# Article

# Physiotherapy students' perception of their teachers' clinical teaching attributes

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*Objective.* Students' perspectives on clinical teaching attributes can contribute to knowledge on teaching and learning in clinical education. The objective of the study was to report on Nigerian physiotherapy students' perceptions of the clinical teaching skills of their teachers.

*Design and setting.* A cross-sectional survey conducted in five physiotherapy training institutions in Nigeria.

*Subject.* Physiotherapy students ($N$=203) in the clinical phase of their training participated in the study.

*Outcome measure.* The validated 25-item McGill Clinical Teacher Evaluation (CTE) tool was used to rate the students' perceptions of the attributes of their clinical teachers.

*Results.* Overall the students rated their teachers high on the CTE scale; women rated their teachers higher than their male counterparts. Clinical teachers who are academicians and /or had doctoral degrees were rated higher than clinicians and /or those with bachelor degrees only. Students from two long established programmes not only rated their teachers higher, but were also more satisfied and positively challenged during clinical rotations than those from relatively new programmes.

*Conclusions.* This study found that overall Nigerian physiotherapy students rated the teaching attributes of their clinical teachers highly. The nature of the work appointment (academic or clinical) of their teachers, as well as highest level of academic qualification achieved, influenced student ratings of their teachers. Students found the clinical rotations offered by well-established programmes more challenging and satisfying.

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## Introduction

The outcome of learning in health profession training may be influenced by the attributes and overall behaviours of the teachers. According to Duncan,[1] student learning could be maximised if a student is first inspired by the teacher, then provided with motivation and then taught. However, clinical teaching is believed to be different from the traditional classroom teaching because it requires key attributes including one-to-one evaluation and small-group management skills.[2]

Bench[3] has described three versions of physiotherapy clinical education organisation. The internal version is one in which both the foundational and clinical sciences theory and students' clinical experience are provided in the same institution. This insular training mode typically based in hospitals existed during the early stage in the development of physiotherapy as a profession and no longer exists today. In an external version now prevalent in the USA, students' affiliation experiences take place in free-standing hospitals, clinics and centres. Prevalent in the British Commonwealth countries including Nigeria is the bridge version in which clinical experiences take place mainly in a teaching hospital specifically affiliated to the university.

Important clinical teaching behaviours identified among physiotherapist teachers include: offering opportunities to practise technical and problem-solving skills, friendliness and positive regard towards students, showing enthusiasm for teaching and sensitivity to patients' needs.[4,5] Asking questions in an intimidating manner, correcting students in front of patients, basing judgement on indirect evidence, not recognising extra effort, after-hour unavailability, and not setting time limits for teaching activities were identified as hindering behaviours.[5] However, previous studies on physiotherapy clinical instruction were limited to developing theories and models on clinical education and were conducted in a few developed countries.[5-9]

From the literature, an ideal clinical education experience is one that takes place in a learning atmosphere that allows for establishing a mutually beneficial student-supervisor relationship.[5-7] Maximised learning following clinical instruction is deemed best achievable if the teachers have formal preparation on teaching.[4,6-8] Furthermore, the extant literature shows that a desirable clinical experience is one that can facilitate the connection between theory and practice,[10] and is subjected to ongoing peer evaluation for quality

improvement.[7] Involving students in a humanistic and rigorous approach to practice, and being a professional that students would want to emulate, were associated with a positive perception of effective teachers.[11]

Students' perspectives on clinical teaching attributes can contribute to knowledge on teaching and learning in clinical education and represent consumers' input that could improve teaching quality. Feedback on clinical teaching obtained from students have the potential benefits of improving the effectiveness of teachers.[12] This study is the first attempt at assessing clinical teaching in physiotherapy education in Nigeria. The objective of the study was to report on Nigerian students' perceptions of the clinical teaching skills of their teachers.

Entry-level physiotherapy education in Nigeria is a bachelor degree earned after five years of university education, the first two-and-a-half to three years of which is spent in the preclinical phase of their training. In the clinical phase experienced clinicians and academic staff teach students in the teaching hospitals. Upon graduation, new professionals undergo a one-year internship in an accredited teaching or specialist hospital centre under the direction and supervision of experienced physiotherapists.

