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**Title: A future research agenda for selection into healthcare**

**Running Head: Selection into Healthcare**

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## **Abstract**

Historically, selection into healthcare education and practitioner roles has relied heavily on prior academic attainment; however, there is now evidence demonstrating the value of selecting for ‘non-academic’ attributes such as integrity and empathy. Given that selection into healthcare roles is ‘high-stakes’ in nature, it is essential that selection processes are designed and developed in line with research evidence. This commentary outlines four key challenges to consider in the development of a future research agenda for selection into healthcare.

## **The Selection Problem**

Internationally, selection into healthcare remains competitive; and as such, selection processes can be highly resource intensive. A risk of litigation exists if selection methods are viewed as unfair by applicants and/or key stakeholders.(1) In addition, with an increased emphasis on widening access and increasing diversity in the healthcare professions,(2) selection is considered ‘high-stakes’ from various key stakeholders (including applicants, recruiters, regulatory bodies and government) and therefore should be based on good quality research evidence.

Traditionally, previous academic attainment has been used as a basis for selection into healthcare roles, and is usually assessed early in the selection process.(3) Academic attainment is often used for shortlisting decisions (frequently in combination with references or personal statements) and may be followed by an interview or selection centre as a final stage of selection. However, emerging evidence clearly shows that whilst academic ability is important, it is not the only requirement for healthcare practitioners to become competent clinicians(4). For example, in medicine, Trost and colleagues(5) found that academic attainment only partially predicted performance in undergraduate medical training (23% of the variance), and was much less predictive for postgraduate performance (6%) as trainees enter clinical practice.

## **The Research Problem**

There is increasing recognition and emerging evidence that to be a competent clinician, one must excel academically but also have important personal attributes and values (such as compassion, integrity, resilience, and other interpersonal skills).(6–8) Therefore, healthcare

professionals should be selected based on both academic and (so-called) “non-academic” attributes. However, the research examining methods used to select for non-academic attributes is in its infancy compared to cognitive and academic assessments, which have over 100 years of research evidence.(9–11) It has only been in the last few decades that a clinician’s ‘softer’ skills have been recognised as important to examine during recruitment processes. It is plausible that some academically-able people are less suited to a healthcare career than others based on their personal attributes. This proposal is in line with findings from UK government enquiries(12,13) which highlighted major concerns about the level of compassionate care from healthcare professionals.

Nevertheless, it is important that the research examining these so-called “softer skills” is appropriately conducted. Single site studies should not be used to draw firm conclusions about selection methods since erroneous conclusions can be made when original studies are not carefully conducted. For example, authors should always cite evaluation evidence of the selection method in question, as opposed to, for example, suggesting an admissions interview is valid simply because it is structured (see a recent paper by Lambe and colleagues(14)). Whilst we agree that structured interviews have significantly greater predictive validity than unstructured interviews (15), authors should always cite evidence to confirm that a specific method is valid.

In a recent systematic review, Patterson and colleagues(4) explored eight different selection methods used in medical education, and the extent to which these could reliably identify candidates who would be successful in medical training *and* become competent clinicians. The authors concluded that some selection methods were clearly more effective than others; these were: multiple mini interviews (MMIs), aptitude tests, situational judgement tests (SJTs) and selection centres (which typically include a number of selection methods designed to measure the full range of skills and attributes needed for the role).(4) In other healthcare settings, selecting for non-academic attributes is increasingly undertaken, with examples seen for pharmacy students,(16) dentists (17) vets (18) and nurses.(19,20)

Nevertheless, there remains a disparity between research evidence and practice in selecting for healthcare practitioners. To move selection research and practice forward in the healthcare professions, we currently face several important challenges that need to be considered. Here we outline four key considerations to inform further debate. (21)

## **The Research Agenda**

1. *Future oriented job analysis studies are needed to inform selection criteria.*

Best practice selection includes a thorough job analysis to identify relevant selection criteria. A key question is *what attributes are important to be an effective healthcare practitioner in the next 20 years and beyond?* Multi-source and multi-method future-oriented job analysis studies should be used to examine this issue and ensure that selection practices are future-proofed for the healthcare practitioners of the future.

## 2. *Use of job relevant criteria to make selection decisions*

The output of job analysis studies provides a list of job-relevant knowledge skills and attributes required for competence in a given role; these can then be used during selection processes. Selection methods should be designed so that judgements are made *against job relevant criteria*. By contrast, the practice of using “red flags” to reject candidates from a selection process should be avoided as this can introduce bias to a selection process; for example asking an interviewer whether they would “like the candidate as your dentist”(22) is not based on job-relevant criteria relating to what makes a “good” dentist. Within the wider employee selection context, this type of practice would be considered discriminatory with a risk of litigation.(23)

## 3. *Use of more sophisticated methodologies and psychometric indicators for assessing the quality of selection methods.*

In selection, *predictive validity* of assessments is the ‘gold standard’ since recruiters want to appoint those most likely to succeed in training. This is different to licensure exams where reliability is considered the most important standard to ensure a trainee is capable of independent practice. Establishing the validity of a selection system can present many challenges including restricted range and attrition; the process can take several years and be expensive. Validation studies are therefore frequently over-simplified, reducing how informative or applicable the data collected can be. More high-quality, large-scale, and longitudinal studies are needed to gain a sophisticated understanding of the various issues. It is also important to identify which outcome measures should be used in predictive validation studies, the so-called *criterion-problem*. However, the criterion often varies between studies, partly because there is no agreed-upon set of desirable behaviours and attitudes that predict success as a healthcare practitioner and these characteristics may differ across professions and training pathway stages. Therefore conclusions must not be drawn from single-site studies;(14) but instead multi-site studies using relevant outcome criteria measures such as supervisor ratings of in-role performance.(24) In short, more research is needed specifically in healthcare contexts to build this evidence base.

## 4. *How do we best use information at selection to inform early education and training*

*interventions?*

Selection is the first assessment in the education pathway for any healthcare practitioner, and therefore information gathered at this point can be used to shape and potentially accelerate subsequent training and educational interventions. For example, if a trainee is borderline in some attributes, they could be enrolled in relevant education programmes to facilitate the development of these attributes and skills required for the role. These early interventions could significantly improve learning and development. Research would be needed to understand the possible deficiencies; understand student reactions to interventions designed to improve the deficiencies; and the implications for this working in practice.

In summary, selection into healthcare remains a competitive, high-stakes process and the research relating to what makes a “competent” practitioner is changing. Recent evidence points to the need to select based on both academic ability and personal attributes and values; yet there remains a disparity between research and practice. This commentary highlights four key insights that are emerging to guide future research and to influence both policy and practice internationally.

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