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DR. JAMES STUART PURYER (Orcid ID : 0000-0002-2475-0215)

DR. PATRICIA NEVILLE (Orcid ID : 0000-0003-0260-4871)

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James Puryer [1]
Patricia Neville [1]
Ellayne Fowler [2]

1. Bristol Dental School
Lower Maudlin Street
Bristol
BS1 2LY
United Kingdom

2. Centre for Medical Education
39-41 St Michaels Hill
Bristol
BS2 8DZ

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Corresponding author:
Dr James Puryer
Bristol Dental School
Lower Maudlin Street
Bristol
BS1 2LY
United Kingdom

Tel: +44 (0)117 342 4425
Fax: +44 (0)117 342 4443
E-mail: james.puryer@bristol.ac.uk

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ABSTRACT

Introduction: Objective Structured Clinical Examinations (OSCEs) are an established method of assessment for dental undergraduates. There is little published dental education research exploring the views of undergraduates towards OSCEs.

Aim: To explore and describe the views of dental undergraduates towards OSCEs.

Method: A sequential mixed methods design was applied. This included a cross-sectional survey of all 204 dental undergraduates in Years 2, 3 and 4 within a UK dental school using an anonymous self-report online questionnaire (response rate 57%), which was followed by two focus group interviews of n=10 Year-2 students.

Results: Most students gave positive views regarding the OSCE form of assessment. Questionnaire data highlighted that students felt that the OSCE tested their diagnostic, clinical and communication skills, and covered a wide range of skills and disciplines. Students also generally saw them as a useful educational exercise that went beyond testing recall of facts. Most students thought that the OSCEs were 'fair' assessments. Negative views focused around student lack of preparation for them, especially in earlier years. Focus group

data explored further these concerns but also emphasised the need for more student-centred support pre-OSCE.

Conclusion: OSCEs can be an anxiety-inspiring form of assessment for students in the early years of the programme. Dental educators need to be more aware of these concerns to develop strategies to increase student preparedness for OSCEs without increasing stress.

INTRODUCTION

The purpose of an undergraduate dental degree is to produce competent independent practitioners (1). In the current climate, there is increasing accountability for the delivery of high-quality assessments that are routinely developed, monitored, quality assured to achieve this end.

The testing and assessment of student's clinical skills is integral to a student's transition to becoming a 'safe beginner' (2). Numerous methods have been developed over the years to assess these clinical competencies.

Objective Structured Clinical Examinations (OSCEs) were first described in 1975 (3). Since then, OSCEs have been described as 'the gold standard for clinical assessment' (4), and are widely used in clinical professional education, including nursing (5), clinical psychology (6), medicine (7, 8), and dentistry (9). An OSCE involves students being observed as they rotate around a series of normally 10-20 stations each lasting 5-10 minutes in a simulated clinical environment, often using actors instead of 'real' patients. An OSCE is structured, firstly, in that each of the stations has a well-defined marking scheme, and secondly, in that it comprises stations depicting clinical scenarios designed to test specific patient-centred skills including diagnosis, interpretation of information and treatment planning, as well as practical clinical skills.

OSCEs offer several advantages as an assessment: they allow for several skills to be tested in a relatively limited period, examination complexity can be controlled, and they reduce bias and increase reliability (2, 3, 10). Essential skills for healthcare professionals such as history taking can be assessed (11) and higher orders of cognition can be tested (12). Furthermore, OSCEs are likely to be the most appropriate form of assessment with which to identify students at risk of poor performance within a clinical environment (13). However,

the literature has identified a relationship between OSCE and anxiety performance (7-9), thereby undermining its learning benefits for students. The predominance of questionnaire studies on this topic in dental education (14) has not established why students find OSCE's so emotive or how to support them through this assessment. Applying quantitative and qualitative research methods in combination as mixed methods design could yield a deeper understanding of students' relationship with OSCE assessment (15).