The term academician, in this study, is used to describe a university-employed physiotherapist who teaches foundational and clinical courses and also provides clinical instruction to students during rotations. The term clinician as used in the present study refers to a physiotherapist employed by a teaching hospital and who provides clinical instruction to students. In Nigeria, both academicians and clinicians serve as clinical teachers involved in teaching students during clinical rotations.

## Methods

### Study design and sample

A cross-sectional survey design was used to collect information from 203 physiotherapy students in the clinical years of their training from five universities located in four of the six geopolitical zones in Nigeria. There are no physiotherapy training institutions in two geopolitical zones in the country (North-Central and South-South). One of the four zones (South-West) has three training institutions from which two were randomly selected and sampled. One was selected in another zone (South-East) with two training institutions, while the sole training institutions in two other zones (North-West and North-East) were sampled.

In February 2009, prospective participants were informed in a cover letter accompanying the questionnaires that completion of the questionnaires implied consent to participate and anonymity was assured. No name or any identification was required on the questionnaire that took about 20 minutes to complete. Participants were instructed to place their completed survey in an enclosed envelope and to drop them in a box secured, locked and placed in one of the classrooms in each of the institutions.

Eight weeks after the survey distribution, two of the researchers (ALO and SM) and two designated research workers collected the boxes from the institutions (Obafemi Awolowo University and University of Ibadan, in the South-West zone; University of Nigeria in the South-East zone; Bayero Univeristy in the North-West zone; and University of Maiduguri in the North-East zone). A total of 230 questionnaires were distributed and 206 were returned. All except three were usable, giving a combined response rate

of 88%. This study was approved by the Institutional Review Board of the authors' institution.

## Instrument

In order to explore questions posed in the study, the McGill Clinical Teacher Evaluation (CTE) tool was selected based on the recommendations of five physiotherapists' clinical teachers each with at least 15 years of practice experience and over 10 years of experience teaching students in the clinics. The McGill CTE tool is a previously validated instrument utilised in assessing physician clinical tutors' effectiveness in several studies.[13,14] The 43-item physical therapist clinical instructors' behaviour instrument, identified in the literature, was not used because of a lack of information on the psychometric properties of the instrument.[4] The McGill CTE tool was selected by consensus because of its clarity, brevity, ease of application, summative value, and also because the experts agreed that all the items in the tool represent the behaviours expected of physical therapist clinical instructors.

The survey questionnaire consisted of three parts. Part I required basic student demographic information such as age, gender and clinical year in the programme. The students were also asked to provide information on the gender, highest academic degree and specialty rotation of the teachers who taught them in the clinic at the time of the study. The students were also asked how challenging, in a positive sense, and how satisfied they were with their clinical experience.

In Part II, respondents completed the 25-item McGill CTE tool that lists 25 attributes of effective clinical teachers anchored on a 5-point Likert scale from 'very strongly agree' (5) to 'very strongly disagree' (1). The higher the total agreement score, the better the rating on the attribute. Examples of attributes listed include 'My clinical teacher should: "be enthusiastic and understanding" ; "be interested in social and psychological aspects of illness"; "inspire confidence in my knowledge of the subject"; "emphasize concepts rather than factual recall"; and "pose problem for students to solve".

The McGill CTE tool was previously validated for evaluating physicians but has not been utilised for other health professionals. The tool was therefore assessed for reliability among Nigerian physiotherapy students in a pilot study. A reliability coefficient of 0.73 was obtained following its completion by 20 respondents at two separate times within a two-week interval, indicating moderate reproducibility.

## Data analysis

For each completed questionnaire, we entered the agreement rating on each of the items on the CTE tool and the total agreement score. Data analysis was done using SPSS software (Version 15). Descriptive statistics were computed for all items and independent $t$-tests and one-way analysis of variance (ANOVA) were used to determine the influence of clinician teacher demographic variables on each attribute of effective clinical teaching and on the total agreement score. Chi-square analysis was used to evaluate student satisfaction with the clinical experience offered by each of the programmes. The level of significance was set at an alpha level of 0.05 or less.

## Results

The mean (standard deviation) age of the students was 23.8 ($\pm$2.6) years and the majority were men (59.6%, $n$=121). Students were completing a range

of clinical rotations including Medicine (22.2%, *n*=45), Neurology (14.8%, *n*=30), Orthopaedics (18.7%, *n*=38) and other clinical rotations (14.3%, *n*=29). Thirty nine per cent (*n*=80) of the students were in the second year of the clinical phase of their training (Table 1).

