

Telephone nurses' perceived stress, self-efficacy and empathy in their work with frequent callers

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Abstract

Aim: To examine telephone nurses' perceived stress, self-efficacy and empathy in their work with answering calls from frequent callers.

Design: The study is a quantitative questionnaire survey study with a comparative design.

Methods: Telephone nurses ($N = 199$) answered a survey containing three instruments: Perceived Stress Scale, General Self-Efficacy Scale and Jefferson's Scale of Empathy. Correlation analysis, multiple regression analysis and analysis of variance were performed to test the research questions.

Results: Significant negative correlations were found between stress involving calls from FCs and self-efficacy ($r = -.238$), and significant negative correlations between stress involving calls from frequent callers and empathy ($r = -.185$). It was further revealed that telephone nurses who had worked less than 30 years scored higher on Jefferson's Scale of empathy than those who had worked more than 30 years, $F(1, 183) = 4.98$, $\eta^2 = 0.027$.

KEYWORDS

empathy, frequent caller, self-efficacy, stress, Swedish Healthcare Direct, telephone nursing

1 | INTRODUCTION

Telephone nursing is an integral part of health care in several countries, for instance the UK, the United States, Canada, Australia and Sweden (Kaminsky et al., 2017; Rutenberg & Greenberg, 2012). In Sweden, the national telephone nursing service, Swedish Healthcare Direct (SHD), aims to be accessible for the entire Swedish population. The lowest eligibility requirement for working as a telephone nurse (TNs) answering the calls at SHD is to be a registered nurse. Further, the TNs regularly achieve in-house training in communication skills and in making assessments via telephone (Röing & Holmström, 2015; Vårdguiden, 2020). There are approximately 1,500 TNs employed at SHD, replying to nearly six million calls yearly (Inera, 2018). The

purpose of SHD is to increase accessibility to healthcare, advice and refer callers, and to co-operate with other healthcare institutions. The TNs working at SHD are obliged to make a medical assessment, refer to the appropriate level of care and/or provide self-care advice to callers. The service is available to the Swedish population via the telephone number 1,177 around the clock, year-round (Vårdguiden, 2020). A person-centred care and structure in the conversation are sought in the communication with the caller (Vårdhandboken, 2019). Previous studies demonstrate that some calls take more time than others do. When calls are more complex and characterized by, for example psychiatric illness they tend to consume more time (Björkman and Salzman-Eriksson, 2019). Some callers make repeated calls over time and are labelled frequent callers (FCs). Several studies reveal

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that FCs are more likely to have psychiatric comorbidity than regular callers (Corral et al., 2015; Edwards et al., 2015; Fisher et al., 2011; Liu et al., 2011; Middleton et al., 2014; Pirkis et al., 2016; Ramors-Rivers et al., 2014; Spittal et al., 2015). Studies performed in Sweden with TNs indicate that FCs' calls constitute a challenge to TNs, and are often comprised of caller worries and anxieties along with physical symptoms (Holmström et al., 2016; Skogevall, Holmström, Kaminsky & Håkansson., 2020). FCs account for a significant proportion of all calls to telephone nursing services and are a large group of callers (Middleton et al., 2014; Pirkis et al., 2016; Scott et al., 2014). Although TNs' working environment can be assumed to be crucial for providing optimal care for FCs, research on this aspect is sparse. This study contributes to filling this void in investigating how TNs perceive the calls with FCs and how these calls affect TN's working situation. This is important since their perceptions and working situation are likely to have an impact on the care for FCs.

2 | BACKGROUND

Telephone nursing is a specific type of nursing where TNs cannot see the person calling. It has its own challenges and has been compared to nursing blindfolded with one's hands tied behind one's back (Rutenberg & Greenberg, 2012). Specific telephone nursing skills are essential for discerning cues, creating a whole mental picture of the caller, and assessing the person's health (Nagel & Penner, 2015). Telephone nursing can be even more challenging when handling calls from FCs. To determine how TNs perceive calls from FCs, the three variables stress, self-efficacy and empathy were chosen to measure how these calls affect the TNs working situation. The reason for measuring these three parameters and their definitions are described below.

