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Study on Current Status and Influencing Factors of Work Engagement Among Specialist Nurses in Maternal and Child Health Care Institutions

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Research Article

Keywords: Specialist nurses, Work engagement, Career plateau, Professional pride

Posted Date: March 11th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-8830074/v1

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Additional Declarations: No competing interests reported.

Abstract

Objective: To explore the potential profiles and influencing factors of work engagement among specialist nurses in maternal and child health institutions, providing evidence to enhance this nursing group's work engagement levels.
Methods: Convenience sampling was employed between November 2024 and January 2025, recruiting 344 specialist nurses from 17 tertiary maternal and child health institutions within the Guangxi Zhuang Autonomous Region. A questionnaire comprising a general information form, the Specialist Nurse Work Engagement Scale, the Career Plateau Scale, and the Professional Pride Scale was administered. Latent profile analysis classified work engagement levels among these nurses, with univariate analysis and binary logistic regression examining factors influencing distinct profiles. **Results:** Two latent profiles emerged: low work engagement-low work recognition (41.9%) and high work engagement-high work agency (58.1%). Binary logistic regression analysis revealed that age, weekly night shift frequency, career plateau, and professional pride significantly influenced work engagement profiles (all $P < 0.05$).

Conclusion: Heterogeneity exists in the work engagement levels of specialist nurses within maternal and child health institutions. Nursing managers should implement targeted strategies based on the distinct work engagement characteristics of these nurses, prioritising those with low seniority, high weekly night shift counts, career plateau experiences, and low professional pride. This approach aims to enhance work engagement among specialist nurses, thereby safeguarding the quality of nursing services.

Trial registration: not applicable.

1 Introduction

In 1990, American scholar Kahn[1] first introduced the concept of work engagement. Subsequently, Schaufeli et al[2] defined work engagement as a positive, dynamic state of work in which employees exhibit high energy levels and a strong sense of professional identification, characterised by vigour, dedication and absorption, constituting a positive experience. The National Health Commission, in its Maternal and Child Health Safety Action Enhancement Plan (2021–2025), mandates further improvements in maternal and child health services, refining the critical care system for high-risk pregnant women and newborns to deliver safe, effective, accessible, and compassionate high-quality maternal and child health services[3]. Specialist nurses within maternal and child health institutions play a crucial role in enhancing critical maternal care capabilities, strengthening safe childbirth practices, improving women's reproductive health, and safeguarding neonatal safety and wellbeing. Research indicates that nursing quality correlates with nurses' work engagement, with highly engaged nurses perceiving greater quality in their care delivery[4]. Research indicates that specialist nursing staff generally exhibit high levels of work engagement, though this is influenced by multiple factors[5]. A career plateau refers to a stage in an individual's professional journey where prospects for advancement become limited[6]. Studies suggest that encountering such plateaus adversely affects both nurses' career progression and organisational stability, hindering the optimal utilisation of nursing human resources and the full realisation of their professional potential[7]. Professional pride among nurses denotes the positive emotions experienced upon successfully completing nursing tasks[8], contributing to enhanced professional standing, strengthened occupational identity, and increased job satisfaction[9]. However, no existing research has examined the work engagement status or heterogeneity among specialist nurses in maternal and child health institutions. This study surveyed specialist nurses from 17 tertiary maternal and child health institutions within the Guangxi Zhuang Autonomous Region to explore the characteristics of latent profile categories of work

engagement and their influencing factors. The aim is to provide theoretical foundations for nursing managers in maternal and child health institutions to implement management strategies for specialist nurses.