Clinicians employed by the respective teaching hospitals taught the overwhelming majority of students (77.3%, *n*=157); academicians employed

### Table 1. Demographic characteristics of participating students (*N*=203)

| Variables | *n* | % |
|---|---|---|
| Gender | | |
| Women | 82 | 40.4 |
| Men | 121 | 59.6 |
| Year in the clinic | | |
| First | 57 | 28.1 |
| Second | 80 | 39.4 |
| Third | 66 | 32.5 |
| Clinical rotation* | | |
| Medicine | 45 | 22.2 |
| Obstetrics & Gynaecology | 15 | 7.4 |
| Neurology | 30 | 14.8 |
| Orthopedics | 38 | 18.7 |
| Paediatrics | 34 | 16.7 |
| Others (ICU, sports, etc.) | 29 | 14.3 |
| Programmes | | |
| UNN | 97 | 47.8 |
| University of Ibadan | 13 | 6.4 |
| BUK | 40 | 19.7 |
| OAU | 27 | 13.3 |
| University of Maiduguri | 26 | 12.8 |

\* Subtotals on discipline of clinical rotation do not add up to 203 because of missing data. UNN = University of Nigeria, Nsukka; BUK = Bayero University, Kano; OAU = Obafemi Awolowo University.

by the respective universities taught very few students (17.2%, *n*=35). Most of the students did not know whether their teachers had had any formal education training or not (56.2%, *n*=114). Almost half (46.8%, *n*=95) of the clinical teachers had attained a Masters' degree; few students (8.9%, *n*=18) did not indicate the highest degree of their teachers (Table 2).

The mean total agreement score was 100.6 ($\pm$25.2), indicating that overall students felt their teachers possessed the attributes of effective clinical teachers. Attributes for which the students scored their teachers highest were those related to having an interest in helping students to learn (4.49$\pm$1.32), dealing with colleagues and staff in a friendly manner (4.45$\pm$1.16), and laying emphasis on clinical skills for patient management (4.42$\pm$1.24). Students scored their teachers lowest on items related to challenging points presented in text and journals (3.54$\pm$1.32), conveying enjoyment of associating with students (3.76$\pm$1.27) and availability of teachers for discussion (3.93$\pm$1.33) (Table 3).

### Table 2. Profile of clinical teachers

| Variables | *n* | % |
|---|---|---|
| Gender of teacher* | | |
| Male | 140 | 69.0 |
| Female | 36 | 17.7 |
| Designation of teacher* | | |
| Clinician | 157 | 77.3 |
| Academician | 35 | 17.2 |
| Highest degree of teacher | | |
| Bachelor | 52 | 25.6 |
| Masters | 95 | 46.8 |
| Doctorate | 38 | 18.7 |
| Unknown | 18 | 8.9 |
| Formal training of teacher* | | |
| Yes | 45 | 22.2 |
| No | 35 | 17.2 |
| Don't know | 114 | 56.2 |
| Specialty of teacher* | | |
| Neurology | 37 | 18.2 |
| Orthopaedics | 45 | 22.2 |
| Paediatrics | 31 | 15.3 |
| Exercise Physiology | 23 | 11.3 |
| Kinesiology | 7 | 3.4 |
| Others | 33 | 16.3 |

\* Subtotals on subjects do not add up to 203 because of missing data.

Data were also analysed to evaluate differences in total agreement ratings and individual item ratings of the McGill CTE tool, according to programme. Overall students in the OAU and UIB programmes rated their teachers significantly better (OAU = 114.15$\pm$23.54; UIB = 103.94$\pm$24.25; *p*<0.05) than their counterparts in the other programmes (BUK = 99.77$\pm$26.89; UNN = 98.84$\pm$21.62; UMA= 88.00$\pm$32.31). Students in these two programmes also rated their teachers higher than those of two or more other programmes on 16 of the 25 items of the McGill tool (Table 4).

