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Experiences and impact of moral injury in U.K. veterinary professional wellbeing

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ABSTRACT

Background: Veterinary professionals (VPs) are often exposed to distressing and ethically challenging events in their line of work, yet little is known about whether they may experience moral injury and the impact potentially morally injurious events (PMIEs) may have on their wellbeing. This cross-sectional study aimed to examine the association between PMIEs and the mental health outcomes of U.K. VPs.

Method: Assessments of PMIE exposure and self-report measures of common mental disorders were administered using an anonymous online questionnaire to 90 U.K. VPs between December 2020 and May 2021.

Results: Exposure to PMIEs was reported by almost all VPs (89.0%), with acts of omission most frequently reported. Experiences of PMIEs were significantly associated with symptoms of PTSD ($p < 0.01$) and experiencing a betrayal event was significantly associated with PTSD symptoms ($p < 0.05$). However, there was no significant association found between PMIE exposure and alcohol misuse or CMD ($p > 0.05$).

Conclusions: This study provides some of the first evidence that experiences of moral injury are significantly associated with adverse mental health outcomes in U.K. VPs. Future work is needed to design effective pathways for prevention and intervention for VPs exposed to highly challenging events.

Experiencias e impacto del daño moral en el bienestar de profesionales veterinarios británicos

Antecedentes: Los profesionales veterinarios (PV) están frecuentemente expuestos a eventos estresantes y éticamente desafiantes en su línea de trabajo, a pesar de lo cual se conoce poco acerca de si pueden experimentar daño moral y el impacto que los eventos con potencial de daño moral (PMIE por su sigla en inglés) pueden tener sobre su bienestar. Este estudio transversal se enfocó en examinar la asociación entre los PMIE y los resultados de salud mental en PV británicos.

Método: Se administraron evaluaciones de exposición a PMIE y medidas de auto-reporte de trastornos mentales comunes, usando un cuestionario anónimo en línea a 90 PV británicos entre diciembre de 2020 y mayo de 2021.

Resultados: Casi todos los PV reportaron exposición a PMIE (89.0%), siendo los actos de omisión los más frecuentemente reportados. Las experiencias de PMIE se asociaron significativamente a síntomas de TEPT ($p < 0.01$) y la probabilidad de cumplir criterios de TEPT fue mayor en los PV expuestos a eventos de traición y perpetración. Sin embargo, no se encontró asociación significativa entre la exposición a PMIE y el abuso de alcohol o trastornos mentales comunes (CMD por su sigla en inglés) ($p > 0.05$).

Conclusiones: Este estudio provee algunas de la primeras evidencias de que las experiencias de daño moral se asocian significativamente con resultados adversos en salud mental en PV británicos. Se requiere trabajo futuro para diseñar vías efectivas para la prevención e intervención para los PV expuestos a eventos altamente desafiantes.

道德伤害对英国兽医专业人士身心健康的经验和影响

背景: 兽医专业人员 (VPs) 在其工作中经常遇到令人痛苦和道德挑战的事件, 但对于他们是否可能遭受道德伤害以及潜在道德伤害事件 (PMIE) 对其身心健康可能的影响知之甚少。

本横断面研究旨在考查英国VP中PMIE与心理健康结果之间的关联。

方法: 在2020年12月至2021年5月期间, 使用一项匿名在线问卷对90名英国VP进行了PMIE暴露评估和常见精神障碍的自我报告测量。

结果: 几乎所有英国VP (89.0%) 都报告了暴露于PMIE, 其中最常报告的是不作为。PMIE经

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Moral injury; veterinarian;
PTSD; trauma; mental health;
PMIE

PALABRAS CLAVE

daño moral; veterinario;
TEPT; trauma; salud mental;
PMIE

关键词

道德伤害; 兽医; PTSD; 创伤;
精神健康; PMIE

HIGHLIGHTS

- U.K. veterinary professionals were found to experience moral injury.
- Experiences of moral injury were significantly associated with symptoms of PTSD.

