International Journal of Recent Advances in Multidisciplinary Topics
Volume 7, Issue 8, August 2026
www.ijramt.com | E-ISSN: 2582-7839 | RESAIM Publishing | www.resaim.com

The Determinants of Nurses Engagement: A Systematic Review

Alarawi Ibrahim Makazi[1*], Hafizah Che Hassan[1]
[1]*Lincoln University College, Malaysia*

***Abstract*: This systematic literature review explores determinants of engagement among nurses across various specialties and types of care. Following PRISMA guidelines, a search and a citation chain were used. Out of the required studies, 49 were included after a citation chain. A binary literature review matrix along with a narrative-thematic synthesis identified 14 determinants and/or engagement factors: leadership, organizational support, work environment, team climate, job resources, autonomy, recognition, career growth, psychological capital, self-efficacy, resilience, meaningful work, workload stress and work-life balance. The majority of the studies cited workload stress, organizational support, job resources, the work environment, meaningful work and balance between work and personal life. Support-oriented leadership and organizational support, along with favorable practice environments and usable job resources supported professional development and meaningful work. These typically led to higher levels of engagement. On the contrary, chronic overload, worries about work, psychosocial stress, workplace violence, role stress, and lack of recuperation typically showed lower engagement. While these are generally true, some of these were inconsistent and depended on the context and the supports available. The review provides an integrated resource-demand typology and identifies areas that would benefit from longitudinal and intervention research.**

***Keywords*: nurses engagement, work engagement, nursing workforce, organizational support, job resources, work environment, systematic literature review.**

1. Introduction

Engagement in work is beneficial for nurses and the healthcare sector, particularly for providing continuous care. Engaged nurses are better equipped to manage the complicated demands posed by evolving clinical circumstances, construct and streamline therapeutic processes, gain and apply lessons from nursing practice, and continue to provide nursing services. Engagement is typically and readily perceived as comprising vigor, dedication, and absorption, and is analytically differentiated from job satisfaction, organizational commitment, and burnout. Evidence from nursing demonstrates that engagement is developed, most commonly, as a result of the interaction of organizational, professional, personal, and job-related conditions, rather than a stand-alone effect (García-Sierra et al., 2016; Keyko et al., 2016). For health systems that are experiencing staff shortages and increased workloads because of emerging technologies and ongoing demands to provide safe, effective, and person-centered care, determined mapping becomes more critical.

Although the extent of the literature relevant to the review has grown, the evidence remains dispersed across many areas, including leadership, support in organizations, practice-environment models, psychology and work, the work-family nexus, and nursing in particular. Previous reviews have categorized the evidence by organizing the influencing factors pertaining to the workplace, individuals, and managers. More recent reviews of hospitals and long-term care have described the considerable overlap in personal and job resources, work and care environments, and the factors and conditions that mediate them. Compounding the evidence is inconsistent terminology. Conditions that are structurally similar are described as organizational support, empowerment, work climate, job resources, autonomy, and professional development. It is imperative that healthcare leaders establish a synthesis of the evidence that demonstrates the recurring determinants, their patterns, the contingent factors, and the unexplored areas.

This paper examines studies published during the specified review period to classify and synthesize various determinants of work engagement among nurses. It intends to identify the determinants that have been addressed, how they can be organized conceptually, which determinants are most prevalent or least studied, and what practical and research priorities are warranted. This review does not generate hypotheses, nor does it consider the number of published works as a measure of their causal significance. It aims to construct a taxonomy of determinants, identify and compare recurring elements, and outline a framework for nursing management and future research.

2. Methodology

A systematic literature review utilizing the PRISMA framework was performed to explore the factors associated with nurses' job engagement. The identification, screening, eligibility assessment, and inclusion of studies were documented in accordance with the PRISMA 2020 statement (Page et al., 2021). The eligibility period began in January 2015 and ended in December 2025. The primary databases searched were Scopus, Web of Science, PubMed/MEDLINE, CINAHL,

*Corresponding author: iaiaiaia5121432@gmail.com

ScienceDirect, and Google Scholar. To ensure the comprehensiveness of the review, citation searches were performed both backward and forward. A focused update of PubMed/MEDLINE and citation-linked searching was conducted on June 29, 2026, to identify additional studies within the same eligibility period. The primary search logic that was applied was a combination of the population and engagement and determinants search terms. The searches were limited to primary studies that were published in English and were published within the specified time frame. Other publication types that were included were systematic and non-systematic literature reviews that were directly relevant to the topic.

