1
2
3
4

Introduction of the Objective Structured Clinical Examination in Speech and Language Therapy Education: Student Perspectives

7
8
9

Duana Quigley[1*] MSc PhD, Julie Regan[1] MSc PhD

11
12

[1]Department of Clinical Speech and Language Studies, Trinity College Dublin, Dublin, Ireland

13
14
15

Short Title: SLT Student Perceptions of OSCEs

17
18
19

*Corresponding Author:

Duana Quigley PhD MSc (Corresponding author)
Department of Clinical Speech and Language Studies,
Trinity College,
Dublin 2,
Ireland.
Tel: 0035318961336.
quigled1@tcd.ie

29
30
31
32
33

Key words: OSCE, speech and language therapy, perceptions, assessment

35
36
37
38
39
40
41

1   **Abstract**

2   **Introduction & Aims:** The Objective Structured Clinical Examination (OSCE) has an

3   established history of assessing clinical competence for medical and allied health care

4   professionals. No research has investigated the use of the OSCE within speech and language

5   therapy (SLT) undergraduate education. This study aimed to evaluate undergraduate SLT

6   students' perceptions of the OSCE and to determine if perceptions differed depending on stage

7   of undergraduate education.

8   **Methods:** An online survey was distributed to second and final year students in a four-year

9   undergraduate SLT university programme after completing an OSCE. Quantitative survey data

10   were analysed descriptively and statistically using Fischer's exact tests. Thematic analysis was

11   used to analyse narrative survey comments.

12   **Results:** The response rate was 80%. Students perceived the OSCE to be a fair (95%) and

13   meaningful way (97%) of assessing clinical competencies, which provided them with greater

14   confidence for practice (91%). The OSCE was deemed to be less stressful than a written exam

15   (65%). No significant differences were observed between second- and fourth-year students'

16   perceptions. Five major themes included clarity of expectations, time allocated, consistency

17   between examiners, influence on student learning, and personal impact.

18   **Discussion:** Survey findings suggest that undergraduate SLT students across different stages

19   of education and different clinical contexts perceive the OSCE as a fair and meaningful

20   assessment approach. This study provides initial evidence that the OSCE is suitable for

21   assessing clinical competencies specific to the profession of SLT.

22

23

24

25

1

2 **Introduction**

3 The development of professional and clinical competencies is a fundamental component of

4 speech and language therapy undergraduate programmes. Examination of these skills is an

5 integral component of the assessment process to ensure a graduate meets the necessary

6 standards of proficiency to practise as a speech and language therapist (SLT) [1]. Core clinical

7 competencies expected of student SLTs often overlap with other allied health professions (e.g.,

8 effective communication skills, ability to collaborate with clients) and therefore examination

9 of core competencies can replicate assessment processes of students in other disciplines [2].

10 However, criticisms abound for over-reliance on assessing global and general competencies as

11 they may be unrepresentative of the precise knowledge and skills required in a specific clinical

12 setting [3]. There are a number of profession-specific clinical competencies that student SLTs

13 need to develop and integrate, reflecting our unique role in the assessment, diagnosis and

14 management of clients with a range of communication and swallowing disorders [4]. Clinical

15 populations may include clients with aphasia, dysarthria, dysphagia, dysfluency,

16 developmental language disorders or speech sound disorders. Therefore, profession-specific

17 assessment of these discrete clinical competencies and how a student can integrate them in

18 clinical decision-making is necessary [4,5].

19

20 It is recognised that that the assessment of clinical competencies may be complex and

21 challenging, often lacking structure or standardisation [6]. Some educators within the discipline

22 of SLT have attempted to address the challenge of assessing discipline-specific clinical

23 competence through the introduction of simulation and standardised patient clinics (e.g., [7,8]).

24 While important insights can be gleaned from these studies in relation to perceived benefits of

1 using standardised patients for assessment, such as decreases in student anxiety and increases

2 in student confidence, measures of actual competence change are currently not available [7].

3

4 Traditional approaches to the assessment of student competency within healthcare education

5 include written exams, oral presentations and essays, all of which have been questioned from

6 validity, subjectivity and fairness perspectives. Since its introduction over forty years ago to

7 assess clinical skills of medical students [9], the OSCE has been adopted as a strategy for

8 evaluating a wide range of clinical and technical skills and knowledge [10]. The Objective

9 Structured Clinical Examination (OSCE) is an assessment method that claims to enable a more

10 valid and reliable assessment of specific clinical competencies and to overcome documented

11 challenges of subjectivity. The OSCE now has an established history of assessing clinical

12 competence for medical and allied health care professionals. During an OSCE, students

13 progress through several structured and time-defined stations, with each station examining and

14 grading a student's performance on a specific clinical competency in a simulated environment

15 [6, 11]. Thus, OSCEs enable assessment of the "show how" domain of Miller's (1990) pyramid

16 of clinical competency (as distinguished from the other levels in the pyramid of "knows",

17 "knows how" and "does") [12]. The criteria for assessing students' performance at each OSCE

18 station are specified in advance of the examination and can provide a means of both formative

19 and summative assessment for students [13, 14]. It is argued that the OSCE allows for a more

20 structured and consistent assessment of defined clinical skills, with minimal interference from

21 other possible variables [9].