Differences in individual item ratings and total agreement ratings, according to the demographic profile of students and their teachers, were also evaluated. Women students rated their teachers significantly higher (mean=106.4, SD 22.2 v. 96.7, SD 27.0; *p*=0.008) and clinical teachers employed by the respective universities (academicians) were rated higher than those employed in the teaching hospitals (clinicians) (mean=107.9, SD 26.5 v. 99.8, SD 23.6; *p*=0.048). Clinical teachers with doctoral degrees were rated higher than those with bachelor degrees (mean=106.61, SD 24. 1 v. 94.92, SD 21.1; *p*=0.036); no significant difference in the ratings between teachers with bachelor degrees and those with master's degrees was observed (Table 5).

Just over half the students surveyed (52.7%, *n*=107) indicated that they were satisfied or very satisfied with their clinical experience and the majority (82.5%, *n*=165) found the clinical experience challenging or very challenging (Table 6).

| Table 3. Order of agreement of student ratings of the attributes of effective clinical teachers using the McGill CTE rating instrument | | |
|---|---|---|
| | Agreement | |
| Attribute | X | SD |
| **My clinical teacher:** | | |
| Is interested in helping students to learn | 4.49 | 1.32 |
| Deals with colleagues and staff in a friendly manner | 4.45 | 1.16 |
| Emphasises clinical skills, not lab tests for patient management | 4.42 | 1.24 |
| Inspires confidence in his/her knowledge of subject | 4.41 | 1.25 |
| Is clear and understandable in his/her explanations | 4.41 | 1.19 |
| Encourages students to take responsibility for their own learning | 4.30 | 1.19 |
| Encourages students to think | 4.28 | 1.22 |
| Provides opportunities for discussion with students | 4.25 | 1.31 |
| Dependability of attendance is good | 4.23 | 1.19 |
| Encourages students to ask questions | 4.22 | 1.35 |
| Invites comments rather than providing all the answers to students | 4.21 | 1.22 |
| Displays good judgment in decision making | 4.20 | 1.22 |
| Is interested in social and psychological aspects of illness | 4.14 | 1.28 |
| Attitude to patients fits my concept of professional behaviour | 4.13 | 1.27 |
| Poses problems for students to solve | 4.12 | 1.25 |
| Is enthusiastic and understanding | 4.11 | 1.16 |
| Emphasises concepts rather than factual recall | 4.07 | 1.22 |
| Emphasises problem-solving approach rather than solutions per se | 4.03 | 1.11 |
| Provides feedback and direction to students | 4.01 | 1.18 |
| Presents divergent viewpoints for contrast and comparison | 3.97 | 1.20 |
| Is usually well prepared for teaching sessions | 3.97 | 1.18 |
| Teaching is suited to the level of students' sophistication | 3.95 | 1.29 |
| Is usually readily available for discussion | 3.93 | 1.33 |
| Conveys enjoyment of associating with students and his/her colleagues | 3.76 | 1.27 |
| Occasionally challenges points presented in text and journals | 3.54 | 1.32 |

Identifiable trends on satisfaction with clinical experience, by programme, were also observed ($X^2$=27.97, $p$=0.032). More students from OAU (70.4%) and UIB (69.3%) reported they were either very satisfied or satisfied with their clinical experience compared with students from BUK (53.9%), UNN (41.3%) and UMA (30.7%). Students from OAU (92.3%) and UIB (92.3) also reported that their clinical experience was more challenging, in a positive sense, than the students from UMA (81.4%), UNN (81.1%) and (BUK (76.9%),($X^2$= 27.97, $p$=0.032) (data not shown).

## Discussion

This study is, to the best of our knowledge, the first published use of the McGill Clinical Teacher Evaluation tool as an instrument for rating the attributes of clinical teachers in a profession other than medicine. The study found that senior physiotherapy students (in their clinical years of training) from five Nigerian universities rated the teaching attributes of their clinical teachers highly. This clearly indicates that students acknowledge the presence, and recognise the value, of effective teaching attributes in their teachers. The level of attributes of clinical teachers, as reported in this study, were comparable to those reported by medical students and residents

in some medical and residency training centers in the USA.[15] The findings in the present study cannot, however, be directly compared with those of previous studies of physiotherapy teachers[6,8] because different instruments were used to rate the attributes of clinical teachers in these studies.