2 Subjects and Methods

2.1 Study Subjects

Convenience sampling was employed to select 344 specialist nurses from 17 tertiary maternal and child health care institutions within the Guangxi Zhuang Autonomous Region between November 2024 and January 2025.Inclusion criteria:Nurses holding specialist nurse training completion certificates from the Chinese Nursing Association, Guangxi Professional Nurse Certification Committee, or Chinese Maternal and Child Health Association, with at least one year's post-certification experience; Practising at maternal and child health institutions within Guangxi, with over six months' continuous service in a specific department. Exclusion criteria: current temporary assignment to other hospital departments, sick leave, or further training. Based on the principle of a sample size being 5–10 times the maximum number of scale items [10], the maximum item count in this survey is the Specialist Nurse Work Engagement Scale (32 items). The calculated sample size ranges from 160 to 320 participants. Accounting for 20% invalid questionnaires, the estimated sample size is 192–384 participants, with 355 ultimately included. All methods in this study were performed in accordance with the Declaration of Helsinki. This study was reviewed and approved by the ethics committee of Maternal and Child Health Hospital of Guangxi Zhuang Autonomous Region(**NO.20233-75**). All participants provided informed consent and participated voluntarily.

2.2 Survey tool

2.2.1 General Information Questionnaire

In accordance with the content and objectives of this study, a general demographic questionnaire has been designed based on clinical practice. This includes: gender, age, initial educational attainment, highest educational qualification, professional title, position, years of service, marital and childbearing status, current department, category of specialist nurse, night shift arrangements, participation in specialist nurse clinics, and designation as a key nursing research member within the department.

2.2.2 Specialty Nurse Work Engagement Scale

This scale was developed by Schaufeli et al[11]Building upon this framework, Chinese scholars Qin Hui et al[12]adapted it to suit the professional characteristics of specialist nursing in China and the psychological traits of specialist nurses, creating a scale for measuring work engagement among specialist nurses within the Chinese cultural context. The scale comprises five dimensions: work attitude (8items), work value (6items), work recognition (4items), work initiative (9items), and work focus and enthusiasm (5items), totalling 32 items. Each item employs a 5-point Likert scale, scored from 1 to 5 corresponding to never, rarely, occasionally, often, and always respectively. The total score ranges from 32 to 160 points, with higher scores indicating greater work engagement. The overall Cronbach's α coefficient for the scale is 0.958, with split-half reliability of 0.895. The Cronbach's α coefficients for each dimension range from 0.827 to 0.905, with split-half reliability ranging from 0.766 to 0.868.

2.2.3 Career Plateau Questionnaire

This scale was developed by Xie Baoguo et al[13], comprising 16 items across three dimensions: hierarchical plateau (4items), content plateau (6items), and centralised plateau (6items). It includes 4 forward-scoring items and 12 reverse-scoring items. The scale employs a six-point Likert scale, where 1 denotes ‘strongly disagree’ and 6 denotes

‘strongly agree’. Higher scores indicate more severe career plateauing among the population. The overall Cronbach's α coefficient for the scale is 0.91, with individual dimension coefficients ranging from 0.84 to 0.87.

2.2.4 Nursing Professional Pride Scale

This scale was developed by Jeon et al[14]in South Korea and subsequently adapted into Chinese by Yu Zijuan et al[15].It comprises five dimensions: professional identity, role satisfaction, problem-solving role, sense of self-achievement, and intention to remain in employment, encompassing 27 items. The scale employs a five-point Likert scale, with responses ranging from “Strongly Disagree” to “Strongly Agree” scored from 1 to 5 respectively. Higher scores indicate greater levels of professional pride among nurses. The Chinese version of the Professional Pride Scale demonstrated a Cronbach's α coefficient of 0.929 and a test-retest reliability coefficient of 0.923. The Cronbach's α coefficients for the five dimensions ranged from 0.937 to 0.987.

2.3 Data collection methods

All questionnaires for this survey were distributed via WenJuan Xing and completed anonymously. Upon collection, responses were meticulously reviewed and cross-checked to exclude invalid entries. Data entry was conducted through a dual-verification process to minimise errors, ensuring the integrity, authenticity and reliability of the findings. A total of 355 questionnaires were distributed, with 344 valid responses retrieved, representing an effective response rate of 96.9%.