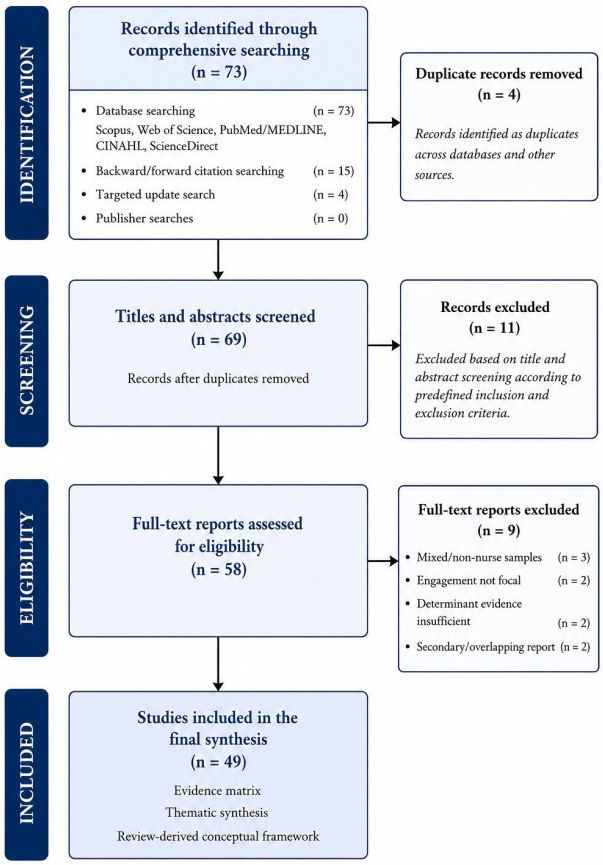

Fig. 1. The systematic review process

Studies that qualified for inclusion had to involve nurses as the main study population or had to involve the study of nurse-specific findings. Studies that had direct measurement of engagement or modeling of engagement as a key component of the study were also included. Studies that included at least one of the following were included: antecedents, resources, demands, barriers, enablers, or context. Included study designs were quantitative cross-sectional, longitudinal, comparative, or intervention studies. Also included were systematic, integrative, or scoping reviews that synthesized engagement evidence specific to nursing. The following were excluded: editorials, protocols, dissertations, commentaries that were not peer-reviewed, studies that were published outside of the defined date range, studies that were mixed health care studies with no nurse-specific findings, and studies that mentioned engagement without examining determinants. The structured screening included 54 records from a database or publisher, 15 records from citation searches, and four records from a targeted update search. After removing four duplicates, 69 titles and abstracts were screened, 58 full texts were assessed for eligibility, and 49 studies were included. The selection process is detailed in Figure 1.

Data extraction recorded the author, year, setting, design, population, engagement measure, determinants, direction of association, and any mediating or moderating mechanisms. Design-specific Joanna Briggs Institute criteria (Aromataris & Munn, 2020) were used for the appraisal of individual studies, and the other studies were appraised with the AMSTAR 2 principles (Shea et al., 2017). Through hybrid deductive-inductive coding, 14 determinants were captured and interpreted through a narrative-thematic synthesis. Five review-level syntheses were captured within the matrix but were differentiated from the 44 primary empirical studies when assessing counts. A meta-analysis was deemed inappropriate since the studies had a variety of contexts, tools, and models, as well as ways to describe and measure the results, and the statistics had an unequal level of measurement. For this reason, the matrix was designed to show extent rather than size of effect, significance or causal relationship.

3. Nurses' Work Engagement

Engaged nurses can show energy (both physical and mental), along with emotional involvement during the accomplishment of nursing duties. The Utrecht Work Engagement Scale is often utilized to measure engagement using clarity, vigor, and absorption. The primary nursing work engagement synthesis was that completed by Keyko et al. (2016), with subsequent studies expanding the existing evidence into the pandemic, specific nursing systems, and across nursing specialties. The 14 determinants are organized into 5 domains: leadership and organizational resources; practice environment and social climate; job-design and developmental resources; personal and meaning-related resources; and demands and work life interface. Leadership generally involves how nurse managers provide direction, support, and lead by example; and how they cultivate staff participation. Relational, humble, and servant leadership are viewed to favorably influence staff engagement. Job Demands-Resources theory cites example giving leadership and engagement facilitation, and the clarifying of options as supportive resources. The social exchange theory lends itself to why staff may increase their psychological involvement as a result of organizational equity and fairness (Bakker & Demerouti, 2017; Cropanzano et al., 2017). The existing literature is generally supportive, although the influence of leadership is contingent on unit climate and organization system credibility, staffing, and the type of work demands.

Nurses' perceptions of employer value and resource provision, as well as employer concern for nurses' well-being, describe organizational support. It associates with engagement both directly and indirectly, via self-efficacy and commitment,

and professional resources (Al-Hamdan & Bani Issa, 2022). In Kurtessis et al. (2017), the organizational support theory posits that the provision of support creates the expectation and obligation to return the support. However, in the absence of required staffing, information, recognition, and managerial support, the provision of support creates the expectation and obligation to return the support. Thus, through Job Demands-Resources theory (Bakker & Demerouti, 2017), support is best seen as an enacted resource rather than a symbolic promise. Positive work environments have adequate staffing, optimum professional work, cooperation, and good communication with psychological safety, as well as a positive work environment and unit climate. Research from various healthcare settings such as intensive care, pediatrics, psychiatry, as well as from general and emergency care, shows that positive work environments and team climates lead to high levels of employee engagement.