22

23 Numerous studies have demonstrated the validity and reliability of the OSCE as an assessment

24 method [15,16]. However, some argue that existing OSCE validity research is somewhat

25 narrow, concentrating too much on the validity of the content of the OSCE station or the

1   validity of the OSCE process, without considering broader factors that may be influential

2   [17].A central element of evaluating the validity of the OSCE more broadly is gathering

3   students' perceptions on how the OSCE promoted or impeded learning [18]. Greater student

4   participation in appraising assessment methods can also contribute towards quality assurance

5   of undergraduate programmes [19]. Previous research has explored the perceptions of medical,

6   nursing, midwifery, dentistry, dietetics, and pharmacy students towards OSCEs [20-26].

7   Positive attitudes have referred to the OSCE building students' confidence in skills needed for

8   clinical practice and highlighting areas that require further development through feedback from

9   OSCE performance [10, 23, 24-27]. Some studies indicate that it provides valuable learning

10   opportunities, is a motivator to learn, and that students engage more meaningfully with the

11   module objectives that are assessed through an OSCE [13, 20, 28-30]. The OSCE has been

12   considered by students to be fairer and more objective than other means of assessment [27, 28,

13   31] but concerns in relation to possible collusion or increased examiner leniency have been

14   raised when students sit the OSCE after their peers [32]. However, students themselves have

15   challenged this assertion [33]. Other negative perceptions tend to centre on the OSCE being a

16   stress-inducing experience for students [29, 34, 35], with OSCEs deemed responsible for higher

17   levels of anxiety than students experience in other forms of examination [22]. It is argued this

18   is due to the added pressure of needing to integrate theoretical and clinical knowledge and

19   skills, time pressure involved, and the constant observation of examiners [22, 29, 36]. In

20   addition, students have expressed a view that the simulation experienced in an OSCE station

21   does not replicate real clinical experience nor facilitate a true reflection of their clinical

22   competencies [37]. Conversely, other studies have argued that the degree of integration and

23   application of knowledge required, coupled with the necessity to perform under pressure over

24   an extended period of time, is more representative of clinical practice, increasing the relevance

25   of the OSCE as an assessment strategy for health care professionals [13, 20, 27, 38]. Indeed,

1   other studies have reported that students perceive the OSCE stations as being "true to life",

2   preparing them for clinical placements and professional practice [32].

3

4   While the former findings provide valuable information about the perspectives of a wide range

5   of medical and allied healthcare students, there is a dearth of literature to understand speech

6   and language therapy students' perceptions of the OSCE. To date, we only found one published

7   study describing OSCEs in the discipline of speech and language therapy. Zraick et al. [39]

8   explored the use of an OSCE that used standardised patients with acquired communication

9   disorders to evaluate students' interpersonal and communication skills [39]. However, speech

10   and language therapy students' perceptions of the OSCE were not gathered. Information on

11   SLT student perceptions is crucial to determine student acceptability and to tailor future

12   development of the OSCE. It is well acknowledged that student participation in assessment

13   design promotes student engagement and that both formative and summative assessment drives

14   student learning [40]. Previous research has identified that student perceptions of the OSCE

15   can differ depending on both the stage of education and on the clinical context of the assessment

16   [41]. Students who are earlier in their education may have limited exposure to clinical practice

17   and could perceive the OSCE to be more stressful. It is therefore important to explore variables

18   such as clinical context and stage of education when evaluating student perceptions of the

19   OSCE.

20

21   **Research Aims**

22   The aims of this study were to identify undergraduate SLT students' perceptions of the

23   Objective Structured Clinical Examination (OSCE) within an Irish undergraduate university

24   programme. Additionally, it aimed to determine if stage of undergraduate speech and language

therapy education influenced students' perceptions of the OSCE. Specific research questions were:

1. What were undergraduate SLT students' perceptions of the OSCE?

2. Did perceptions of the OSCE differ at different stages of undergraduate SLT education?

Methods

Ethical approval was obtained from the Research Ethics Committee, School of Language and Communication Sciences, Trinity College Dublin. The study was conducted in the Department of Clinical Speech and Language Studies, Trinity College Dublin. Two OSCEs had been introduced within two separate modules within a four-year undergraduate programme. The first OSCE was developed within a practice education module for second year undergraduate students. The learning outcomes for this module were within a broad clinical context with focus on assessment of children and adults with developmental and acquired communication and swallowing disorders. The second OSCE was developed to assess fourth year undergraduate students' clinical competencies within the more specific clinical context of dysphagia. Both OSCEs were completed separately within a speech and language therapy department in a university setting in December 2018.

