



BMJ Open Role of social comparison in preparedness for practice as a junior doctor in Singapore: a longitudinal qualitative study

Shiwei Chen ,¹ Helen Smith ,¹ Bernadette Bartlam,² Naomi Low-Beer,³ Aloysius Chow,⁴ Lucy Victoria Rosby,⁴ Vishalkumar G Shelat,⁵ Jennifer Cleland⁴

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¹Family Medicine and Primary Care, Lee Kong Chian School of Medicine, Singapore

²Keele University, Keele, UK

³Brunel Medical School, Brunel University London, Uxbridge, UK

⁴Office of Medical Education, Lee Kong Chian School of Medicine, Singapore

⁵Department of General Surgery, Tan Tock Seng Hospital, Singapore

Correspondence to
Professor Helen Smith;
h.e.smith@ntu.edu.sg

ABSTRACT

Objectives To date, most research on medical graduates' preparedness for practice has conceptualised preparedness as something possessed by the individual. However, new doctors work within social settings with other people and, given this, we argue that preparedness has a social and comparative dimension. The aim of this paper is to explore medical students'/graduates' self-assessments of their preparedness for practice using the lens of social comparison theory.

Setting We invited medical students from one of Singapore's three medical schools who were in their final-year Student Assistantship Programme to participate in semi-structured interviews, and follow-up interviews 6 months later when they were working as junior doctors. Data was collected from two cohorts, in 2018 and 2019. Initial analysis of interview transcripts was inductive and thematic. Social comparison theory was used for subsequent theory-driven analysis.

Participants 31 participants took part, of whom 21 also engaged in follow-up interviews.

Results We identified three uses of social comparison: as coping strategy to manage uncertainties in transitions where there was no formal, objective testing of their performance; as a means to confirm their self-perceived preparedness (upwards or downwards, eg, being better or worse prepared than comparator others); and as the basis for decision-making (eg, changing career choices).

Conclusions Senior medical students and newly-graduated doctors compare themselves with peers and near-peers in terms of prior learning and current performance to evaluate and understand their own performance at work. Future studies need to examine further how the feeling of preparedness or unpreparedness generated from social comparisons may affect subsequent clinical performance and professional development.

INTRODUCTION

Medical graduates' preparedness for practice as new doctors has long been an area of international interest.^{1–6} 'Under preparedness' for the transition from medical student to postgraduate year 1 is associated with patient safety issues^{7–10} and, at the level of the individual doctor, can lead to stress and burnout.^{11 12}

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study has high information power given its relatively large and diverse group of participants plus use of follow-up interviews.
- ⇒ Data collection was iterative and recursive so we could incorporate early findings into later questioning.
- ⇒ Our focus on preparedness as relative was consistent with contemporary theorising of social comparison theory.
- ⇒ Our study was carried out in one country, which may limit its meaningfulness to other contexts. However, the use of social comparison as a theoretical lens aids transferability.

To date, most research in health profession education has conceptualised preparedness as 'something possessed by the individual and his/her knowledge and skills rather than having a contextual dimension'.⁴ Related to this conceptualisation, the majority of studies have focused on identifying individual (eg, sociodemographic)^{13 14} and educational (eg, medical school curricula)^{15–17} (eg, shadowing, assistantship programmes and interventions which typically aim to increase the level of clinical experience gained prior to graduation)^{6 18–20} factors which may influence preparedness for the transition into practice generally and/or in relation to specific tasks (eg, prescribing, certain procedural skills).^{21–24}

If we step back, the transition from medical student to newly graduated doctor involves two fundamental things. The first is that it is a time of personal and occupational change and uncertainty for individuals. The second is that new doctors do not work in a vacuum: they work within social settings where there are certain expectations and norms.^{16 25–27} The wider literature suggests that in such situations people compare themselves with others to gather information about their abilities and emotions.^{28 29} Such comparative

information is crucial for putting one's own characteristics into context and evaluating oneself,³⁰ even when objective, potentially better information is available.^{31 32} This use of social comparison to benchmark performance is extensively reported in many different workplaces,^{33 34} including medical education and training,^{35–37} and it has been shown to affect a variety of outcomes such as learning, well-being and burnout.^{36 37} However, the use of social comparison as a strategy to estimate one's own abilities has not been previously studied in the period of transition from medical student to doctor. Yet this is important. Only by understanding how graduates perceive and evaluate their abilities as they enter into the critical intensive learning period of the first months of working life²⁶ will we be able to support them effectively in their personal and professional development.

