BMC Public Health

RESEARCH

Open Access

Perceived psychosocial safety climate (PSC) level and its association with occupational outcomes among clinical unit healthcare workers in a Malaysian hospital: a three-wave longitudinal study

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Abstract

Introduction The Psychosocial Safety Climate (PSC) is a potent organizational construct. It concerns senior management values and attitudes toward care and practices in relation to employees' psychosocial well-being and psychological outcomes.

Objective This study aimed to determine the PSC level, its distribution and associated factors as perceived by healthcare workers in clinical units of a tertiary level hospital in Malaysia.

Methods A three-wave longitudinal study over one year was conducted using a self-administered questionnaire among healthcare workers in the University of Malaya Medical Centre (UMMC), Malaysia. Data were collected at baseline (Time 1, T1), three-month interval (Time 2, T2) and nine-month interval (Time 3, T3) from 618 participants who remained enrolled throughout. The validated Malay version of the PSC-12 Scale questionnaire was used to measure psychosocial safety climate level.

Results We found the PSC score to have a median of 42.88. There was a good psychosocial work environment (mean PSC score 41.44 ±8.27). The majority (61.1%) of study participants perceived a high PSC score (≥ 41) which is concordant with a good psychosocial work environment. Low PSC score (≤ 37) was perceived by 28.5% and 9.0% perceived a moderate PSC score (38–40). PSC scores improved significantly from T1 to T3 (mean difference = 1.417, 95% CI 3.037, 5.456). A higher PSC score was reported among Malay healthcare workers compared to the non-Malay group (mean difference = 3.16, 95% CI 0.007, 6.315). Nurses and paramedics had lower PSC scores than support staff (mean difference = -2.50, 95% CI -4.310, -0.069). Despite a good perceived PSC level, our study did not reveal significant association between PSC level with sickness-leave (B = − 0.03, $p = 0.624$, 95% CI − 0.144, 0.087) and job performance (B = − 0.02, $p = 0.443$, 95% CI -0.090, 0.040), even after adjusting for other socio-demographic and occupational covariates.

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Conclusion Perceived PSC was high among participating healthcare workers with a progressively better PSC score at each timepoint over the one-year study. The support group of healthcare workers perceived better PSC scores possibly due to lesser responsibility compared to nurses and paramedics. An improved study design with additional variables to measure the job performance and work engagement is essential to provide vigorous evidence in future research.

Keywords Psychosocial safety climate level, Healthcare worker, Job performance

Introduction

The healthcare industry faces persistent challenges. This in turn alter disease patterns, exacerbating health equity and equality issues between rural and urban settings. Modernization introduced the public-private healthcare model, an ever-rising cost of medical advances and technology, and spotlighted the issue of standard of care as a way of ensuring an optimum quality of service [1]. A series of health sector reforms [2] have created additional pressure bringing new opportunities and policy changes for healthcare workers. Furthermore, staff have had to contend with workforce shortages, workload pressure, subordinate-supervisor conflicts as well as exposure towards physical and psychological hazards [3, 4, 5].

Psychosocial hazard is known to be a major challenge in this context as it affects the mental well-being or mental health of the worker by overwhelming an individual's coping mechanism and impacting the worker's ability to work in a healthy and safe manner. It acts as the stressor to the development of work-stress related ill-health consequences. The International Labour Organization (ILO) define 'psychosocial hazard' as "the interactions between and among work environment, job content, organizational conditions and workers' capacities, needs, culture, personal extra-job considerations that may, through perceptions and experience, influence health, work performance and job satisfaction" [6].

In comparison with physical hazards, which requires a distinct measurement and whose impact depends on an individual's susceptibility; psychosocial hazard is determined greatly by how the person perceives them (cognition appraisal) [7]. This explains why psychosocial hazards has never been imperatively significant to the cause and effect in mental health problems. However, it is also grossly erroneous to only believe psychosocial hazard is just relevant to mental health and to leave behind its implication on physical health outcomes [8]. Psychosocial hazards at work are found in job design, the organization and management of work, and within the social environmental contexts of the workplace [9]. Multifactorial roles involved in the exposure of psychosocial hazards with the establishment of mental health consequences include personal and organizational factors.