2.4 Statistical methods

Using scores across five dimensions of work engagement as manifest indicators, a latent profile model was constructed using Mplus 8.0 software. Profiles ranging from one to four were sequentially fitted. Profile model evaluation metrics: Information criteria: Akaike information criterion (AIC), Bayesian information criterion (BIC), and adjusted Bayesian information criterion (aBIC). Lower values for these three indicators indicate better model fit. Classification metrics: Entropy (entropy) ranges from 0 to 1, with higher values indicating superior model fit. Likelihood ratio test metrics: The Likelihood Ratio Test (LMR) and Bootstrap-based Likelihood Ratio Test (BLRT). A P-value < 0.05 indicates that the kth model outperforms the (k-1)th model. Data analysis was conducted using *SPSS 26.0*. Normally distributed quantitative data were presented as mean ± standard deviation, while categorical data were described using frequency and percentage. Inter-group variable differences were assessed using independent samples t-tests and chi-square tests respectively. Using the latent profile analysis classification results as the dependent variable, and the general characteristics, career plateau, and professional pride of specialist nurses in maternal and child health institutions as independent variables, binary logistic regression was employed to analyse influencing factors. A P value < 0.05 was considered statistically significant.

3 Results

3.1 Current Status of Specialist Nurses' Work Commitment, Career Plateaus, and Professional Pride in Maternal and Child Health Institutions

In this study, the total work engagement score for specialist nurses in maternal and child health institutions was (145.4±14.3) points, indicating a relatively high level; the total career plateau score was (32.44±8.39) points, reflecting a moderate level; and the total professional pride score was (114.84±17.74) points, also indicating a moderate level. See Table 1.

Table 1 Specialist Nurses' Work Engagement, Career Plateau, and Professional Pride Scores in Maternal and Child Health Care Institutions

Indicator	Project	Entries (number)	Total score	Entries evenly distributed
Specialty Nurse Work Engagement Scale	Work attitude	8	37.78±3.07	4.72±0.38
	Work Value	6	27.58±3.05	4.60±0.51
	Work recognition	4	17.68±2.67	4.42±0.67
	Work initiative	9	40.45±4.58	4.49±0.51
	Work enthusiasm and focus	5	21.90±2.76	4.38±0.55
	Total score	32	145.4±14.3	4.54±0.45
Career Plateau Questionnaire	Hierarchical Plateau	4	9.93± 3.02	2.41±0.75
	Content Plateau	6	10.83±2.98	1.81±0.50
	Centralised Plateau	6	11.97±4.65	2.00±0.78
	Total score	16	32.44±8.39	2.03±0.52
Nursing Professional Pride Scale	Character Satisfaction	6	25.29±4.16	4.21±0.69
	Professionalism	6	25.64±4.25	4.27±0.71
	Intention to remain in post	5	20.96±3.60	4.19±0.72
	Problem Solver	6	26.13±3.60	4.36±0.60
	Self-fulfilment	4	16.81±3.00	4.20±0.75
	Total score	27	114.84±17.74	4.25±0.66

3.2 A Potential Profile Category Model Analysis of Work Engagement Among Specialist Nurses in Maternal and Child Health Care Institutions

Using the five dimensions of work engagement as manifest variables, a latent profile model comprising four categories was constructed. As the number of categories increased, the AIC, BIC, and aBIC values progressively decreased, with all four categories achieving entropy values exceeding 0.9. When retaining two categories, AIC, BIC, and aBIC values were relatively high. Retaining three categories yielded comparatively lower information evaluation metrics, with BLRT and LMR values reaching statistical significance ($P < 0.05$). Retaining four categories resulted in LMR values failing to reach statistical significance ($P > 0.05$). Therefore, after comprehensively considering both model fit metrics and the practical significance of clinical classification, the two-category model was ultimately determined as optimal. See Table 2.