Conceptual framework

Festinger³⁰ proposed that when 'objective physical bases for evaluation are not available', comparison with others who are not too divergent from oneself provides 'subjectively accurate assessments of one's ability' (pp. 119). Since Festinger published *A Theory of Social Comparison Processes* in 1954, research on social comparison has evolved to encompass different paradigms, approaches and applications.^{38 39} In our study, we define social comparison as 'the process of thinking about information about one or more other people in relation to the self' and the major processes are 'acquiring, thinking about and reacting to social information'.⁴⁰ In terms of the last of these, individuals react to such information cognitively and affectively, which leads to self-evaluation of their own preparedness. This self-comparison may evoke feelings (confidence, anxiety) and/or behaviour changes.⁴¹

The processes outlined by Wood⁴⁰ position self-assessed preparedness as relative, and provide a framework to investigate, first, how junior doctors seek, encounter and construct social information regarding the performance of other junior doctors and, second, how they think about the information acquired via upwards (comparing themselves with those who are better) and downwards comparison (with those who they perceive as worse).

Objectives

The aim of this paper is to explore medical students'/graduates' self-assessments of their preparedness for practice using the lens of social comparison theory. Our ultimate objectives, in doing so, are to extend understanding of the role of social comparison in self-evaluating preparedness for practice and use this to inform guidance to extend understanding of how to help new doctors use information gathered through social comparison adaptively.

METHODS

In keeping with our interpretivist perspective, that there are multiple realities because meaning is grounded in experience and reality is context-dependent, we used a

qualitative approach for data collection,⁴² specifically semi-structured interviews.

Setting

The study was carried out in the newest of Singapore's three medical schools: Lee Kong Chian School of Medicine (LKCMedicine). LKCMedicine is a partnership with Imperial College London and offers an undergraduate entry programme with a preclinical–clinical divide. Team-based learning is the core pedagogy in the early years,^{43 44} with the latter years heavily focused on clinical workplace learning which culminates in a 10-week Student Assistantship Programme (SAP), placed after the final examinations. The SAP aims to support students to progress from a supervised to a more independent practice, in preparation for working in postgraduate year 1 (PGY1).^{6 18}

Recruitment and sampling

Two cohorts of final year LKCMedicine students, 2018 and 2019, were invited to take part in a mixed-methods programme of research, the overarching aim of which was to explore student perceptions of their preparedness for practice as PGY1 doctors. Students were first invited to complete a survey asking about their views and experiences of the SAP and first PGY1 posting, using questions adapted from a previous UK study.⁴⁵ Survey respondents were also asked if they were willing to take part in qualitative interviews to explore their views and experiences in more depth. Those responding positively were contacted by the research team, who provided further information about the interview study and arranged a convenient time and place for the first interview. The survey data is reported elsewhere:⁴⁶ in this paper we focus on the qualitative data collected via interviews.

Data collection

To ensure a diversity of views among students and maximise information power,⁴⁷ we stratified those who indicated willingness to be interviewed by gender, ethnicity and the level of self-assessed 'preparedness' reported in the survey. Data was collected via individual interviews conducted by one of four experienced qualitative researchers, none of whom were involved directly in course design, teaching or assessment of potential participants. Interviews with students/graduates took place at two time points within a 6-month period, the first in the middle of SAP (T1) and the second in the participant's first PGY1 posting (T2). Interview questions were drawn from the survey topics and the wider literature (please refer to online supplemental additional files 1; 2). Interviews were semi-structured, but iterative; preliminary reading and coding took place after each interview to identify areas for further exploration in subsequent interviews. Interviews were audio recorded with consent. Recordings were transcribed verbatim and fully anonymised before analysis.

Data analysis

Initial analysis was thematic and inductive.⁴⁸ SC undertook the process of preliminary coding to identify themes. These were discussed and reviewed by the research team, to assist with developing a comprehensive coding framework which was then applied to the remainder of the data set while keeping an open mind for new insights. Connections between codes and themes, and across participants, were explored to identify final themes. Analysis progressed via regular team discussions in which ongoing coding and comparisons were explored. Any coding disagreements were addressed by team discussion.