Each OSCE comprised a circuit of eight stations. At each station, students had to complete a specific task such as a case history, administration of a test, data analysis, or treatment selection (see OSCE station outlines in Figure 1). Stations were a combination of observed, unobserved, linked and technology enhanced stations as defined by Khan et al [6]. Each station was ten minutes duration and students had one-minute break between stations. Examiners were academic teaching staff, clinical teaching staff, and service users who are involved in

1 undergraduate teaching. Rest stations were integrated into the OSCE circuit to reduce student

2 fatigue. A full OSCE circuit was one hour twenty minutes duration.

3

4 **FIGURE 1 HERE**

5 **Study Design**

6 The study is mixed methods in design, as it meaningfully amalgamates a qualitative and

7 quantitative approach to design, data collection, and analysis [42]. An anonymous online

8 survey design was developed in Surveymonkey™ and disseminated to undergraduate students

9 within one week of OSCE completion. A survey was selected as the most appropriate research

10 design compared to focus groups or semi-structured interviews. Given that participants were

11 current undergraduate students, they may have felt uncomfortable providing feedback face to

12 face and hence an anonymous survey was deemed to promote more valid and less biased

13 feedback. A survey design method to determine student perceptions of the OSCE is in keeping

14 with previous research [43, 44]. As the survey collected both quantitative data (e.g., responses

15 to a Likert Scale) and qualitative data (e.g., free field comments), a mixed methods approach

16 to analysis was deemed appropriate [42]. The mixed methods framework we adopted falls

17 within a synergistic approach, in which we view the sum of the qualitative and quantitative

18 approach to be of greater value than a single perspective [45].

19 **Participants**

20 All second year and fourth year students who completed one of the two OSCEs were invited

21 to respond to the survey. None of these students had any previous experience of an OSCE

22 examination as part of their clinical education. During their undergraduate programme,

23 previous assessment approaches had included written examination, group problem-based

24 learning oral presentations, oral presentations, written essay or multiple choice questions

25 (MCQ's).

Survey

The survey was designed specifically for this study and the content was based on previous research. The survey included six four-point (strongly agree, agree, disagree, strongly disagree) Likert style questions and two open ended questions. For each question, students could add narrative comments. The survey took maximum of five minutes to complete.

Data Collection Procedure

Within one week of the OSCE examinations, second- and fourth-year students were emailed a link to the anonymous online survey by an executive officer who acted as a gatekeeper for the study. The link to the survey was only provided after the OSCE results were received by the students, thereby disassociating any links between participation in the study and any potential perceived influence on grading. This separation was strengthened by the anonymity of whether students participated in the survey or not.

Data analysis

Survey data was analysed both quantitatively and qualitatively to obtain an in-depth understanding of data. Quantitative data was exported from Surveymonkey in an excel document for descriptive analysis. Percentages and raw data were obtained for the total group and for subgroups (i.e., second year and fourth year students). To test for an association between survey responses and year of undergraduate education (second year versus fourth year), data (strongly agree and agree data plus disagree and strongly disagree data) was entered into a 2x2 contingency table and one-sided Fischers exact tests of Independence were carried out within SPSS Version 25. Statistical significance was set at <0.05.

For the qualitative data, thematic analysis was applied to all free field comments in the student survey to identify, analyse, and report themes within the data [46]. Aligned with Braun and Clarke's (2006) six phases of analysis, we: (i) familiarised ourselves with the data; (ii) generated initial codes; (iii) searched for themes; (iv) reviewed the themes; (v) defined and named the themes; and (vi) produced a written argument in relation to story that the data told [46]. Through this recursive process of analysis, individual themes were generated and interconnections between themes were constructed, enabling us to capture patterns of meaning across the data that related to the focus of this inquiry [46-48]. Reflexivity is demonstrated through illustrative quotes that make explicit how we engaged with the data and how themes were constructed [49].

Results

Response Rate

There was a survey response rate of 80% (29/37 second year students; 26/32 fourth year students).

Student Responses

Figure 2 provides the total combined responses of each question of the survey and shares the responses by class cohort. A series of Fischer's exact tests of Independences found no significant differences in responses between second- and fourth-year students on any item (p>.05 on each test).