Researching dental students' views on OSCE assessment is important for several reasons. First, assessment motivates a student to learn (1). Therefore, understanding student perceptions of assessments offers us an insight into the barriers that challenge student learning and progression. Second, whilst there is a wealth of evidence exploring medical undergraduate views of OSCEs, there is little published research exploring the views of dental undergraduates. In fact, a recent literature review found only six published studies between 1975 and 2015 that explored the views of dental undergraduates (14). This trend is indicative of a more general dearth of student perspectives in dental education (16). Third, student views of assessments are particularly important within the United Kingdom as undergraduates are asked annually to participate within the National Student Survey (NSS), the results of which will be used to rank dental schools. One of the key themes of the NSS is student satisfaction levels relating to assessment methods and feedback. An improvement in student satisfaction will ultimately improve the ranking of the school. This study aims to explore and describe student perceptions of the OSCE assessment and its relationship with dental student learning, in terms of its appropriateness, validity, benefits and limitations as a form of assessment using a mixed methods approach.

AIMS

The aim of this study was to describe and explore dental undergraduate views of OSCEs as a method of assessment.

METHOD

A 'mixed method' approach was used to integrate quantitative and qualitative research approaches to offer a more detailed insight into the students' views (17-20). The sequential design comprised of two distinct research phases - first, a cross-sectional survey, then a

qualitative data collection phase. The purpose of this design is to complement the quantitative survey data and understand more of students' perceptions of their OSCE performance (19). Ethical approval from the Faculty of Medicine and Dentistry Committee for Ethics (Bristol, UK) was obtained prior to the study – FREC No. 16861.

The initial cross-sectional survey of all dental undergraduates (n=204) studying in years 2, 3 and 4 at the University of Bristol used a previously piloted online questionnaire (www.onlinesurveys.ac.uk) comprising eighteen questions. Topics of questions covered the format of the OSCE, the benefits, fairness and perceived validity of the OSCE, and student preparedness and anxiety. 'Likert' style questions were used whereby respondents were asked to indicate the extent of their agreement with a series of posed statements relating to their assessment.

Students were recruited via an introductory e-mail sent immediately after each of their OSCE assessments. The e-mail explained the nature of the survey, reassured students that it was anonymous, and that participation was non-compulsory. A follow-up e-mail was sent 2 weeks later.

Following analysis of the questionnaire results, the Year-2 students were found to be the least prepared for their OSCE. Accordingly, it was the Year-2 students who were invited to participate in focus group interviews in which their views could be explored in more detail. Again, students were invited to attend the focus group via email. In total 10 students volunteered to participate. Students were reassured that they would not be identifiable from their responses and that participation was non-compulsory. Two focus groups were held with 5 students in attendance at each. Students were asked to sign a consent form prior to participating.

The focus groups were facilitated by a researcher with experience in qualitative research methods (PN) and were audio-recorded and transcribed by the lead researcher (JP). An inductive, thematic analysis approach was undertaken for this study (21). This method was adopted to generate as much qualitative data as possible for this under-researched topic. JP and PN read the transcripts independently and coded them inductively for its manifest and latent content. A preliminary list of codes was drawn up by both and once agreement was reached the main codes were identified (Table 1). The questions and prompts used in the focus group are outlined in Table 2.

RESULTS

(a) Questionnaire

One hundred and sixteen responses were received out of a maximum possible n=204, giving a response rate of 57%. Males accounted for 18.1% of participants and females 81.9% (females now comprise 81% of undergraduates at Bristol Dental School). The proportion of participants by year of study was 28.4% Year-2, 33.6% Year-3 and 37.9% Year-4 such that approximately one-third of questionnaire respondents came from each of the three Year-groups. Results for each of the survey questions where students were asked to show their level of agreement with a given statement are shown in Tables 3 and 4.

Most (90%) participants agreed that they knew the overall length of the OSCE assessment, although only half knew the minimum number of stations that they needed to pass (52.6%) or the proportion of Unit mark allocated to the OSCE (50.9%).

The responses to most questions supported the OSCE as an assessment format. Most students agreed that OSCEs tested their diagnostic (62.1%), clinical (81.9%) and communication skills (87%). Most students (86.2%) thought that OSCEs went 'beyond simply recalling of facts', and 74.2% of students thought that they showed them areas where they needed to improve their learning. There was one exception to these positive results. Over two-thirds (69.8%) of participants felt more stressed about the OSCE than they did about their e-Assessment. More Year-2 students reported stress (81.8%) compared to Year-3 and Year-4 students.

