

ORIGINAL RESEARCH



Examining Filipino nurses' demographic variations on supervisory support and work environment perceptions: A secondary data analysis

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ABSTRACT

Introduction: The increasing emphasis on creating healthy work environments is driven by their impact on both nurse and patient outcomes. While previous evidence on supportive nursing leadership and work environments has been established, limited evidence linking demographic characteristics exists in contextualizing such relationships among Filipino nurses. This study aims to investigate whether demographic variations among nurses influence their perceptions of supervisory support and work environment.

Methods: Secondary data analysis of a cross-sectional quantitative survey was utilized to recruit registered nurses employed in a government-owned and corporate-controlled (GOCC) tertiary hospital in the Philippines from September 2022 to October 2022. The primary data were collected through a demographic questionnaire, the validated Supervisory Support Scale tool, and the American Association of Critical-Care Nurses' Healthy Work Environment Assessment Tool. Inferential analyses were employed to examine differences between study variables. Data processing was performed using Microsoft Excel 2022 and the R program, with a significance level set at 0.05.

Results: The original dataset with a sample of 519 registered nurses was predominantly composed of non-married female nurses with bachelor's degrees and varying clinical experiences. The secondary data analysis revealed no significant differences in work environment and supervisory support perceptions in relation to nurses' demographic characteristics.

Conclusions: This study provides critical insights into the Philippine nursing workforce literature by demonstrating that nurses' demographic variations alone do not significantly influence their supervisory support and work environment perceptions. These results suggest that shifting the focus to broader factors beyond demographic variations among nurses may play a more critical role in shaping nurses' work environment and supervisory support perceptions. Future research should explore the potential intersection of systemic factors such as leadership competencies, psychological safety, and workplace policies in shaping the nursing workforce dynamics.

Keywords: nursing, nurses, nursing leadership, work environment, hospitals

INTRODUCTION

Nursing work environments, also known as practice environments, have been a primary interest of healthcare leaders and stakeholders over recent decades, given their critical implications on high-quality patient care, job satisfaction, and turnover rates (Nascimento & Jesus, 2020). However, the unprecedented COVID-19 pandemic exposed the suboptimal nurse working conditions globally, in which a further 610,388 RNs expressed their intention to leave the workforce by 2027 due to various factors such as stress, retirement, and burnout (Boudreau & Rhéaume, 2024; Martin et al., 2023; Smiley et al., 2023). While the global nursing shortages could exceed more than 11 million, their consequences are disproportionately severe in low- and middle-income countries (LMICs), like the Philippines, where systemic healthcare challenges such as inadequate compensation, nurse migration, and limited career advancement opportunities, exacerbate the strain on already fragile healthcare systems (Buchan et al., 2022; Castro et al., 2024; Downey et al., 2023; McCarthy et al., 2020). The pandemic also intensified pre-existing workforce-related issues such as inappropriate staffing, high burnout rates, missed nursing care, increased workloads, and decreased job satisfaction, resulting in deteriorating work environments and poor workforce retention (Castro et al., 2024; Labrague & Kostovich, 2024; Norful et al., 2024). These conditions underscore the importance of investigating how Filipino nurses perceive the support they receive from their supervisors or managers and the quality of their work environments in relation to their demographics, as such perceptions may have implications for the overall workforce sustainability in the Philippines.

Background

From an organizational perspective, effective supervisory or managerial support plays a pivotal role in fostering work environments. The American Association of Critical-Care Nurses (AACN) has outlined a framework comprising six essential standards for establishing healthy work environments (HWEs): *skilled communication* – nurses should demonstrate communication skills on par with their clinical expertise; *true collaboration* – nurses must actively seek and promote genuine collaboration; *effective decision-making* – nurses should be valued as key partners in policy development, clinical care management, and organizational leadership; *appropriate staffing* – staffing levels should effectively match patient needs with nurse competencies; *meaningful recognition* – nurses and other staff should be acknowledged for their valuable work contribution to the organization; and *authentic leadership* – nurse leaders must genuinely embrace and embody the principles of a healthy work environment while actively engaging others in its achievement (AACN, 2016). These standards emphasize that supportive leadership practices, grounded in communication, inclusivity, and empowerment, within work environments are vital for improving job satisfaction, reducing burnout rates, and enhancing organizational commitment (Lake et al., 2019; Navarro, 2023; Ulrich et al., 2022). Complementarily, the American Organization for Nursing Leadership (AONL) core competency framework for nurse leaders highlights business skills and principles, communication & relationship building, professionalism, and healthcare environment understanding, and leadership as fundamental skill domains necessary for nurse managers on guiding teams, managing resources, and navigating the complex healthcare system (AONL, 2022). Drawing from AONL's nurse leader competency framework, nurse managers' skills might

offer deeper nuances on the relational dynamics between supervisors and nurses and how they may influence nurses' perceptions of support within their work environments.