Table 2 Model Fitting Indices for Different Potential Profile Categories

Model	LL	AIC	BIC	aBIC	Entropy	BLRT	LMR	Category probability □%□
1	-4417.992	8855.983	8894.389	8862.667	-	-	-	1
2	-3812.022	7656.044	7717.495	7666.739	0.956	□ 0.001	□ 0.05	41.86/58.14
3	-3629.656	7303.311	7387.805	7318.016	0.955	□ 0.001	□ 0.05	21.8/25.29/52.9
4	-3558.398	7172.795	7280.333	7191.510	0.961	□ 0.001	□ 0.05	2.3/19.48/25.29/52.91

3.3 Characteristics and Nomenclature of Potential Profile Categories for Specialist Nurses' Work Engagement in Maternal and Child Health Care Institutions

The characteristics of the two latent profile categories for work engagement among specialist nurses in maternal and child health institutions are shown in Figure 1. Results indicate that Category C1 specialist nurses accounted for 41.9% (144 individuals), with relatively low scores across all work engagement dimensions and the lowest score in the work recognition dimension. This category is therefore named “Low Work Engagement Level - Low Work Recognition”. Category C2 specialised nurses constituted 58.1% (200 individuals), exhibiting relatively higher scores across all dimensions, particularly in the work agency dimension. This category was thus designated as high work engagement-high work agency.

3.4 Univariate Analysis of Potential Categories of Work Engagement Among Specialist Nurses in Maternal and Child Health Care Institutions

Results indicate statistically significant differences in work engagement levels among specialist nurses across different maternal and child health institutions, as measured by age, weekly night shifts, status as departmental research lead, career plateau scores, and professional pride scores (all $P < 0.05$).See Table 3.

Table 3 Univariate Analysis of Potential Categories of Work Engagement Among Specialist Nurses in Maternal and Child Health Care Institutions (n=344)

Project	C1（n=144）	C2（n=200）	x^2/F value	*P*
Gender			-	0.407
Female	143（99.31）	195（97.50）		
Male	1（0.69）	5（2.50）		
Age (years)			**5.689[a]**	**0.017**
＜35	**65（45.14）**	**65（32.50）**		
≥35	**79（54.86）**	**135（67.50）**		
Initial Qualification			0.623[a]	0.732
Technical Secondary School	48（33.33）	74（37.00）		
College Diploma	61（42.36）	83（41.50）		
Bachelor's Degree or Higher	35（24.31）	43（21.50）		
Highest Level of Education			0.125[a]	0.724
College Diploma	10（6.94）	12（6.00）		
Bachelor's Degree or Higher	134（93.06）	188（94.00）		
Current Professional Title			1.787[a]	0.409
Junior Level	30（20.83）	32（16.00）		
Intermediate Level	94（65.28）	133（66.50）		
Associate Senior Level or Higher	20（13.89）	35（17.50）		
Position			0.141[a]	0.707
Nurse	101（70.14）	144（72.00）		
Nursing Team Leader or above	43（29.86）	56（28.00）		
Years of Experience			3.117[a]	0.078
＜15	83（57.64）	96（48.00）		
≥15	61（42.36）	104（52.00）		
Marital Status			2.395[a]	0.122
Married	25（17.36）	23（11.50）		
Other	119（82.64）	177（88.50）		
Parental Status			2.634[a]	0.268
No children	31（21.53）	31（15.50）		
One child	52（36.11）	70（35.00）		
Two or more children	61（42.36）	99（49.50）		

