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Research Article

Piloting a brief psychoeducational intervention to reduce the impact of social anxiety on mental health simulations for nursing students

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Self-focused attention;
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Abstract

Background: Simulation-based learning can trigger disabling social anxiety in mental health simulations where interpersonal skills are observed and critiqued by others, yet an effective cognitive behavioural intervention has been developed to address social anxiety.

Methods: In this uncontrolled observational multi-methods cohort study, 56 third-year undergraduate Mental Health Nursing students completed anonymous online measures of social anxiety after a first mental health simulation. A session of psychoeducation and skills practice based on the principles of Cognitive Behavioural Therapy for social anxiety (Clark and Wells, 1997) was then delivered for all students. The following week a second mental health simulation took place, and post-simulation ratings were repeated.

Results: Students rated less social anxiety (pre-post Effect Size 0.3); less impact on their attention (pre-post E.S. 1.0) and less challenge to their learning/ performance (pre-post E.S. 0.9) during the second, post-psychoeducation simulation. Students expressed a preference for smaller groups and more unobserved practise due to feeling alienated by cameras.

Conclusions: Brief psychoeducation on social anxiety appears efficacious in reducing its negative impact on student performance and learning during simulation. Such training could be easily incorporated into simulation-based healthcare education programmes.

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Background

There is a strong evidence base for the effectiveness of simulation in educating nurses to care for patients' mental health, with studies showing improvement in students' interpersonal skills and behaviors (Piot et al., 2022). These skills have been shown to transfer into practice (Garvey et al., 2021), provide lasting improvements in student nurse attitudes (Kameg et al., 2021) and improve confidence in engaging in therapeutic communication (Donovan & Mullen, 2019; Felton, 2017). Yet, studies consistently report that simulation triggers anxiety for nursing students, indicating that it can be perceived as a stressful and demanding experience (Al-Ghareeb et al., 2017). Shearer (2016) identified that causes of student anxiety included the fear of being observed and critiqued negatively by others (the core feature of social anxiety), and the fear of making mistakes in front of others. This is also supported by the finding that simulation anxiety increases with the number of observers (Mills et al., 2016).

The communication skills demonstrated/observed in mental health simulations reflect each student's individual interpersonal style (Erkayiran & Demirkiran, 2018). This may feel exposing for nursing students, whose personal characteristics can be laid open to critique from others. These elements may help explain why anxiety and fear are the most reported emotions triggered by mental health simulation in nursing students (Annion et al., 2023). This type of social performance anxiety has been shown to both inhibit performance and significantly impair learning (Koban et al., 2017).

Theoretical framework

The theoretical framework for the intervention being tested was the Clark and Wells (1997) Cognitive Model of Social Anxiety Disorder. This proposes that self-focused attention is a key factor causing and maintaining social evaluation anxiety, because people become overly preoccupied with how their internal feelings, speech and behavior may appear to others (fearing negative evaluation). This attentional/cognitive bias can prevent learning and prompts unhelpful "Safety behaviors" which impair social performance and result in a "self-fulfilling prophecy'' of impaired performance (Wells et al., 2016). This model has been developed into an effective cognitive behavioral therapy (CBT) treatment for social anxiety disorder recommended by the United Kingdom's National Institute for Health and Care Excellence (2013). Two key elements of the treatment are potentially transferable to simulation preparation within healthcare education: 1) Psychoeducation about the role of self-focused attention and 2) A brief experiment designed to help people practice externally focusing attention and dropping safety behaviors during a conversation (McManus et al., 2009). We hypothesized that this element of the CBT protocol for social anxiety could be delivered to student nurses to help them cope with the conditions of an observed mental health simulation. To date, there has been no published research investigating this potential application. Therefore, four research objectives guided the study:

1) To what extent do nursing students experience self-focused attention and social anxiety during mental health simulation?
2) To what extent do nursing students report that self-focused attention and social anxiety impacted their performance and learning during mental health simulation?
3) Can a brief package of psychoeducation and attention focus practice reduce students' reported social anxiety and subsequent impact on performance and learning during mental health simulation?
4) What are nursing students' views on how mental health simulation could be improved/delivered differently to reduce social evaluation anxiety?