Psychosocial Safety Climate (PSC) is defined as the shared perception of organizational policies, practices, and procedures for the protection of a worker's psychological health and safety [10]. PSC is commonly assessed at the organizational level in groups instead of at the individual level. The research field in PSC theory is not yet well established and was built on earlier work that recognized the link between occupational stress and occupational safety [11]. Instead of focusing on the physical or chemical hazard, which is more synonymous with the occupational health field, the psychosocial safety climate should include a psychological component which deals with human perception and their response to stress or more specifically termed as psychological hazard. It elaborates the concept in four main elements which are: *Management Support and Commitment for stress prevention through involvement and commitment*; *Management Priority to psychological health and safety versus productivity goals*; *Communication between the organization and employees on psychological health and safety issues*; and *Organizational Participation and Involvement in protecting workers' psychological health.*

Job performance refers to the effectiveness with which individuals execute their job responsibilities, encompassing both quality and quantity of work produced [12]. Higher job performance is associated with better organizational outcomes, including increased productivity and profitability. The interplay between psychosocial safety climate, work engagement, and job performance is crucial for contemporary organizations aiming to enhance productivity and employee well-being. A previous study has shown that the team level PSC was positively related to job engagement, mediated by learning opportunities; and PSC was related to performance mediated by job engagement [13]. It also supports the role of team level PSC as an antecedent to positive work conditions and outcomes.

In healthcare, the Psychosocial Safety Climate (PSC) framework is essential for understanding how a supportive work environment can protect employees' psychological health. PSC reflects the extent to which an organization prioritizes policies, practices, and procedures that promote mental well-being and mitigate work-related stress [14, 15]. In high-demand settings like healthcare where long working hours, unpredictable shift patterns, and intense job demands prevail the interplay between PSC and occupational characteristics becomes critically important. Our study is firmly grounded in the PSC framework and seeks to explore how a positive

psychosocial climate influences key aspects of occupational performance, such as job design, work engagement, job performance, and sickness leave.

The dynamic nature of healthcare work necessitates a longitudinal perspective to capture the evolving impact of PSC over time supported by other previous studies [16, 17]. By adopting a longitudinal design, our research follows healthcare workers across multiple time points, allowing us to account for intra-individual variability and temporal correlations. This approach not only provides a more precise estimate of how PSC influences occupational outcomes but also helps to clarify the causal pathways underlying these relationships. As such, our study offers a holistic and robust understanding of the long-term effects of PSC in the healthcare setting, a gap that has remained largely unaddressed in previous research.

Furthermore, as the first study to apply a longitudinal design to examine PSC association with occupational attributes within the Malaysian healthcare context, our research fills a critical gap in the literature. We anticipate that our findings will provide valuable insights that will inform future interventions and policy developments aimed at improving workplace mental health and overall employee well-being in high-pressure environments.

Materials and methods

Study design and participants

This was a longitudinal study (prospective cohort) over one year. This three-wave longitudinal study involved three rounds of data collection: (1) baseline data (Time 1 – at 0 month), (2) first follow-up data (Time 2 – at the 3 months) and (3) second follow-up data (Time 3 – at the 9 months).

For this study, 45 work units (15 clinics and 30 wards) from various clinical departments in the University of Malaya Medical Centre (UMMC) were randomly chosen. Ethics approval was granted by the University of Malaya Medical Centre Medical Ethics Committee (MEC 201311-0538) and written informed consent were obtained from the study participants. The study participants recruitment was on voluntary basis subjected to the inclusion criteria including full-time healthcare employees who had been employed in their respective units for a minimum duration of 6 months.

A multi-stage stratified sampling with probability proportional to size (PPS) was used in this research. Sample size was estimated using the "*Openepi* software" with power of study set at 80%, 95% confidence interval and an odds ratio (OR) of 1.39 [18]. After including a possible 20% attrition rate (loss to follow-up), the final target sample size was estimated to be 800 participants.

Materials and procedures

The study required three waves of primary data collection including baseline (first wave ~ T1), first follow-up (second wave ~ T2, 3 months after T1) and second follow-up (third wave ~ T3, at 6 months after T2). It started in December 2014 and ended in December 2015. The instruments used were mainly hardcopy sets of self-administered questionnaires for socio-demographic and occupational characteristics as well as the validated Malay version of PSC-12 scale which had been adapted from the original English version of PSC-12 scale [11]. The PSC score can be classified into ordinal categories; low PSC level (score of ≤ 37), moderate PSC level (score of between 38 and 40) and high PSC level (score of ≥ 41). Data on annual appraisal mark (proxy for job performance) and sickness leave (absenteeism) as proxy for work engagement taken during the year of study were also collected.

Statistical analysis

The collected data were entered into SPSS (Statistical Product and Service Solutions) version 21 via double entry. Data coding and checking were carried out to get rid of erroneous data entries and missing values. A series of back-ups of the digital data were made and kept in separate hard disks to prevent data loss. Underlying assumptions for related statistical analysis such as normality and homogeneity of variances were carefully checked.

