



European School
of Osteopathy

Does online completion of a clinical assessment influence satisfaction in an examination process when compared to a paper equivalent?

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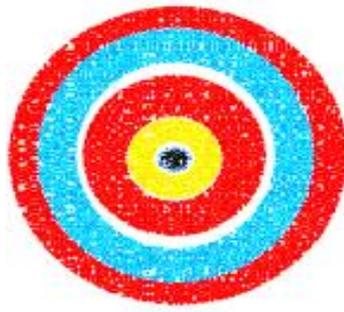
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- Direct observation of students with patients is important for assessing clinical skills prior to registration.
- The mini-clinical evaluation exercise (mini-CEX) is established as part of a broad assessment profile. ¹
- Influences on satisfaction, when deploying this assessment through different media, are not widely reported.
- This study explored osteopathy students' and tutors' satisfaction using the mini-CEX via online and paper-based methods.



Answer the research question: Does gender and the method of assessment influence satisfaction scores in the use of the mini-CEX?

The objectives :

- Create an online version of the mini-CEX to determine examiner and student satisfaction, in comparison to paper-based version - used as part of an ongoing clinical assessment schedule.
- Explore potential gender bias in osteopathy students, and tutors, with satisfaction ratings.

An online mini-CEX was initially trialled as a data entry administration tool.

Android tablets were then used → online capture of observed clinical practice of students by tutors.



Comparison to paper counterpart over the course of three academic years was undertaken.

Student/tutor gender groupings were determined – MM/FM/MF/FF.

Influence of gender - assessment capture → explored with binary regression, correlation and Kruskal Wallis (KW) test: dependent variables of satisfaction.

KW significance → Post-hoc Steel-Dwass-Critchlow-Fligner all pairs comparisons .

Methods

Patient age *

Your answer _____

Occupation *

Your answer _____

Gender *

Male

Female

Case difficulty *

Low

Medium

High

| | Not Seen | Well below expectation | Below expectation | Borderline (fail) | Meets expectation (pass) | Above expectation |
|-----------------------------|-----------------------|------------------------|-----------------------|-----------------------|--------------------------|-----------------------|
| Information gathering | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Clinical examination | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Team Working | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Clinical judgement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Professionalism | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Organisation & efficiency | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall Clinical Competence | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Respect | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Time management | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Composure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Consent process | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Decision making | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



Examiner satisfaction using mini-CEX *

| | | | | | | | |
|-----|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Low | <input type="radio"/> | High |

Student satisfaction using mini-CEX
If your student is around, please ask them to fill this in.

| | | | | | | | |
|-----|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| Low | <input type="radio"/> | High |

Results

- 736 assessments of patient encounters were analysed (550 (75%) online).

| Year | Method | | Total |
|--------------|------------|------------|------------|
| | Online | Paper | |
| 2016 | | 83 | 83 |
| 2017 | 157 | 28 | 185 |
| 2018 | 258 | 75 | 333 |
| 2019 | 135 | | 135 |
| Total | 550 | 186 | 736 |

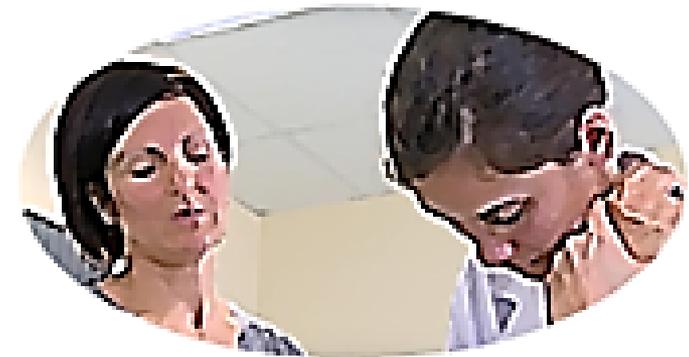
- The influence of paper and online process on satisfaction scores was not significant (odds ratio 1, CI 0.86 – 1.15).

| Measure | Method | | |
|--|----------------------|---------------------|--------------------|
| | Overall Median (IQR) | Online Median (IQR) | Paper Median (IQR) |
| Student satisfaction using mini-CEX | 4 (2) | 4 (2) | 4 (2) |
| Tutor satisfaction using mini-CEX | 4 (3) | 4 (3) | 4 (3) |

- Post-hoc

| | Group comparisons (mean score) | 95% CI | P-value |
|----------------------|---|-------------|---------|
| Tutor satisfaction | FF ^(3.9) - FM ^(3.2) | 0.0 to 1.0 | .0047* |
| | FF ^(3.9) - MF ^(3.8) | -1.0 to 1.0 | .9968 |
| | FF ^(3.9) - MM ^(3.6) | 0.0 to 1.0 | .5745 |
| | FM ^(3.2) - MF ^(3.8) | -1.0 to 0.0 | .1333 |
| | FM ^(3.2) - MM ^(3.6) | -1.0 to 0.0 | .1396 |
| | MF ^(3.8) - MM ^(3.6) | 0.0 to 1.0 | .8894 |
| Student satisfaction | FF ^(4.0) - FM ^(3.9) | 0.0 to 1.0 | .7503 |
| | FF ^(4.0) - MF ^(4.3) | -1.0 to 0.0 | .6245 |
| | FF ^(4.0) - MM ^(4.3) | -1.0 to 0.0 | .4026 |
| | FM ^(3.9) - MF ^(4.3) | -1.0 to 0.0 | .1732 |
| | FM ^(3.9) - MM ^(4.3) | -1.0 to 0.0 | .0068** |
| | MF ^(4.3) - MM ^(4.3) | -1.0 to 1.0 | .9998 |

Gender pairings of student and tutor equated to uneven groups: 391, FM; 99, FF; 51, MF; 180, MM (Chi², *P*<.0001).



- Student satisfaction ratings for female students assessed by male tutors indicated lower scores compared to same-sex pairings .
- Correlation between all student and tutor satisfaction ratings was moderate ($r^2=0.62$, 95% CI 0.57 – 0.66, *P*<.00001).

Strengths and limitations



- Large sample suggests potential for paper-based assessments to be revised as online tools within osteopathy education and other clinical settings.
- Can provide effective use of educational staff time, more accessible data and further support the student experience.
- Limitations : ordinal scores do not fully capture the nuances around a satisfactory experience.
- Scope to conduct qualitative studies to explore the experience of perceived influences, in this type of assessment, is warranted.
- Balanced gender groups in assessments could form the basis of a comparative study; implications of gender dynamics may be moot.



- The findings suggest no statistically significant difference between the two methods of delivery and satisfaction for either examiner or student;
 - Potentially indicative of applicability of the online version.
- The relevance to the teaching environment within osteopathy has applicability to wider clinical healthcare.
- Qualitative exploration of lived experience undertaking assessment warranted.
- The role of gender as an influence in the satisfactory conduct of assessment warrants further investigation.



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Comparison of two data capture methods, and gender, during clinical assessment in osteopathy: The impact on student / tutor satisfaction rating.

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KEY WORDS

Mini-CEX; Satisfaction; Computer-based format

ABBREVIATIONS

What this paper adds:

Influences on student and examiner satisfaction with clinical assessment may include the process of capture. This study investigated osteopathy students' and tutors' satisfaction using the mini-CEX in paper and online versions. Findings indicate that satisfaction is independent of capture medium, but aligned between student and examiner, further modified by gender.

Background: Direct observation of students with patients is