(b) Focus group interviews

Of the 64 Year-2 students who were invited to take part in the study, 10 volunteered. There was an equal divide of males and females. Six themes were drawn from the data:

- A students' first OSCE is met with dread and anticipation
- The OSCE was an unfair assessment
- Attending the OSCE is a draining/emotional experience
- OSCE performance was considered unpredictable

- Senior students were 'gatekeepers' regarding OSCEs
- Constructive suggestions on how the School could better prepare students for OSCEs

Theme 1: A student's first OSCE is met with dread and anticipation

None of the Year-2 students had encountered an OSCE previously, and although the format of the OSCE had been explained previously, they worried about their 'first ever OSCE'. Typical comments included:

"*All of our previous exams had been multiple choice…"* (Participant 2, Focus group 1)

"It reminded me of interviews from before we got in…" (Participant 3, Focus group 1)*

"*There was a lot of nervousness*" (Participant 1, Focus group 2)

*This comment relates to the use of Multiple Mini Interviews during the application to dental school. It is accepted that this will not be applicable to all dental schools. There was also concern that the OSCE was set in a clinical environment unfamiliar to the students.

"I thought that it was quite dark in the Skills Laboratory, and it seemed cramped and rushed. At least on clinic it was a bit brighter and I thought that environment was a bit more positive." (Participant 1, Focus group 1)

Theme 2: The OSCE as an unfair assessment

There was a general feeling that students were assessed on tasks that were relatively new to them and it was deemed 'unfair' to be assessing them on tasks or procedures that they had only seen recently and for which they had had little chance to practice or increase their competency.

"*It was not clear what would be in the OSCE assessmen*t" (Participant 2, Focus group 2)

The OSCE was also deemed 'unfair' as some students had had more opportunity to gain clinical or practical experience than others due to variations in their timetables.

"The first group had been on clinic for pretty much months before we had even set foot on there." (Participant 4, Focus group 1)

"*I had actually only done it once on a patient and so hadn't known it completely. I don't feel that I was competent to do it. You cannot practice these skills at home."* (Participant 1, Focus group 1)

Furthermore, students were concerned about performing within a set time frame when they had little clinical experience of the procedure.

"At the time, I had not actually devised a treatment plan on clinic. So, for me, what do I write?" (Participant 4, Focus group 1)

"We'd done them but never under time pressure." (Participant 5, Focus group 1)

Another emerging sub-theme related to lack of 'fairness', that the Unit handbook was of limited use and that the marking scheme for the OSCE was unclear.

"*I thought that it was Pass or Fail at each station. I didn't know it was points involved. I feel as though we weren't briefed."* (Participant 4, Focus group 2)

"I always look at the handbook to assist my revision, but it didn't give me any pointers…As the OSCE is quite practical, there is only so much that you can learn from text." (Participant 4, Focus group 1)

Before the OSCE, supervisors could enhance students' experiences.

"I had a supervisor on clinic who knew we had on OSCE and took me through a couple of things, but students with patients did not have that preparation. Everyone didn't get that." (Participant 1, Focus group 1)

Clear information regarding the content of the OSCE was not always forthcoming.

"We e-mailed several times to ask what topics would be in the OSCE but never really got a clear answer." (Participant 3, Focus group 2).

Theme 3: Attending the OSCE is a draining/emotional experience

There was an emerging theme that the OSCE assessment could be mentally taxing, more so than for other types of assessment that they were accustomed to.

"*It was three hours long and by the end I felt so drained. Most of what went wrong for me was due to me being panicked – numerous stupid mistakes."* (Participant 4, Focus group 1)

There was also a feeling that staff that were normally being supportive of the students whilst teaching on clinic now had a different persona when acting as an examiner.

"On the clinic all the supervisors are really nice and encouraging but, in the exam, they seem to change. You're not the person I thought." (Participant 1, Focus group 1)

"I think some of the staff….were very stern, kind of frightening." (Participant 2, Focus group 1)

"I found that some were quite disinterested….that was disheartening at times." (Participant 4, Focus group 1)

Such a change in demeanour was unsettling for students.

"I know it has to be a formal environment in the exam, but they could be more friendly and encouraging." (Participant 4, Focus group 1)

Theme 4: OSCE performance was considered unpredictable

There was an emerging theme that some students had lesser insight as to the level of their performance during the OSCE than they had with other forms of assessment (such as 'Single Best Answer' items).