历与 PTSD 症状显著相关 ($p < 0.01$)，在那些暴露于背叛和犯罪事件的 VP 中，符合 PTSD 病例标准的可能性最大。然而，PMIE 暴露与酒精滥用或 CMD 之间没有显著关联 ($p > 0.05$)。结论：本研究提供了一些初步证据，表明在英国 VP 中道德伤害经历与不良心理健康结果显著相关。未来的工作需要为暴露于具有高度挑战性事件的 VP 设计有效预防和干预途径。

1. Introduction

Moral injury has been conceptualised as the profound psychological distress experienced following an event involving acts of perpetrating, bearing witness to, or betrayal by trusted others which violate one's deeply held moral beliefs or expectations (Litz et al., 2009; Williamson, Murphy, Phelps, Forbes, & Greenberg, 2021a). Experiences of potentially morally injurious events (PMIEs) can lead to negative maladaptive beliefs that threaten one's perceived self-identity or perception of the world, as well as feelings of shame, guilt, disgust, anger or worthlessness (Stovall, Hansen, & Ryn, 2020; Vargas, Hanson, Kraus, Drescher, & Foy, 2013; Williamson et al., 2020; Williamson et al., 2021b). While moral injury is not a mental disorder, these post-event changes in appraisals and affects can contribute towards the development of psychological difficulties (Atuel et al., 2021; Williamson, Stevelink, & Greenberg, 2018).

Much of the moral injury research carried out to date has examined experiences of PMIEs military contexts (Bryan et al., 2016; Griffin et al., 2019); however, very little research to date has examined experiences of moral injury in veterinary professionals (VPs). VPs are often exposed to a wide range of traumatic and distressing events in their line of work, yet comparatively little is known about their experiences of moral injury and the impact exposure may have on their mental health. Examples of PMIEs in VPs can include requests to perform unnecessary procedures (e.g. tail docking, ear cropping) or procedures that are harmful or stressful to the animal (e.g. minor surgery without anaesthesia), requests for euthanasia of healthy animals, betrayal by trusted colleagues/managers, and refusal or inability of clients to provide the necessary resources (e.g. financial, time, housing) to care for animals.

Moral injury may be a particular concern for VPs as previous studies have found that U.K. VPs report high levels of anxiety and depressive symptoms (Knipe et al., 2018). U.K. VPs have also been found to be at an elevated risk of suicide, with a proportional mortality ratio among veterinary surgeons of up to four times that of the general population (Bartram, Ghasem, Ae, & Baldwin, 2009; Platt, Hawton, Simkin, & Mellanby, 2010). Only one study of moral injury in VPs has been carried out to date. This study showed that exposure to morally significant stressor events was associated poorer wellbeing, including higher levels of stress, anxiety and anger in Australian VPs (Crane, Phillips, & Karin, 2015). However, this study

did not use a validated measure of moral injury, but rather PMIEs were identified using a checklist developed in focus groups. Moreover, research in military samples has shown that certain PMIE exposure can result in a distinct pattern of distress (Litz et al., 2018). It is possible that VPs may be more likely to be exposed to certain types of PMIEs (e.g. perpetration, betrayal, witnessing), with some events experienced as more distressing than others. Nonetheless, whether VPs are more likely to experience certain types of PMIEs and suffer from specific moral injury-related mental health difficulties is unclear. Therefore, the aim of this study was to examine the experience and impact of PMIEs and moral injury-related mental health difficulties in U.K. veterinary staff. We hypothesised that those VPs exposed to PMIEs would be more likely to report poor mental health outcomes, including PTSD, alcohol misuse, depression and anxiety.

2. Methods

This study received ethical approval from King's College London Research Ethics Committee (HR-20/21-18272).

2.1. Participants

Between December 2020 and May 2021, eligible veterinary surgeons, clinical directors/practice managers and veterinary nurses were recruited to this exploratory study. We refer to participants as 'VPs' throughout for clarity. Eligibility required participants to be aged 18 years and above, eligible to practice or work in veterinary medicine or nursing in the U.K., English speaking, and willing to self-report their experiences during veterinary work. No limitations on eligibility according to demographic characteristics (e.g. gender, years of veterinary experience, VP role) were imposed.