In summary, the results in figure 2 reveal an overwhelming majority of students agreed that the OSCE was easy to understand (96%), fair (95%), a meaningful way to assess clinical competencies (97%), instilled confidence in clinical practice of placement (91%), and

1   highlighted strengths areas to work to develop (93%). Some students were in strong agreement

2   about the potential positive attributes of the OSCE. For example, as displayed in figure 2, over

3   half of students strongly agreed with the former survey questions (ranging from 55-73%) and

4   less than ten-per-cent disagreed or strongly disagreed (ranging from 3-9%). There was less

5   consensus amongst students in relation to one question of the survey, that is, whether the OSCE

6   was less stressful than written exams. While the majority of students agreed (33%) or strongly

7   agreed (33%), over one quarter of fourth year students (27%) and two-fifths of second year

8   students (41%) disagreed that the OSCE was less stressful (figure 2).

9

10   **FIGURE 2 HERE**

11

12

13   **<u>Qualitative analysis</u>**

14   Following the completion of all phases of thematic analysis as described by Braun & Clarke

15   [46], five themes were constructed from the analysis of the free field narrative comments of

16   the student survey. Each theme is outlined below, illustrated by responses from second year

17   (SY) or fourth year (FY) students.

18

(i)19   **Theme 1. *"Everything was laid out as expected":* Clarity of expectations**

20   A large proportion of positive comments in relation to students' experiences of the OSCE

21   related to the clarity and transparency about what would be expected from them on the day.

22   This included clear links between lectures/tutorials and OSCE stations, provision of relevant

23   resources and easy to follow instructions in advance, and a structured and organised OSCE

24   environment.

25   *"Each tutorial had a clear focus on each station" (SY)*

1   *"The instructions were helpful and clearly laid out" (SY)*

2   It was evident that their clarity about the assessment focus of each station, and how the OSCE

3   environment would be structured and sequenced, supported students' preparation for the OSCE

4   and increased their confidence on the day of the OSCE.

5   *"I was confident because I knew how the day was structured. If we didn't get as much*

6   *information, I definitely would not have been as confident or comfortable." (SY)*

7   *"The clear structure and sequence of stations made the environment very relaxed and*

8   *pleasant for an exam!" (FY)*

9   Related to this, any perceived degree of uncertainty in relation to examiners' requirements,

10   such as a belief that some OSCE instructions lacked specificity, was negatively appraised.

11   *"Fill in the blank stations (orofacial, swallow trials) not enough indication of how*

12   *much information is expected" (FY)*

13

14   *"Make it clear exactly what you have to do (e.g., do you have to assess Information*

15   *Carrying Words 3 times or once etc?)" (SY)*

16

(ii)17   **Theme 2. *"Make the length of the stations more even"*: Time allocated for assessment tasks**

18   Students frequently shared a perception that the time allocated for an assessment task in the

19   OSCE station could have a positive or negative impact on their examination performance. For

20   example, it was commonly remarked that time constraints in a specific OSCE station impeded

21   their ability to fully demonstrate their competencies for a particular clinical task.

22   *"The case history station was too short considering it was not a bedside assessment*

23   *situation, which did not leave enough time to go further than standard questions" (FY)*

24   Conversely, some students considered the duration of OSCE stations to be adequate, while

25   others believed that too much time was provided for some stations.

1   *"The other stations were long enough" (FY)*

2   *"Break stations were appreciated but the break between the two halves were very*

3   *long…" (SY)*

4   *"10 mins is perfect, slightly long for some stations and a little tight on others - provides*

5   *a rounded exam experience" (FY)*

(iii)   **Theme 3. *"Some lecturers are harder markers than others":* consistency between**

7   **examiners**

8   Students' remarks pointed to a perception that the examiner of the OSCE station had an impact

9   on how high or low they were graded, indicating a view that a level of subjectivity and lack of

10   inter-rater reliability existed.

11   *"Feel some lecturers are harder markers than others" (FY)*

12   *"For each case history case, there should be a clearer protocol in place for the*

13   *examiners" (FY)*

14   At times, this concern was explained by students' belief that some examiners are more

15   intimidating than others, thereby unnerving them somewhat in the examination process.

16   *"I feel a rest period between the case history and ethical dilemma would be a good hit*

17   *as the nature of the 'role plays' are quite stressful when you consider the individuals*

18   *behind them" (FY)*

19   *"Choose the least daunting people in the department for case history and*

20   *medical/legal" (FY)*

21   Despite this alarm for some students, many maintained that the OSCE was a fair and objective

22   mode of examination, more reflective of clinical practice.

23   *"Fair way of accessing our skills" (SY)*

24   *"All the lecturers in the stations made it an enjoyable experience…I feel it was very*

25   *fair" (FY)*

1 *"This type of assessment is much more relevant to our training than written essays"*

2 *(FY)*

3 *"As clinicians, written exams are not a true reflection of our ability to perform. You*

4 *can have a very good clinician who is also a very poor examinee, but you can have a*

5 *very poor clinician who can spew out essays" (FY)*

6

(iv) Theme 4. *"Really good prep for placement":* influence on student learning

8 The positive impact on student learning, as a result of preparing for and completing the OSCE,

9 was resounding. Students referred to how the preparation for the OSCE facilitated the

10 translation of theory to practice, integrated a distinct practical element into the preceding

11 lectures/tutorials, and provided a structure and motivation to practise clinical competencies.