Higher ratings of clinical teachers by students in the OAU and UIB programmes, compared with students at UNN, BUK and UMA, are noteworthy. Two features of the OAU and UIB programmes that differ from the others, may explain this finding. Firstly, the OAU and UIB programmes are older programmes, having been established in 1966 and 1977 respectively, whereas the UNN, BUK and UMA programmes were established in 1987, 1990 and 2003 respectively.[16] Secondly, at the time of this study there was a difference in the level of seniority of academic teaching staff at the different institutions. In the OAU and UIB programmes there was one teacher each at the rank of Professor and at least five lecturers at the rank of Senior Lecturer. The programmes at UNN, BUK and UMA did not have any teaching staff at the rank of Professor; UNN had only one Senior Lecturer, while BUK and UMA did not have any Senior Lecturers on their full-time staff.

Table 4. Differences, by programme, in student agreement ratings of selected attributes of effective clinical teachers using the McGill CTE rating instrument

| Attributes | Group differences | | | | | F-value | p-value |
|---|---|---|---|---|---|---|---|
| | OAU | UIB | BUK | UNN | UMD | | |
| **My clinical teacher:** | | | | | | | |
| Is enthusiastic and understanding | 4.63 | 4.33 | 4.08 | 4.05 | 3.46 | 4.07 | 0.003 |
| Emphasises concepts rather than factual recall | 4.84 | 4.30 | 4.03 | 3.96 | 3.62 | 3.91 | 0.005 |
| Provides opportunity for discussion | 4.70 | 4.77 | 4.25 | 4.20 | 3.68 | 2.64 | 0.035 |
| Encourages students to think | 4.89 | 4.69 | 4.28 | 4.24 | 3.54 | 4.85 | 0.001 |
| Occasionally challenges points presented in text and journals | 4.32 | 3.67 | 3.43 | 3.40 | 3.38 | 2.71 | 0.032 |
| Conveys enjoyment of associating with students and his/her colleagues | 4.50 | 3.90 | 4.03 | 3.45 | 3.52 | 4.47 | 0.002 |
| Provides feedback and direction to students | 4.58 | 4.17 | 4.15 | 3.82 | 3.71 | 2.72 | 0.031 |
| Displays good judgment in decision making | 5.11 | 4.40 | 4.00 | 4.03 | 4.00 | 7.09 | 0.000 |
| Deals with colleagues and staff in a friendly manner | 5.07 | 4.58 | 4.54 | 4.34 | 3.92 | 3.83 | 0.005 |
| Teaching is suited to the level of students' sophistication | 4.32 | 4.80 | 4.10 | 3.79 | 3.54 | 2.86 | 0.025 |
| Invites comments rather than providing all the answers to students | 4.78 | 4.42 | 4.31 | 4.13 | 3.62 | 3.41 | 0.010 |
| Is interested in helping students to learn | 4.96 | 4.92 | 4.43 | 4.55 | 3.62 | 3.80 | 0.005 |
| Presents divergent viewpoints for contrast and comparison | 4.80 | 4.10 | 4.08 | 3.80 | 3.50 | 4.58 | 0.002 |
| Emphasises problem-solving approach rather than solutions per se | 4.56 | 4.26 | 4.16 | 3.88 | 3.65 | 2.98 | 0.020 |
| Encourages students to take responsibility for their own learning | 4.70 | 4.36 | 4.25 | 4.43 | 3.48 | 4.26 | 0.003 |
| Total agreement rating | 114.15 | 103.93 | 99.77 | 98.84 | 88.00 | 4.11 | 0.003 |

OAU = Obafemi Awolowo University; UI = University of Ibadan; BUK = Bayero University Kano; UNN = University of Nigeria Nsukka; UMD = University of Maiduguri. Values under group differences are mean values based on one-way ANOVA.

Secondly, at the time of this study, the student populations at UNN, BUK and UMA were more than those at UIB and OAU, while the staff numbers were either less or at best comparable with those of UIB and OAU.[17] As a result, according to programme quality criteria set by the National Universities Commission (NUC), the official programmes accrediting agency in Nigeria, the OAU and UIB programmes had better staff-to-student ratios and better staff category mixes.[18] It is likely that better clinical teacher ratings, and greater challenge and satisfaction with the clinical experience at OAU and UIB, compared with the other three programmes, can be attributed to these differences. More research needs to be conducted to substantiate these propositions.