Current Department			7.165[a]	0.127
Obstetrics	29（20.14）	48（24.00）		
Gynaecology	5（3.47）	16（8.00）		
Paediatrics and Neonatology	47（32.64）	62（31.00）		
Emergency and Critical Care	30（20.83）	25（12.5）		
Other	33（22.92）	49（24.50）		
Specialist Nursing Category			3.992[a]	0.407
Obstetrics	29（20.14）	46（23.00）		
Gynaecology	6（4.17）	15（7.50）		
Paediatrics and Neonatology	36（25.00）	38（19.00）		
Emergency and Critical Care	30（20.83）	35（17.50）		
Other	43（29.86）	66（33.00）		
Whether on night duty			2.023[a]	0.155
Yes	102（70.83）	127（63.50）		
No	42（29.17）	73（36.50）		
Number of night shifts per week (units)			6.024[a]	0.014
＜3	**80**（55.56）	**137**（68.50）		
≥3	**64**（44.44）	**63**（31.50）		
Whether participating in specialist nurse clinics			0.115[a]	0.734
Yes	28（19.44）	36（18.00）		
No	116（80.56）	164（82.00）		
Whether serving as departmental research backbone			12.629[a]	＜0.001
Yes	**57**（39.58）	**118**（59.00）		
No	**87**（60.42）	**82**（41.00）		
Career plateau score（$\bar{x}$ ±s，points）	**37.55±7.20**	**28.76±7.17**	11.200[b]	＜0.001
Professional pride score（$\bar{x}$ ±s，points）	**100.72±14.19**	**125.01±12.24**	-16.980[b]	＜0.001

Note：[a]denotes the χ^2 value，[b]denotes the *F* value

3.5 Multivariate Analysis of Potential Categories of Work Engagement Among Specialist Nurses in Maternal and Child Health Care Institutions

Using the latent categories of work engagement among specialist nurses in maternal and child health institutions as the dependent variable, a binary logistic regression analysis was conducted with variables statistically significant in univariate analysis as independent variables. Variable coding is detailed in Table 4. Goodness-of-fit tests yielded

Nagelkerke R^2 = 0.615, Cox & Snell R^2 = 0.457, and Hosmer-Lemeshow test P = 0.677, collectively indicating satisfactory model fit capable of explaining factors influencing specialist nurses' work commitment levels in maternal and child health institutions. See Table 5.

Table 4 Assignment of Independent Variables

Variable	Assignment method
Age	0=<35 1=≥35
Number of night shifts per week	0=<3 1=≥3
Whether a key research member of the department	0=No 1=Yes
Professional pride	Original value retained
Original value retained	Original value retained

Table 5 Results of Binary Logistic Regression Analysis on Factors Influencing Work Commitment Among Specialist Nurses in Maternal and Child Health Care Institutions

Independent Variables	*B*	□□□	*Wald* χ^2	*OR*	*95% CI*	*P*
Constant	-10.554	2.337	20.396	-	-	<0.01
Age	0.726	0.333	4.734	2.066	1.075~3.972	0.0300
Number of night shifts per week	-0.773	0.331	5.459	0.462	0.242~0.883	0.019
Whether a key research member in the department	-0.061	0.323	0.036	0.941	0.499~1.772	0.850
Career plateau total score	-0.061	0.03	4.096	0.940	0.886~0.998	0.043
Career pride total score	0.113	0.015	57.149	1.119	1.087~1.152	<0.01

4 Discussion

4.1 Specialist nurses in maternal and child health institutions demonstrated higher levels of work engagement, with notable heterogeneity observed across the cohort

Research findings indicate that the overall work engagement score for specialist nurses in maternal and child health institutions was (145.4 ± 14.3) points. Compared with the median scale score, this represents a high level overall and is significantly higher than relevant survey results for specialist nurses in other domestic regions [16]. This suggests that the work engagement level of specialist nurses in maternal and child health institutions with in the Guangxi Zhuang Autonomous Region is markedly higher than that of specialist nurses in other domestic regions.