12 *"It will provide students with more knowledge on a practical level. Many students*

13 *struggle on the conversion of theory to practice and this aids in that" (FY)*

14 *"It was refreshing to have a practical element within our lectures and it was good*

15 *motivation to study known how relevant it is to the job" (SY)*

16 It was recognised that practising and developing clinical competencies for the OSCE also

17 enhanced their preparation for clinical placement in various healthcare settings.

18 *"I liked the clinical approach and how it gave us an opportunity to practice our clinical*

19 *skills before placement" (SY)*

20 *"I do feel more prepared and confident for placement after preparing for assessments*

21 *and administering them. Knowing that I am competent in these skills before placement*

22 *is very reassuring" (SY)*

23 *"found the whole experience really beneficial for hospital placement" (FY)*

24 Students commented that completing the OSCE and receiving feedback on their performance,

25 offered them a personalised account of their strengths and weaknesses. This increased their

1 confidence in their clinical competencies in some areas and enabled them to develop an

2 individual learning plan for developing other specific clinical competencies.

3 *"I know what to work in now before I start placement" (SY)*

4 *"It helped me to understand what my strengths and weaknesses were" (SY)*

5 There was less agreement on how the OSCE aligned with clinical practice. Some students

6 maintained there was a strong alignment between their experiences of the OSCE and speech

7 and language therapy practice. Other respondents claimed there was a disconnect between the

8 examination task and what would typically take place in a healthcare setting with real clients.

9 *"Simulates real clinical setting" (SY)*

10 *"Allowed me to practice as it would be in a clinic" (SY)*

11 *"I think most students would naturally perform better in context with actualclients"*

12 *(SY)*

13 *"Some stations did not seem representative (e.g. if unsure about swallow trials in the*

14 *clinic, we would get the chance to ask the client to do another trial, but during the*

15 *OSCE we could not re-watch the video)" (FY)*

(v)16 **Theme 5. *"It was nerve-wrecking"*: Personal impact**

17 Many students were of the opinion that the OSCE had a personal impact. Mostly this personal

18 impact related to feelings of anxiety. While some students considered the OSCE generated

19 more stress than written exams, others believed the stress they felt was comparable or even less

20 than with written exams.

21 *"It is much less stressful than a written exam" (FY)*

22 *"The OSCE was equally as stressful as written exams" (FY)*

23 *"The OSCE was, in fact, profoundly more stressful than written exams" (FY)*

24 Feelings of heightened anxiety were attributed to the fact that the OSCE structure and format

25 was a new experience, or that the OSCE was assessing newly developed clinical competencies

"It was nerve wrecking doing assessments and case histories for the first time!" (SY)

"I was quite nervous because I had never been assessed in this way before" (SY)

For one respondent, the OSCE format was deemed to be unsuitable for students with personal issues such as anxiety disorders or other disabilities.

"Nine stations in one day for those with disabilities is inaccessible - especially for those who are easily drained by that most social interaction…it was a very uneven testing field for those who cannot cope with that level of stress over one day." (SY)

Discussion

To the authors' knowledge, this was the first study exploring speech and language therapy students' perceptions of the OSCE in a university setting. Quantitative and qualitative analysis of the data collected in this study demonstrated that students held many positive views of the OSCE, regardless of their stage in the undergraduate programme. A majority of the participants rated the OSCE as being easy to understand, fair, confidence-boosting, and a meaningful way to assessing their clinical competencies by highlighting strengths and areas to develop. This concurs with the findings of other studies that reported students' satisfaction with the perceived objectivity and fairness of the OSCE [26, 27, 30]. Unlike the students in Ghouri et al.'s (2018) study [31], the speech and language therapy students in this inquiry did not make reference to increased examiner leniency over time. Instead, some participants raised the issue of individual examiner harshness and possible lack of inter-rater reliability between stations in the OSCE. Others commented that inadequate time negatively impacted their ability to be fairly assessed.

Additional positive experiences expressed about the OSCE were raised in the themes that were constructed, that is, that it clarified expectations of the assessment process and provided a positive influence on their learning. Students commented that the OSCE facilitated their ability

1   to transfer theory to practice, simulated clinical experiences they will encounter on placement,

2   and motivated them to practise the development of specific clinical competencies. The

3   emphasis on the ability of OSCE to replicate clinical practice and helpfully pinpoint areas for

4   development is echoed by others [10, 23, 26, 30]. This, in turn, appeared to augment student's

5   self-confidence in their standards of proficiency as student clinicians. However, a minority of

6   participants disagreed, perceiving a disconnect between the OSCE assessment task and the

7   real-life clinical practice, similar to the perspectives of nursing students [37].