Existing evidence (Al Yahyaei et al., 2022; DeVries et al., 2023; Smiley et al., 2023; Wu et al., 2024) suggests that nurses' perceptions of leadership and work environments in relation to turnover and retention trends are influenced by a combination of demographic factors (e.g., age, gender identity, working hours, educational level, and marital status); work-related factors (e.g., workload, job satisfaction, and promotional or advance opportunities); and organizational factors (e.g., labor union group involvement, working conditions, interpersonal relationships, supervisor support, and management style). Factors such as nurses' age may impact career expectations and work-life balance preferences, while level of educational background and years of experience can affect clinical decision-making, leadership capabilities, and skill competencies (Feliciano et al., 2019; Stevanin et al., 2020; Yoon, 2020).

Despite the growing body of research on healthy work environments and nursing leadership, studies specifically examining the role of demographic characteristics in shaping nurses' perceptions of supervisory support and its influence on nursing practice within work environments remain scarce, specifically in the Philippine healthcare settings. Adis & Arnibal (2020) endorsed that nurse-patient staffing ratios, continuing professional development, and the number of working hours significantly influenced perceptions of work environment quality, but specific demographic factors, including age, sexual orientation, marital status, level of educational attainment, area of designation, and institutional years of clinical experience, did not. Similarly, Oducado (2019) reported that while younger Filipino nurses associated

empowering leadership behaviors with psychological empowerment, these associations were not differentiated by sexual orientation and marital status traits. For Filipino nurses, demographic and work-related factors, such as employment status, nature of work, length of service, and compensation, significantly influence their professional competency (Feliciano et al., 2019). These findings indicate that while demographics may shape workplace experiences, broader systemic and organizational factors often exert a stronger influence on Filipino nurses' perception of support in their work environment. While multiple studies have emphasized the importance of continuous leadership and management efforts in fostering HWEs to strengthen the nursing workforce, the existing literature often overlooks the complexity of how managerial behaviors within work environments are perceived differently by nurses of varying diverse demographics (Aungsuroch et al., 2024; Chami-Malaeb, 2020; Nikpour & Carthon, 2023; Skela-Savič et al., 2023). The scarcity of comprehensive analyses that specifically examine how these demographic variables interplay with nurses' leadership support and work environment perceptions cannot be disregarded, as they can possibly influence the trajectory of the global nursing workforce. Furthermore, the gaps in the current body of knowledge hinder the ability of healthcare organizations to implement effective supervisory or managerial practices that establish more inclusive and supportive nursing work environments. In addition, existing studies in the Philippines have yet to fully integrate organizational and leadership frameworks that could explain why demographic variations yield limited perceptual differences. Such theoretical integration is crucial to advancing a contextual understanding of how Filipino nurses experience supervisory support. The identified literature gap also necessitates further research that explores how various demographic groups experience supervisory support within nursing work

environments, and how these experiences could potentially influence both patient and organizational outcomes (Adis & Arnibal, 2020; Nascimento & Jesus, 2020; Navarro, 2023). Examining how individuals' demographic variables influence supportive nursing leadership perception contributes to evidence-based strategies for creating positive work cultures and nursing work environments among Filipino nurses. Therefore, this study aimed to investigate the relationship between Filipino staff nurses' demographic variations and their perception of supervisory support and work environment quality.

METHODS

Study Design

This study used a cross-sectional secondary data analysis approach. The data utilized in this study were derived from an existing dataset originally obtained from a previous study published elsewhere that primarily examined the correlation between staff nurses' perceived managerial or supervisory support and practice environments (Navarro, 2023). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies were followed in this study (von Elm et al., 2007).