Latent profile analysis revealed heterogeneous work engagement levels among specialist nurses in maternal and child health institutions, categorised into two groups: the first group exhibits high work engagement and high work

agency. Nurses in this category demonstrate high work engagement and proactive work agency, manifested through self-directed learning of specialist knowledge and skills, proactive problem-solving in clinical situations, and providing constructive professional advice to physicians. However, they experience low recognition, perceiving insufficient appreciation for their specialised nursing work from physicians, nursing colleagues, patients, and society. The second category exhibits low work engagement and low recognition. This aligns with Xu L's [5] survey findings, which also identified the recognition dimension as scoring lowest. Multiple contributing factors exist, including: specialist nurses in maternal and child health institutions lacking distinct professional advantages over general nurses; physicians possessing unclear perceptions of specialist nurses' professional scope; patients exhibiting gaps in understanding or misconceptions about ‘specialist nurses’; societal lack of public awareness regarding the value of specialist nursing; and undefined practice boundaries and fee structures for specialist nurses in certain regions. Nevertheless, these nurses demonstrate high work engagement, potentially because their intrinsic motivation for career choice and sense of professional growth outweigh the lack of external recognition. This suggests nursing managers should focus on such nurses, providing timely, targeted assistance and support. The National Nursing Development Plan (2021-2025) explicitly advocates strengthening nursing discipline development and advancing nursing talent cultivation [17]. Therefore, addressing the low recognition of specialist nurses and its underlying causes, the following recommendations are proposed: Maternal and child health institutions should provide platforms for specialist nurses to demonstrate their ‘specialist competencies,’ clarifying that “specialisation” represents the ‘advancement trajectory’ within the nursing profession; Specialist nurse promotion and performance schemes should be optimised; Multi-channel public education initiatives targeting patients and society should be implemented to promote home-based care delivery by specialist nurses; Responsibility and division of labour lists for specialist nurses should be developed to highlight their professional expertise and advantages; Relevant government departments should refine policies to clarify the scope of practice and fee structures for specialist nurses.

4.2 Factors Influencing the Work Commitment of Specialist Nurses in Maternal and Child Health Care Institutions

4.2.1 Age

In this study, specialist nurses aged over 35 in maternal and child health institutions were more likely to be categorised as having high work engagement levels and high work agency, consistent with the findings of Zhao Ling et al.[18]. This indicates that nurses with longer service tenure possess richer clinical experience. When confronting complex issues, they are better equipped to strike a balance between identity constraints and professional mission. By actively demonstrating their capabilities in the workplace, they foster positive interactions with their professional roles, enabling higher levels of work engagement. However, as the reserve force for future nursing leadership, the work engagement levels of junior nurses directly impact nursing quality and the future development of the nursing profession[19]. Consequently, nursing managers should assist junior nurses in establishing positive self-perceptions and professional cognitive frameworks, reinforcing their identification with core nursing values and sense of professional accomplishment. This approach will effectively enhance their work engagement and safeguard the quality of nursing services.

4.2.2 Number of Weekly Night Shifts

Specialist nurses in maternal and child health institutions working ≥3 night shifts per week were more likely to be classified in the low work engagement-low job recognition group. The greater the number of weekly night shifts undertaken by nurses, the more severe their symptoms of empathic fatigue became[20]. Empathic fatigue denotes the negative emotional state arising from nurses' prolonged, repeated exposure to others' mental and physical

suffering during patient care, representing a progressive and cumulative outcome[21]. Empathic fatigue exerts a direct negative predictive effect on work engagement; when nurses experience empathic fatigue, their work engagement levels diminish [22]. Furthermore, night-shift nurses face significantly higher demands regarding emergency skills and clinical judgement capabilities compared to day-shift nurses. Research indicates spontaneous human labour exhibits circadian rhythms, with labour initiation more frequently occurring at night[23]. Following the implementation of the three-child policy, the proportion of high-risk pregnancies has significantly increased[24], implying corresponding growth in obstetric resource allocation and pressure. Night-shift nurses in obstetrics and neonatal departments consequently face increased responsibilities in caring for high-risk mothers and newborns. Furthermore, research indicates that frequent night shifts lead to mental strain, disrupted sleep patterns, and physical and mental exhaustion[25], thereby inducing occupational burnout. Consequently, nursing managers should scientifically optimise rostering systems, improve the night shift working environment and support, and rationally allocate the workload of specialist nurses to alleviate night shift pressure and occupational burnout.