8

9   A further area of dissatisfaction with the OSCE that was shared by a greater proportion of the

10   participants was the personal distress that the OSCE caused. Over one third of the speech and

11   language therapy students believed the OSCE was more stressful than written exams, akin to

12   the perceptions of dental students [22]. Students remarked that is was "nerve-wrecking" and

13   invoked feelings of anxiety, confirming the claims of others that the OSCEs can be stress-

14   inducing for nursing and allied healthcare students [29, 34, 35]. While the students in the former

15   studies attributed this stress to time pressure, being observed by examiners, and the requirement

16   to integrate theory to practice in real-time, speech and language therapy students in this study

17   suggested the increased anxiety was as a result of the OSCE being a new assessment experience

18   of recently developed skills and competencies or as a result of existing personal anxiety issues.

19

20   No statistically significant differences were observed in perceptions of the OSCE between

21   second- and fourth-year students, indicating the perceptions about the OSCE were stable across

22   more junior and senior student cohorts. The stability of student's perspectives is especially

23   compelling considering second- and fourth-year students were being examined on different

24   clinical competencies and simulations were focussed on different client groups. In addition,

25   fourth years had the benefit of experiences from clinical placement that may have supported

their performance and positive regard of the OSCE, yet second year students had not yet completed any days of clinical placement when the OSCE took place.

Limitations

There are several limitations to this study. All student participants in the study were registered on a single undergraduate programme in one university setting. This may possibly limit the generalisability of the findings to students from other medical or allied healthcare university programmes. However, the findings are distributed across different year cohorts and different examiners, suggesting a broader possible application to the implementation of the OSCE in other institutions. While this study evaluated one assessment method, student perceptions were obtained on two separate OSCEs which assessed competencies within different clinical areas. While this may be viewed as a limitation, it ensured that student perceptions obtained weren't limited to one specific clinical context or to one stage of education.

An additional limitation is that the student survey was completed at one time point, after the students had received their grades from the OSCE. The grades that students received on the OSCE may have influenced how they completed the student survey. As the student survey was anonymous, there is no way of exploring any possible correlations. Perhaps some of the students' existing perceptions of teaching staff's assessment practices introduced bias to students' perspectives of the OSCE. Yet, traditional constructs of examiners as being either too lenient or too harsh (i.e., "doves or hawks") have been considered too simplistic, with research showing that variance in examiners' scores are typically legitimate and based on expertise and contextualised appraisals [50]. While the OSCEs were examined by teaching staff and service users, involvement of other stakeholders including family members and interprofessional colleagues may have optimised the assessment process. A final limitation is that the use of an

1   anonymous web-based student survey prohibited the authors from asking the students

2   clarifying questions about their ratings on the Likert scales. This limitation is allayed somewhat

3   by the inclusion and integration of the findings of a thematic analysis of the students' free-field

4   narrative comments within the survey.

5

6   **Conclusion**

7   The examination of profession-specific clinical competencies of student SLTs requires

8   profession-specific assessment [11]. To date, there is little research exploring the perceptions

9   of students who have completed OSCEs within the SLT discipline to examine such

10   competencies. Based on findings from this survey, SLT students at different year levels

11   perceive OSCEs positively. In summary, students positively appraised OSCE stations that had

12   clear expectations, explicit marking criteria, tasks directly linked to topics taught in lectures

13   and adequate time to complete them. They believed this resulted in a motivation to learn and

14   practise new skills and increased their readiness for competencies expected to be demonstrated

15   on placement and clinical practice. It is important that the numerous benefits of OSCEs

16   identified by students are not permitted to be overshadowed by the concerns that were raised.

17   Concerns in relation to the anxiety that the OSCE may invoke will need to be considered when

18   preparing OSCE protocols and providing instructions for students. Diligent and careful design

19   of OSCE protocols, coupled with further feedback from staff and students, will help to ensure

20   that the OSCE remains a method of valid and reliable assessment within speech and language

21   therapy education that is positively regarded by students.

22

25

References

1. CORU. Speech and language therapist registration board: Criteria and standards of proficiency for education and training. 2014. Dublin (Ire): CORU.

2. Verma S, Broers T, Paterson M, Schroder C, Medves J, Morrison, C. Core competencies: the next generation, comparison of a common framework for multiple professions. Journal of Allied Health. 2009; 38:47-53.

3. Lurie S. History and practice of competency-based assessment. Medical Education. 2012; 46:49-57.

4. McAllister S, Lincoln M, Ferguson A, McAllister L. A systematic program of research regarding the assessment of speech-language pathology competencies. International Journal of Speech-Language Pathology. 2011;13:469-479.