Methods

Study design and sample

An uncontrolled observational multimethods cohort study was conducted with 97 students undertaking simulation-based learning during their third (final) year of a Mental Health Nursing Bachelor of Science program in a UK University. A power calculation was conducted on the SPSS statistical package using data from the study by Thew et al. (2023) on change in ratings of social anxiety and self-focused attention after a CBT intervention. This analysis determined that a sample size of 51 participants would yield an 80% power, alpha = 0.05 to detect a change in social anxiety ratings.

Study procedure

The students had prior training and preparation for simulation, which was revisited at the start of each academic year, and reviewed at each simulation debrief. This included the ground rules for establishing a safe and supportive learning environment in line with the Simulationist Code of Ethics (Park et al., 2018) and the INACSL Healthcare Simulation Standards of Best Practice for prebriefing; facilitation and debriefing (INACSL Standards Committee, 2021).

Simulation 1

The students engaged in a mental health simulation to practice dealing with a patient in distress who demonstrated: pressure of speech; raised voice; shouting at times; animated body language; hostile and accusatory language. Academic staff provided a demonstration of the required

interpersonal skills, and the cohort was divided into groups containing 12 students for a detailed presimulation briefing. The students were presented with details of: The patient's background; diagnosis; symptoms; the current situation and the goals of the simulation. The prebriefing explained that the patient, suffering from Bipolar Disorder, was being detained under the Mental Health Act (2007) and had just been informed by the Psychiatrist that the discharge they were hoping for would not be possible this week. As a result, the patient was distressed and the student's role was to engage them, help to manage their distress and calm them through active listening, empathy, validating and normalizing feelings, then moving to a collaborative discussion of their care plan to achieve discharge.

Each student in the group entered the simulation room in turn to interact with an actor playing the part of a distressed patient. Cameras allowed observation by their peers and lecturer on a screen in the debriefing room. After each 15 minute simulation, there was a de-brief, during which the student and their peers reflected on learning from each simulation. At the end of the day, all students were invited to complete an anonymous online survey to rate social anxiety and its effects during their simulation.

Psychoeducation on social anxiety

The following week all students received a half-day psychoeducational lecture on social evaluation anxiety, focusing on the role of self-focused attention and safety behaviors. This explained and normalized these experiences within the conditions of mental health simulation by teaching students the CBT model of social anxiety in which attention becomes inwardly focused one one's own symptoms of arousal with a negative self-image of how they appear to others. This can lead to safety behaviors designed to minimize their noticeability (such as avoiding eye contact, mentally rehearsing before speaking etc.), which can actually impair social performance. To combat self-focused attention and safety behaviors, students practiced holding conversations in pairs: firstly, with self-focused attention and safety behaviors; then with externally-focused attention whilst dropping safety behaviors. This highlighted how unhelpful these are and encouraged students to focus attention externally during simulation.

Simulation 2

The second simulation involved dealing with a different patient in a different kind of distress/circumstances, but with a similar level of challenge for the students. The patient demonstrated: A raised and angry tone of voice; hostile language which was accusatory and insulting at times; talking over the students/unwillingness to listen; standing and pointing at the student in an intimidating manner. This was carried out in the same groups, under the same observed conditions. The prebriefing presented a patient suffering from a severe anxiety disorder with comorbid depression alongside long term physical conditions (Arthritis and Cardiovascular disease). The patient had been referred for an assessment with a Community Mental Health Nurse by their Consultant Rheumatologist, but this had not been explained to them well. The patient viewed their problems as solely physical and was very distressed/angry to find that their appointment was with a mental health professional, as they thought this meant the severity of their physical symptoms was being discounted as, "all in my head." The student's role was to engage and calm the patient through active listening, empathy, validating and normalizing feelings, then collaboratively introducing/explaining the multifactorial model of care to see if the patient would be willing to explore this further.

After the simulations the students were invited to repeat the anonymous online survey to rate their social anxiety, attentional focus and the extent to which the simulation challenged their learning/performance. This also included a free text question to gather their views on how simulation could be improved or delivered to reduce the amount of social anxiety experienced.