During this inductive data analysis, we were struck by a re-occurring phenomenon: when students (graduates) evaluated their preparedness, they frequently evoked comparison. In other words, participants often described their feeling of preparedness with reference to their perception of the capability/preparedness of their peers. It was this that led us to draw on the theoretical lens of social comparison³⁰ to illuminate and explain the data.⁴⁹

Researcher reflexivity

Qualitative research and analysis are dependent on the relationship between the context, the researchers and the research process.⁵⁰ The worldview of researchers and the research context influence qualitative data collection and analysis. Thus, we considered our positions and relationships with the data constantly and critically, bearing in mind our different disciplinary backgrounds (a sociologist, psychologist, clinical scientist, medical educators, health researcher with clinical background and practising clinician), research interests (a mutual interest in transitions but with different theoretical and methodological skills and preferences) and personal life courses,⁵¹ and how these might have shaped our co-construction of the data.

Ethics statement

Participants received verbal and written study information and assurances of confidentiality, anonymity and data security. Participants provided informed consent to take part and to have their interviews recorded.

Patient and public involvement

No patients were involved in this study.

RESULTS

In this section, we first describe the participants. We then explore the role of social comparison played in participants' views of their own preparedness for practice.

Participant characteristics

The data consisted of 52 interviews with 31 participants, of whom 21 were interviewed at both time points (2018 graduates T1: n=16 + T2: n=11 and 2019 graduates T1: n=15 + T2: n=10). Interviewees' ages ranged from 23 to 27; 25 participants (80%) were men, reflecting the higher number of male medical students in Singapore.

Interviews lasted between 14 and 50 min (54.5 hours of interview data in total). Findings are illustrated with quotations with unique identifiers. The identifier represents the cohort number_participant number_gender_interview time point (eg, C1_01_M_T1) is the first interview with participant number 01 from the first cohort who is a man.

Social comparison as a coping strategy to uncertainties in transitions

When the participants pass their MBBS finals examination and start working in the clinical setting, they realise that 'managing a patient is very different, because in MBBS, [simulation] was quite straightforward. But here, it's more uncertain and its murky. There could be a lot of different things that could happen or that could be the potential diagnosis' (C2_02_F_T1) They used social comparison with their peers to assess their abilities and navigate their way through their assistantship and as PGY1 doctor. The most obvious social comparators were PGY1 or HO (house officers) from other medical schools:

Compare myself with knowledge from other HOs, from other schools... I feel very competent in knowing that I am very confident with my knowledge, and I know exactly what needs to be done for most... And how I can interpret most results. I think it's very, very good. It's very important to be competent and have a good foundation, and LKC has done that very well. (C1_01_M_T2)

There was also a sense of comparison as a process. For example, another participant talked about seeking information on the nature of the final examination at the other main medical school in Singapore at the time of doing his assistantship:

We look at the kind of things that we were tested in our MBBS, and we looked at the kind of things that our friends from [another medical school] were tested in previous years. They tend to test very academic kind of knowledge, very specific things. But for LKC it was more of the focus on the important things, urgent things, very practical kinds of knowledge. Things that every doctor is expected to know. (C1_20_M_T1)

This comparison was used to make a judgement that the final examination of their own medical school was more oriented to PGY1 practice than that of the other local medical school. This positive judgement resulted in the participant deciding that his peers and he 'should function pretty well as an HO', because 'the exam itself made us fit for practice... the exam is actually testing you based on the requirement that you need to function as an HO' (C1_20_M_T1).

Our participants also spoke about asking PGY1s who had trained at other medical schools about the nature of their medical school experiences, and then using this to compare with their experiences:

When I compare what the school offered to us with my friends from other schools, local and overseas, I think the school did a lot more than what I felt my peers got from other schools. (C1_40_M_T2)

And this favourable comparison gave the same individual more confidence in his own abilities:

I think the experiences in undergrad that really helped me boost my confidence is having enough supervision as a medical student to do procedures in the wards with the patients to know that you can actually do it on your own and be successful about it gives you confidence when you go in as a day-one doctor and you have to take blood, set plugs, put in catheters, remove drains...