We used opportunity sampling and recruited participants by circulating study information on social media, online platforms, via VP affiliated charities and in relevant newsletters. The sampling method of snowballing was also utilised with participants asked to share study information with other potentially eligible individuals. Individuals were screened for eligibility in line with study inclusion/exclusion criteria using self-report questions prior to completing the online survey (e.g. 'I am aged 18 years or more' 'I

am a veterinarian, or veterinary nurse, working (or registered) in the UK'). As this study was anonymous, participants were not asked to complete/sign a consent form and participants were informed that they were under no obligation to participate and could withdraw at any time. Researcher contact details were provided should participants have any questions about the study or wish to discuss participation.

2.2. Assessments

The online questionnaire was distributed via the internet using a secure server (Qualtrics). The anonymity of subjects was preserved as they were not asked to provide any personally identifying information in order to participate (e.g. name, home address). Prior to distribution, the questionnaire was piloted with U.K. VPs ($n = 3$, not included in the final sample) with any formatting or technological errors adjusted accordingly. Basic demographic information (e.g. age, years of veterinary or veterinary nursing experience, gender, etc.) was collected from participants.

Psychological assessment measures. Exposure to potentially morally injurious events was measured using a modified version of the 9-item Moral Injury Event Scale (MIES) to measure exposure to potentially morally injurious events (possible score range 9–54); higher scores indicate more exposure (Nash et al., 2013). For the purpose of data analysis, consistent with previous studies, we used a cut-off for a binary construction of the MIES (those answering 'moderately/strongly agree' on one or more item, as used by (Murphy et al., 2020)). The MIES includes items relating to acts of perpetration, perceived transgressive acts of others, and betrayal by trusted others. A modified version of MIES has been used previously in non-military samples (Haight, Sugrue, Calhoun, & Black, 2017; Nickerson et al., 2015). The modified MIES is identical to that used in military samples except terms relating to 'fellow service members' are replaced with 'co-workers' and reference to 'US military' is omitted. The instructions for the MIES were modified for the present study, and participants were instructed to answer the questionnaire and indicate how much they agreed/disagreed with items regarding their work as a VP. Previous studies have found the MIES to have good psychometric properties, with good internal consistency (Bryan et al., 2016; Held et al., 2021).

Probable PTSD and Complex PTSD (CPTSD) was assessed via the International Trauma Questionnaire (ITQ) (Cloitre et al., 2018). The ITQ is an 18-item self-report questionnaire and consists of six items measuring PTSD symptoms (PTSD (re-experiencing, avoidance and sense of threat) and six items measuring Disturbances of Self Organisation (DSO) symptoms (affective dysregulation, disturbances in relationships, and negative self-concept). Both PTSD

and DSO symptom items are accompanied by three functional impairment items that measure social, occupational and other important facets of life over the last month. Responses are rated by a five-point Likert scale ranging from 'Not at all' (0) to 'Extremely' (5). A CPTSD diagnosis can be made if criteria for PTSD and DSO symptom clusters are met. Every symptom cluster consists of two symptoms and only severity scores of 2 or higher are used to indicate presence of a symptom. For both PTSD and CPTSD diagnosis, the endorsement of one of two symptoms from each symptom cluster and an additional functional impairment are required. The total severity of PTSD and DSO symptom scores is calculated by totalling items 1–6 and 7–12, with a total possible ITQ score ranging between 0 and 48 (PTSD + DSO) (Cloitre et al., 2018; Murphy et al., 2020). In addition, the three DSO symptom clusters separately have an overall scoring range of 0–8, with a total DSO symptom score ranging between 0 and 24. A number of studies have found that the PTSD and DSO items of the ITQ yield scores with good internal consistency (Cloitre et al., 2019).

Common mental health disorders (CMD) (e.g. depression and anxiety) were assessed using the validated Patient Health Questionnaire-4 (PHQ-4) (Kroenke, Spitzer, Williams, & Lowe, 2009) and were categorised according to 0–2 (not present), 3–5 (mild), and ≥ 6 (moderate to severe) points. The PHQ-4 is a four-item, brief screening measure asking the following questions: (1) 'Feeling nervous, anxious or on edge?', (2) 'Not being able to stop or control worrying?', (3) 'Feeling down, depressed or hopeless?', and (4) 'Little interest or pleasure in doing things?'. Questions were rated from 0 (not at all) to 4 points (nearly every day). The PHQ-4 has been found to have strong internal reliability (Khubchandani, Brey, Kotecki, Kleinfelder, & Anderson, 2016).