Higher ratings of the teaching attributes of academicians may be explained by a general assumption that the main role of academicians is teaching while that of clinicians is clinical practice. Academicians, who teach in both the classroom and clinic setting, are likely to have had more teaching experience than their clinician counterparts who only teach in the clinical setting. Also, better rating of clinical teachers with doctoral degrees suggests that the latter may influence student perceptions of their teachers' clinical teaching attributes or confer some real teaching advantage. Once again, further research is needed to better understand these differences observed in this study.

Findings in a study such as this one are based on self-reported student perceptions and should be interpreted with caution. For example, although higher academic qualifications such as a doctoral degree may improve teaching ability, it would be too simplistic to conclude that one necessarily follows the other. As with any self-reported survey, the students in the present study may have provided responses they felt would be acceptable to the researchers. Participants may have also held back responses they believed could portray their teachers as lacking in effective clinical teaching attributes. The study data were anonymised in an attempt to limit these potential sources of bias, but further work is needed to triangulate the findings presented in this study. Furthermore, due to the positive wording of the items in the CTE scale, the responses of the participants may also have been affected by the respondent set.

## Conclusions

Overall, Nigerian physiotherapy students rated the clinical teaching attributes of their teachers highly, and they were also satisfied and felt positively challenged during their clinical rotations. Women students rated their teachers higher than men students; clinical teachers who are academicians (university employees) were rated higher than their counterparts who are clinicians (hospital employees); and clinical teachers holding doctoral degrees were rated higher than those holding master's or bachelor degrees. Also, the students from two long-established programmes, compared with students in relatively new programmes, rated the teaching attributes of their teachers higher and reported being more satisfied and positively challenged during their clinical rotations. While the latter findings may relate to better staff:student ratios and staff category mixes, the former

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**Table 5. Factors impacting on the total agreement rating of clinical teachers by students**

| Variables (n) | Mean (SD) | Test used | p-value |
|---|---|---|---|
| Gender | | 2.673[†] | 0.008 |
| Women (78) | 106.44 (22.22) | | |
| Men (116) | 96.72 (26.95) | | |
| Clinical year of study | | 0.231[††] | 0.794 |
| First (50) | 102.36 (29.71) | | |
| Second (79) | 100.76 (25.49) | | |
| Third (65) | 99.14 (21.05) | | |
| Designation of clinical teacher | | | |
| Clinician (148) | 99.83 (23.61) | 1.772[†] | 0.048 |
| Academician (35) | 107.89 (26.53) | | |
| Gender of clinical teacher | | 0.714[†] | 0.476 |
| Female (35) | 97.71 (24.43) | | |
| Male (133) | 101.31 (26.99) | | |
| Formal education training of clinical teacher | | 1.330[††] | 0.267 |
| Yes (44) | 97.07 (27.72) | | |
| No (34) | 96.32 (17.85) | | |
| Don't know (107) | 102.85 (26.12) | | |
| Academic qualification of clinical teacher | | 2.616[††] | 0.036 |
| Bachelor degree (48) | 94.92 (21.07) | | |
| Master's degree (92) | 101.41 (23.79 | | |
| Doctoral degree (38) | 106.61 (24.07) | | |

[†]Independent t-test
[††]F-values from one-way ANOVA.

**Table 6. Student satisfaction with the clinical experience**

| Variables | n | % |
|---|---|---|
| How satisfied are you with the clinical experience? | | |
| Very satisfied | 27 | 13.3 |
| Satisfied | 80 | 39.4 |
| Neutral | 71 | 35.0 |
| Dissatisfied | 23 | 11.3 |
| Very dissatisfied | 2 | 1.0 |
| How challenging, in a positive sense, is the clinical experience?* | | |
| Very challenging | 75 | 36.9 |
| Challenging | 90 | 44.3 |
| Neutral | 28 | 13.8 |
| Unchallenging | 7 | 3.4 |

* Subtotals do not add up to 203 because of missing data.

finding warrants further investigation because it may be of real consequence. If clinical teachers employed at universities and/or holding doctoral degrees have better clinical teaching attributes than other teaching staff, potential reasons for this observation need to be identified. This may have significant implications for faculty development and the selection of clinical teachers in the health professions.

**Competing interests.** No conflict of interest is associated with this manuscript.

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