Descriptive analyses were carried out to summarize the socio-demographic and occupational characteristics of the study participants, as well as the distribution of PSC scores. Univariate, bivariate, and multivariable analyses were carried out to look for relationships between independent and dependent variables. Repeated measures analysis of variance (ANOVA) with post-hoc pairwise comparisons and multiple linear regression, were used to test and validate the predictive models. A multicollinearity test was used to detect high correlations between variables included in the multivariable regression model. Variables had variance inflation factors below 5.0 suggesting a lack of multicollinearity. All independent variables from the bivariate analysis with *p-values* < 0.25 were included in the multivariable model. The selection and exclusion of predictors were carried out based on both theoretical frameworks and empirical evidence from prior research [19, 20]. Independent variables with *p*-values < 0.05 determined via multivariable analysis were considered significant in the final model. Interactions were assessed but none were found.

Results

Socio-demographic and occupational characteristics

A total of 836 participants entered the cohort at T1, with 76% of them (618 participants) remaining to complete

the three-wave data collection at T3. The median age of study participants was 28.08 years old, with a mean age of 31.52 (SD ± 9.40) years old. The youngest was 20 years old and the eldest was 59 years old. The majority of participants were females (89.6%), whilst only 10.4% were men, not surprising considering that nurses and paramedics accounted for 79.8% of participants compared to only 20.2% of participants from other professions. In terms of educational background, 76.2% of them reported completing tertiary level education which is also not surprising as the vast majority of study participants were nurses and paramedics. The rest (23.8%) of participants only completed secondary level education and comprised mainly support staff such as drivers, health attendants and those doing clerical work.

More than half (53.2%) of the study participants were married while the rest were single (either divorced, widowed or had not been married). Most (96.8%) were non-smokers. Although very few (19.9%) claimed to be physically active, only 8.3% reported having a chronic illness. This was not surprising as the study participants were generally younger staff who were less likely to have chronic illnesses.

Most (68.1%) study participants were in a medical-based work unit with only 31.9% in a surgical-based workplace. The median duration of employment at the current workplace was 6.12 years. A higher percentage of study participants worked in shifts (79.1%) compared to only 20.9% who worked normal hours.

The distribution and trend of PSC score

Tables 1 and 2 describes the distribution of the measured variable data and its magnitude of change throughout one year of this cohort study while Fig. 1 shows the change in PSC level over one year.

The median score of PSC was 42.88, indicating a good psychosocial work environment which contributes to a lower risk of adverse psychological outcome. On average, study participants also perceived good psychosocial work environment with a mean PSC score of 41.44 (SD ± 8.27). The majority (61.1%) of study participants perceived a high PSC level which is concordant with a good psychosocial work environment. Low PSC was perceived by 28.5% and 9.0% perceived a moderate PSC level. Meanwhile, PSC subscales which include managerial support, managerial priority, organizational communication and organizational participation showed a mean score between 10.01 (SD ± 2.40) and 10.76 (SD ± 2.15). Although the median PSC score is 42.88, exceeding the threshold of 41 and suggesting that the central tendency falls within the "high" range while the mean score is 41.44 ± 8.27. This slight difference indicates some variability within our sample, with a subset of respondents reporting lower scores that pull the mean down. Overall, these findings suggest that while the majority of our sample perceives a high PSC, there is a degree of heterogeneity, leading us to describe the general PSC level as borderline high.

In our analysis, the overall repeated measures ANOVA *p*-value was 0.002, indicating a significant difference across the three different time measures. Given this significance, we proceeded with post hoc Bonferroni pairwise comparisons. Our post hoc analysis revealed a significant improvement in PSC scores from Time 1 (baseline, ~ 0 months) to Time 3 (follow-up, 2–9 months), with *p*-value of 0.043, mean difference of 1.417 and a 95% CI of 3.037 to 5.456. This finding indicates progressive enhancement in PSC levels over the study period. This can clearly be seen in Fig. 1 where the PSC level shows an increasing trend.