5. Hancock A Brundage S. Formative feedback, rubrics, and assessment of professional competency through a speech-language pathology graduate program. Journal of Allied Health. 2010; 39(2):110-119.

6. Khan K, Ramachandran S, Gaunt K, Pushkar P. The Objective Structured Clinical Examination (OSCE): AMME Guide No. 81. Part 1: An historical and theoretical perspective. Medical Teacher. 2013; 35(9):1437-1446.

7. Hill A, Davidson B, Theodoros D. Speech-language pathology students' perceptions of a standardised patient clinic. Journal of Allied Health. 2013; 42(2):84-91.

8. Hill A, Davidson B, McAllister S, Wright J, Theodoros D. Assessment of student competency in a simulated speech-language pathology clinical placement. Journal of Speech-Language Pathology. 2014;16(5):464-475

9. Harden R, Stevenson M, Wilson Downie W, Wilson G. Assessment of clinical competence using objective structured examination. British Medical Journal. 1975; 1(1):447-451.

10. Johnston A, Weeks B, Shuker M, Coyne E, Niall H, Mitchell M, Massey D. Nursing students' perceptions of the objective structured clinical examination: An integrative review. Clinical Simul in Nursing. 2017;13(3):127-142.

11. Smith V, Muldoon K, Biesty L. The Objective Structured Clinical Examination (OSCE) as a strategy for assessing clinical competence in midwifery education in Ireland: A critical review. Nurs Education in Practice. 2012; 12(5):242-247.

12. Miller G. The assessment of clinical skills/competence/performance. Academic Medicine. 1990; 65(9S):S63-67.

13. Harden R, Lilley P, Patricio M. The Definitive Guide to the OSCE: The Objective Structured Clinical Examination as a Performance Assessment. 2015. Edinburgh (UK): Elsevier.

14. Nulty D, Mitchell M, Jeffrey C, Henderson A, Groves M. Best practice guidelines for use of OSCEs: Maximising value for student learning. Nursing Education Today. 2011;31(1):145-151.

15. Roberts C, Newbie D, Jolly B, Reed M, Hampton K. Assuring the quality of high-stakes undergraduate assessments of clinical competence. Medical Teacher. 2006; 28(6):535-543

16. Rushforth H. Objective Structured Clinical Examination (OSCE): Review of the literature and implications for nursing education. Nursing Education Today. 2007; 27(5):481-490.

17. Hodges B. Validity and the OSCE. Medical Teacher. 2003; 25(3): 250-254.

18. Daniels V, Pugh D. Twelve tips for developing an OSCE that measures what you want. Medical Teacher. 2018; 40(12):1208-1213.

19. Cook D, Brydges R, Ginsburg S, Hatala R. A contemporary approach to validity arguments: A practical guide to Kane's framework. Medical Education. 2015; 49(6):560-575.

20. Barry M, Noonan M, Bradshaw C, Murphy-Tighe S. An exploration of student midwives' experiences of the Objective Structured Clinical Examination assessment process. Nursing Education Today. 2012; 32(6):690-694.

21. Branch C. An assessment of students' performance and satisfaction with an OSCE early in an undergraduate pharmacy curriculum. Curr in Phar Teach & Learning. 2014; 6(1):22-31

22. Brand H, Schoonheim-Klein M. Is the OSCE more stressful? Examination anxiety and its consequences in different assessment methods in dental education. European J of Dental Education. 2009; 13(3):147-153.

23. McClemins A, Kenyon C, McLean A, Soltani H. Confidence and performance in Objective Structured Clinical Examination. Br J of Midwifery. 2012; 20(10):746-751.

24. Muldoon K, Biesty L, Smith V. 'I found the OSCE very stressful': Student midwives' attitudes towards an Objective Structured Clinical Examination (OSCE). Nurs Education Today. 2014; 34(3):468-473.

25. Pender F, de Looy A. The testing of clinical skills in dietetic students prior to entering clinical placement. J of Hum Nutrition & Dietetics. 2004; 17(1):17-24

1 26. Pugh D, Desjardins I, Eva K. How do formative objective structured clinical examinations

2   drive learning? Analysis of residents' perceptions. Medical Teacher. 2018; 40(1): 45-52.

3 27. Graham R, Zubiaurre Bitzer L, Moore Mensah F, Anderson R. Dental student perceptions

4   of the education value of a comprehensive, multidisciplinary OSCE. J of Dental Education.

5   2013; 78(5):694-702.

6 28. Abdeaziz A, Hany M, Atwa H, Talaat W & Hosny S. Development, implementation, and

7   evaluation of an integrated Objective Structured Clinical Examination (OSCE) in primary

8   health care settings within limited resources. Medical Teacher. 2016; 38(3):272-279.