Stress in the current study is defined as in the psychological tradition where stress is presented by life events and perceived individually by the threats posed and the availability of coping resources. Stress can have negative consequences when the demands on the individual exceed the adaptive capabilities. Perceived stress reflects the interaction between an individual and their environment and is in the current study measured by how an individual grades the stress in their life and their ability to handle it (Cohen et al., 2016). In a correlational study in a primary healthcare setting where perceived stress, mindfulness and subjective well-being were investigated, participating registered nurses had a higher mean score on the PSS than other healthcare professions (Atanes et al., 2015). Considering stress in TNs, a connection between their working environment and malpractice claims has been shown in that their stress can contribute to risk of error (Röing & Holmström, 2015). TNs can feel moral distress when they are unable to care for the callers in the way they want (Björkman and Salzman-Eriksson, 2019). This moral distress can hypothetically be even more prominent in relation to frequent callers, since they call often and the calls take time. Responding to FCs' calls also implies that other calls are put on hold for longer times, which further increases the TNs' sometimes stressful work

situation (Skogevall et al., 2020). TNs might also feel stress because of the conflicting demands between caring for the caller and having the role of gatekeeper (Holmström & Dall'Alba, 2002). This conflict may intensify in calls with FCs. Further, a stressful TN working environment may constitute a risk to their empathic ability (Hunt et al., 2017). In the current study, empathy is defined as a predominantly cognitive attribute that involves an understanding of the patient's pain and suffering, combined with a capacity to communicate this understanding and an intention to help (Hojat, 2016). Empathy is crucial in healthcare encounters and enables person-centred care. Patients state that an empathic communication with their GP facilitates a more personal relationship with them. They also experience that an absence of empathy in the meeting with their GP leads to frustration (Derksen et al., 2017). Another reason for empathy as a relevant measure in the current study is that when a person is being cared for via telephone it entails a form of care that risks depersonalizing the caller. Telephone nursing is by nature distancing, not only physically but also in the meaning of creating a sense of distance whereby the risk of objectifying the person calling is higher than in a physical meeting (Nagel & Penner, 2015).

The third parameter measured in the current study is self-efficacy, which is a person's belief in the ability to exercise control over the own functioning and over situations that affect life. It can affect motivation, well-being and the ability to perform tasks in future situations (Bandura, 1997). Self-efficacy modifies the effect of stress and is an important predictor of job-related burnout (Yao et al., 2018). Further, self-efficacy has been associated with several factors such as self-regulation, coping and achievements (Bandura, 1997; Luszczynska et al., 2005). General self-efficacy is considered an influential parameter affecting the quality of clinical practice as well as nurses' perceived professional benefits and organizational support (Cheng et al., 2020). Self-efficacy affects specific skills and could potentially affect the TNs ability to care for FCs. Another hypothesis is that the three chosen parameters in relation to calls with FCs also could be affected by the TNs working experience and level of education. Therefore, these two parameters were included in the analyses.

3 | THE STUDY

3.1 | Aim

The aim is to examine TNs' perceived stress, self-efficacy and empathy in their work with answering calls from FCs.

The following research questions were addressed:

- How is the TNs' level of stress involving answering calls from FCs related to their level of stress at work in general, and to their self-efficacy and empathy?
- Is the TNs' level of stress involving answering calls from FCs, stress at work in general, self-efficacy and empathy dependent on their level of working experience and education?

3.2 | Research design

The study has a comparative cross-sectional design with a quantitative approach. It constitutes the second part of a research project on TNs' work with FCs. The open-ended questions from the questionnaire were analysed using qualitative content analysis and are reported elsewhere (Skogevall et al., 2020). In the current study, data from the three instruments described below were analysed using correlation analysis, multiple regression analyses and analysis of variance.

3.3 | Participants and setting

A sample of 199 out of 1,500 employed SHD TNs were recruited from eleven of the 33 available SHD sites. The sample, covering 13% of the SHD TN population, was considered to provide valuable variation regarding geographical location in Sweden, rural and urban areas and size of site. The sites were included by purposeful sampling; we planned the data collection in order to get a variation of the characteristics of the sites. Three of the consulted sites declined their participation due to lack of time. There were ten to 40 TNs working at each site. Some of the sites were located in smaller towns in the countryside, while others were located in cities (with a population of over 100,000). Both TNs with shorter and longer experience at SHD were included. The TNs' working experience as registered nurses varied from three to 50 years with a mean of 28 years. The TNs' working experience of telephone nursing varied from zero to 40 years with a mean of 8 years. Considering education, 66.3% of the participants had specialist nursing education in addition to their three-year university education to become registered nurses. This means having conducted a one-year specialist nurse programme of 60–75 ETCS, for example district nursing or anaesthesia nursing. Further, 57.3% had additional education, for example in telephone nursing or in communication. After consent from the SHD managers, TNs were recruited by the first author. The inclusion criterion was TNs employed at SHD. There were a few (1–7) TNs at nearly half of the sites who declined to participate (Table 1).