Self-efficacy and achievement motivation help clarify employee engagement in practice environments (Dan et al., 2023). Negative consequences on engagement as a result of psychological violence experienced by employees are mitigated by the organizational climate (H. Hu et al., 2022). Job resources can be explained on the basis of feedback, clarity of roles, participation, information, control of work, and an opportunity to display one's professional competence. Due to the special nature of control over the clinical and work decisions, even within a broader system of empowerment, autonomy is never forfeited. Self-determination theory posits a link between conditions of autonomy and self-motivation through a triad of autonomy, competence, and relatedness (Deci et al., 2017). In nursing, job resources, structural empowerment, and autonomy are associated with increased engagement. However, autonomy is usually found in broader work-environment or work-resource studies. Recognition and career advancement encompass acknowledgment of contributions, learning and promotion opportunities, mentoring, and continuing professional education. Presence of these conditions conveys that effort is not in vain and that nursing practice has viable professional future. Pericak et al. (2020) refer to recognition and career advancement as actionable resources, while studies of early-career, millennial, specialist, and internationally recruited nurses illustrate that development has the potential of increasing commitment and further investments. There is no doubt that the evidence has shown various results depending on the career stage and employment conditions. For example, formal education has little impact on motivation where staffing, supervisory support, and opportunities to utilize new skills are inadequate.

Hope, optimism, confidence, and persistence are key components of Psychological Capital. The other dimensions, self-efficacy, and resilience, are kept apart because of their specific definitions and frequently serve as mediation constructs between job-related elements and engagement. The Conservation of Resources theory suggests that nurses who possess abundant personal resources are able to spend, withstand, and avoid loss of personal resources (Hobfoll et al., 2018). The relationship of psychological capital, self-efficacy, and resilience with engagement has a positive, though the organizational context inhibits or supports these resources. The meaningful work dimension has captured the feeling within nursing of work being not only meaningful but having a social contribution and being congruent with value and work-related ethics. The work, career, and nursing identities are different but related aspects of meaning. Engagement literature suggests that work role meaningfulness is a prerequisite to self-investment (Bailey et al., 2017). From the examples of Hara et al. (2023), Sun et al. (2022), and Zhong et al. (2025), it can be seen that for nurses, the most significant engagement was related to their personal values and positive identity and the positive impact that the work of nurses is perceived to make. Engagement is therefore related to the purposeful nature of the work carried out daily and the engagement in work-related issues.

Workload stress entails quantitative overload, role overload, emotional demand, psychosocial risk, and exposure to psychological violence. As for the health degradation pathway of the Job Demands-Resources model, sustained effort demand weaken employee engagement in the absence of adequate recovery and compensating resources (Bakker & Demerouti, 2017). Empirical evidence from and beyond the COVID-19 period correl chronic stress, overload, violence, and unresolved conflicts with employee engagement level (Giménez-Espert et al., 2020; N. Zhang et al., 2022). This correlation is not mechanically uniform, as challenge demands may induce effort even in the presence of supportive conditions. In contrast, prolonged overload and demand for blocking have an inverse relationship with engagement. The Conservation of Resources model states that the work–family conflict consumes time and emotional resources, and recovery and positive spillover facilitate resource replenishment for engagement (Hobfoll et al., 2018). Work–life balance research also distinguishes workaholism from constructively engaging resources. Work–life balance entails the balancing of work and family resources, while the imbalance of work–life resources is self-coping (Borges et al., 2021; Fukuzaki et al., 2021; Labrague & Obeidat, 2022).

Table 1 illustrates how the 49 studies analyzed in the systematic review were related to the determinants of interest. A check mark indicates that the studies showed substantive engagement. A blank space indicates a lack of interest in this determinant. The matrix, rather, covers and concentrates the studies, and is not an indication of the size or significance of the research that aims to establish a causal relationship.

Of the 49 records examined, workload stress was recorded in 28, organizational support in 27, the work environment and job resources recorded in 26, and meaningful work in 22. Based on the 44 primary empirical reports, these corresponded to the totals of 23, 22, 21, 21, and 17, respectively. Work-life balance, career growth, psychological capital, and leadership were other recurring themes. Although autonomy and recognition appeared to a lesser extent, they were associated with wider job-resource and empowerment constructs. These totals categorized the research themes, and while they indicate a focus area, they do not represent research impact; therefore, they do not reflect practical significance or causal relations.