Probable alcohol misuse was assessed via the AUDIT-C (Babor et al. 2001). The AUDIT-C consists of three items, scored between 0 and 4 with a maximum possible score of 12. The AUDIT-C cut-points used: nondrinking: score 0; low-level: score 1–3; moderate-level: 4–7, and high-level: score 8–12. The AUDIT-C has been found to have good psychometric properties and internal consistency (Barry, Chaney, Stellefson, & Dodd, 2014; Jeong et al., 2017).

2.3. Data analysis

Descriptive analyses were conducted to provide an overview of the sample characteristics (Table 1). Pearson correlations of the association between MIES sum scores and severity of PTSD symptoms, alcohol misuse symptoms and CMD symptoms were also calculated (Table 2). Fishers' Exact tests were used to determine statistically significant differences between groups that

Table 1. Participant demographic characteristics.

	<i>n</i> (%) meeting MIES cut-off ^a
<i>N</i>	80
Age, M (SD)	37.0 (1.1)
Female, <i>n</i> (%)	70.0 (77.7%)
Years experience, M (SD)	11.90 (1.1)
Veterinary role	
Veterinary surgeon	54 (60.0%)
Veterinary nurse	10 (11.1%)
Clinical director/Practice owner	7 (7.7%)
Other role	9 (10.0%)
Ethnicity	
White	75 (83.3)
Black	2 (2.2%)
Mixed racial and ethnic minority groups	2 (2.2%)
Other racial and ethnic minority group	1 (1.1%)
Marital status, <i>n</i> (%)	
Single	25 (27.7%)
In a relationship	52 (57.7%)
Met case criteria, <i>n</i> (%)	
PTSD	20 (22.5%)
CPTSD	12 (13.5%)
Any PTSD	20 (22.5%)
Alcohol misuse	46 (52.3%)
CMD	22 (34.9%)
Any disorder	61 (67.8%)

Notes: Other = includes practice manager or other veterinary role not specified. CMD: common mental disorders; PTSD: posttraumatic stress disorder; CPTSD: complex posttraumatic stress disorder. Years experience = years of experience working in veterinary medicine. a = 90 VPs completed the MIES. b = Testing for differences between proportions of those meeting and not meeting cut-off within each category. Any PTSD = participants who met criteria for CPTSD or PTSD on ITQ. Any disorder = meets case criteria for CPTSD, PTSD, alcohol misuse or CMD. Completion of psychometric measures: CMD using PHQ-4 *n* = 63; alcohol misuse using AUDIT-C *n* = 88; PTSD using ITQ *n* = 89.

did and did not meet PMIE cut off, with *p* values <0.05 used to indicate statistical significance.

Prior to the main analysis, data were screened for inaccuracies in data entry, missing values and the presence of outliers. While 330 participants initially consented to take part, during the course of the survey, a large proportion dropped out or did not fully complete measures. Where more than 50% of data were missing, the participant was excluded from the analysis. This resulted in three subjects being excluded from the analysis. Consistent with previous studies (Fear et al., 2010), for the remaining participants, we replaced missing values on each psychometric scale with the lowest possible value if 25% or fewer items were missing. If more than 25% of items were missing, the response for that particular psychometric measure was counted as missing. As a result, demographic information, psychometric and moral injury outcomes are reported for fewer participating VPs (PHQ-4 *n* = 63; AUDIT-C *n* = 88; ITQ *n* = 89; MIES *n* = 90).

Table 2. Associations between MIES score and measures of mental health.

MIES	Alcohol	CMD	PTSD
MIES total score	0.06	−0.01	0.34**
Betrayal	−0.07	0.06	0.30*
Others	−0.05	0.24	0.03
Perpetration	0.01	−0.04	0.13

CMD: common mental disorders as assessed via PHQ-4; PTSD: total score on ITQ; Alcohol: AUDIT-C total score.

p* ≤ 0.05, *p* ≤ 0.01.

Demographic information was provided by *n* = 237 VPs; however, only *n* = 90 VPs completed the MIES and no statistically significant differences were found between those VPs who did and did not complete the MIES in terms of demographic, professional qualifications, or study outcome measures.

3. Results

Participant demographic information for those meeting MIES cut off is reported in Table 1. Overall, the participating U.K. VPs had worked in the veterinary field between 6 months to 44 years (mean = 11.7 years, SD 9.9). The majority were White British (*n* = 63, 70.0%), 36.8 (10.2) years old on average, and 12.2% were male (*n* = 11).

3.1. PMIE exposure and impact on wellbeing

In terms of event exposure, of the 90 VPs who completed the MIES, 80 VPs (88.9%) endorsed (moderately or strongly agreed with) one or more items of the MIES, which we refer to as meeting cut off. PMIEs committed by others were most commonly reported across the sample (70.0%, *n* = 63), followed by experiencing betrayal by trusted others (68.9%, *n* = 62), and acts of perpetration or commission (56.7%, *n* = 51). Socio-demographic factors were not associated with experiences of PMIEs. For example, morally injurious event exposure was not significantly associated with veterinary role type (*p* = 0.46). Additionally, neither years of experience (*p* = 0.60) nor VP age (*p* = 0.44) were significantly associated with meeting cut off on the MIES.

In terms of mental health, as seen in Table 1, a substantial proportion of the sample who completed the psychometric measures met case criteria for probable mental disorders. 22.5% met criteria for likely PTSD, 52.3% met criteria for probable alcohol misuse, and 34.9% met criteria for CMD. More than half of the sample met criteria for a likely mental disorder (67.8%).

Significant associations were found between greater exposure to PMIEs and higher symptoms of PTSD (*r* = 0.34, *p* < 0.01) (Table 2). Significant associations were also found between greater exposure to PMIE betrayal events and higher symptoms of PTSD (*r* = 0.30, *p* < 0.05). PMIE exposure was not statistically significantly associated with symptoms of alcohol misuse (*r* = 0.06, *p* > 0.05) or CMD (*r* = −0.01, *p* > 0.05) (see Table 2).

4. Discussion

The aim of this study was to examine the experience and impact of PMIEs and moral injury-related mental health difficulties in U.K. veterinary staff. Four key findings were observed. First, that experiences of moral injury in U.K. VPs were reported by almost all participants who completed the MIES. Second,

experiences of PMIEs were significantly associated with symptoms of PTSD. Third, experiences of betrayal events were significantly associated with PTSD symptoms. Finally, there was no statistically significant association between alcohol misuse or CMD and experiences of moral injury.

That a considerable proportion of the sample in the present study met criteria for likely mental health disorders is consistent with previous studies of wellbeing in VPs. A previous study found the prevalence of comorbid anxiety and depression was 4.5% amongst U.K. VPs, with 63% of their nationally representative sample at risk for alcohol misuse (Bartram et al., 2009). The present findings – ten years on – highlight that the rates of mental ill-health continue to remain high amongst U.K. VPs – in particular, the substantial proportion of the sample reporting symptoms consistent with PTSD. It is worth noting that recruitment for this study took place during the social distancing restrictions employed by the U.K. Government to control COVID-19 (March 2020–April 2021), meaning VPs may have been unable to see clients face-to-face, may have had inadequate personal protective equipment (PPE) when interacting with clients, or had to juggle working with caregiving responsibilities as schools were often closed. As recent studies have shown that the mental health of staff working in other occupations during the pandemic has been adversely affected by these circumstances (Lamb et al., 2021), it is possible that the mental health of VPs has been similarly impacted and this warrants further investigation.

The significant association found between experiences of moral injury and VP symptoms of PTSD is consistent with previous studies of moral injury in other high-risk samples, including military, police and healthcare staff (Greenberg, Docherty, Gnanaprasam, & Wessely, 2020; Lamb et al., 2021; Williamson et al., 2021c). As the majority of existing literature has focused on military samples, this study furthers our understanding of moral injury by illustrating that moral injury can be experienced by and deleteriously impact the mental health of staff in other non-military occupational settings. No significant associations were found between PMIE exposure and likely CMD and alcohol misuse. This is inconsistent with studies of moral injury in U.S. military samples which have observed significant associations between PMIEs and CMD and substance misuse (Ames et al., 2019; Bryan et al., 2016). Substance misuse is hypothesised to be an especially common maladaptive coping strategy following PMIEs as an avoidant approach to cope with one's distress. It is possible that the lack of association found in the present study reflects a lack of power due to the relatively small sample size. Nonetheless, several recent studies of moral injury in U.K. ex-military samples have not found a significant

association between PMIE exposure and alcohol misuse (Williamson et al., 2021c) and this cross-cultural difference may warrant further exploration.

This study found that betrayal events were reasonably common amongst participating VPs (68.9%). Experiences of betrayal, where one was betrayed by trusted colleagues or others outside their organisation, were significantly associated with symptoms of PTSD. Acts of perpetration and transgressive acts of others were frequently reported but were not significantly associated with adverse mental health outcomes. This finding highlights the nature of PMIEs experienced by U.K. VPs and the types of events may be especially distressing. Therefore, these results tentatively contribute towards the conceptual clarification of moral injury in a U.K. context as well as having a practical application in that it is possible that VPs who experience betrayal events may especially benefit from support. The frequency of betrayal events and transgressive acts committed by others suggests these experiences may be especially useful to target in preventative efforts for moral injury. For example, a process such as Schwartz Rounds used in healthcare settings which provides a forum for staff to discuss and reflect on the emotional and social aspects of providing care, may also be applicable and beneficial in veterinary practice. A challenge of the U.K. veterinary profession is, for many, the best outcomes for the animal must be balanced with needs and financial circumstances of the client. Instructing VPs to strive for 'Gold Standards' of care, rather than optimal or contextualised standards of care, may push VPs or clients into making decisions about treatment that may not be optimal for the client's personal circumstances or for the animals overall welfare. From the VP's perspective, they may feel they (or others) are failing as a clinician if they don't perform 'Gold Standard' treatment, rather than employing an alternative strategy which may be less based on scientific measurements but achieves an equally good outcome for the animal and the client. Equally, VPs may be concerned about overtreatment and the impact that has on animals, particularly where clients are not prepared to consider euthanasia or other clinically conservative approaches. Preparing VPs during training about the potentially morally injurious circumstances they may face, such as delivering affordable care that may seem to fall short of 'Gold Standard', may prevent the development of moral injury related mental health difficulties.

This study has several strengths and weaknesses. Among the strengths is that participation was anonymous and confidential, which may have facilitated disclosure of VP experiences and associated distress. That no VPs were excluded on the basis of demographic characteristics (e.g. veterinary role, years of

experience, etc.) is also a strength of this exploratory study. Nonetheless, the cross-sectional design of this study prevents causal inferences and the convenience sampling strategy used may also reduce the generalisability of our findings. At this stage, it is unclear whether VPs exposure to PMIEs causes mental health problems, or whether having mental health problems makes one more likely to experience PMIEs in VP practice. No prospective studies of moral injury have been conducted to date and this is a considerable gap in our understanding of the development and impact of moral injury over time. Given the recruitment method used, it is possible that there may be biases associated with a population that responds to advertisements and participant invitations on social media and veterinary charities rather than by random selection. Moreover, the considerably high rate of attrition could also potentially suggest drop out bias. Additionally, moral injury in this study was assessed using the MIES which has not been validated for use in U.K. samples and may have introduced bias. A screening measure for moral injury valid in U.K. samples is pressingly needed to improve not only the identification of those suffering after PMIEs but also to reduce bias in future studies. Finally, the presence of probable mental health problems was assessed via self-report questionnaire rather than clinical interview which is considered the gold-standard for mental disorder assessment.

5. Conclusions

Despite these limitations, this study provides some of the first preliminary evidence that experiences of moral injury are significantly associated with symptoms of PTSD in U.K. VPs. The findings expand on the very limited existing research carried out in non-military settings and further our understanding of the impact of moral injury on wellbeing. That betrayal events are especially associated with adverse mental health outcomes indicates circumstances where VPs may benefit most from support. Evidence suggests that interventions which foster open discussions, and reflections on, PMIEs, as well as training to prepare VPs for circumstances where they may not be able to provide 'Gold Standard' care, may be protective.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Ethics approval

King's College London Research Ethics Committee (HR-20/21-18272).

Contributor statement

Authors (VW Victoria.williamson@kcl.ac.uk, NG neil.greenberg@kcl.ac.uk, & DM dominic.murphy@combatstress.org.uk) were all involved in shaping the study design, conducting data collection and data analysis, and drafting the manuscript for publication. The manuscript has been read and approved by all authors.

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