"When I talked to everyone about the exam afterwards, people were really nervous, yet most people passed it. It was fine, it was just the not knowing. Most people left thinking they failed it. I was so surprised to find that I'd passed." (Participant 4, Focus group 1)

"More people passed than I thought. Everyone came out and said: "I've failed all of them"." (Participant 5, Focus group 1)

In addition, a perceived bad performance at one station may have overshadowed performance at subsequent stations.

"If you had a bad station, it was very hard to switch off and build yourself back up again for the next one." (Participant 1, Focus group 1)

Theme 5: Senior students as 'gatekeepers' regarding OSCEs

A strong peer culture emergedwithin the dental school with senior students helping junior ones. The Year-2 students tended to rely on this informal peer support to help with OSCE preparation.

"Senior students were more helpful than staff." (Participant 2, Focus group 2)

However, this informal peer support was not comprehensive for all students, resulting in some students perceiving this as another area of 'unfairness'.

"*The year above gave us some questions which was really good, but only a week before."* (Participant 1, Focus group 1)

"…the shared bank of information….even asking older years what topics would come up…It's like they got everyone together in a focus group and wrote down all the topics….a list of potential stations." (Participant 2, Focus group 1)

"The few times we assisted Year-4 students some of us asked what we could expect, but not everyone did this….so one room where everyone heard the same thing would be fairer." (Participant 4, Focus group 1)

Theme 6: Constructive suggestions on how the School could better prepare students for OSCEs

The students suggested ways in which the school could better prepare students for their first OSCE. It was suggested that there should be greater clarity about the aims and learning outcomes of the OSCE as well as producing a checklist of skills that would be assessed.

"*Everyone thought that we were going to have to do a crown prep….I realise now we could never do that in 10 minutes."* (Participant 2, Focus group 1)

"In Year-2 we cover so much. If we had a checklist we could look over skills needed." (Participant 3, Focus group 1)

"*The opportunities to practice their clinical skills in the clinical skills lab as well as mock OSCE stations was also offered to help with student preparedness."* (Participant 4, Focus group 1)

Providing students with an opportunity to practice OSCE's under exam conditions was also offered as a useful recommendation.

"*More opportunity to practice*" (Participant 2, Focus group 2).

"Practice OSCE stations where you have to perform a task within a set time…" (Participant 1, Focus group 2).

There were also suggestions to offer specific OSCE tutorials beforehand and to better organise the Virtual Learning Environment (VLE).

"*I really like small group teaching….I would be willing to ask questions in that environment."* (Participant 3, Focus group 1)

"Blackboard (VLE) is very unorganised the way resources are put into them. You have to filter through so many folders and sometimes you don't know they are there...There were videos as well, but not everyone looked over them." (Participant 5, Focus group 1)

DISCUSSION

This study integrated quantitative and qualitative data to explore and describe dental students' perceptions of OSCE assessments. While students perceived OSCEs to be a fair, valid and reliable assessment, they were anxiety inducing as this form of assessment had not been encountered previously. The two focus groups explored this level of apprehension to identify any possible methods whereby the School could support students through their first OSCE.

The data support the view that students generally perceive OSCEs to be a valid form of assessment with clear educational benefits and free from bias. Most students agreed that the OSCEs tested diagnostic skills, clinical skills and communication skills, and agreed that the OSCE covered a wide range of disciplines, supporting the validity of the OSCE format. These results are very favourable when compared to an earlier UK study (22) where students generally felt that operative skills were not being tested and that there was a lack of communication skills testing. Our data support the findings of a more recent Jordanian study (23) where 65.8% of students thought that the OSCE was a good test of clinical skills. The consensus of the Jordanian study was that the OSCE was a suitable format in which to test the students' operative dentistry, clinical judgement and skills, although some students (34.5%) thought that the OSCE format did not effectively assess their clinical skills.