Upon testing the difference in PSC scores for sociodemographic characteristics and occupational background, only ethnicity and job position demonstrated significant association with perceived PSC level as seen in Table 2. A significantly higher PSC score was seen among Malay healthcare workers compared to the non-Malay group (mean difference = 3.16, 95% CI 0.007, 6.315). The disparity in PSC scores between Malay and non-Malay

Table 1 Mean PSC scores at three different time points and post-hoc pairwise comparison test for different time points using repeated measures ANOVA

Time of data collection	Mean (± SD)	*Post-hoc Bonferroni test*			
		Pairwise Comparison	Mean Differences	P-value	95% C. I
Time 1 (T1)	41.328 (± 7.519)	T1 and T2	-0.084	0.230	-4.283, 1.015
		T1 and T3	-1.417	0.043	-5.465, -3.037
Time 2 (T2)	41.412 (± 7.689)	T2 and T1	0.084	0.230	-1.015, 4.283
		T2 and T3	-1.333	0.051	-2.261, 0.057
Time 3 (T3)	42.745 (± 7.693)	T3 and T1	1.417	0.043	3.037, 5.456
		T3 and T2	1.333	0.051	-0.057, 2.261

Footnote

PSC = Psychosocial Safety Climate

T1 = Time 1, T2 = Time 2, T3 = Time 3

Table 2 Mean differences in PSC scores according to sociodemographic and occupational characteristics

Variables	Mean (±SD)	Mean difference	95% CI
Gender			
Female	41.39 (±8.32)	-0.57	-3.044, 1.901
Male	41.96 (±7.86)		
Ethnicity			
Malay	41.63 (±8.28)	3.16	0.007, 6.315
Non-Malay	38.46 (±7.66)		
Marital status			
Single	41.69 (±8.47)	0.48	-0.993, 1.954
Married	41.21 (±8.08)		
Education status			
Secondary	41.74 (±9.39)	0.38	-1.358, 2.123
Tertiary	41.35 (±7.91)		
Physical activity level			
Active	41.33 (±7.87)	-0.58	-2.758, 1.600
Not active	41.91 (±9.85)		
Types of working hour			
Normal working hour	41.91 (±8.32)	0.59	-1.228,2.404
Shift	41.32 (±8.26)		
Work Unit Category/Disciplines			
Medical based	41.37 (±8.35)	-0.26	-1.865, 1.352
Surgical based	41.62 (±8.10)		
Job position			
Nurses and Paramedics	40.93 (±8.24)	-2.50	-4.310, -0.069
Support group	43.43 (±8.13)		

healthcare workers reflects the sample composition as the majority of our study respondents were Malay healthcare workers. It influenced the overall variability and contributed to the observed higher PSC scores among this group. Nurses and paramedics had significantly lower PSC scores compared to healthcare workers from the support group (mean difference = -2.50, 95% CI -4.310, -0.069).

PSC and occupational outcomes

Occupational outcome measures i.e. sickness-leave and job performance, were analysed to examine the variability of PSC in affecting different occupational outcome measures. As reported in Tables 3 and 4, PSC did not significantly predict sickness-leave and job performance, even after adjusting for other socio-demographic and occupational covariates. The final regression model predicting sickness-leave is:

Sickness-Leave (Y) = β_0 + β_1 (Ethnicity) + β_2 (Types of Working Hour) + β_3 (Smoking Status) + ϵ (error term). Substituting the obtained result: Sickness Leave, Y = 17.27 – 6.60 (Ethnicity) – 4.02 (Types of Working Hour) + 6.88 (Smoking Status) + ϵ.

Where;

- $\beta_0 = 17.27$ *(intercept)*,
- $\beta_1 = -6.60$: *Ethnicity is coded as 1 for Malay and 0 for Non-Malay*,
- $\beta_2 = -4.02$: *Types of Working Hour is coded as 1 for Shift Work and 0 for Normal Working Hours*,
- $\beta_3 = 6.88$: *Smoking Status is coded as 1 for Smoker and 0 for Non-Smoker*,
- ϵ: *error term.*

On the other hand, job performance was significantly predicted by age ($p < 0.001$), duration of employment ($p = 0.004$), work unit category ($p = 0.030$) and smoking status ($p = 0.036$). From the model in Table 4, the healthcare worker's job performance increases with increasing age and duration of their work experience. Healthcare workers in medical-based work units also performed better compared to those in surgical-based units. An inverse association was found between job performance and smoking, where smokers had lower job performance than non-smokers. Despite the non-significant p-value ($p > 0.05$) of the PSC to predict sickness-leave and job performance, this variable was retained (forced) in the regression models because it was the primary independent variable (IV) under investigation in relation to the outcomes of interest.