There were occasions where participants made comparison with other PGY1s and realised there were areas that they were less prepared by the medical school:

When I compare with the wider, with the other medical students about like basic sciences, our school actually does not teach us so much on that... So, we know in the wards when the doctors ask questions, ... all the basic pharmacology, all the science stuff, they [other medical school graduates] can actually answer much better than us... So, I guess the hard cold facts are I am not as strong in terms of the basic anatomy. We only learnt those that I guess are more clinically relevant. (C1_50_M_T1)

Other unfavourable comparison also reminded SAP students that lacking experience affected their work efficiency and preparedness comes with more practice:

Because we haven't seen a lot of cases yet, or we haven't tried to think of how we can manage the issues, or how to investigate the issues as a doctor before... we do it very slowly as compared to the HOs or the MOs [medical officer]. We might not realize the significance of certain complaints or certain lab results. I guess it's just experience.... So have to slowly learn. (C2_02_F_T1)

It seems that medical students on their pregraduation assistantship and in the first few months of PGY1 compare themselves favourably/unfavourably with others in terms of whether their teaching, learning and assessments were (perceived as) better/worse. Passing examinations gave them some feedback but gathering information about the preparedness of others, and using this for comparison, was also used by our participants to formulate evaluations and confirm (or not) their belief about their preparedness for practice.

Social comparison confirms self-perceived preparedness

Following from this, the data showed that respondents use social comparison to confirm their belief in their preparedness. For example, when the respondents were

asked about their feelings of preparedness in the domain of practical skills, many responded positively:

I'm glad that they taught us skills at various points in time during our MBBS curriculum.... because a skill is a skill, it requires familiarity.... when you do it, you do that for three to four years Now [SAP] you're doing this skill a lot more it just makes things move along quicker, and it makes your improvement come much faster also. (C1_20_M_T1)

To confirm his belief in that the school curriculum had been well-designed to prepare their practical skills for practice, this same individual compared himself with UK graduates, who he perceived as well-trained in terms of practical skills:

In UK they have a big focus on skills as well. They let medical students do a lot of procedures, so when they came back to Singapore, they felt more prepared than the local graduates in the area of practical skills.

He further thinks about the information with a focus on the similarities between the UK graduates and his class: 'And I feel that I can say that is the same for us, LKC students... probably due to the Imperial, the U.K. influence'. After acquiring and thinking about the social comparison information, he reacted to it affectively: 'I think we're all decently confident with practical skills'.

Social comparison changes self-perceived preparedness

We identified two types of social comparison that focus on perceived differences—downward and upwards comparison—and which changed perceptions or behaviour. We found that when the comparison others are seen as less prepared than the person making the judgement, self-evaluated preparedness improves. For example, some respondents had discussed feeling unprepared in some areas for PGY1 work. However, after encountering other PGY1s who they perceived as even less prepared, they felt more confident in their own preparedness. For example, this respondent was feeling unprepared during SAP: 'I felt like, at the start of the posting I was very lost, and unable to follow in day-to-day house officer work' (C2_03_M_T1). He then encountered other graduates who had trained outside Singapore:

A new doctor started work today. She had only three days SAP, she started on Monday, and then she was totally blurred. Today she started work formally, and ... she has never seen certain things that we use in Singapore, like the blood catheter set, it's a different brand from everything. She knows the basics, but she's not familiar with the set. ... I had to teach her how to do it...

He reacted to this new information by shifting his self-perception of his own preparedness, then stating: 'The school has totally prepared us for working life... We have done it many, many times... So, it's something that we are

being prepared and drilled throughout life... for us, we are very confident'.

Comparison with overseas-trained PGY1s generally resulted in positive self-perceptions ('*compared with students coming from overseas, we are definitely more functional*' (C2_03_M_T1)). In contrast, comparison with students from other local schools could be downward or upward. For example, one of our participants gained confidence in his preparedness to manage stressful situations after a social comparison:

When we compare to our peers in other faculties, maybe we are busier, [had] longer school year. So, we have some experience with dealing with time constraints and stress. (C1_39_M_T2)

On the other hand, there seemed an association between downward comparison and career decision-making. For example, another respondent evaluated herself as well-prepared for some specialties but not others in comparison with graduates from other local medical schools:

I think that the programme has prepared me well for commonly encountered cases in medicine and surgery.... But having said that, I feel that there were certain specialties in particular that the knowledge that was given to us, was expected of us, was a bit lower. Compared to other schools and compared to what we felt we would need to function as a doctor in that specialty.... You know, there was a knowledge gap. Compared to our peers from other schools. Yes, particularly in paediatrics....at least personally for me, I don't feel that I'm prepared to be an HO in this department. (C1_33_F_T1)

This downwards comparison seemed to contribute to a change of heart about her future career:

Initially I wanted to do paediatrics and I was quite interested, did a few research projects...still doing with paediatrics. But now, as I go on with my postings, I feel that actually, I'm more open to other medical specialties.