When looking at the students' perceptions of OSCE validity, it must be remembered that students are reporting "subjective validity" rather than validity in a psychometric sense. Subjective validity was found in three previous studies of dental undergraduate views of OSCEs, (23-25) and where validity was not found, students were unconvinced that clinical skills and communication skills could be validly tested when using dental manikins. Whilst technical skills may be assessed on a manikin, students commented on lack of clinical authenticity (22). Increasing the use of actors/simulated patients may help increase students' subjective validity, especially in areas that test vital communication skills such as

taking a dental or medical history, discussion of treatment plans and taking consent. In addition, the increased objectivity of removing patient variation helps ensure that the only variable being assessed is the ability of the student. Furthermore, a high degree of inter-examiner reliability in an OSCE assessment has been found (10) giving support for the OSCE format.

Essential areas of clinical performance may be tested more readily with an OSCE than with traditional clinical examinations (11). A well-developed OSCE question can show higher levels within Bloom's taxonomy of educational objectives (25) and can demonstrate the 'shows how' facet of clinical competence when looking at Miller's pyramidal model (26), rather than just cognitive knowledge. Other forms of assessment (such as traditional multiple-choice examinations) are not ideal at assessing higher levels of thinking (12). This was found in the current study where 86.2% of participants felt that the OSCE went beyond simply testing recall of fact.

It was also encouraging that most (74.2%) participants perceived the subjective educational benefit of an OSCE, agreeing that "The OSCE showed me areas where I need to learn more", with 80.1% agreeing that "The OSCE was a useful educational exercise". This supports the view of other research (22, 27) where most students thought that an OSCE was beneficial for education and gave them "a very good impression of their own strengths and weaknesses". Previous research (27) has identified that teachers felt that the OSCE format identified areas of teaching that needed change. The subjective educational benefit of OSCEs is also supported by the subsequent Indian study (24) where 89% of students reported that they could identify their own weak areas, and 63% reported that they were motivated to learn further. This agrees with an earlier study where it was found that an OSCE held a different influence on students' learning outcomes when compared to written examinations, and that the OSCE stimulated learning and gave students a greater level of realistic self-assessment (28). Further support for the subjective educational benefit of OSCEs comes from the USA study (25) where students overall agreed that the OSCE was "a learning experience".

Interestingly, the perception that OSCE's were a fair assessment was contested in the survey and focus group findings. Fairness can be defined in multiple ways. A fair test is one that is "free of bias, in that it is not associated with systematically higher or lower scores for identifiable groups of examinees" (29). Fairness also relates to the assessment being

matched to the intended learning outcomes, i.e. it shows constructive alignment (30), the correct standard being set, evaluating what should be evaluated and based on realistic and appropriate stations. The Indian study (24) of dental undergraduate OSCEs gave another view of 'fairness' of assessment in that all students were assessed on the same material. Over two-thirds of students agreed that the OSCE was 'fair'. This contrasted with a viewpoint elicited in the focus groups that OSCEs were unfair. Several different factors were identified as contributing to this sense of unfairness. These include but were not limited to: some groups of students had received more clinical experience than others prior to the OSCE, and that students were undergoing a clinical assessment on skills that they had only just learned and for which they had little time to practice or improve these skills. These factors were deemed to be outside the realm of students and were a product of curricular and timetabling issues. Nevertheless, they contributed to the students' sense of anxiety about the assessment. This lack of student control over the assessment was confirmed through the discovery of a strong peer culture among the students. This peer culture involved senior students sharing their experiences with OSCEs to inform and reassure the more junior students. Through this sharing of past experiences, a sense of community emerged across the year groups. This social structure reminds us of the stresses involved in completing a dental degree and how informal support structures can emerge when formal support mechanisms or student-faculty communication are less than optimal.

Together, these factors may contribute to the anxiety experienced by dental students as they prepare for their first OSCE assessment. This is supported by the findings of the focus groups where themes emerged to explain the reasons for these anxieties. The findings of the current study support a Dutch study (9) which concluded that the OSCE was the most anxiety-provoking method of assessment. Anxiety was also expressed in the Indian study (24) where 63% of students though that an OSCE was more stressful than other forms of assessment, with 79% claiming to be "frightened/scared" when performing in the presence of another faculty member. This was mirrored by focus group responses in the current study where students expressed a view that some examiners were "stern" and "frightening". OSCEs in other medical disciplines also caused higher levels of student anxiety (31-34). Higher levels of reported anxiety may be due to the continued observation and monitoring of the students by station examiners during an OSCE (32) and by the timed, interactive aspects of the OSCE (33). However, all dental assessments have been shown to produce

psychological stress (35), and students in the Dutch study were found to have carried out more preparation for the OSCE than for other forms of assessment (9).