Discussion

This study utilised a one-year longitudinal study design (prospective cohort) in a three-wave data collection; Time 1 (T1), Time 2 (T2) and Time 3 (T3). Previous studies have reported that a one-year longitudinal study is not long enough or adequate enough to exert a substantive

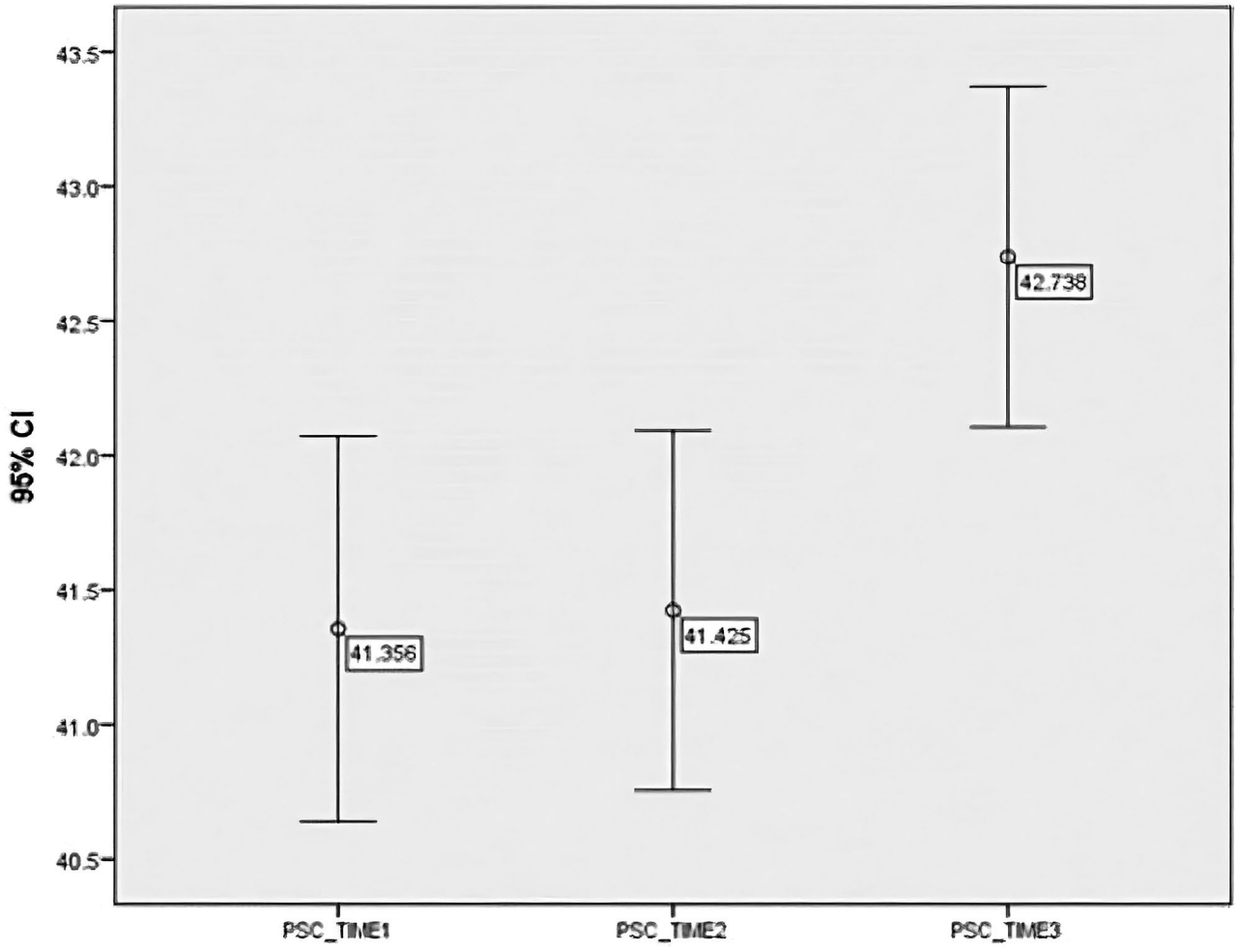

Fig. 1 Plot showing change in PSC level over one year among healthcare workers

Table 3 Sickness-leave versus PSC (Time 1) and other sociodemographic and occupational variables using multiple linear regression

Variables	B (SE)	β	*P*-value	95% CI
PSC	-0.03 (0.06)	-0.02	0.624	-0.144, 0.087
Ethnicity	-6.60 (2.08)	-0.14	0.001	-10.691, -2.482
(Malay versus Non-Malay)				
Types of working hour	-4.02 (1.16)	-0.15	0.002	-6.583, -1.404
(Shift versus Normal working hour)				
Smoking status	6.88 (3.11)	0.10	0.027	0.769, 12.991
(Yes versus No)				
Constant	17.27			
R^2	0.06			
Adjusted R^2	0.05			

