as one of the most valid methods to predict future performance (Schmidt and Hunter 1998). This implies, however, that 'unknown' candidates, e.g. candidates from other geographical regions or candidates unfamiliar with the hidden curriculum's 'rules of the game' (Hill et al. 2014), may face an unequal chance of admission. This tension relates to different selection principles, i.e. validity/reliability versus diversity (Bandiera 2013), and poses a challenge to the fairness of the procedure and the inclusiveness of the program.

Variation in judgement between selectors may be viewed from three different angles, in analogy with Gingerich's description of 'the black box of assessor-cognition' (Gingerich et al. 2014). Variation is either seen as idiosyncratically meaningful, thus contributing to a balanced judgement of the candidate. Alternatively, one may consider variation as error or bias and therefore argue to structure the selection procedure and train the selectors in order to improve reliability and validity. Lastly, error or bias is deemed to be part of human fallibility and impossible to resolve by training; i.e. training-resistant.

Whatever stance one takes, we believe that, based on our findings, the selector's values and beliefs on the trainee selection process deserve serious attention. It may be time to reconsider the scope and expand existing knowledge of selection methods and psychometrics with knowledge of how the *people* involved influence the selection outcome; i.e. the 'selector-factor'. Attention should be drawn towards the role of the selector in the judgement and decision-making process and its effects on procedure's fairness, transparency and validity.

A first step towards a more fair and transparent procedure is to create stakeholder awareness. Selectors need to recognize the presence of judgemental biases and acknowledge intuition as a "distinct form of information processing with its own strengths and limitations" (Sadler-Smith and Shefy 2004; Miles and Sadler-Smith 2014). They can consider intuition as a 'red flag' in case of inconsistencies between objective and subjective measures. Selectors should reflect on and explicate their intuition and seek feedback on their judgements (Sadler-Smith and Shefy 2004), for example by reviewing candidates' current clinical performance and compare this with their selection-scores. Also, it is important that they are aware of the different types of biases frequently (and implicitly) used during judgement.

A second step is to design a structured procedure including a structured interview. This structured interview, in which there is less room for bias and personal factors to affect scoring as opposed to an unstructured/traditional interview, can help to increase reliability and validity (McDaniel et al. 1994; Huffcutt et al. 2001). Structuring the interview begins with determining which competencies are vital for the job (Plint and Patterson 2010).

We deem initiatives to train the selectors and provide them with tips and trics and best-practices on how to structure procedures is needed (Plint and Patterson 2010; Bandiera 2013; Patterson et al. 2013; Bandiera et al. 2015). In addition, sharing knowledge regarding intuitive judgement and decision-making will provide selectors with the necessary insight to make their selection practices more evidence based. Facilitated group discussion or training sessions can encourage selection committee members to make their implicit values and beliefs *explicit* prior to the selection process. This will facilitate selectors to get on the same page or acknowledge and resolve major differences in viewpoint. Easily available information may support them to evaluate their beliefs using scientific evidence on employee selection and adjust their beliefs accordingly.

Such a shift in paradigm takes its toll from the people involved and is likely to evoke resistance as selectors find it difficult to accept that algorithms and standardized procedures generally outperform human decision-making (Groves and Peytcheva 2008; Kahneman and Klein 2009;

Miles and Sadler-Smith 2014; Hubbard 2015). Our findings concerning the PDs positive attitude towards change, the responsibility they feel to perform well and their openness to improvement is promising.

With regards to future research, it would be valuable to have a better understanding 'if, how and when' intuition is most valid. Researchers could examine the use of pooled intuitions of different selectors, which has been postulated to limit inconsistencies and increase validity (Miles and Sadler-Smith 2014). Looking into selectors' (un)shared values and beliefs and the effect on group-dynamics during decision-making could be of great interest. Also, future research comparing the role of selectors' values and beliefs and the role of intuition in the two different selection frameworks, locally- versus well-defined selection criteria (Roberts et al. 2018), would be worthwhile.

Our study is one of the first to explore the role of personal values and beliefs of a key stakeholders in the selection process. We, therefore, focused on the effect of the *people* involved ('selector-factor') as opposed to the selection instruments used. This 'selector-factor' is an important area in the art and science of selection. Our qualitative approach provides information complementary to the quantitative methodologies, thus broadening the knowledge base.

This study has some limitations. Firstly, the interview method we used is specifically suited to uncover *thoughts and perceptions* of participants, but provides limited information on the participant's *actual behaviour*. Observational studies will be valuable to disclose a potential discrepancy between perceptions and behaviour. Secondly, we included a limited number of PDs from one University Hospital. Although we obtained a diverse sample, this may confine transferability to other contexts. Perhaps other values and beliefs are prevailing in other contexts. Thirdly, we did not inquire into the perspective of selection committee members other than the PDs. This is important to take into account when interpreting findings as these other stakeholders may have other perspectives.

Conclusions

Trainee selection is a high stakes process in which personal values and beliefs of the selector influence the decision who to admit. These values and beliefs vary between PDs and often remain implicit. Intuition plays an important role in judgement and decision-making. Selectors' judgemental biases may influence reliability, validity, transparency and fairness of the procedure. Tension occurs when selectors negotiate between values relating to different selection principles. Efforts to improve the selection process should not only focus on selection methods and psychometrics but should also acknowledge the significance of selectors' personal values and beliefs. We believe that recruitment of the future workforce will profit from 'making the implicit explicit' by: (1) increasing awareness regarding the potential influence of selectors' personal values, beliefs and biases, (2) acknowledging the pros and cons of intuitive versus analytical decision-making and (3) structuring the interview by having selectors define which key competencies to assess.

Disclosure statement

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

Glossary

Intuition: "(Knowledge from) an ability to understand or know something immediately based on your feelings rather than facts". (Cambridge dictionary)

Belief: "Concept, conviction or assumption that people hold to be true but may not be based on evidence or logic. Beliefs often serve as a frame of reference through which we interpret our world." (McLean 2002)

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Appendix 1. Interview protocol

1. Could you tell me about your selection procedure?
2. Which competencies/characteristics/traits/features do you value in a candidate? Why?
3. How does the decision making process evolve?
   a. Which actors/committee members play a role? How do they interact?
   b. Which methods/instruments/assessment methods are used? Rationale?
   c. How is the final decision made?
4. How do you perceive the current selection procedure?
5. Do you feel need for change? Why? How?