Table 1
Literature review matrix

No.	Author(s) and Year	Leadership	Org Support	Work Environment	Team Climate	Job Resources	Autonomy	Recognition	Career Growth	Psych Capital	Self-Efficacy	Resilience	Meaningful Work	Workload Stress	Work-Life Balance
1	Adriaenssens et al. (2015)					✓				✓				✓	
2	Keyko et al. (2016)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	García-Sierra et al. (2016)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4	Rastogi and Saikia (2019)		✓	✓		✓		✓	✓						✓
5	K. Yang et al. (2019)	✓	✓					✓	✓				✓		
6	Mukaihata et al. (2020)		✓	✓	✓	✓				✓	✓	✓		✓	
7	Pericak et al. (2020)	✓	✓	✓		✓		✓	✓					✓	✓
8	H. Zhang et al. (2020)					✓	✓			✓			✓		
9	Lyu et al. (2020)		✓							✓		✓	✓	✓	
10	Giménez-Espert et al. (2020)			✓	✓									✓	✓
11	Borges et al. (2021)									✓				✓	✓
12	Allande-Cussó et al. (2021)			✓		✓								✓	✓
13	M. Zhang et al. (2021)		✓	✓		✓								✓	
14	Fukuzaki et al. (2021)		✓										✓	✓	✓
15	X. Hu et al. (2021)								✓	✓	✓		✓		
16	Yao et al. (2021)									✓				✓	✓
17	Kato et al. (2021)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
18	Falguera et al. (2022)		✓	✓		✓				✓	✓	✓		✓	
19	Tang et al. (2022)	✓	✓					✓					✓		
20	Balay-Odao et al. (2022)	✓	✓			✓	✓	✓	✓				✓		
21	Al-Hamdan and Bani Issa (2022)		✓			✓					✓				
22	Al-Dossary (2022)	✓	✓					✓					✓		
23	Slåtten et al. (2022)	✓	✓	✓	✓	✓			✓				✓		
24	N. Zhang et al. (2022)		✓			✓								✓	✓
25	Ngobeni and Dhanpat (2022)					✓	✓	✓							✓
26	Labrague and Obeidat (2022)	✓	✓											✓	✓
27	Li et al. (2022)			✓	✓						✓	✓			
28	Cruz et al. (2022)			✓	✓								✓		
29	H. Hu et al. (2022)		✓	✓	✓									✓	
30	Sun et al. (2022)								✓				✓	✓	✓
31	Paustian-Underdahl et al. (2023)									✓		✓		✓	
32	Ding and Cao (2023)	✓	✓											✓	
33	Nagai et al. (2023)					✓			✓	✓	✓	✓	✓		
34	Alharbi and Alrwaitey (2023)		✓	✓					✓						✓
35	Alkorashy and Alanazi (2023)					✓			✓					✓	✓
36	M. Zhang et al. (2023)		✓							✓	✓		✓		
37	Y. Yang et al. (2023)		✓	✓	✓	✓								✓	
38	Dan et al. (2023)			✓		✓			✓		✓				
39	Kohnen et al. (2023)	✓	✓	✓	✓	✓								✓	
40	Scheepers et al. (2023)			✓	✓	✓							✓		
41	Hara et al. (2023)									✓			✓		✓
42	Midje et al. (2024)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
43	Aungsuroch et al. (2024)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
44	Kohnen et al. (2024)	✓		✓		✓								✓	
45	Zhong et al. (2025)		✓	✓					✓				✓	✓	
46	Vimonvattana and Benjakul (2025)			✓		✓			✓					✓	✓
47	Nurmeksela et al. (2025)	✓													
48	Wang et al. (2025)			✓					✓				✓		
49	L. Zhang et al. (2025)	✓		✓	✓										

4. Discussion: Thematic Synthesis of Determinants

The primary conclusion of this body of research is that nurses' work engagement is best characterized as a dynamic balance of resources and demands rather than the outcome of a single dominant predictor. Organizational support, leadership, staffing, job resources, and other favorable elements of the work environment constitute a mutually reinforcing system of resources. Organizations provide adequate staffing, necessary

information, recognition, and developmental opportunities; managers integrate these resources into the daily operations of the unit; and the unit's work climate establishes the opportunities for nurses to engage. Al-Hamdan and Bani Issa (2022) associated organizational support and work engagement partially through self-efficacy, and Kohnen et al. (2023) associated the perceived clinical work environment with work-related motivation and well-being. Thus, the evidence suggests that the numerous engagement initiatives that have been implemented in resource-deficient work systems will yield little to no improvement. However, leadership is a relevant and abundant resource that influences the availability of and the belief in other resources. Research shows that certain styles of leadership engagement and commitment to an organization are interrelated (Al-Dossary, 2022). Research also shows that employee engagement has a positive influence on innovative workplace behavior, which is a product of humble leadership (K. Yang et al., 2019). Other recent studies have also documented positive outcomes based on this phenomenon.

Examples of this include that Kohnen et al. (2024) identified engaging leadership as the kind of leadership that promotes work engagement through both the provision of work-related resources and the stimulation of engagement from within, Nurmeksela et al. (2025) reported that nurse managers' transformational leadership positively influenced nurses' engagement, and L. Zhang et al. (2025) proved that organizational climate explained the relationship between transformational leadership and engagement of nurses working in the Intensive Care Unit. Finally, Ding and Cao (2023) confirmed that, within a certain context, the challenges posed by transformational leadership promoted more challenge than hindrance stressors. These results do not specify a worldwide best practice, but support relational, empowering and context-oriented leadership which articulates and shields the professional voice, and tailors support according to the demand structure of the unit. The operational settings in which engagement is used, or depleted, are defined by the environment of the workplace and by the climate of the team. In psychiatric nursing, engagement has been linked to resources at the workplace and to other individual factors (Mukaihata et al., 2020). Personal mechanisms mediate the effects of professional practice conditions on employees' outcomes (Dan et al., 2023). Also, a favorable organizational climate can soften the negative impact of psychological violence on employees' work engagement (H. Hu et al., 2022). Additional evidence indicates that nurses' work engagement is also influenced by leadership that provides adequate work resources and a positive organizational climate (Kohnen et al., 2024; L. Zhang et al., 2025).