DISCUSSION

Main findings

Our research findings and theoretical analysis suggest that preparedness for practice as a PGY1 is a relative, subjective judgement and self-evaluation of preparedness is dependent on social comparison with peers and near-peers. When our participants characterised themselves as prepared or unprepared, it was in respect to others (a comparative statement^{41 52}). When the comparison others were perceived as less prepared, our participants felt more confident, even if they did not originally feel particularly well prepared for practice. Conversely, when participants compared upwards, to, for example, more experienced peers, their self-evaluation shifted from feeling prepared to underprepared. This upward comparison seemed to

motivate them to strive for improvement—to reflect on, and revise, their knowledge and skills.^{53 54} In this way, while newly-graduated doctors are building relationships with their peers and near-peers, they are simultaneously comparing themselves with these others in terms of prior learning and current performance, in order to evaluate and understand their own performance at work.

This study adds that performance is situated and relational not only because new doctors are 'affected by organisational practices, activity and culture'²⁶ but also because assessment of one's performance has a subjective and comparative element. This implies that scores of preparedness based on objective criteria may not be sufficient for junior doctors to understand their own preparedness.³¹

Other studies have looked at social comparisons in clinical workplaces and student tendencies in respect of social comparison orientation.^{37 55} What we add to this body of literature is some insight into the nature of what information is used for comparison at the stage of transition to PGY1 (ie, prior learning, current skills).

In our data other PGY1s were preferred comparators, probably because 'a person does not tend to evaluate his opinions or his abilities by comparison with others who are too divergent from himself'.^{30 37} However, this can also limit accurate self-perceived preparedness, as respondents may have a tendency to select 'someone whose performance was close to their own to compete against'.³⁰ In other words, in an environment with many PGY1s and at a time of change and uncertainty, an individual may choose to compare with someone whose performance is relatively near to their own rather than choosing a more distant comparator (eg, someone with the same level of experience but whose performance seems substantially better or worse than their own). In this way, evoking social comparison can be seen as a strategy to seek affirmation²⁸ rather than one linked to improving performance. A better understanding of this part of the comparison process might offer opportunities to encourage more 'ambitious' upwards comparisons, which stimulate and motivate self-development. This is an obvious area for future research.

Social comparison as a strategy to cope with uncertainties in the transition into PGY1 may ease the stress and anxiety of junior doctors, and boost their confidence, but there are limitations to its utility. When making judgements, junior doctors may focus on knowledge that comes to mind easily and people generally use a positive test strategy; that is, they selectively seek information that is consistent with their hypothesis.⁵⁶ This selective accessibility mechanism of social comparison sometimes produces assimilation or contrast consequences^{57–59}: 'if we have searched for information that we are similar to the standard, we are likely to assimilate our self-evaluations toward the target. If we have searched for information that we are dissimilar to the target, we are likely to contrast our self-evaluations away from the target'.⁶⁰ Above, it is also possible that junior doctors already assume themselves as

prepared or unprepared and selectively use comparison to reinforce their belief in this assumption.

Furthermore, it is widely known that we tend to use more often upward than downward comparisons, but the effect of social comparisons differs when we focus on evaluating our ability, which affects self-esteem.⁶⁰ In our data, junior doctors feeling prepared after downward comparison may not accurately represent their preparedness, rather this may reflect that their self-esteem was threatened in the new working environment that is full of uncertainties, so they conducted comparison with a downward direction comparison in order to restore self-esteem and boost self-evaluations.⁶¹

Social comparison generates knowledge and influences subsequent evaluations.⁵⁶ Future studies need to examine further how the feeling of prepared or unprepared generated from social comparisons affects subsequent clinical performance and professional development.⁶⁰