Participants and Settings

Staff nurses who provided direct inpatient care were recruited to complete the original survey. Nurses holding administrative and managerial positions were excluded, as they do not directly provide patient care and primarily focus on policy-making and organizational management, which could introduce biases in perceptions of supervisory support. Student

nurses and novice nurses with less than six months of institutional clinical experience were also excluded to ensure that responses reflected the perspectives of nurses with sufficient clinical exposure. The analytic sample from the original study consisted of 519 staff nurses employed in a GOCC tertiary hospital in the Philippines. These nurses voluntarily participated in the prior cross-sectional anonymous survey (Navarro, 2023).

Data Source and Collection

The primary dataset utilized in this analysis was collected from the original published study dataset, which was collected between September 2022 and October 2022 (Navarro, 2023). Convenience sampling was employed to ensure sample size and data adequacy. The original dataset included nurse-respondents' demographic profile information and survey responses from two validated instruments: the 15-item Supervisory Support Scale (SSS) tool and the 18-item Healthy Work Environment Assessment Tool (HWEAT) version 1.0. Demographic characteristics, including participants' age, sexual orientation, marital status, area of assignment, highest level of educational attainment, and years of institutional service, were collected. The SSS tool, initially utilized to assess nurses' perceived supervisory support, and the AACN's HWEAT version 1.0, designed to evaluate healthy work environments, have been extensively validated in various nursing populations internationally (McGilton, 2010; Ulrich et al., 2019). With the use of mean scoring, levels of perceived supervisory support were categorized as high (above 3.4), moderate (1.7 to 3.3), and low (below 1.6), whereas work environment result values between 2.1 to 4.0 indicated a positive work environment and values between 1.0 to 2.0 indicated a negative environment (McGilton, 2010, Ulrich et al., 2019).

Notably, the former tool has a coefficient alpha of .94 (McGilton, 2010), while the latter tool's Cronbach's alpha value ranges from .94 to .95 (American Association for Critical-Care Nurses, 2016; Ulrich et al., 2019). However, their psychometric properties have not been formally assessed within the Southeast Asian nursing workforce. Despite this, a prior study has successfully applied these instruments in the Philippines, indicating potential applicability in similar professional settings (Navarro, 2023). The original dataset was accessed under a formal data-sharing agreement between the primary investigator and study setting, adhering to legal and ethical standards associated with data use to safeguard the integrity and confidentiality of the data. The dataset is not publicly available due to confidentiality agreements, but may be requested from the corresponding author, given with adequate reasons and ethical conditions. Detailed information regarding the primary study methods and outcomes is published elsewhere (Navarro, 2023).

Data Analysis and Management

The initial quantitative data underwent descriptive analysis, employing frequency count and percentages to elucidate and summarize demographic variations within the sample. Aggregated mean scoring was used to assess the quality of staff nurses' practice environments and perceived supervisory support levels. The original dataset was cleaned and prepared in Microsoft Excel 2022, including the management of missing values, detection of outliers, and the case-wise deletion technique. This secondary data analysis involved the reutilization of the original dataset, ensuring that no personally identifiable information was disclosed or compromised (Navarro, 2023). No a priori power calculation was performed due to the

secondary dataset's nature. The study employed analysis of variance (ANOVA) and t-tests to further explore the interplay between nurses' demographic characteristics and their supervisory support and work environment perceptions. ANOVA was selected to compare multiple demographic categories (e.g., different age groups and institutional years of experience), while t-tests were used for binary comparisons (e.g., sex and marital status). Missing data were addressed using case-wise deletion, wherein incomplete responses with less than 80% completion were removed before proceeding with secondary data analysis. This method was used to maintain data integrity while minimizing bias. Statistical analyses were conducted using both Microsoft Excel and the R program, with a significant threshold set at 0.05.

Ethical Considerations

The official protocol of the original study (protocol no. OR.R.001.22) received approval and clearance from the Institutional Ethics Review Board (IERB) of the study setting. Waiver of informed consent documentation was obtained before the initiation of the original study. All data analyses were conducted with strict adherence to the ethical standards and data use agreements established by the original study. Participants who volunteered to complete the survey were informed that they could withdraw from the study at any time without any consequences. The researchers had no authority over the participants; hence, there was no conflict of interest involved in this regard. The original dataset was anonymized, and no personal identifiers were used to promote privacy and confidentiality. The use of secondary data adheres to ethical guidelines set out in the Declaration of Helsinki. The Republic Act no. 10173, also known as the Philippines' "Data Privacy Act", was observed and practiced

throughout the research process. By securing the requisite permissions and complying with ethical guidelines, this study ensured that the secondary data analysis was conducted with utmost respect for the original data collection process and participants' rights.