Hence, from these studies, it can be deduced that staffing, safety, cooperation, and the flexible coordination of role-related activities and communication are not peripheral background conditions. They are the central resources that make credible and applicable the formal support offered by the organization. Although personal resources have been used to explain various engagement responses to the same organizational conditions, such resources do not absolve the organization from responsibility. M. Zhang et al. (2023) mentioned the interconnection between psychological capital and engagement in the workplace and job satisfaction, along with the aid of working conditions in bolstering engagement resources. Work engagement stems from the personal meaning of the work and the individual's work-related identity. Work values affect the degree of work-to-family spill over and work-to-family engagement (Hara et al., 2023). Career identity, burnout, and work engagement are related concept (Sun et al., 2022). Moreover, professional mission is seen as an important differentiator of various engagement profiles (Zhong et al., 2025). For clinical nurse specialists, an example of the meaning-based engagement pathway is the certainty of professional advancement and translation of learning from the training context to the workplace, in this case the clinical context (Wang et al., 2025). Nurses' commitment to their profession corresponds with their ethics, sense of social responsibility, and being proactive. Making sense of the profession should not justify insufficient staffing, and the culture should not rely on nurses' self-sacrifice. The occupational meaning of the nursing profession is more likel y to be maintained when the workforce is stable and restorative care is implemented. An obvious indication of the deterioration of working conditions is the growing, unsustainable discrepancy between the demands of the system and the complete lack of resources.

Work engagement is negatively impacted by the high workload and stress (M. Zhang et al., 2021). Role overload has a negative effect on work engagement. Perceived organizational support is equally negatively affected (N. Zhang et al., 2022). Psychosocial risks created by role overload and high emotional demands in nursing reduce engagement and job satisfaction. The implications of this trend suggest that treated workloads uniformly produces chief error. Thinkers associate work-life balance with personal and organizational boundaries. Work engagement is said to affect work-life balance through the lens of affective commitment (Fukuzaki et al., 2021). However, even though strong associations with work investment exist, work engagement and workaholism should be viewed as conceptually separate constructs (Borges et al., 2021). Leadership also represents an important organisational factor influencing work–family conflict (Labrague & Obeidat, 2022). The synthesis supports the need for predictability in work scheduling and time off; recovery time; work flexibility; and family-supportive supervision. The synthesis also claims that the determinants operate in configurations: leadership cannot replace an unsafe workload, a resilient employee cannot compensate for the lack of staffing, and the degree of autonomy in the workplace is of little use in the absence of information, skills and support.

5. Research Gaps and Future Research Directions

The current literature falls short by only studying the work engagement of nurses via self-reported measures within a single-hospital context using cross-sectional design. Such studies identify relationships, but do not determine the extent to which leadership, organizational support, job resources, and

work environment engage nurses. Longitudinal cohort designs, experience-sampling methods, quasi-experimental designs, and cluster-randomized studies should be embraced in future studies, in order to improve causal statements and the study of the evolution of work engagement. Better conceptual and operational definitions for organizational support, team climate, teamwork, active participation, and job resources are needed since a lot of definitions and measurements involve some redundancy. Therefore, researchers of these variables should address the discriminant validity of these variables, and maintain a significant distinction between causal, mediating, and outcome variables, and explain how self-efficacy and career identity interrelate with work climate to determine work engagement Given that nurses are embedded in teams and that managers move across different hospitals and healthcare systems, future studies should use a multilevel modeling approach.

Research has focused primarily on hospital samples, and hence other settings including community-based care, primary care, rural care, humanitarian care, and low-resource care are under researched. Future research should consider if career stage, employment status, specialty, and staffing and workplace cultures and configurations affect resources, demands, and engagement. Adding to the burgeoning field of intervention research, tailored bundles of leadership, workload, and psychological safety, supportive mentoring, recognition and reward, autonomy, flexible and restorative resources should be implemented and evaluated. Focus should be directed to the broader effects on engagement and the other outcomes of retention, absenteeism, burnout, and patient safety, care quality and cost. Implementation studies should evaluate fidelity, long-term effects, and unanticipated effects. This approach would help the field to go beyond previous studies that focused on correlation, and provide context, and evidence that is useful and actionable to increase nurses' engagement.

6. Conclusion

This review condensed 49 publications and elaborated 14 determinants of work engagement. It showed how the interplay of resources and demands from work and life (e.g., personal resources and social resources) led to work engagement. Work engagement was most often described in relation to workload stress, work-life balance, the (physical and psychosocial) work environment, and (positive) organizational support. Supportive resources reflected constructive engagement, while chronic stress, psychosocial resources, workplace violence, and conflict, along with insufficient recovery, reflected disengagement. These were, however, more associative than causal relationships.