Strengths and limitations of this study

A strength of this study is the participation of a relatively large and diverse group of students in respect of gender, ethnicity, pre-interview self-assessment of preparedness, as well as SAP and PGY1 experiences in varied clinical settings. We have high information power,⁴⁷ that is, a narrow study aim and a specific sample, good quality data and theory-driven analysis, and our use of follow-up interviews. Of course, as with any voluntary study, there would have been an element of participant self-selection and we have no idea as to whether our participants were particularly 'comparison oriented'.³⁷ The fact that all participants already passed the final MBBS examinations and went into practice could produce a ceiling effect making it more difficult to compare themselves (ie, they were all 'skilled enough' to be doctors after all, otherwise they would have not passed the examination in the first place). Our use of qualitative methodology means it is not appropriate for us to report how many participants used, for example, downward versus upward comparisons, or in how many of them these strategies affected or not their self-perception. We suggest that a survey of newly-graduated doctors using social comparison measures would be a useful next study to identify general patterns. Data collection was iterative and recursive so we could incorporate early findings into later questioning. Our study was carried out in one context, which may limit its conceptual generalisability.⁶² However, the purpose of qualitative research is to expand and generate theory not 'statistical generalisation' and our focus, preparedness for practice, is not unique to the context of this study.

Our focus on preparedness as relative was consistent with contemporary theorising of social comparison theory.^{38 39} However, as with all theoretical or conceptual lenses, social comparison theory illuminated certain aspects of the data⁴⁹; another lens may have emphasised different data. For example, a sociomaterial lens may have identified the importance of non-human actors (eg,

auto notifications, patient records, the internet, hospital architecture) in the process of transitioning to practice.

Comparison with other literature

Although not looking directly at the role of social comparison in assessing preparedness for practice as a newly-graduated doctors, previous studies have highlighted that students use each other as benchmarks for gauging strengths and deficits in their own knowledge and skills in other transition experiences (eg, Chou *et al* 2014, Raat J *et al* 2010, Raat ANJ *et al* 2013).^{37 55 63} The nature of our study did not enable us to assess if social comparisons with other PGY1 doctors leads to actual action, such as addressing perceived skills and knowledge gaps, or changing career decisions: further research is required to examine behavioural responses to social comparison. Our study was set in the context of a wider study of how one medical school prepared its students for practice. Our participants tended to attribute their preparedness to aspects of the formal curriculum they had received: a different framing for the study may have elicited other contributors, such as their own personal capabilities or wider experiences.⁶⁴ Previous studies show a variety of individual factors are associated with social comparison processes, but our relatively small qualitative study was not able to address how culture, gender, personalities and other individual factors may lead to different social comparison processes.^{65 66}

Implications for future research, policy and practice

By using social comparison theory, we have offered a new way to conceptualise preparedness for practice. Our approach also has implications to how to better prepare medical graduates for transitions. Instead of solely focusing on testing individual performance, medical schools, regulating bodies and workplaces need to shift paradigmatically to address the subjective and social dimensions of preparedness and be aware of the influence of social comparison behaviours on self-perceptions and evaluations. Rigorous study of transition to practice requires theoretical frameworks that account for both individual and social factors and the multiple relationships and interactions that occur among them in daily clinical practice. Those involved in educating and training doctors need to recognise the impact of such relationships and interactions and provide guidance to junior doctors to navigate social comparison behaviour, in order to use comparisons adaptively, to motivate professional development. Moreover, ignoring the potential pressures of social comparison and work relationships imposed on junior doctors may be detrimental in terms of supporting new graduates in their transition to independent practice.

Interestingly all previous studies examining the role of social comparison in clinical workplace experiences and transitions in medical education have been survey-based.^{37 55 63} Using an interpretivist, qualitative approach identified that social comparisons, in our participants at least, is based broadly on perceptions of prior learning

as well as current performance. Moreover, research into social comparison in the field of psychology (where it originated) is mostly laboratory-based.⁶⁰ Our study and those few others in medical education expand this body of research by collecting data in situ, in complex, real-life settings.

Data availability statement

Data are available on reasonable request.

CONCLUSION

As Mussweiler and Strack (2000) summarised: ‘Almost all our achievements are relative, in that their merit depends on the achievements of others’. Social comparison is a fundamental human social interaction process, one which we have shown junior doctors use when self-evaluating their own abilities, and which may help them to adapt and survive the transition into PGY1.^{30 67}

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Ethics approval This study involves human participants and was approved by both NTU’s Institutional Review Board (IRB ID: IRB-2018-01-015) and the National Healthcare Group Domain Specific Review Board of Singapore (ref 2018/00490). Participants gave informed consent to participate in the study before taking part.

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ORCID iDs

Shiwei Chen <http://orcid.org/0000-0001-5466-015X>

Helen Smith <http://orcid.org/0000-0003-1883-6124>

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