RESULTS

A total of five hundred nineteen ($n = 519$) nurses participated in the previous original study. The majority of the respondents were female (70.7%) and not married (63.8%), with most holding a bachelor's degree as their highest level of education (85.2%). The age distribution of staff nurses was primarily between 30 and 39 years (45.7%) and 21 to 29 years (35.1%), with the mean age of 33.4 years. While most of the participants reported having 3 to 5 years (34.5%) or more than 5 years of institutional clinical experience (28.9%), they were variably distributed across clinical placements or areas of assignments. The average of nurses' institutional clinical experience was 4.6 years. The intensive care units (21.2%) had the highest concentration of nurses, while the emergency department (9.4%) had the lowest concentration. The provided table illustrates the descriptive statistics of nurses' demographic characteristics (*See Table 1*).

The secondary statistical analyses revealed no significant differences in nurses' perceptions of supervisory support domains (respecting uniqueness and being reliable) and essential standards of a healthy work environment (skilled communication, true collaboration, effective decision making, appropriate staffing, meaningful recognition, and authentic leadership) across all the demographic variables tested (age, sex, marital status, institutional years of experience, area of assignment, and educational attainment). This suggests that the perception of supervisory support and practice environment is relatively uniform across

different demographic groups in this sample, indicating non-significant associations between study variables (*See Table 1*).

Table 1. Differences in perceived supervisory support and work environment to nurses' demographic variations.

		Domains of Supervisory Support Scale (SSS) Tool		Six Essential Standards of a Healthy Work Environment Assessment Tool (HWEAT)					
		Respects Uniqueness	Being Reliable	Skilled Communication	True Collaboration	Effective Decision Making	Appropriate Staffing	Meaningful Recognition	Authentic Leadership
Demographic Variables	N=519 (%)	P-value	P-value	P-value	P-value	P-value	P-value	P-value	P-value
Age (Years)									
21 to 29	182 (35.1)								
30 to 39	237 (45.7)	.998a	.984a	.975a	.996a	.973a	.971a	.990a	.997a
40 to 49	78 (15.0)								
50 to 59	22 (4.2)								
Sex									
Male	152 (29.3)	.935t	.934t	.992t	.958t	.979t	.952t	.903t	.991t
Female	367 (70.7)								
Marital Status									
Not married	331 (63.8)	.834t	.931t	.786t	.972t	.872t	.815t	.889t	.937t
Married	188 (36.2)								
Institutional Experience									
Less than 1 year	73 (14.1)	.981a	.990a	.933a	.998a	.982a	.953a	.980a	.999a
1 to 3 years	117 (22.5)								
3 to 5 years	179 (34.5)								
More than 5 years	150 (28.9)								

[illegible]

DISCUSSION

This study specifically examined the relationship between the demographic characteristics of nurses – namely age, sex, marital status, years of institutional experience, area of assignments, and educational attainment – and their perceptions of supervisory support and work environment. Contrary to expectations, the study revealed no statistically significant differences in perceptions of supervisory support's domains or the essential standards of a healthy work environment across the demographic variables being tested. These unexpected results contrast with a previously published study that demonstrated a significant correlation between high levels of perceived supervisory support and positive practice environments among Filipino nurses (Navarro, 2023).

The absence of significant results in this study is surprising given the substantial research suggesting that demographic variables can influence nurses' perceptions of their work environment and leadership support (Feliciano et al., 2019; Stevanin et al., 2020). For instance, younger nurses often report lower levels of perceived leadership support, possibly due to limited experience and mentorship, while more experienced nurses tend to report higher levels of support, likely attributed to established relationships with management and a deeper understanding of organizational structures (Aungsuroch et al., 2024; Oducado, 2019). On the contrary, the non-significant differences identified in this secondary data analysis concur with some recent research indicating a non-significant, indirect association between individual demographic characteristics and perceptions of the nursing work environments (Adis & Arnibal, 2020; Yoon, 2020). For instance, Al Yahyaei et al. (2022) highlighted the complex relationship