4.2.3Career Plateau

The findings indicate that the career plateau level in the low work engagement-low work recognition group was significantly higher than that in the high work engagement-high work motivation group (B = -0.061, P < 0.05). Within this study, specialist nurses constituted 41.9% of the low work engagement-low work recognition group, approaching half the total cohort. Career plateau status not only directly impacts the work performance of primary healthcare personnel but also directly influences their intention to leave [26-27]. Evidently, specialist nurses in maternal and child health institutions currently face a core contradiction between their career development needs and the mismatch with current institutional provision. Research indicates that providing multidimensional organisational support enhances perceived organisational support, thereby mitigating career plateau phenomena and reducing turnover intentions among nurses [28]. Consequently, nursing managers should: firstly, strengthen organisational commitment by fostering supportive team environments to enhance specialist nurses' sense of belonging and alleviate career plateau effects; secondly, assist these nurses in overcoming career development bottlenecks by expanding professional pathways and establishing diversified promotion channels, thereby incentivising their advancement towards clinical nursing expertise.

4.2.4 Professional Pride

The findings reveal that the professional pride levels of the high work engagement-high work recognition group were significantly higher than those of the low work engagement-low work recognition group (B=0.113, P□0.01), consistent with the conclusions of Yu Zijuan et al. [29]. This study found that higher levels of professional pride among nurses signify greater recognition of their nursing role and heightened expectations for future career development. Consequently, they are more willing to invest greater effort in their work, fostering increased creativity to achieve their objectives. Evidently, professional pride serves as a key intrinsic motivator driving high commitment and creativity among nurses. Nursing managers may therefore prioritise enhancing professional pride as a core management objective. This can be achieved by recognising the role value of specialist nurses within maternal and child health institutions and clarifying career progression pathways, thereby fostering greater work engagement.

5 Summary

Specialist nurses' work engagement within maternal and child health institutions can be categorised into two latent profiles: high work engagement-high work motivation and low work engagement-low work recognition. Nursing

managers in these institutions should focus on specialist nurses with low seniority, high weekly night-shift counts, career plateauing, and low professional pride. Targeted interventions to enhance specialist nurses' work engagement are required to further elevate maternal and child health service standards. This study conducted a cross-sectional survey of 344 specialist nurses from 17 tertiary maternal and child health institutions within Guangxi Zhuang Autonomous Region only. The single source of sampling does not represent the national or other regional contexts. Future research may expand the sample scope, employ stratified sampling methods, and include medical institutions from different provinces to enhance the generalisability of findings.

Declarations

Author Contributions

Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data: F. Huang, X.R. Lin, Z.F. Zhang, Y.E. Lai, J.M. Liu, W.P. Zhao[2], M. Du, S.M. Cao, C.Y. Liang. Involved in drafting the manuscript or revising it critically for important intellectual content: F. Huang, X.R. Lin, Z.F. Zhang, Y.E. Lai, J.M. Liu, W.P. Zhao[2], Y.L. Yao, Y. Wen, M. Du, S.M. Cao, C.Y. Liang. Given final approval of the version to be published; each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content: F. Huang, X.R. Lin, Z.F. Zhang, Y.E. Lai, J.M. Liu, W.P. Zhao[2], Y.L. Yao, Y. Wen, M. Du, S.M. Cao, C.Y. Liang. Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: F. Huang, X.R. Lin, C.Y. Liang.

Funding Information

Self-funded scientific research project by the Health Commission of Guangxi Zhuang Autonomous Region (Z-A20240341)

Acknowledgements

We apperciate the participants for their contributions

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Data Availability Statement

The dataset used or analyzed during the current study is available from the corresponding author upon reasonable request.