3.4 | Data collection

Data collection was performed during the period September 2017–June 2018. The first author visited the participating SHD sites during the period above and participated in a workplace meeting. The TNs were informed about the study for approximately 5–10 minutes. The information regarded ethical aspects, such as the voluntary participation, with a possibility to decline at any time without giving a reason, and that only the researchers of the project would have access to the answers. Thereafter, the questionnaire was distributed to the TNs who chose to participate. It contained demographic questions, three scales and seven open-ended questions (Skogevall et al., 2020, cloaked for revision). The participants were asked to answer

TABLE 1 Demographic characteristics of participating TNs (N = 199)

Characteristic	N	%
Age (N = 141)		
27–40	12	8.5
41–55	45	31.9
56–76	84	59.6
Gender (N = 199)		
Female	192	96.5
Male	5	2.5
Other	1	0.5
Not specified	1	0.5
Language (N = 199)		
Native	187	94
Additional language	11	5.5
Not specified	1	0.5

all questions in relation to their work. The scales used in the study are presented below. The information of stress in relation to answering calls from frequent callers was collected by a three-item section where three questions were asked in the same structure as in PSS: how often do you feel stressed in life at general, how often do you feel stressed at work and how often do you feel stressed when talking to frequent callers. All the three questions had a four-point scale where one meant never and four meant very often. The answers from the last question about frequent callers were included in the analysis.

3.5 | Study instruments

The Perceived Stress Scale (PSS) is a 14-item measure of the degree to which situations in one's life are appraised as stressful. The questionnaire asks about the respondent's feelings and thoughts regarding the last month. Higher score on the PSS indicates higher level of stress. The PSS has proven to have adequate psychometric properties and has been found to measure a different and independently predictive construct (Löve et al., 2011). It is recommended for use as an outcome measure of experienced levels of stress. Analysis on the PSS data has resulted in adequate internal and test–retest reliability. However, the test–retest reliability seemed to result in a more substantial correlation when test–retest was performed in a short time (a few days). When test–retest was performed in a longer time (several weeks), the correlation was more moderate (Cohen et al., 1983). In an evaluation study of the Swedish version of the PSS, it demonstrated good internal consistency, construct validity, concurrent validity and criterion validity (Eklund et al., 2014).

The General Self-Efficacy Scale (GSE) contains ten items measured on a four-point Likert scale to assess the strength of the respondent's own ability to respond to difficult situations and to deal with obstacles. Higher score on the GSE indicates higher level of

TABLE 2 Pearson correlation between TNs' stress involving calls from FCs and work stress in general, self-efficacy and empathy

	Stress involving calls from FCs	Work stress in general	Self-efficacy	Empathy
Stress involving calls from FCs	-	0.538**	-0.238**	-0.185*
Work stress in general		-	-0.274**	-0.011
Self-efficacy			-	0.155*
Empathy				-

*= $p < .05$.; **= $p < .01$.

self-efficacy. In a study evaluating the validity and reliability of the GSE, it was shown to have construct validity and criterion validity. Reliability analysis of the Swedish version of the GSE has demonstrated high internal consistency in the self-assessment of mental work capacity, and the psychometric properties turned out to have the same patterns across gender (Löve et al., 2011).

The Jefferson Scale of Empathy (JSE) is a self-report scale containing 20 items. Each item has a seven-point Likert scale (from 1 = strongly disagree–7 = strongly agree). Ten of the items are positively worded and the other ten are negatively worded in order to avoid the confounding effect of the response style of constantly answering *agree* or *disagree*. In a number of studies on various populations such as nurses, physicians and nursing students, the scale has proven to be a psychometrically sound instrument for measuring empathy (Ward et al., 2009). In the development and testing of psychometric data regarding the JSE, the alpha reliability coefficients demonstrated an acceptable range for internal consistency reliability. The findings further provided support for construct validity and criterion validity (Hojat et al., 2001). For the current study, the Swedish version of the JSE for healthcare professions was ordered from Thomas Jefferson University.