Recommendations:

This study highlights the importance of supporting students encountering new forms of assessment to help with anxiety levels. This may be achieved by ensuring that handbooks are fit for purpose, clear and concise and up-to-date, as handbooks that contain excessive information may not be read. It reminds us that teaching and assessment need to be constructively aligned (30) in order to maximise learning and the need to be student-facing when giving instructions. It would be sensible to provide students with a 'checklist' of skills on which they may be tested, and to ensure that students have had sufficient time in which to practice these skills. The introduction of 'mock' OSCEs would be sensible for junior students as it was the unfamiliar format of the OSCE that helped contribute towards student anxiety. As well as familiarising students with the OSCE format, a 'mock' OSCE would help provide formative feedback on student learning. Furthermore, a 'mock' OSCE would allow students to view their familiar teachers in the new role of examiners. Examiner training is key, not just in terms of making appropriate judgments about student performance, but also towards their attitudes towards students and their awareness of possible student anxiety levels. It may also be beneficial to involve senior students in the preparation of junior students for their first OSCE, thus making use of the strong peer culture that exists within the student body. This would also ensure that all junior students were able to access this near-peer guidance and help to reduce any feelings of unfairness among junior students.

Limitations of this study:

Though mixed methods add to the validity of a study, both approaches need to be assessed on their own merits in order to assess the overall quality of the research (36). Questionnaires are suited for gathering data about abstract concepts, such as opinions, attitudes and beliefs (37,38) and can be completed by large numbers of participants (39) without bias (40) or time pressures (39). However, questionnaires can be too 'prescriptive' (38) and respondents may become frustrated with too many questions of the same format which leading to lack of participation or completion. We therefore limited the number of questions towards achieving a high response rate with no missing data (41,42). The

response rate of 57% was disappointing, although this may have been expected (43) and response rates to questionnaires undertaken by healthcare professionals are often low (39,44) and may have response bias. Questionnaires were distributed directly following the OSCEs, helping to ensure that students gave valid responses as their views on their recent OSCE were still fresh in their minds although may have captured higher stress levels. There was no selection bias in the sample. The use of an online data collection tool (Bristol Online Survey) allowed participants to respond anonymously and easily, although there are conflicting views as to whether the apparent ease for participants of completing online surveys does in fact increase the response rate (45-49).

Qualitative methods helped our understanding of students' experience with OSCE assessment by foregrounding their feelings and interpretations of assessment (50). Despite these rich data, it would be unwise to claim that this account of dental students' perceptions and attitudes towards OSCE is representative of all UK dental undergraduates (51). Moreover, this research is specific to the experiences of a student cohort at one UK dental school and their specific BDS curriculum. Within the current curriculum, undergraduates will encounter three summative OSCEs, at the end of Years 2, 3 and 4. Experiences in other dental schools with different clinical curricula could generate different results. Nevertheless, these findings are informative to dental educators.

Second, due to the conversational quality of focus groups, the facilitator is key to ensure a format that allows all participants contribute their views and allow for a balanced or diverse viewpoint to emerge on the topic (51). Having a qualitative researcher experienced in facilitating focus groups (PN) to moderate these focus groups helped reduce the possibility of group effects like dominant personalities to influence the outcome (51). That said, it is worth noting that the focus group facilitator is employed by the dental school and known to the students as a member of staff. This introduces the possibility of researcher bias, both with regards to the running of the focus groups (with students capitulating to what they think the researcher wants them to discuss), but also regarding data interpretation and coding stage of the project. While there is an element of subjective interpretation in qualitative data analysis, the coding was conducted independently by each researcher and the codes were not predefined by an existing theory. Codes were grouped together into categories after a consensus meeting was held producing a working analytical framework. These codes were then applied to subsequent focus group using existing

categories and codes. The data was then put into a framework matrix, summarising the data from each focus group into the framework matric with references to quotations. In this way, researcher bias was minimised (51).