9 29. Jay A. Students' perceptions of the OSCE: a valid assessment tool? British Journal of

10   Midwifery. 2007; 15(1):32-37.

11 30. Mitchell M, Henderson A, Jeffrey C, Nulty D, Groves M, Kelly M, Knight S, Glover P.

12   Application of best practice guidelines for OSCEs: An Australian evaluation of their

13   feasibility and value. Nurs Education Today. 2015; 35(5):700-705.

14 31. Pierre R, Wierenga A, Barton M, Branday M, Christie C. Student evaluation of an OSCE

15   in paediatrics at the University of the West Indies, Jamaica. BMC Med Education. 2004;

16   4(22).

17 32. Ghouri A, Boachie C, McDowall S, Parle J, Ditchfield C, McConnachie A, Walters M,

18   Ghouri, N. Gaining an advantage by sitting an OSCE after your peers. Medical Teacher.

19   2018; 40(11):1136-1142.

20 33. Momin S, Dost S, Master B, Najjar A, Jamshaid F, Haroon U, Kassam Z. Medical students'

21   perspective on success in OSCE by sitting after our peers. Response to: Gaining an

22   advantage by sitting an OCSE after your peers: A retrospective study. Medical Teacher.

23   2018; 40(11):1194-1195.

34. Brosnan M, Evans W, Brosnan E, Brown G. Implementing objective structured clinical skills evaluation (OSCE) in nurse registration programmes in a center in Ireland: a utilisation focused evaluation. Nursing Education Today. 2006; 26(2):115-122.

35. Fidment S. The Objective Structured Clinical Examination (OSCE): A qualitative study exploring the healthcare student's experience. Student Engagement & Experience J. 2012; 1(1):1-11.

36. Sarid O, Anson O, Bentov Y. Students' reactions to three typical examinations in health sciences. Advances in Health Sciences Education. 2005; 10(4):291-302.

37. Cioffi J. Clinical simulations: Development and validation. Nursing Education Today. 2001; 21(6):477-486.

38. Prabu A, Smith W, Yurko Y, Acker C, Stefanidis D. Increased stress levels may explain the incomplete transfer of simulator-acquired skill to the operating room. Surgery. 2010; 147(5): 641-645.

39. Zraick R, Allen R, Johnson S. The use of standardized patients to teach and test interpersonal and communication skills with students in speech-language pathology. Advances in Health Sciences Education. 2003; 8(2):237-248

40. Khan K, Gaunt K, Ramachandran S, Pushkar P. The Objective Structured Clinical Examination (OSCE): AMEE Guide No. 81. Part II: organisation and administration. Medical Teacher. 2013; 35(9):1447-14463.

41. Patrício MF, Julião M, Fareleira F, Carneiro AV. Is the OSCE a feasible tool to assess competencies in undergraduate medical education? Medical Teacher. 2013; 35:503–514

42. Creswell, J. A concise introduction to mixed methods research. 2015. Thousand Oaks, CA: Sage.

43. Barry M, Noonan M, Bradshaw C, Murphy-Tighe S. An exploration of student midwives' experiences of the Objective Structured Clinical Examination assessment process. Nurse Education Today, 2012; 32(2):690-694.

44. Graham R, Zubiaurre Bitzer L, Anderson O. Reliability and predictive validity of a comprehensive preclinical OSCE in dental education. Journal of Dental Education. 2013; 77(2):161-167.

45. Hall B, Howard K. A synergistic approach: Conducting mixed methods research with typological and systemic design considerations. Journal of Mixed Methods Research. 2008; 2(3): 248-269.

46. Braun V, Clarke V. Using thematic analysis in psychology. Qual Research in Psychology. 2006; 3(2):77-101.

47. Joffe H. Thematic Analysis. In D. Harper & A. Thompson (Eds.), Qualitative Research Methods in Mental Health and Psychotherapy: A Guide for Students and Practitioners (pp. 209-221). 2012. Oxford: Wiley-Blackwell.

48. Joffe H. Yardley, L. Content and thematic analysis. In D. Marks & L. Yardley (Eds.), Research Methods for Clinical and Health Psychology (pp. 56-68). 2004. London: Sage.

49. Braun V, Clarke V. Reflecting on reflexive thematic analysis, Qualitative Research in Sport, Exercise and Health. 2019; 11(4): 589-597

50. Govaerts M, van der Viel M, Schuwirth L, van der Vleuten C, Muijtjens A. Workplace-based assessment: raters' performance theories and constructs. Adv Health Sci Educ Theory Pract. 2013; 18:375–396.

Figure Legends

Figure 1. OSCE Format Across Second and Fourth Year
Undergraduate Speech and Language Therapy Programme

Figure 2. Perceptions of speech and language therapy students of the OSCE (n=55)