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Figures

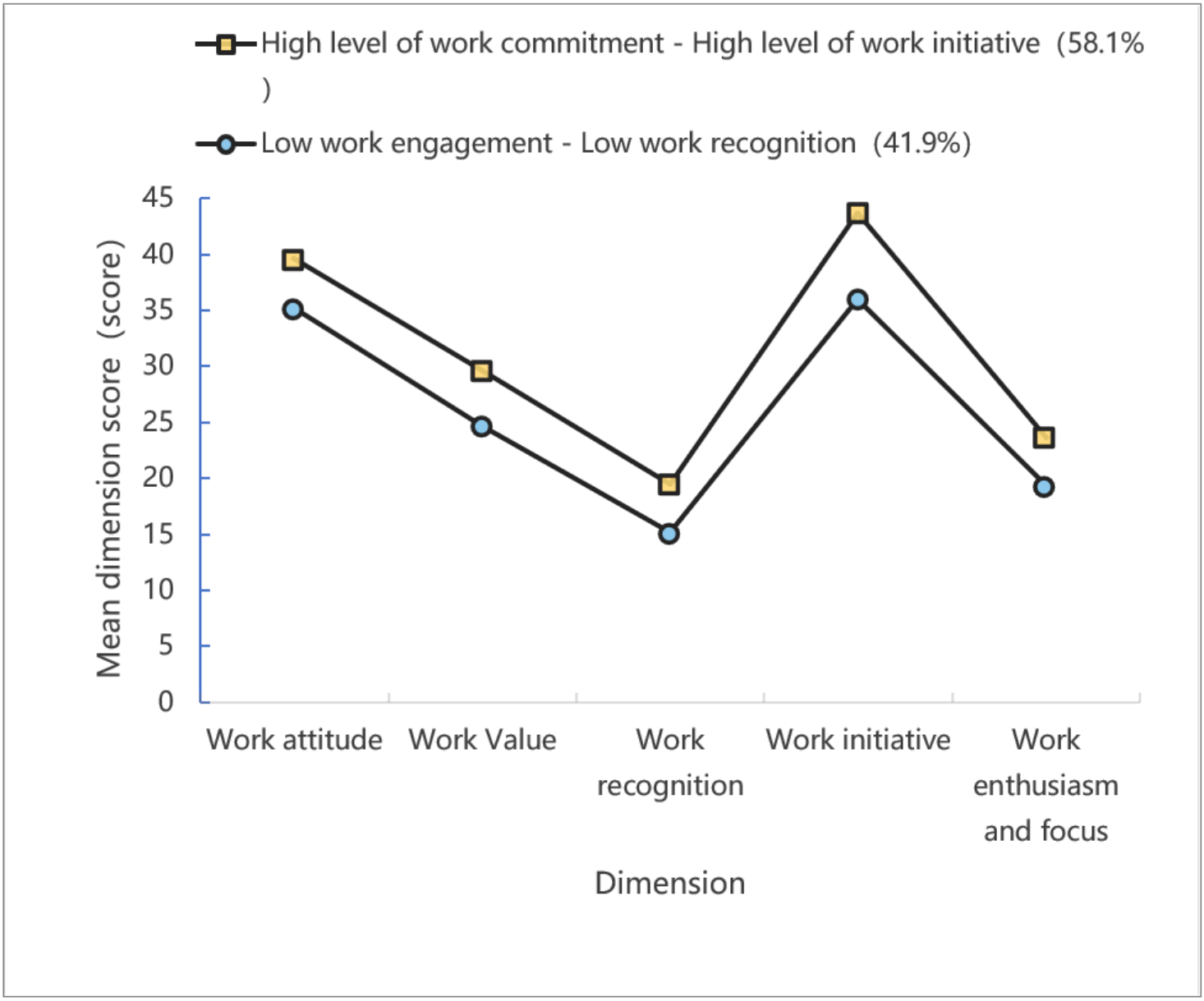


Figure 1

Potential Profile Characteristics of Specialist Nurses' Work Engagement in Maternal and Child Health Care Institutions