CONCLUSIONS

Most dental research excludes the student voice/experience of their assessments and curriculum (52) yet it is only through researching dental students' experience will we be able to inform change or improve assessments (16). This study gives further support to the OSCE as an assessment format in terms of its validity and overall educational benefit. Nevertheless, there is a perception among first time OSCE students that it can be an unfair assessment and that the format of the assessment fuels student anxiety in several interesting ways. It is hoped that this exploration of student views of their first OSCE will help schools better prepare students for OSCEs, as well as increasing schools' confidence to use OSCE as a method of clinical assessment.

Conflicts of Interest: All authors declare no conflicts of interest.

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Table 1: Preliminary and secondary codes derided from thematic framework analysis

Primary Code	Secondary codes
First OSCE as a daunting experience	Fear of the unknown
	Lack of clarity about aims of OSCE
	Clinical environment as a source of uncertainty/insecurity
OSCE's as an unfair mode of assessment	Challenge of assessing newly acquired skills
	Marking scheme not clear
	Course handbook of limited value
	Variable support from staff
	Variable support from course unit
	Time constraints
OSCE's as an emotionally draining experience	Role of assessor
Factors that undermine performance in OSCE unpredictable	Emotional impact of having one 'bad' station on overall OSCE performance
	Students struggle to gauge their own performance
Role of senior students in shaping perceptions and expectations of OSCEs	Influence of informal support network
	Student culture
Recommendations for improvements	Offer trial OSCE for practice
	Refine/re-communicate OSCE aims
	Better clarity on marking scheme
	Clarity of topics/skills included in OSCE
	Re-organise VLE
	Expand support materials to include teaching videos
	Change "atmosphere" in OSCE

Table 2: Questions used in the focus group interviews

Questions	Prompts
Engagement questions	• Did you feel unprepared for your recent OSCE? • What did you think an OSCE would entail? • What the OSCE how you imagined it to be? • How did you find the layout of the OSCE? • Did you understand the rules of the OSCE?
Exploration questions	• Where did you go to find what you needed to know about the OSCE? • Was the Unit Handbook useful? • If so, how was it useful? • If not, why not? • Who helped you prepare for the OSCE? • Of all the things that did to help you prepare for the OSCE, which was the most useful? • Why was this? • What was the least useful and why?
Exiting questions	• If there was one thing that you could change about how you prepared yourself for the OSCE in Year-2, what would it be? • Why? • What is the one thing that you would change about how the course/School prepares students for their OSCE's in Year-2?
Helpful prompts used by the facilitator	• Can you tell me more about that? • Can you give me an example? • What do you mean by that?

Table 3: Participants level of agreement with given statements (summary findings of the three Year-groups)

Statement	Agree (%)	Disagree (%)
"I knew the overall length of the OSCE assessment before the examination"	92.2	7.8
"I knew the minimum number of stations that I had to pass"	47.4	52.6
"I knew what proportion of the Unit mark was allocated to this OSCE"	50.9	49.1

Table 4: Participants level of agreement with given statements (summary findings of the three Year-groups)

Statement	**Strongly Disagree (%)**	**Slightly Disagree (%)**	**Slightly Agree (%)**	**Strongly Agree (%)**
"I fully understood the format of the OSCE before the assessment"	7.8	9.5	26.7	56
"I was aware of which learning objectives I could be assessed on"	10.3	23.3	43.1	23.3
"I was not surprised by any of the station topics that I was assessed on"	14.7	31	33.6	23.7
"I felt prepared for the OSCE assessment"	6	24.1	50.9	19
"The OSCE tested my diagnostic skills"	14.7	23.3	46.6	15.5
"The OSCE tested my clinical skills"	11.2	6.9	47.4	34.5
"The OCSE tested my communication skills"	8.6	4.3	33.6	53.4
"The OSCE covered a wide range of skills and dental disciplines"	7.8	7.8	47.4	37.1
"The OSCE showed me areas where I need to learn more"	7.8	18.1	39.7	34.5
"The OSCE went beyond simply testing recall of facts"	8.6	5.2	36.2	50
"The OSCE was a useful educational exercise"	9.5	10.3	39.7	40.4
"The OSCE was a fair assessment"	12.1	18.1	38.8	31
"I felt less anxious about the OSCE than the Unit e-assessment"	42.2	27.6	11.2	19