Footnote

SE = Standard Error, PSC = Psychosocial Safety Climate

Ethnicity, Types of working hour and Smoking status are categorical variable

effect as compared to two years of longitudinal study [21], but there is a condition called 'boundary restriction' that renders the one-year follow-up to be more feasible in this context [22]. Our study is the first in Malaysia to utilize a three-wave data collection approach, conducted at 3-, 6-, and 9-month intervals over a one-year period, to examine perceived PSC levels and their association with selected occupational outcomes among healthcare workers. By focusing on this specific population, the research makes a significant contribution to the current body of

Table 4 Job performance score versus PSC (Time 1) and other sociodemographic and occupational variables using multiple linear regression

Variables	B (SE)	β	*P*-value	95% CI
PSC	-0.02 (0.03)	-0.04	0.443	-0.090, 0.040
Age	0.31 (0.05)	0.41	< 0.001	0.217, 0.393
Work Unit category/Disciplines (Medical versus Surgical)	1.35 (0.62)	0.10	0.030	0.131, 2.577
Duration of employment	0.20 (0.07)	0.18	0.004	0.064, 0.329
Smoking status (Yes versus No)	-3.65 (1.73)	-0.09	0.036	-7.060, -0.240
Constant	78.46			
R^2	0.30			
Adjusted R^2	0.29			

Footnote

SE = Standard Error, PSC = Psychosocial Safety Climate

Work Unit and Smoking status are categorical variable

knowledge, offering insights into occupational health patterns within the Malaysian healthcare setting.

Our research highlights important findings that contribute to the understanding of the perceived PSC among hospital-based healthcare workers. To the best of our knowledge, this has never been done in Malaysia. It provides insights for workplace psychosocial latitude by measuring the perceived psychosocial environment not only at the organizational level but also at the individual level. In addition, the individual's subjective interpretation and evaluation of the social and psychological aspects of their surroundings at workplace was shown to change over time in our study. This has never been highlighted in any similar previous research.

We found that the PSC levels in the UMMC clinical units were quite high with a total mean score of 41.44 (SD ± 8.27). More than half of enrolled healthcare workers perceived their work environment to have high PSC levels (reported in Table 1); indicating a low risk of developing adverse psychological outcomes [23]. We also saw that over the three time points there was a significant increasing pattern of the perceived PSC level among study participants. This significant difference was observed at the 6-month interval (between T2 and T3) and the 9-month interval (between T1 and T3). Despite our study being adequately powered, we could not find any association between PSC and two outcomes (sickness-leave and job performance) despite the hypothesis that PSC as a work environment construct would possibly be associated with work-related outcomes such as sickness-leave and job performance. There is research which reported PSC to be related to job performance mediated by job engagement [24], but none have explored the relationship between PSC and absenteeism or even sickness-leave. The negative findings documented in this research could result from inadequate variable integration in the relationship establishment. Occupational outcomes, such as job performance and work engagement, are inherently complex and likely influenced by a range of unmeasured variables, including individual resilience, team dynamics, and broader organizational culture. Additionally, the measurement and operationalization of key constructs might have limited our ability to fully capture these nuanced relationships. The study framework that excludes the Job Demand-Resource (JD-R) theory might possibly dilute the PSC construct influence towards the outcome variable. The integration of JD-R elements may give a better reflection of PSC effects on the measured outcomes.

It has been reported elsewhere that policy transformation like privatisation of healthcare services and managerial change can contribute to the dynamism of the hospital climate including the psychosocial work environment [25]. In the UMMC itself, a number of progressive Occupational Safety and Health (OSH) initiatives were introduced during the time our research was conducted. This included active promotions on safety and health matters related to occupations, programs and weekly awareness events related to OSH, and establishment of a comprehensive database on occupational related injuries like needle stick injuries (NSI). There was also great engagement with ward managers by the OSH team to maintain the communication and information flow related to OSH initiatives. The temptation is to say that this increase in PSC is simply a reflection of a psychosocially-conducive work environment in the UMMC clinical units but we need to be cautious in our interpretation. There is always the possibility of a 'Hawthorne effect' being responsible for the improvement in PSC as there was no PSC data prior to this study when there were fewer OSH initiatives. The 'Hawthorne effect' refers to the phenomenon of altered behaviour or performance resulting from awareness of being part of a study [26]. In this case, the enrolled healthcare workers could possibly