Data collection: measures

Social anxiety: There are several validated measures for social anxiety disorder, but this study investigates temporary social evaluation anxiety caused by an artificial situation rather than social anxiety disorder. Therefore, a single-item self-rated Likert scale was used for students to rate the severity of social anxiety they experienced during the simulation (Allen et al., 2022). This single item scale has demonstrated a high correlation with the State Trait Anxiety Inventory (0.75; 95% CI 0.70-0.79; Davey et al., 2007). Students were asked to circle a number on a 0-8 scale that best described how severe anxiety was for them during the simulation exercise, ranging from 0 = "Not at all disturbing and/or disabling" to 8 = "Severely disturbing and/or disabling."

Self-focused attention: the Focus of Attention Questionnaire (FAQ; Woody, 1996) was used to assess the focus of the student's attention during the simulation. The five item subscale of the questionnaire measuring self-focus was used, in which students rated the following statements from, "Not at all" (1 point) to, "Totally" (5 points).

I was focusing on what I would say or do next.

I was focusing on the impression I was making on the other person.

I was focusing on my level of anxiety.

I was focusing on my internal bodily reactions (for example, heart rate).

I was focusing on past social failures.

The FAQ was found to have acceptable internal consistency with an alpha coefficient of .76 for the self-subscale (Woody, 1996).

Challenge to learning and performance: The self-evaluation scale for simulation (Toruner et al., 2021) was used for students to rate the extent to which the challenge

of the simulation impacted their learning and performance. The four item 'challenging factor'' subscale contained the following statements:

Made it hard for me to learn
Made me feel inadequate
Caused me to live in fear
Caused me to experience stress

Students rated each statement on a five-point Likert scale—0 = "I do not agree," 1 = "I agree a little," 2 = "I am undecided," 3 = "I agree," and 4 = "I completely agree." Cronbach's alpha value of the scale was 0.94, and all items of the "challenging factor" subscale showed statistically significant correlations ($p < .05$; Torurner et al., 2021).

Students completed the self-report measures in the simulation debrief room once they had all completed each simulation. Measures were accessed via a link to an anonymous online survey platform. The lecturer left the room during this period, and all students were given an individual link which they used for both surveys, enabling each of their pre- and post-intervention responses to be linked whilst maintaining anonymity.

Data analysis

Quantitative analysis

Survey data was transferred from Microsoft Excel into the SPSS statistical package for analysis. Three paired t-tests were performed to assess for a difference between the mean pre and postintervention ratings for social anxiety, attentional focus and challenge to learning/performance during the simulations. A p value of $< .05$ was considered statistically significant, and effect sizes were calculated for mean pre, post treatment change.

Qualitative analysis

The online survey with ratings for the second simulation included the following two questions: 1. "Did you find the teaching/practice session on social anxiety and self-focused attention helpful in coping with simulation?" (Yes or No response); 2. "Could you please give your opinions on what can be done differently around simulation to help reduce student anxiety?" (free text response). Students were asked to type their responses, with no word limit and up to 30 minutes to complete the survey whilst the researcher was not in the room.

Thematic analysis of responses was conducted using the reflexive approach of Braun and Clarke (2013). Two researchers independently read through, coded and ranked all text responses according to commonalities, to identify themes. Once completed, they then met to compare and discuss the codes and agree on the final themes. Ethical approval for the study was gained from the University of Staffordshire Ethics Committee.