between demographic factors and work environment perceptions, noting that cultural and institutional variables often mediate workforce outcomes such as nurses' intention to stay in their positions. Similarly, Chami-Malaeb (2022) reported that demographic variables had minimal or no effect on perceptions of managerial or supervisory support, suggesting that organizational factors, including leadership style, communication process, and organizational culture, assume a more central role in framing nurses' workplace experiences. This supports the idea that perceptions of supervisory support and the work environment may be more strongly influenced by systemic factors than by individual demographic differences. One possible explanation for the lack of significant results is associated with the sample's homogeneity. The data was collected at a single study site, causing similarities among participants' characteristics. This may have diminished variability in responses, which is necessary for detecting significant differences between the study variables. In addition, the measurement tools used may not fully capture the distinctions of the Filipino nursing work environment. The uniformity of responses suggests that broader organizational factors may exert a greater role than individual demographic variations in affecting nurses' perceptions of supervisory support and work environments.

While variables such as age and sexual orientation are often examined, other factors, including personal traits, interpersonal skills, compensation, job roles, and workload, may have a more direct impact on job satisfaction, turnover intention, and ultimately, perceptions of a healthy work environment and supervisory support (Falguera et al., 2022; Labrague & Kostovich, 2024; Stevanin et al., 2020; Yoon, 2020). In certain healthcare settings or geographical locations, the demographic variations among nurses may have a lesser impact on

their perceptions, possibly due to efforts in creating a more uniform work culture across different units and roles. Moreover, the essential standards of a healthy work environment might not align equally with the diverse experiences and expectations of Filipino nurses, potentially explaining the absence of significant differences observed in this study (Feliciano et al., 2019; Navarro, 2023; Ulrich et al., 2022).

One of the potential advantages of this study is that it can provide valuable insights to guide future research and interventions aimed at improving nursing work environments. From a clinical perspective, this suggests that demographic factors alone may not be sufficient to elucidate the variations in perceptions of a healthy work environment or effective supervisory support. This highlights the need for further scientific investigations led by healthcare organizations and stakeholders to focus on a broader spectrum of factors when addressing the multifaceted nature of nursing workforce-related issues. As previously reported from multiple studies, nurse managers have the capacity to influence other potential factors, such as organizational commitment, psychological well-being, and turnover intention, that are essential to sustain an effective nursing workforce (Navarro, 2023; Falguera et al., 2022). Also, results from this study must be understood within the unique cultural context of the Philippine nursing workforce. Filipino society is deeply rooted in collectivist values, where strong societal ties and group harmony play a significant role in workplace interactions. This cultural orientation may lead to a general perception of supervisory support as a collective team effort rather than an individualized experience, potentially minimizing perceived difference across demographic groups (Castro et al., 2024; Navarro, 2023; Falguera et al., 2022). Reframing collectivism as a theoretical consideration consistent with Filipino cultural norms, rather than as an empirically

tested mechanism, should cautiously translate into the general nursing workforce. Such cultural dynamics, along with other organizational factors like hierarchical structures and power dynamics of supervisory personnel within Philippine hospitals, highlight the need for further investigations to incorporate qualitative methods to capture the nuances of how Filipino nurses interpret and experience supervisory support within their work environment (Adis & Arnibal, 2020; Castro et al., 2024; Navarro, 2023). Generational and educational variations among Filipino nurses must be explored to assess their economic priorities, which may potentially affect perceptions of job satisfaction, institutional loyalty, and supervisory support.

Nevertheless, this study offers a cost-effective means for expanding the literature on nursing workforce dynamics in the Philippines, shedding light on the unique needs and preferences of Filipino nurses across various demographic groups. By recognizing that individual demographic variables are not the sole determinants of nurses' perceptions, healthcare leaders can promote more effective managerial strategies and create supportive work environments, leading to improved nurse job satisfaction, reduced turnover rates, and ultimately, enhanced patient outcomes (Boudreau & Rhéaume, 2024; Falguera et al., 2022; Martin et al., 2023).