have given a more favourable answer during the next round of data collection as they might have thought that they needed to score well and produce a better result. It is quite interesting that the current study reported the UMMC as having a good psychosocial climate despite other studies talking about how bad the work environment in a hospital can be [27, 28]. A positive change in PSC over time as found in our longitudinal study further enriches the body of knowledge on PSC that could not be obtained from previously conducted PSC research that used a cross-sectional design with participants of a similar background [29, 30]. By fostering a positive PSC, organizations can not only elevate employee engagement but also drive improved job performance. To implement these ideas effectively, organizations should prioritize a targeted employee support program focusing on mental health initiatives, promote open channels of communication, enhanced leadership and training and establish policies that reinforce psychosocial safety. Such efforts can lead to a motivated workforce that excels in performance and contributes positively to the overall organizational culture.

For healthcare workers, psychological occupational hazards stand as a formidable threat, given that daily confrontations with highly stressful situations demanding significant expertise, knowledge, and both physical and mental aptitude. Their routine exposure to crisis scenarios, accidents, and tragedies can deeply impact their mental well-being, with frequent exposure to extreme suffering and death potentially leading to psychological exhaustion and trauma. Operating under time constraints in a challenging and often changing environment further compounds the stress. Therefore, the future research direction of PSC has great potential especially in Malaysia. We are of the opinion that it is also important to measure the psychosocial environment in the primary care setting which was out of the scope of our research. Given its different emphasis and working hours, it is likely that a primary care setting will display different work dynamics compared to a hospital-based work setting which would further expand PSC and occupational health field research. A comparison between the urban-rural work environment setting is also potentially useful as the perceived PSC might be different with the presence of different socioeconomic backgrounds between urban and rural populations.

Conclusion

Our research is the first to attempt to understand the perceived PSC over a one-year duration among hospital-based healthcare workers in Malaysia and highlights important findings that contribute to our understanding of PSC in a developing country. It provides insights for workplace psychosocial latitude by measuring the perceived psychosocial environment and studying how it changes over time, which has never been highlighted in similar previous research. The strength of this study rests on its ability to provide a different dimension on research in this field. Commonly in discourse, stress-related studies among health personnel target individual outcomes without taking into account organisation constructs and environment. The integration of PSC as a concept adds immense value and broadens the occupational health research field specifically among healthcare workers. This project transcends disciplines in that this is not solely 'clinical occupational health' research per se but also includes 'psychology' and 'management' elements in its content.

Acknowledgements
The authors would like to express their gratitude to all study participants from the University of Malaya Medical Centre (UMMC), Malaysia.

Author contributions
NAB, AB and MI conceptualise the study. NAB was responsible for material preparation and data collection. Statistical analysis was performed by NAB and validated by AB and MI. The first draft of the manuscript was written by NAB and was critically revised by AB. All authors reviewed and edited the final draft of the manuscript.

Funding
This study was not funded by any government or non-governmental organization.

Data availability
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
Ethics approval was granted by the University of Malaya Medical Centre Medical Ethics Committee (MEC 201311-0538) and written informed consent were obtained from the study participants. The conducted research is adhered to the Declaration of Helsinki.

Consent for publication
Not Applicable.

Competing interests
The authors declare no competing interests.

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Received: 3 December 2024 / Accepted: 1 April 2025
Published online: 15 April 2025

References

1. Armstrong BK, Gillespie JA, Leeder SR, Rubin GL, Russell LM. Challenges in health and health care for Australia. The Medical Journal of Australia; 2007.
2. Eyk HV, Baum F, Blandford J. Evaluating healthcare reform the challenge of evaluating changing policy environments. SAGE; 2001.
3. Matheson A, O'Brien L, Reid J-A. The impact of shiftwork on health: a literature review. J Clin Nurs. 2014;23(23/24):3309–2012.