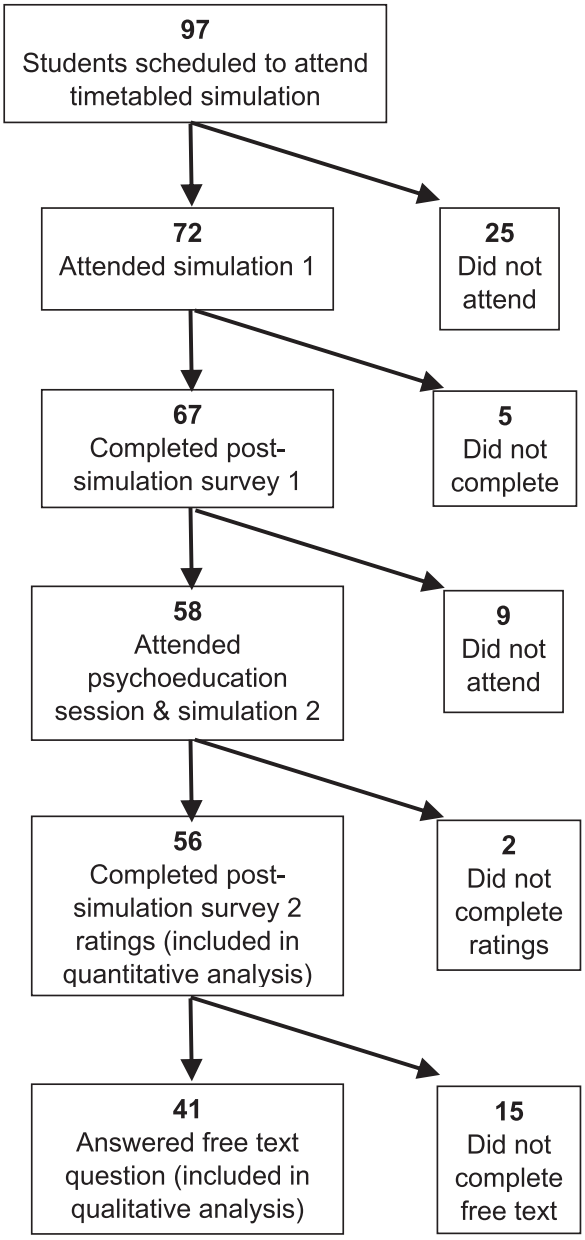

Figure 1 Number of student participants through the study.

Results

Student participation

Out of 97 third year students, only 72 attended the first simulation despite it being a required timetabled session, which is low and may indicate some avoidance of simulation. Fifty-six students were included in the final analysis of quantitative data, and 41 students provided qualitative data (see Figure 1). The cohort comprised of 68 female and 29 male students. Ages ranged from 19 to 56 years with a mean of 32 *(SD 12.5)*. The ethnicity of the group comprised of: White British (n=59); Black African (n=22);

Table 1 – Difference Between Mean (SD) Pre and Postintervention Survey Scores.

	Mean (*SD*) Pre-Intervention Survey Score (Simulation 1)	Mean (*SD*) Post-Intervention Survey Score (Simulation 2)	T-Test Value	*P* Value	Effect Size*
Social anxiety scale (0-8)	4.6 (*2.1*)	3.8 (*1.8*)	4.957	.002	0.3
Focus of attention scale (0-25)	15.4 *(5.9)*	9.3 *(4.7)*	5.888	0	1.0
Self-evaluation scale "Challenging factor" (0-16)	9.2 *(4.7)*	4.9 (3.4)	5.985	0	0.9

* pretreatment mean—post-treatment mean/pretreatment SD.

White European (n=6); Non-white European (n=5); and Other (n=5).

Social anxiety during simulation

Twenty-seven out of 56 students (48%) rated their social anxiety between 4 (definitely disturbing/disabling) and 8 (severely disturbing/disabling) during simulation one. The mean pre-intervention score of 4.6 (S.D. 2.1) reduced significantly to 3.8 (S.D. 1.8; $p < .002$) after social anxiety psychoeducation for simulation two (see Table 1). Students therefore reported lower levels of social anxiety during simulation two, but this anxiety remained at notable levels, with 19 out of 56 students (34%) still rating their social anxiety between 4 and 8, and a small effect size of 0.3.

Self-focused attention during simulation

Students rated high levels of self-focused attention during simulation one (mean 15.4; S.D. 5.9) alongside the significant levels of social anxiety. Twenty-nine out of 56 students (51%) scored between 13 and 25 on the FAQ, indicating that the majority of the students were focused more on their internal anxiety symptoms (and how these may be perceived by others), than externally on the simulation task. Rating of self-focused attention reduced significantly after psychoeducation/attention control practise for the second simulation (mean 9.3; S.D. 4.7; $p < 0$; E.S. 1.0 see Table 1). Only 10 out of 56 students (17%) scoring between 13 and 25 on the second FAQ, indicating that the majority of students were able to switch to an external focus of attention during the second simulation.

Negative impact of social anxiety on learning and performance

Student's ratings of the negative challenge of the simulation on the self-evaluation scale were high for simulation one (mean 9.2; S.D. 4.7), with 30 students out of 56 (53%) rating 8 or above on the "Challenging factor'' sub-scale. This indicated that their experience of simulation had a negative impact on learning and performance. Ratings for simulation two fell significantly after the psychoeducation intervention (mean 9.2; S.D. 4.7; $p = 0$; E.S. 0.9 see Table 1) indicating that the negative impact of social anxiety on learning and performance had significantly reduced.

Response to question: Did you find the teaching/practice session on social anxiety and self-focused attention helpful in coping with simulation?

Forty-nine students answered the question; 47 (96%) chose "Yes" and 2 (4%) chose "No," indicating that the majority found the teaching/practice session helpful as preparation for simulation.

Students' views on how mental health simulations could be improved/delivered differently to reduce social anxiety

Forty-one students provided free text responses of their views. Three themes were identified across the responses—

Theme 1: Preference for fewer students in the simulation group.

Sixteen of the 41 responses contained references to feeling more comfortable/less anxious in a smaller simulation group than the current size of up to 12 students, due to having fewer observers e.g.,—

> *"…it's too many people to do it in front of, it's horrible because they all watching you. It would be easier with just 3 or 4 of us and feel less of a big deal…"*

There was a clear tension between the students' preference for small group sizes, and the large cohort size of 97 students in year 3. These larger simulation group sizes were caused by the large cohort size and the staff/student ratio of 1:35 across the 3 year Mental Health Nursing programme.

Theme 2: The alienating effect of cameras.

Fourteen of the 41 responses contained references to the anxiety provoking effects of a separate 'immersive' simulation room with cameras, and the knowledge that peers were watching on a screen in another room. Nine students expressed a clear preference to be in the same room as their peers during the simulation so they could see them and feel less isolated, for example:

> *"I hate being on camera, when I step into that room I feel sick I go dead self-conscious because of the cameras. I know everyone is watching me on that screen..."*

> *"I can't see anyone… I couldn't just ask for help or get reassurance and the service user doesn't help. I think we should do it in the same room together."*

Theme 3: More unobserved practice prior to the observed simulation.

Six of the 41 responses requested more opportunity to practice the simulation scenario (or a very similar one) unobserved with two or three peers before the simulation was observed by the whole group e.g.,—

> *"I know we went through it and were supposed to practice it in pairs, but people don't so maybe it would be good to have set practice time in the room first when people have to do it and take it seriously because they are going to be observed next."*

Six students suggested scheduled unobserved practice in the simulation room before the observed simulation to encourage participation and enable students to familiarize themselves with the simulation room/conditions.

Discussion

This pilot study was successful in answering each of the four research questions: (a) Almost half of third-year students reported significant/severe social anxiety during observed mental health simulation with internally focused attention. (b) The majority of students (30 out of 56) indicated that social anxiety had a negative impact on their performance and learning in simulation. (c) Students reported significantly lower levels of social anxiety, inwardly focused attention and less impact on performance/learning after a brief package of psychoeducation and attention training. (d) Students expressed clear views that their experience of simulation could be improved through smaller groups of 3-4 students and more unobserved practice in the simulation room prior to observation.

The reduction on the single item score for social anxiety is similar to findings of other studies of simulation anxiety that used longer psychometric questionnaires, such as The Stait Anxiety Scale (Beischel, 2013); The Westside Simulation Anxiety Scale (Yockey & Henry, 2019). The high level of reported self-focused attention during the first mental health simulation is also similar to that found in studies of attention in social anxiety disorder (e.g., Canvin et al., 2016). It has been demonstrated that social anxiety impacts negatively on interpersonal performance (Koban et al., 2017), which is the focus of mental health simulations. Students who only rated their social anxiety as slightly disturbing/disabling still rated a significant negative challenge to their performance. This fits with evidence that social anxiety is linked to interpersonal difficulties even at levels below the diagnostic threshold for Social Anxiety Disorder (Fehm et al., 2008).

The reported negative impact of social anxiety on simulation-based learning is in line with evidence that anxiety and threat appraisals reduce learning/achievement across education (Skinner & Brewer, 2002). People experiencing social anxiety continue to hold negative beliefs about interpersonal situations (Everaert et al., 2018) and their own performance (Button et al., 2015) despite positive feedback (provided in simulation de-brief) which inhibits new learning.

Theme 1: Preference for fewer students in the simulation group.

This theme fits with the findings of Mills et al. (2016) that nursing students' simulation anxiety increases with the number of observers, but their study only increased observers from one to three, which suggests that current average nursing simulation group sizes may be too large, increasing social anxiety.

Theme 2: The alienating effect of cameras.

This theme seems to reflect a tension between the need for 'clinical immersion' in accordance with the Healthcare Simulation Standards of Best Practice (INACSL Standards Committee, 2021), and the social anxiety provoked by observation of performance without feedback or encouragement from peers (until the student returns to the debrief room). Immersive simulation therefore produced conditions that can increase social anxiety - lack of social feedback (Clark & Wells, 1995).

Theme 3: More unobserved practice prior to the observed simulation.

This helpful suggestion from the students on how to improve their preparation for simulation also seemed to reflect a tension between large nursing cohort sizes, limited room availability and the ideal standards for simulation preparation (INACSL Standards Committee, 2021). After teaching/demonstration, the students were given the opportunity to practice role-playing in pairs, but not all students participated when left unsupervised, resulting in some feeling unprepared.

In the second, postintervention simulation, students rated lower levels of social anxiety, more externally focused attention and less negative challenge to their performance and learning (see Table 1). These improvements are similar to those observed in CBT for more severe symptoms of social anxiety disorder (Thew et al., 2023). This suggests that psychoeducation on social anxiety may be efficacious in helping to improve student's experience of mental health simulations.

Strengths and weaknesses

Whilst caution is required in drawing conclusions about the effectiveness of the psychoeducational intervention, a strength of the study was the anonymity of student ratings/responses, which reduced the likelihood of observer bias and enabled the collection of unhindered views in the qualitative survey (Braun et al., 2022). There are obvious limitations to this uncontrolled observational pilot study. The naturalistic sequential design meant that a different scenario and actor had to be used for the second simulation. This avoided a practice effect (Duff et al., 2012) but meant that any observed change in scores between the two simulations could be due to this difference rather than the effect of the psychoeducational session. An attempt was made to mitigate this by designing the two simulations to have a very similar level of interpersonal challenge. Another limitation was the possibility of sample bias caused by only 56 out of 97 students attending and completing both simulation surveys, as these participating students may have been less anxious about simulation than those who avoided it.

Implications

The evidence that simulation-based learning may trigger disabling levels of social anxiety in nursing students conveys a responsibility for Higher Education Institutions to address this by preparing nursing students with targeted psychoeducation and resilience training. The international Simulationist Code of Ethics (Park et al., 2018) advises that we should seek to eliminate unnecessary harm and minimize psychological risks for students. In the U.K., the University Mental Health Charter recommends the inclusion of, "Good quality psychoeducation and meta-learning" in the curriculum that, "Helps students to develop their ability to manage their own wellbeing and learning" (Hughes & Spanner, 2019). The evidence from this pilot supports this guidance and suggests that brief, targeted psychoeducation to address social evaluation anxiety could be included across nursing curriculums to better prepare nursing students for mental health simulation.

Conclusions

When nursing students are observed by peers in mental health simulation, it can trigger significant levels of situational social anxiety and self-focused attention that can impact negatively on learning and performance. A psychoeducational session may have helped to reduce both social anxiety, and its negative impact on performance and learning by addressing unhelpful self-focused attention. Nursing students reported that psychoeducation was helpful in preparation for simulation, and also expressed a preference for both smaller groups, and more practice before being observed on camera. Although this pilot was conducted with Mental Health Nursing students, brief psychoeducation to address social anxiety may be helpful in preparing nursing students from all fields for simulations that focus on interpersonal communication, and this pilot supports further testing for effectiveness in a controlled study.

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Mark Kenwright: Conceptualization, Methodology, Investigation, Formal analysis, Supervision, Writing – original draft. **Patricia Awty:** Methodology, Investigation, Data curation, Writing – review & editing. **Chris Bye:** Methodology, Investigation, Writing – review & editing. **Donna Doherty:** Methodology, Investigation, Writing – review & editing. **Daniela Leese:** Investigation, Writing – review & editing. **Emily Edwards:** Investigation, Writing – review & editing.

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