Limitations of the Study

The results of this study are subject to multiple limitations that warrant cautious interpretation. Firstly, the quality and depth of the secondary data may have been inconsistent. Secondly, the cross-sectional design of the original dataset, including its sample size, single-site setting, and reliance on self-reported data, may not have been ideal and optimized for the purpose of examining causal associations between study variables. This might have contributed

to limited variability in response due to shared institutional culture and managerial systems. Thus, generalizability is not applicable. A multi-site or cross-institutional sampling should be employed in future studies to enhance representativeness and detect potential contextual differences in supervisory support or work environment perceptions. Thirdly, while exclusion criteria improve the internal validity of the study's results, they limit generalizability, particularly regarding leadership perspectives and early-career nurses' experiences. Another important limitation of this study is the potential for Type II error due to small effect sizes, which may have led to non-significant results despite the presence of subtle yet meaningful clinical differences between groups. The high p-values may also likely reflect sample homogeneity and restricted variability, which is consistent with the study's single-site design. Additionally, the original dataset did not account for other potential confounding variables or relevant contextual factors, such as workload, job satisfaction, practice ownership, coping mechanisms, team dynamics, cultural norms, hospital type, organizational policies, geographic location, or unit-specific dynamics, and psychological well-being that could have significantly affected nurses' perceptions of their work environment and supervisory support. Interactions between these factors and nurses' demographic variables were not analyzed. Nurse scientists and researchers have the opportunity to employ alternative statistical approaches, such as multivariate modeling or structural equation modeling, to account for these interactions and confounders, thereby providing a more comprehensive analysis. Moreover, a larger and more diverse sample, along with the utilization of effect size calculations and a priori power or sensitivity analyses, would ensure that future research has adequate statistical power. Lastly, the measurement tools employed in the original study were primarily developed and mainly used in Western countries

like the United States and Canada, which may not be culturally sensitive or appropriate for evaluating Filipino nurses' work-related perceptions and needs. Future studies should consider using longitudinal designs, integrating qualitative methods, and developing culturally sensitive research instruments to better capture the complexities of Filipino nurses' work experiences. A more holistic approach that considers organizational and psychological factors, in addition to a wider range of demographic and contextual variables, could provide a nuanced understanding of how these elements influence nurses' perceptions of supervisory support and work environments.

CONCLUSION

This study contributes to the Filipino nursing workforce dynamics literature by utilizing existing data to provide critical insights into the complex relationship between demographic variations among Filipino nurses and their managerial or supervisory support and work environment perceptions. The absence of substantial differences identified in the secondary data analysis stresses the limitations of solely focusing on nurses' demographic variables in comprehending the full, extensive spectrum of elements and variations within these work perceptions. These results emphasize the imperative for healthcare organizations and policymakers to adopt a multifaceted approach in promoting supervisory support and improving work environments for nurses. Broader factors, such as leadership style, institutional policies, and workplace culture, should be considered as they possibly interplay with demographic variations among nurses and influence their professional experiences and perceptions within work environments. This study also recommends psychometric validation of international

instruments for the local context or the development of culturally adapted nursing leadership and workplace assessment tools that can ensure measurement accuracy and reliability when examining demographic and organizational factors. Administrative efforts from healthcare systems and stakeholders must center on leadership training programs that equip nurse managers and leaders with the skills necessary for transparent communication, collaborative decision-making, and the creation of an inclusive and psychologically safe work environment. Workplace regulations and policies should also be revisited to ensure equitable staffing, expand professional development opportunities, and establish stronger institutional support systems that enhance nurse well-being and morale. Future research should further explore how systemic reforms, such as salary adjustments, workload redistribution, and mental health support programs, can improve overall nursing workforce retention and satisfaction. Incorporating qualitative research and multivariate analyses can provide deeper perspectives into the intricate interplay of organizational, psychological, and cultural factors influencing nurses' perceptions of workplace support. A more inclusive and culturally attuned approach to supervisory support and workplace improvement will be pivotal for ensuring the sustainability of the Filipino nursing workforce, leading to better job satisfaction, lower turnover intentions, and improved patient care delivery, which can ultimately contribute to the overall strengthening of the national healthcare systems.

Acknowledgement: The author would like to thank all the nurses who voluntarily participated and supported the completion of this study.

Conflict of Interest: Nil.

Funding Sources: Nil.

Data Availability Statement: The data that support the results of this study are available upon request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

CRedit Author Statement: The corresponding author contributed to the Conceptualization; Methodology; Validation; Data curation; Formal Data analysis; Investigation; Resources; Visualization; Writing – original draft; Writing – reviewing and editing, Visualization; and Supervision.

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