4. Salem AH. Critical care nurses' perceptions of ethical distresses and workplace stressors in the intensive care units. Int J Nurs Educ. 2015;7(2):93–7.
5. Rusli B, Edimansyah B, Naing L. Prevalence and associated factors of stress in dental healthcare workers of a higher institution of learning in Kelantan. Archives Orofac Sci. 2006;1:51–6.
6. ILO. Psychosocial factors at work: Recognition and control. 1986;56.
7. Rick J, Briner RB. Psychosocial risk assessment: problems and prospects. Occup Med. 2000;50(5):310–4.
8. Way KA. Psychosocial Hazard and Occupational Stress. In: Australia SIO, editor. Foundation Science In HaSPA (Health and Safety Professionals Alliance), The Core Body of Knowledge for Generalist OHS Professionals 2012.
9. Cox T, Griffiths A, Rial-González E. Work-related stress. Work-related stress. European Agency for Safety and Health at work; 2000.
10. Dollard MF. Psychosocial safety culture and climate; definition of a new construct. Adelaide: Work and Stress Research Group, University of South Australia; 2007.
11. Garry BH, Dollard MF, Coward J. Psychosocial safety climate: development of the PSC-12. Int J Stress Manage. 2010;17(4):353–83.
12. Campbell CH, Ford P, Rumsey MG, Pulakos ED, Borman WC, Felker DB et al. Development of multiple job performance measures in a representative sample of jobs. 1990;43(2):277–300.
13. Idris MA, Dollard M, Tuckey M. Psychosocial safety climate as a management tool for employee engagement and performance: A multilevel analysis. Int J Stress Manage. 2015;22.
14. Dollard MF, Dormann C, Idris MA. Psychosocial safety climate: a new work stress theory and implications for method. Springer; 2019.
15. Kelloway EK, Day ALJCJBSR. Building healthy workplaces: what we know so Far. 2005;37(4):223.
16. Loh MY, Idris MA, Dollard MF, Isahak M. Psychosocial safety climate as a moderator of the moderators: contextualizing JDR models and emotional demands effects. J Occup Organizational Psychol. 2018;91(3):620–44.
17. Yulita, Idris MA, Dollard MF. Psychosocial safety climate: past, present, and future research. In: Shimazu A, Bin Nordin R, Dollard M, Oakman J, editors. Psychosocial factors at work in the Asia Pacific: from theory to practice. Cham: Springer International Publishing; 2016. pp. 89–134.
18. Ylipaavalniemi J, Kivimäki M, Elovainio M, Virtanen M, Keltikangas-Järvinen L, Vahtera J. Psychosocial work characteristics and incidence of newly diagnosed depression: a prospective cohort study of three different models. Soc Sci Med. 2005;61(1):111–22.
19. Zadow A, Dollard M, Dormann C, Landsbergis P. Predicting new major depression symptoms from long working hours, psychosocial safety climate and work engagement: a population-based cohort study. BMJ Open. 2021;11:e044133.
20. Amoadu M, Ansah EW, Sarfo JO. Influence of psychosocial safety climate on occupational health and safety: a scoping review. BMC Public Health. 2023;23(1):1344.
21. Doest L, Jonge J. Testing causal models of job characteristics and employee well-being: A replication study using cross-lagged structural equation modelling. J Occup Organizational Psychol. 2006;79(3):499–507.
22. Dormann C, van de Ven B. Timing in methods for studying psychosocial factors at work. In: Dollard MF, Shimazu A, Bin Nordin R, Brough P, Tuckey MR, editors. Psychosocial factors at work in the Asia Pacific. Springer Netherlands; 2014. pp. 89–116.
23. Bailey TS, Dollard MF, Richards PA. A National standard for psychosocial safety climate (PSC): PSC 41 as the benchmark for low risk of job strain and depressive symptoms. J Occup Health Psychol. 2015;20(1):15.
24. Idris MA, Dollard MF, Tuckey MR. Psychosocial safety climate as a management tool for employee engagement and performance: A multilevel analysis. Int J Stress Manage. 2015;22(2):183–206.
25. Walston SL, Al-Omar BA, Al-Mutari FA. Factors affecting the climate of hospital patient safety: A study of hospitals in Saudi Arabia. 2010;23(1):35–50.
26. Campbell JP, Maxey VA, Watson WA. Hawthorne effect: implications for prehospital research. Ann Emerg Med. 1995;26(5):590–4.
27. Tsai Y-C, Liu C-H. Factors and symptoms associated with work stress and health-promoting lifestyles among hospital staff: a pilot study in Taiwan. 2012;12(1):199.
28. Escribà-Agüir V, Martín-Baena D. & Pérez-Hoyos. Psychosocial work environment and burnout among emergency medical and nursing staff. Int Arch Occup Environ Health. 2006;80(127).
29. Dollard MF, McTernan W. Psychosocial safety climate: a multilevel theory of work stress in the health and community service sector. Epidemiol Psychiatric Sci. 2011;20(04):287–93.
30. Idris MA, Dollard MF, Coward J, Dormann C. Psychosocial safety climate: conceptual distinctiveness and effect on job demands and worker psychological health. Saf Sci. 2012;50:19–28.

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