The internal reliability in the scales was tested using Cronbach's alpha. Cronbach's alpha for the PSS was 0.82, for the GSE 0.87 and for the JSE for health professions 0.73. Cronbach's alpha higher than 0.70 is considered acceptable for new measures (Tappen, 2011).

3.6 | Data analysis

Data analysis was performed from September 2019–December 2019, using the Statistical Package for the Social Sciences, version 24 (SPSS Inc.). Thirty participants had not answered all the questions in JSE. Twelve of those had failed to answer five questions or less. For those questions, we imputed the mean of the participant's answers to the other questions in the JSE. For those who had missed more than five questions, the answers from JSE were excluded.

Since all intraclass correlations were very low (the highest being 5%), meaning there was no tendency for values from the same SHD sites to be more similar, we decided to not use multi-level analysis to compare the answers from the different SHD sites to each other. The answers were analysed with correlation analysis, multiple regression analysis and analysis of variance to test the research questions. To

perform the included analysis the answers from the instruments, working experience and education were used in relation to answering calls from frequent callers. Education was specialist educated or not, and working experience was in the Anovas in a median split divided into the two groups working more or less than 30 years.

3.7 | Ethics

The Regional Ethical Review Board approved the study (Dnr 2017/085), which follows the ethical regulations according to Swedish law (Sweden, the ministry of education & research, 2003) and conforms to the Declaration of Helsinki (World Medical Association, 2008). The TNs were informed that they could end their participation at any time without giving a reason, and were included after providing informed consent. No benefits were gained from participation. The results are presented in a way that guarantees all participants' confidentiality.

4 | RESULTS

The TNs' answers on the PSS ranged from 17–49 (mean 32.67); on the GSE from 20–40 (mean 31.60); and on JSE from 68–125 (mean 106.48).

4.1 | Answers to Research Question 1, regarding the TNs' level of stress in relation to answering calls from FCs being related to level of stress at work in general, self-efficacy and empathy

In order to analyse associations between the TNs' stress involving calls from FCs, stress at work in general, and their self-efficacy and empathy, Pearson's correlation analysis was performed on the data. The analyses revealed significant positive correlations between stress in relation to calls from FCs versus stress at work in general. Further, a negative correlation was found between stress in relation to FCs' calls and self-efficacy, and between stress at work in general and self-efficacy. There was also a negative significant correlation between empathy and stress involving calls from FCs, and a negative correlation between empathy and self-efficacy (see Table 2).

Standard multiple regression analysis was used to assess the ability of two measures (self-efficacy and empathy) to predict levels of stress (perceived stress scale), self-efficacy and empathy explained 13.5% of the variance in perceived stress, $F(2, 184) = 15.32$, $p < .001$. The beta value for self-efficacy (-0.373 , $p < .001$) was higher than the beta value for empathy (-0.031 , $p = .075$).

4.2 | Answers to Research Question 2, regarding the TNs' level of stress involving answering calls from FCs, stress at work in general, self-efficacy and empathy in relation to their level of working experience and education

Two-way ANOVAs were conducted on education (specialist education or not) and working experience (more or less than 30 years), to determine whether education and working experience had an impact on the TNs' stress at work in general and regarding calls with FCs. The age groups were divided by a median split. Age and working experience were independent variables, and TNs' stress in general at work and involving calls with FCs were the dependent variables. There were no significant effects of education or working experience, and no interaction effect. However, there was a tendency for those with a specialist education to be more stressed regarding FCs, $p = .059$ (see Table 3).

To test the effects of education and working experience in relation to TNs' self-efficacy, a two-way ANOVA was conducted regarding education (specialist education or not) and working experience (more or less than 30 years) as independent variables and TNs' self-efficacy as the dependent variable. There were no effects of education or working experience and no interaction effect, see Table 4.

TABLE 3 Means of TNs' stress^a involving calls with FCs by education and working experience

Education	Worked less than 30 years	Worked more than 30 years	Total
Specialist education	2.74	2.66	2.69
No specialist education	2.47	2.29	2.42
Total	2.60	2.60	2.60

^aStress involving calls with FCs on a scale from 1–5.