For nurse managers, this review illustrated the importance of system-focused actions as opposed to more motivational-focused actions. Engagement requires safe staffing, supportive resources, constructive (not controlling) leadership, recognition, (personal) and (professional) development, teamwork, psychosocial safety and resourcefulness, and manageable demands, along with a strong connection to nursing values. Research must move beyond simple, repeated, cross-sectional research to more (multilevel, longitudinal) intervention-based research in more varied contexts. This review is limited by its English-language, published literature focus, along with the variety of definitions and measures used in published studies and the reliance on observational studies. The main contribution of this work is an integrated map of determinants that organizes fragmented research.

References

[1] J. Adriaenssens, D. Van Gucht, and S. Maes, "Association of goal orientation with work engagement and burnout in emergency nurses," *J. Occup. Health*, vol. 57, no. 2, pp. 151–160, Mar. 2015.

[2] R. N. Al-Dossary, "Leadership style, work engagement and organizational commitment among nurses in Saudi Arabian hospitals," *J. Healthc. Leadersh.*, vol. 14, pp. 71–81, 2022.

[3] Z. Al-Hamdan and H. Bani Issa, "The role of organizational support and self-efficacy on work engagement among registered nurses in Jordan: A descriptive study," *J. Nurs. Manage.*, vol. 30, no. 7, pp. 2154–2164, Oct. 2022.

[4] M. F. Alharbi and R. Z. Alrwaitey, "Work engagement status of registered nurses in pediatric units in Saudi Arabia: A cross-sectional study," *PLOS ONE*, vol. 18, no. 3, Art. no. e0283213, Mar. 2023.

[5] H. Alkorashy and M. Alanazi, "Personal and job-related factors influencing the work engagement of hospital nurses: A cross-sectional study from Saudi Arabia," *Healthcare*, vol. 11, no. 4, Art. no. 572, Feb. 2023.

[6] R. Allande-Cussó, J. J. García-Iglesias, C. Ruiz-Frutos, S. Domínguez-Salas, C. Rodríguez-Domínguez, and J. Gómez-Salgado, "Work engagement in nurses during the COVID-19 pandemic: A cross-sectional study," *Healthcare*, vol. 9, no. 3, Art. no. 253, Mar. 2021.

[7] E. Aromataris and Z. Munn, Eds., *JBI Manual for Evidence Synthesis*. Adelaide, SA, Australia: JBI, 2020.

[8] Y. Aungsuroch, J. Gunawan, I. G. Juanamasta, and J. Montayre, "Updating factors influencing nurse work engagement in the hospital settings: A systematic review," *J. Healthc. Leadersh.*, vol. 16, pp. 157–176, 2024.

[9] C. Bailey, A. Madden, K. Alfes, and L. Fletcher, "The meaning, antecedents and outcomes of employee engagement: A narrative synthesis," *Int. J. Manage. Rev.*, vol. 19, no. 1, pp. 31–53, Jan. 2017.

[10] A. B. Bakker and E. Demerouti, "Job demands-resources theory: Taking stock and looking forward," *J. Occup. Health Psychol.*, vol. 22, no. 3, pp. 273–285, Jul. 2017.

[11] E. M. Balay-Odao, J. P. Cruz, N. Alquwez, K. Al Otaibi, A. Al Thobaity, R. S. Alotaibi, J. A. Valencia, and C. C. Danglipen, "Structural empowerment and work ethics influence on the work engagement of millennial nurses," *J. Nurs. Manage.*, vol. 30, no. 2, pp. 501–510, Mar. 2022.

[12] E. M. Borges, C. A. Sequeira, C. M. L. Queirós, and M. P. Mosteiro-Díaz, "Workaholism, engagement and family interaction: Comparative study in Portuguese and Spanish nurses," *J. Nurs. Manage.*, vol. 29, no. 4, pp. 731–740, May 2021.

[13] R. Cropanzano, E. L. Anthony, S. R. Daniels, and A. V. Hall, "Social exchange theory: A critical review with theoretical remedies," *Acad. Manage. Ann.*, vol. 11, no. 1, pp. 479–516, Jan. 2017.

[14] J. P. Cruz, N. Alquwez, and E. Balay-Odao, "Work engagement of nurses and the influence of spiritual climate of hospitals: A cross-sectional study," *J. Nurs. Manage.*, vol. 30, no. 1, pp. 279–287, Jan. 2022.

[15] X. Dan, Y. Huang, J.-H. Ren, Y.-L. Tian, and Y.-L. He, "Professional nursing practice environment and work engagement: The mediating roles of self-efficacy and achievement motivation," *J. Nurs. Res.*, vol. 31, no. 4, Art. no. e285, Aug. 2023.

[16] E. L. Deci, A. H. Olafsen, and R. M. Ryan, "Self-determination theory in work organizations: The state of a science," *Annu. Rev. Organ. Psychol. Organ. Behav.*, vol. 4, pp. 19–43, Mar. 2017.

[17] B. Ding and C. Cao, "An examination of interaction between transformational leadership and hindrance and challenge stressors for nurses," *Curr. Psychol.*, vol. 43, no. 19, pp. 17701–17713, May 2024.

[18] C. C. Falguera, L. J. Labrague, J. A. A. De Los Santos, C. N. Firmo, and K. Tsaras, "Predictive roles of organizational and personal factors in work engagement among nurses," *Front. Nurs.*, vol. 9, no. 4, pp. 379–387, Dec. 2022.

[19] T. Fukuzaki, N. Iwata, S. Ooba, S. Takeda, and M. Inoue, "The effect of nurses' work-life balance on work engagement: The adjustment effect of affective commitment," *Yonago Acta Med.*, vol. 64, no. 3, pp. 269–281, Aug. 2021.

[20] R. García-Sierra, J. Fernández-Castro, and F. Martínez-Zaragoza, "Work engagement in nursing: An integrative review of the literature," *J. Nurs. Manage.*, vol. 24, no. 2, pp. E101–E111, Mar. 2016.

[21] M. C. Giménez-Espert, V. Prado-Gascó, and A. Soto-Rubio, "Psychosocial risks, work engagement, and job satisfaction of nurses during COVID-19 pandemic," *Front. Public Health*, vol. 8, Art. no. 566896, Nov. 2020.

[22] Y. Hara, M. Yamada, N. Takada, S. Sugiyama, and K. Asakura, "The moderating role of work-to-family spillover in the association between nurses' work values and work engagement: A cross-sectional study," *Jpn. J. Nurs. Sci.*, vol. 20, no. 4, Art. no. e12554, Oct. 2023.

[23] S. E. Hobfoll, J. Halbesleben, J.-P. Neveu, and M. Westman, "Conservation of resources in the organizational context: The reality of resources and their consequences," *Annu. Rev. Organ. Psychol. Organ. Behav.*, vol. 5, pp. 103–128, Jan. 2018.

[24] H. Hu, H. Gong, D. Ma, and X. Wu, "Association between workplace psychological violence and work engagement among emergency nurses: The mediating effect of organizational climate," *PLOS ONE*, vol. 17, no. 6, Art. no. e0268939, Jun. 2022.

[25] X. Hu, R. Zhao, J. Gao, J. Li, P. Yan, X. Yan, S. Shao, J. Su, and X. Li, "Relationship between proactive personality and job performance of Chinese nurses: The mediating role of competency and work engagement," *Front. Psychol.*, vol. 12, Art. no. 533293, Jun. 2021.

[26] Y. Kato, R. Chiba, and A. Shimazu, "Work engagement and the validity of job demands-resources model among nurses in Japan: A literature review," *Workplace Health Saf.*, vol. 69, no. 7, pp. 323–342, Jul. 2021.

[27] K. Keyko, G. G. Cummings, O. Yonge, and C. A. Wong, "Work engagement in professional nursing practice: A systematic review," *Int. J. Nurs. Stud.*, vol. 61, pp. 142–164, Sep. 2016.

[28] D. Kohnen, H. De Witte, W. B. Schaufeli, S. Dello, L. Bruyneel, and W. Sermeus, "What makes nurses flourish at work? How the perceived clinical work environment relates to nurse motivation and well-being: A cross-sectional study," *Int. J. Nurs. Stud.*, vol. 148, Art. no. 104567, Dec. 2023.

[29] D. Kohnen, H. De Witte, W. B. Schaufeli, S. Dello, L. Bruyneel, and W. Sermeus, "Engaging leadership and nurse well-being: The role of the work environment and work motivation—A cross-sectional study," *Hum. Resour. Health*, vol. 22, no. 1, Art. no. 8, Jan. 2024.

[30] J. N. Kurtessis, R. Eisenberger, M. T. Ford, L. C. Buffardi, K. A. Stewart, and C. S. Adis, "Perceived organizational support: A meta-analytic evaluation of organizational support theory," *J. Manage.*, vol. 43, no. 6, pp. 1854–1884, Jul. 2017.

[31] L. J. Labrague and A. A. Obeidat, "Transformational leadership as a mediator between work-family conflict, nurse-reported patient safety outcomes, and job engagement," *J. Nurs. Scholarsh.*, vol. 54, no. 4, pp. 493–500, Jul. 2022.

[32] H. Li, Y. L. Xu, M. J. Jing, X. J. Wei, L. M. Li, and Y. F. Guo, "The mediating effects of adversity quotient and self-efficacy on ICU nurses' organizational climate and work engagement," *J. Nurs. Manage.*, vol. 30, no. 7, pp. 3322–3329, Oct. 2022.

[33] H. Lyu, M. Yao, D. Zhang, and X. Liu, "The relationship among organizational identity, psychological resilience and work engagement of the first-line nurses in the prevention and control of COVID-19 based on structural equation model," *Risk Manage. Healthc. Policy*, vol. 13, pp. 2379–2386, Nov. 2020.

[34] H. H. Midje, V. N. Nyborg, A. Nordsteien, K. I. Øvergård, E. A. Brembo, and S. Torp, "Antecedents and outcomes of work engagement among nursing staff in long-term care facilities: A systematic review," *J. Adv. Nurs.*, vol. 80, no. 1, pp. 42–59, Jan. 2024.

[35] T. Mukaihata, H. Fujimoto, and C. Greiner, "Factors influencing work engagement among psychiatric nurses in Japan," *J. Nurs. Manage.*, vol. 28, no. 2, pp. 306–316, Mar. 2020.

[36] S. Nagai, Y. Ogata, T. Yamamoto, M. Fedyk, and J. F. Bell, "A longitudinal study of the impact of personal and professional resources on nurses' work engagement: A comparison of early-career and mid-later-career nurses," *Healthcare*, vol. 11, no. 1, Art. no. 76, Dec. 2022.

[37] P. Ngobeni and N. Dhanpat, "Keeping nurses engaged during COVID-19: An i-deal perspective," *SA J. Ind. Psychol.*, vol. 48, Art. no. a1971, Nov. 2022.

[38] A. Nurmeksela, K. Schavoronkoff, and K. Jokiniemi, "The impact of nurse managers' transformational leadership on nurses' work engagement: A cross-sectional study," *J. Nurs. Manage.*, vol. 2025, Art. no. 9980485, 2025.

[39] M. J. Page *et al.*, "The PRISMA 2020 statement: An updated guideline for reporting systematic reviews," *BMJ*, vol. 372, Art. no. n71, Mar. 2021.

[40] S. C. Paustian-Underdahl, J. R. B. Halbesleben, D. S. Carlson, and H. Y. Hamadi, "Examining regulatory focus in the acceleration and deceleration of engagement and exhaustion cycles among nurses," *Health Care Manage. Rev.*, vol. 48, no. 3, pp. 282–290, Jul./Sep. 2023.

[41] A. Pericak, C. W. Hogg, K. Skalsky, and L. Bourdeanu, "What influences work engagement among registered nurses: Implications for evidence-based action," *Worldviews Evidence-Based Nurs.*, vol. 17, no. 5, pp. 356–365, Oct. 2020.

[42] M. Rastogi and A. Saikia, "Determinants of work engagement among nurses in Northeast India," *J. Health Manage.*, vol. 21, no. 4, pp. 559–570, Dec. 2019.

[43] R. A. Scheepers, M. Vollmann, J. M. Cramm, and A. P. Nieboer, "Empathic nurses with sufficient job resources are work-engaged professionals who deliver more individualized care," *J. Clin. Nurs.*, vol. 32, no. 19–20, pp. 7321–7329, Oct. 2023.

[44] B. J. Shea *et al.*, "AMSTAR 2: A critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both," *BMJ*, vol. 358, Art. no. j4008, Sep. 2017.

[45] T. Slåtten, G. Lien, and B. R. Mutonyi, "Precursors and outcomes of work engagement among nursing professionals: A cross-sectional study," *BMC Health Serv. Res.*, vol. 22, no. 1, Art. no. 21, Jan. 2022.

[46] B. Sun, L. Fu, C. Yan, Y. Wang, and L. Fan, "Quality of work life and work engagement among nurses with standardised training: The mediating role of burnout and career identity," *Nurse Educ. Pract.*, vol. 58, Art. no. 103276, Jan. 2022.

[47] P. Tang, X. Zhang, F. Feng, J. Li, L. Zeng, W. Xie, M. Jin, and J. Wang, "The relationship between organizational commitment and work engagement among clinical nurses in China: A cross-sectional study," *J. Nurs. Manage.*, vol. 30, no. 8, pp. 4354–4363, Nov. 2022.

[48] A. Vimonvattana and N. Benjakul, "The work engagement among nurses in an urban-based tertiary hospital," *Nurs. Rep.*, vol. 15, no. 7, Art. no. 241, 2025.

[49] R. Wang, R. Ji, J. Zhao, L. Qin, S. Zhang, X. Liu, and H. Song, "Exploring the link between training transfer climate and work engagement among clinical nurse specialists in China: The mediating role of craftsmanship spirit," *BMC Nurs.*, vol. 24, no. 1, Art. no. 1056, 2025.

[50] K. Yang, L. Zhou, Z. Wang, C. Lin, and Z. Luo, "Humble leadership and innovative behaviour among Chinese nurses: The mediating role of work engagement," *J. Nurs. Manage.*, vol. 27, no. 8, pp. 1801–1808, Nov. 2019.

[51] Y. Yang, K. Hatanaka, K. Takahashi, and Y. Shimizu, "Working conditions among Chinese nurses employed in Japan: A cross-sectional survey-based study," *SAGE Open Nurs.*, vol. 9, Art. no. 23779608231169382, Apr. 2023.

[52] Y. Yao, W. Wei, Y. Hu, Y. Li, and Y. Zhang, "Curvilinear relationship between emotional labour and work engagement in nurses: A correlational study," *J. Clin. Nurs.*, vol. 30, no. 21–22, pp. 3355–3365, Nov. 2021.

[53] H. Zhang *et al.*, "The relationship between autonomy, optimism, work engagement and organisational citizenship behaviour among nurses fighting COVID-19 in Wuhan: A serial multiple mediation," *BMJ Open*, vol. 10, no. 9, Art. no. e039711, Sep. 2020.

[54] L. Zhang *et al.*, "The relationship between transformational leadership and work engagement among intensive care unit nurses: The mediating function of organizational climate," *BMC Nurs.*, vol. 24, no. 1, Art. no. 398, 2025.

[55] M. Zhang, H. