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The impact of socioeconomic status on the management of epilepsy: a qualitative study

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ABSTRACT

Introduction: Socioeconomic status (SES) is a recognised determinant of epilepsy outcome, yet it remains unclear whether epilepsy management is effectively contextualised to meet the needs of individuals across different SES backgrounds. This study explored how adults with epilepsy perceive the influence of SES on their care and self-management.

Methods: In-depth, semi-structured videoconference or telephone interviews were conducted until data saturation with fifteen adults (11 women, 18–75 years) recruited through national epilepsy charities. SES was classified with the "MacArthur Subjective Social Status ladder" and "Social Determinants of Health" indicators, yielding eight low/lower-middle ("lower-SES") and seven upper-middle/high ("higher-SES") participants. Two researchers analysed transcripts inductively using reflexive thematic analysis. Member checking confirmed analytic credibility.

Results: Eight interrelated themes emerged: support networks and relationships; financial implications and access to care; employment and economic stability; transportation and independence; treatment and medication adherence; interactions with the healthcare system; perceived power imbalance and stigma; and trust and future care decisions. In every theme, lower–SES participants reported a more significant number of – and more disruptive – barriers than higher–SES participants. They described issues regarding obtaining transport and medicines, navigating opaque benefit systems, lacking dependable social support, limited access to specialist care, and feeling dismissed or stigmatised by clinicians, which eroded trust and prompted disengagement from care. Higher–SES participants, while not immune to challenges, more often mobilised resources to buffer their impact.

Conclusion: Lower socioeconomic status intensifies financial, informational, and relational barriers to managing epilepsy effectively, undermining adherence and care consistency. Routine SES assessment, tailored education, and integrated social–support interventions are crucial to reduce these inequities and improve outcomes for socioeconomically disadvantaged people with epilepsy.

1. Introduction

Epilepsy is a common neurological disorder affecting up to 1 % of the population, with over 50 million people with epilepsy globally [1,2]. Effective epilepsy management is critical to prevent seizures and associated morbidity [3]. Outcomes are not uniform across all groups [4]. Growing evidence indicates that socioeconomic status (SES) – encompassing an individual's income, educational attainment, and occupation – significantly influences epilepsy incidence, care, and outcomes [5–8]. SES is a major social determinant of health, shaping access

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to resources . In epilepsy, socioeconomic disparities manifest in multiple ways: people living in poverty or lacking health insurance are less likely to receive consistent treatment or adhere to medications. Lower-SES populations have higher risks of uncontrolled seizures and epilepsy-related hospitalisations than their higher-SES counterparts. Even in countries with universal healthcare, people of lower SES experience poorer outcomes, suggesting that free access alone does not eliminate inequities [9–11]. People with epilepsy often have lower educational levels and income and significant difficulty maintaining employment, exacerbating the disadvantage cycle [12–15].

While quantitative studies have documented these disparities, there is a paucity of qualitative research exploring how SES impacts the lived experience of managing epilepsy. Factors such as financial hardship, health literacy, access to transport, and social support are difficult to quantify yet critically shape how people adhere to treatment plans and cope with their condition. Understanding individuals' perspectives may disclose mechanisms behind SES-related outcome gaps – for example, whether medication nonadherence stems from cost, misunderstanding instructions, or competing life priorities. Previous qualitative work has identified barriers like stigma, knowledge gaps, and healthcare system challenges in various populations [16–18]. Few studies have explicitly focused on socioeconomic influences. To design effective interventions and policies for equitable epilepsy care, we need more profound insight into the challenges faced by lower-SES individuals and how they differ from those of higher-SES individuals [19].

This study addresses that gap by qualitatively examining the impact of SES on epilepsy self-management and healthcare experiences. We interviewed adults with epilepsy from diverse socioeconomic backgrounds to identify themes related to financial issues, access to care, information and understanding of epilepsy, and social support or stigma. We sought to preserve authentic individual voices through direct quotations and to map out how social and economic contexts shape their strategies and struggles in managing epilepsy. We hypothesised that lower-SES participants would report more barriers (e.g. nonadherence, difficulty accessing specialists) and different coping mechanisms than higher-SES participants.

2. Methods

2.1. Study design

We adopted a phenomenologically informed design and used reflexive thematic analysis to explore individuals' experiences. In-depth, semi-structured interviews were used as the data collection method to allow participants to openly discuss their epilepsy management in the context of their socioeconomic circumstances. A topic guide (Appendix S1) was developed based on a preliminary review of evidence and consultation with clinicians, people with epilepsy, and their advocates. We reported using the COREQ guidelines [20].

2.2. Recruitment

Inclusion criteria were that participants must be 18 or over, have the capacity to consent, speak English, have a diagnosis of epilepsy, and have been seen by a healthcare professional responsible for managing epilepsy at least once.

People with epilepsy were contacted via two non-governmental organisations in the UK working with people with epilepsy, Epilepsy Society and The Epilepsy Research Institute UK. They distributed recruitment information (Appendix S2) to the population they serve, leading to prospective participants making contact to express their interest in the project.

Prospective participants were sent a participant information sheet to read. Those who wished to participate in the study signed and returned a consent form via a secure online system, after which an interview was arranged. Participants received a small honorarium (a gift card) to compensate for their time. Recruitment continued until data saturation – no new codes in three consecutive interviews – was met [21]. Other participants who had returned consent forms after data saturation was reached at 15 interviews were informed that an interview was no longer needed; they were offered anonymised results to be sent to them. Those who took up this offer were allowed to provide further information they believed had not been considered.

2.3. Data collection

Interviews were conducted by JS (female health-services researcher) using online videoconferencing or telephone, depending on participants' preferences. Each interview lasted between 45 and 100 min. Participants verbally consented before the commencement of the interview. Interviews were audio recorded using an encrypted device. Recordings were transcribed verbatim and de-identified.

A reflexive journal was kept where JS recorded reflections, noting any emotional responses, assumptions about participants' circumstances, and challenges in maintaining a neutral stance. During the coding and theme development phases, JS and SB (male academic clinician) revisited these journal entries to identify potential biases or blind spots. For example, early tendencies to focus predominantly on clinical barriers were noted and counterbalanced by more deliberate attention to structural socioeconomic constraints and personal coping strategies participants described. This reflexive engagement promoted ongoing self-awareness and critical questioning of analytic decisions, ultimately enhancing the trustworthiness of the findings.

Participants were grouped according to SES using data collected from the Social Determinants of Health (SDH) Framework [22] and self-reported figures derived from the MacArthur Scale of Subjective Social Status [23]. It was optional for participants to provide the MacArthur Scale of Subjective Social Status, resulting in eight participants providing this metric. For those that didn't, other data points were used to assess their SES based on the SDH Framework, such as age, ethnicity, self-reported highest education level, current employment status, and presence of social support. Where a participant reported a strong support network or clear lack of support network, this was recorded as 'good' and 'poor'. This was recorded as 'varied' when there was not a clear sense of a strong support network or lack of support. The composite score over-rode single markers where indicators conflicted (e.g. degree-educated yet unemployed and food-insecure). According to this data, participants were then ranked based on SES to either low, lower-middle, upper-middle, and high SES groups (Appendix S3).

2.4. Data analysis

Thematic analysis was employed using an inductive, data-driven approach [24]. SB and JS independently read the first few full transcripts to gain familiarity and generated preliminary codes line-by-line. A consensus codebook was generated capturing concepts related to epilepsy management and SES. This codebook was iteratively refined as more transcripts were coded, merging similar codes and adding new ones. The final new code emerged in interview 12; interviews 13–15 added only instantiations of existing codes. A coding journal was maintained throughout this phase to document the rationale for coding decisions, ensuring transparency and traceability. All transcripts were coded using qualitative analysis software (NVivo 12). Inter-coder differences were discussed and resolved by consensus, and the codebook was adjusted accordingly. Coded data were examined to identify patterns and relationships and then grouped into broader categories that captured recurring patterns or shared meanings. Through team discussions and constant comparison across participants, the findings were distilled into a set of major themes and subthemes that captured the role of SES in epilepsy management. Representative quotations were selected for each theme to illustrate key points, with attention to include voices from varying SES levels. Labels of themes were chosen to be concise yet

evocative of the central concepts. Accompanying subthemes, where relevant, offered greater granularity. Member-checking was conducted: codes and themes were emailed to participants to verify that the interpretations resonated with their experiences, leading to minor clarifications.

3. Results

Participant details are described in Table 1. Using combined MacArthur ladder scores and Social–Determinants–of–Health data, eight participants were classified low/lower–middle SES ("lower" group) and seven upper–middle/high SES ("higher" group). This split underpins all SES comparisons below.

Inductive analysis generated eight inter–related themes (Table 2). Illustrative quotations are presented verbatim; bracketed numbers refer to participant ID.

3.1. Support networks and relationships

Almost all participants reported social difficulties resulting from epilepsy. Restricted lifestyle choices, fear of seizure episodes among peers, and lengthy recovery periods after treatments contributed to reduced opportunities for social engagement. Some participants felt isolated as friends withdrew or were apprehensive about witnessing a seizure:

> *"They've seen me have a seizure and it's frightened them … they stop returning calls … it's felt quite rejecting."* (02, lower)

These issues were widespread, but the lack of social support was most pronounced among participants from lower SES backgrounds. Several described feeling unable to confide in family or friends:

> "*I wouldn't talk to [family] for support … it was all brushed under the carpet."* (07, lower)

Table 1
Demographic characteristics of 15 participants.

Demographic characteristic	*n*	%
Gender		
Female	11	73.3
Male	4	26.7
Ethnicity		
White, British	13	86.6
Black, British	2	13.4
Age Range		
18–25	1	6.7
26–35	6	40
36–45	2	13.3
46–55	4	26.7
56–65	1	6.7
66–75	1	6.7
Employment		
Full-Time	8	53.3
Part-Time	3	20
Self-Employed	1	6.7
Unemployed	2	13.3
Retired	1	6.7
Highest Level of Education		
Degree or Higher	11	73.3
A-Level or Equiv.	2	13.3
AS-Level or Equiv.	1	6.7
GCSE or Equiv.	1	6.7
Social Support		
Good	10	66.7
Poor	4	26.7
Varied	1	6.7

Table 2
Themes identified from coding participants' responses.

Theme	Description	Association with SES
Support Networks and Relationships	The impact of epilepsy on support networks and relationships.	50 % of lower SES participants reported a lack of support compared with none of the higher SES participants. More elements of support existed among those from the high SES background.
Financial Implications and Access to Care	Financial implications resulting from epilepsy, and the impact of the individual's economic situation on their access to healthcare.	50 % of lower SES participants reported financial constraints in accessing care. All participants from higher SES backgrounds, and a quarter from lower SES backgrounds, reported minimal financial constraint in accessing care.
Employment and Economic Stability	The impact of epilepsy on employment and economic stability.	Challenges in professional settings appeared amongst participants irrespective of SES but appeared to more frequently and commonly impact on those from lower SES backgrounds.
Transportation Challenges and Independence	Challenges with transportation resulting from epilepsy and the impact on the participant's independence.	Most participants reported challenges relating to transportation, regardless of SES. Financial implications relating to transport were reported by 37.5 % of participants from lower SES backgrounds and 0 % of those from higher SES backgrounds.
Treatment and Medication Adherence	The participant's experience regarding the treatment of their epilepsy and medication adherence.	71 % of participants from higher SES backgrounds reported the ease of medication adherence but only 12.5 % of those from lower SES backgrounds.
Interactions with the Healthcare System	The participant's experiences with the healthcare system in relation to epilepsy.	Those from lower SES backgrounds reported negative experiences with the healthcare system more frequently.
Perceived Power Imbalances and Stigma within Healthcare	The perception of power imbalances and stigma within the healthcare system experienced by participants in relation to epilepsy.	The experience of stigma and discrimination within the healthcare system were reported by only two participants from low SES background.
Impact on Trust and Future Care Decisions	The impact of previous experiences with the healthcare system on trust and future care decisions	Half of participants from lower SES backgrounds reported a loss of trust and only 14 % of those from higher SES backgrounds.

In some cases, cultural misunderstandings and stigma further exacerbated isolation:

> "*There are perceptions. It's not great, it's like … you are a witch or possessed … I haven't told my extended family because it's very hard to have those conversations."* (12, lower)

Mental health struggles, whilst reported by many participants, tended to be reported with more significant impact by those from low SES backgrounds.

> "*I've had a lot of issues with depression and anxiety*." (13, lower)

3.2. Financial implications and access to care

Financial difficulties in accessing epilepsy care emerged prominently among participants from lower SES backgrounds. Costs tended to be associated with transportation, medications, and hiring caregivers:

"*At times transport was an issue … I couldn't get some drugs I was supposed to … I was actually low on finance.*" (09, lower)

The perception that seeking private care was necessary due to delays or inadequate NHS support intensified these economic pressures. Participants from lower SES backgrounds struggled more when out-of-pocket expenses were required, while higher SES individuals could more readily absorb these costs or had private insurance options:

"Put together several weeks' worth of carers allowance, and consulted [a private neurologist] … obviously it's not easy finding that kind of money when you're skint but the benefits of getting an answer there and then … priceless." (06, lower)

In addition, many participants reported complications with social benefits, describing the benefits system as difficult to navigate and unresponsive to the variable nature of epilepsy. This challenge was greater for those with fewer financial reserves or less family support:

"*They stopped my benefits … six months without any income … I had to sell stuff around me.*" (07, lower)

3.3. Employment and economic stability

Close to half of the participants mentioned loss of income due to epilepsy-related job restrictions or because seizure activity affected their ability to work. Those from lower SES backgrounds found this especially destabilising. For some, the unpredictable nature of seizures and a lack of employer accommodations led to unemployment or reduced hours:

"*I had to drive as part of the job, and I could no longer drive so, obviously, I just lost my job.*" (02, lower)

Difficulties with formal support systems, including complex application procedures for disability benefits (e.g., Personal Independence Payments), were frequently reported. For low SES participants, this placed an undue burden on already strained finances:

"*Benefits and stuff have been taken away … I don't think they see epilepsy as a disability that … affects your daily living.*" (13, lower)

3.4. Transportation challenges and independence

Loss of a driving licence due to epilepsy was common and had practical, emotional, and economic ramifications for most participants:

"*The fact that you can't drive as well … it isolates you.*" (01, higher)

Transport difficulties affected all participants to some extent, but were more acute for those with fewer resources. Low SES participants often could not afford alternatives like taxis, compounding isolation and limiting access to care:

"*Walking everywhere is a nightmare. If anything happens, I'm on my own.*" (06, lower)

By contrast, those with higher SES sometimes navigated these challenges by purchasing private transport options or rearranging work commitments more flexibly.

3.5. Treatment and medication adherence

All participants managed epilepsy with at least one ASM (anti-seizure medication), and many struggled finding the right regimen. While difficulties in achieving seizure control were universal, participants from higher SES backgrounds reported better eventual outcomes, sometimes relating this to easier access to specialist consultations or private care.

Adherence challenges – such as confusion around dosing schedules or difficulty in obtaining medications – were more frequently reported by lower SES participants:

"*If I run low on meds, I panic … I forget to reorder, and it's hard to get to the pharmacy.*" (13, lower)

Concerns about side effects, potential liver and kidney impairment, and reproductive health issues were widespread. However, higher SES participants described receiving more thorough explanations from clinicians, possibly due to educational background or more proactive engagement.

3.6. Interactions with the healthcare system

Experiences with the National Health Service (NHS) were mixed. Many participants praised their neurologists for holistic approaches and supportive epilepsy nurses:

"*They actually look at your medical history as a whole.*" (10, higher)

However, systemic issues – long waiting times, limited specialist availability, and fragmented care – were frequently mentioned. Lower SES participants particularly noted poor continuity of care, inadequate information and feeling "forgotten" by the system.

"I wasn't given any information … you're very much on your own." (02, lower)

Such negative encounters often led to distrust in healthcare professionals and reluctance to seek future care, disproportionately affecting lower SES individuals.

3.7. Perceived power imbalances and stigma within healthcare

Some participants perceived a power imbalance, feeling that the public healthcare system's constraints placed them at the mercy of clinicians' schedules and decisions:

"*We're sitting around praying to move up the queue … that creates a power imbalance … the humility of the people who are just grateful to be seen.*" (06, lower)

This imbalance sometimes reinforced feelings of being undervalued or disrespected for lower SES participants.

"*Then I had a fit in a waiting room … the nurse was shouting at me, telling me to stop faking it.*" (07, lower)

Additionally, higher SES participants noted that their professional status occasionally elicited more detailed explanations or perceived respect from clinicians.

"As soon as they find out my wife's occupation, definitely they [clinicians] go into more detailed level of conversation." (03, higher)

3.8. Impact on trust and future care decisions

Cumulative negative experiences – poor continuity, inadequate information, and feeling dismissed – undermined trust in the healthcare system.

"*I gave up … if he wasn't listening to start off with, I doubt he would pay attention.*" (04, lower)

Such erosion of trust had long-term implications for adherence, follow-up, and engagement with healthcare services.

4. Discussion

4.1. Key findings

This study offers a first person-centred exploration of how SES shapes the management experiences of people with epilepsy in the UK, aligning with previous research that associates lower SES with poorer epilepsy outcomes [2,7,25,26]. SES influences many aspects of epilepsy care, from financial issues and transportation, to interactions with healthcare providers and community support. Lower-SES participants described substantial barriers – skipping medications, gaps in knowledge about their condition, and stigma or lack of support – all of which can adversely affect seizure control and quality of life. In contrast, higher-SES participants generally reported greater access to resources and information, enabling better management, yet they too faced challenges. The spectrum of experiences underscores that epilepsy management does not occur in a vacuum but is embedded in a person's social and economic contexts.

4.2. Implications

A public healthcare system such as the NHS in the UK is designed to reduce out-of-pocket expenditures. However, the practical costs of missed work, travel, private consultations, and uncoordinated benefits can still compound and drive inequities. The sense of being "shut out" or "forgotten" by the system, as expressed by some lower SES participants, resonates with accounts of care fragmentation in other contexts [27]. This dissatisfaction can lead individuals to disengage from the services intended to support them, aggravating disease trajectories through poor adherence and delayed follow-up. It also suggests that a universal health coverage system alone does not eliminate disparities; targeted support still remains needed to fill gaps.

Our study highlights the role of health literacy and patient–provider communication as an intermediary between SES and outcomes. Lower-SES individuals often had less epilepsy-related knowledge, which can lead to mismanagement. This echoes previous work, which noted "exiguous knowledge" and "pragmatic challenges" among people with epilepsy in India [28]. Notably, when lower-SES participants received tailored education or found peer support, they showed improved confidence. This suggests that interventions like epilepsy self-management education workshops or community health worker programmes could benefit socioeconomically disadvantaged groups significantly.

Some participants perceived a gap or bias in how healthcare providers communicate with them. Ensuring culturally competent communication and building trust with people of all backgrounds is critical. Prior research in other contexts has shown mistrust can be a barrier to care for marginalised people [29]. Clinicians should be aware of potential unconscious bias and strive to listen to individuals' socioeconomic challenges. Connecting an individual with a social worker or charity programme can make a tangible difference, as some of our participants experienced.

Social determinants such as community support, family understanding, and stigma intersect with SES. Stigma in epilepsy has been well-documented [16–18], and our findings indicate that those from lower-SES backgrounds might face more overt stigma (due to lingering myths or fear about epilepsy). When individuals have limited familial or community support, they may lack the emotional encouragement needed to sustain adherence and the practical help that reduces everyday burdens (e.g., help with transportation or reminder systems for medication). Consistent with a *meta*-synthesis of neurological stigma, participants described experiences of social exclusion and the need to conceal their condition [30]. Tackling stigma requires public education and community engagement. For instance, community-based programmes have shown success in reducing misconceptions [16]. Conversely, while not immune to stigma, higher-SES individuals often had more social capital to counteract it – supportive employers, access to counselling, or simply more confidence to advocate for themselves. Interventions to boost social support will likely help across SES levels.

Our findings have clinical and policy implications. First, healthcare providers should routinely assess and address socioeconomic barriers during clinical encounters with people with epilepsy. This could include screening for affordability issues, asking about transport needs or work constraints, and involving social services early. Multidisciplinary care could mitigate some SES-related challenges. For example, navigation services might help people with lower SES keep appointments and complete recommended evaluations. While guidelines already encourage a comprehensive, person-centred approach that includes attention to psychosocial factors and financial constraints [31], our data indicate that these guidelines may not be uniformly implemented or sufficiently resource-supported.

Second, educational interventions tailored to individuals with low health literacy could improve outcomes. Simplified educational materials, visual aids, or epilepsy nurse navigators may be needed to reinforce understanding, as our participants desired more knowledge about their condition. Third, from a policy perspective, reducing financial toxicity for chronic illness management is crucial. Subsidising transport for attendance of medical appointments and protecting employment for people with epilepsy, for example, through more substantial disability and workplace accommodations enforcement, would directly address many issues raised by participants. Such policy interventions targeting social determinants have been advocated to improve equity in epilepsy care [32]. Strengthening public-sector infrastructure – like specialised epilepsy centres with embedded mental health professionals – could also reduce the current push toward private care, an option that participants with fewer resources found prohibitively expensive. Beyond government-led initiatives, partnerships with charitable organisations, epilepsy support groups, and local advocacy networks can increase access to affordable counselling, family education programmes, and peer mentors. Such a concerted effort could help alleviate the burden of social isolation, reinforce medication adherence, and foster trust in public healthcare systems among vulnerable populations.

4.3. Strengths and Limitations

A strength of this study is the purposeful inclusion of a wide socioeconomic range, allowing the capture of contrasting experiences and identifying SES-specific needs. The qualitative approach generated contextualised data, usually not apparent from surveys or administrative datasets. However, there are limitations. The sample size was modest, though appropriate for qualitative saturation. Participants might also not represent all people with epilepsy, since participants were recruited through national epilepsy charities. The study was conducted in the UK, so generalisability to other contexts (e.g., low-income countries or private healthcare systems) is limited, although many findings likely resonate broadly. We relied on self-reported SES measures. This is standard practice, but it may not capture nuances (e.g. wealth or neighbourhood deprivation) and misclassification remains possible. Furthermore, the study did not include caregivers of people with intellectual disability co-occurring with epilepsy; individuals from low SES backgrounds who are also affected by intellectual disability may experience compounding stigma that was not captured by this study. This should be a future direction for research. Additionally, participants were interviewed in English and mainly of the majority ethnic group. Experiences of non-English speakers or minority populations, who often face overlapping disparities, were not explicitly explored and warrant further research. This was because understanding the intersection of themes with sex, gender, and race was not a goal of this study, and therefore despite being important, it was not ostensibly planned for. Moreover, an additional limitation of the qualitative design was that it could not accurately capture epilepsy severity in any form. Future research should explore how experiences of epilepsy severity intersect with SES. Lastly, qualitative analysis involves some interpretation; we strived to remain

grounded in the data and included numerous direct quotes to let participants' voices speak for themselves.

This study opens avenues for further investigation. Quantitative research could build on our themes: measuring how interventions addressing these SES-related factors impact clinical outcomes like seizure frequency or hospitalisations. Qualitative studies in other regions and among paediatric populations could disclose if similar themes emerge. An interesting line of inquiry is the bidirectional nature of epilepsy and SES; not only can low SES worsen epilepsy management, but uncontrolled epilepsy can worsen SES, creating a vicious cycle. Breaking that cycle requires holistic approaches that deal with seizures and socioeconomic needs.

5. Conclusion

Managing epilepsy is a medical and social challenge significantly shaped by socioeconomic circumstances, impacting access to care, understanding, and support, while lower SES often exacerbates difficulties. Despite individual resilience, achieving equity requires stakeholders to address these upstream factors through socioeconomic assessments in care, supportive health services, and policy changes to ease burdens. Improving outcomes means reducing the SES gap so that an epilepsy diagnosis doesn't carry a heavier burden due to socioeconomic factors. We aim to drive targeted actions for equitable management and quality of life for all people with epilepsy, regardless of their SES. Our findings provide nuanced, person-centred evidence of socioeconomic disparities in epilepsy management, offering guidance for clinicians and policymakers to help close these gaps.

CRediT authorship contribution statement

Jessica Spooner: Writing – review & editing, Writing – original draft, Software, Project administration, Formal analysis, Data curation. **Soham Bandyopadhyay:** Writing – review & editing, Writing – original draft, Validation, Supervision, Software, Resources, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Mohammad Baraka:** Writing – review & editing, Supervision. **Josemir W. Sander:** Writing – review & editing, Supervision, Methodology.

Ethics approval and consent to participate

The study received ethical approval from The University of Southampton Ethics and Research Governance and Research and Integrity teams: 92039. Participants provided written and verbal consent to participate.

Consent for publication

All participants gave written and verbal consent for publication.

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Declaration of competing 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.

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