TABLE 4 Means of TNs' self-efficacy by education and working experience

Education	Worked less than 30 years	Worked more than 30 years	Total
Specialist education	31.42	31.67	31.58
No specialist education	31.82	30.67	31.55
Total	31.62	31.52	31.57

Standard multiple regression analysis was used to assess the ability of education (specialist education or not) and years of working experience to predict levels of empathy. Education and years of working experience explained 3.2% of the variance in empathy, $F(2, 186) = 4.10$, $p < .05$. The beta value for years of working experience (-0.171 , $p < .05$) was higher than the beta value for education (-0.070 , $p = .47$).

In order to further test effects of education and working experience on TNs' empathy, a two-way ANOVA was conducted with education (specialist education or not) and working experience (more or less than 30 years) as independent variables and TNs' empathy regarding calls as dependent variable. The analysis revealed no significant effect of education and no interaction effect. There was, however, an effect of TNs' working experience on empathy. TNs with working experience more than 30 years had lower levels of empathy than those with working experience less than 30 years, $F(1, 183) = 4.98$, $p = .027$, $\eta^2 = 0.027$ (see Table 5).

5 | DISCUSSION

The results revealed significant positive correlations between stress related to calls from FCs and stress at work in general. The finding that stress at work in general and involving replying to calls from FCs correlate was expected; if the TNs are stressed at work in general, it is likely that they are even more stressed when encountering FCs. TNs' encounters with FCs were stated to be difficult and stressful. Other callers are waiting in the queue, which further contributes to the stress (Skogevall et al., 2020). The mean score of the PSS in a validation study in a Swedish setting was 25 for those without stress-related disorders and 30 for those with stress-related disorders (Eklund and Erlandsson, 2011). The fact that the participating TNs in the current study had a higher level of stress than both means in the validation study indicates a stressful working situation. It is important to acknowledge this, as stress is a possible obstacle that hinders TNs from encountering FCs in an optimal and person-centred way. Further, it could be considered that stress-related disorders are a common reason for ill health and sick leave. Stress causes distress to, and entails costs for, both the affected person and society (Eklund & Erlandsson, 2011).

Self-efficacy correlated with stress at work in general, stress in relation to encountering FCs, and level of empathy. Self-efficacy

TABLE 5 Means of TNs' empathy by education and working experience

Education	Worked less than 30 years	Worked more than 30 years	Total
Specialist education	107.43	104.03	105.33
No specialist education	109.88	104.59	108.54
Total	108.71*	104.13*	106.48

*= $p < .05$.

has in previous research been associated with a number of factors, such as self-regulation, coping and achievement (Bandura, 1997; Luszczynska et al., 2005). It affects the quality of clinical practice as well as nurses' perceived professional benefits and organizational support (Cheng et al., 2020). Self-efficacy could be seen as offering protection from feeling stressed, as it enables coping with stressful situations. This could further imply that an intervention directed at TNs regarding answering calls from FCs would benefit from containing some form of self-efficacy programme or activities intended to increase self-efficacy. However, it is also possible that high levels of stress cause decreased self-efficacy in TNs. Either way, it is still likely that stress is handled in a more efficient way with higher self-efficacy, as it can serve as a mediator between inner cognitive structures and stress outcomes (Karademas & Kalantzi-Azizi, 2004).

There was a negative significant association between empathy and stress involving calls from FCs. There are several possible reasons for this. The TNs with higher levels of empathy might perceive encountering FCs as easier and less stressful. It is also considerable that the TNs who are stressed find it more difficult to create an empathic encounter in the calls with FCs. Previous research has demonstrated that stress and empathy correlate negatively (Park et al., 2015). However, when empathy in the present study was entered into a multiple regression analysis together with self-efficacy, only self-efficacy was a significant predictor of stress.

There were no significant effects of education or working experience on either stress or self-efficacy. There was further a tendency for those with a specialist education to be *more* stressed regarding FCs, which could be interpreted in different ways. One way is that with a specialist education TNs might become more aware of their responsibility, what optimal care should comprise and the high risk of making mistakes. Knowing what to do but not always having the resources for it can lead to stress and ethical dilemmas (Holmström & Höglund, 2007).

There was a negative relationship between working experience and empathy. This is consistent with other studies on empathy within health care (Håkansson Eklund et al., 2019; Hojat et al., 2009; Ward, 2016). In a study where medical students answered the JSE at different time points during the education, a significant decline of empathy could be seen in the third year of the education (Hojat et al., 2009). Another study with nursing students proved that their level of empathy was higher during their last semester in the undergraduate nursing programme than when they had worked for some time and then returned to a master's nursing programme (Håkansson Eklund et al., 2019). This might imply that healthcare organizations encourage a task-oriented approach, in which there is limited space for empathy. It can also be considered that the mean score of the JSE in the current study was low in comparison with a validation study in which the mean was 114 (Ward et al., 2009) and with a study of empathy among nursing students in a Swedish setting in which the mean score was 113.2 (Håkansson Eklund et al., 2019). These low empathy scores might imply a relevance in the opportunity for TNs to train their empathic ability. Some of the TNs in the previous study from the same data collection (The Authors, 2020)

stated that one of their tasks was to support and care for FCs. Other TNs stated that FCs had called the wrong healthcare instance when calling SHD, and that it was their task to simply make a medical assessment, refer them or offer self-care advice. If the purpose of SHD is to be available to all residents of Sweden, increase accessibility in healthcare organization, unburden other healthcare institutions (Vårdguiden, 2020), TNs should be allowed to offer FCs a PCC, even though it might be time-consuming. It has been reported that FCs have psychiatric comorbidity more often than other callers (Corral et al., 2015; Edwards et al., 2015; Fisher et al., 2011; Liu et al., 2011; Middleton et al., 2014; Pirkis et al., 2016; Ramors-Rivers et al., 2014; Spittal et al., 2015), and that these kinds of calls take a longer time (Björkman and Salzman-Eriksson, 2019; Skogevall et al., 2020). It has been shown that training among students can increase self-efficacy and empathy (Li et al., 2019), and several studies have revealed that it is possible to increase the level of empathy among nurses (Brunero et al., 2010; Cunico et al., 2012; Ward, 2016). Training TNs' empathic ability could also be beneficial to patients, as it has been found that they experience empathic meetings with GPs as more personal (Derksen et al., 2017). Furthermore, empathy training could be useful considering that the use of technology, including the telephone, entails a higher risk of objectifying the person calling than in a physical meeting (Nagel & Penner, 2015). In sum, stress is negatively correlated to both empathy and self-efficacy, and furthermore, self-efficacy and empathy are correlated. Hence, it could be relevant for an intervention directed at TNs at SHD to include not only stress reduction but also a self-efficacy- and empathy-increasing programme in order to offer support in encountering FCs.

6 | STRENGTHS AND LIMITATIONS

The sample constituted 13% of all SHDs TNs, and these were from geographically spread SHD sites. This strengthens the results, as it avoids their being influenced by a possible mutual view at a specific SHD site. The Swedish SHD has implemented care via telephone according to NHS 111, and both sites receive virtually the same number of calls, so the results may be considered transferable to other countries and contexts with similar services, as FCs are an international phenomenon. It is thus likely that the results could benefit other healthcare instances in which telephone nursing is performed. There are general limitations involved with self-reported data, and the cross-sectional design could also be seen as a limitation.

7 | CONCLUSION

Self-efficacy seems to be the factor that is most linked to the other factors investigated in the current study, namely stress, stress in answering calls from FCs and empathy. Self-efficacy could be a key factor in increasing TNs' empathy and decreasing their stress, thus enabling them to care for FCs in an optimal and person-centred way.

The current study suggests a pathway to strengthening TNs in answering calls from FCs in the form of an intervention for TNs focusing on reducing stress and strengthening self-efficacy and empathy. Based on the results of the study, these are important factors in enabling TNs to care for FCs in an optimal way. This study offers useful insights to researchers and managers of telephone nursing regarding TNs' ratings of their working environment and experiences of encountering calls from FCs.

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CONFLICT OF INTERESTS

No conflict of interest has been declared by the authors.

AUTHOR CONTRIBUTION

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE (<https://www.icmje.org/recommendations/>): substantial contributions to conception and design, acquisition of data or analysis and interpretation of data; drafting the article or revising it critically for important intellectual content.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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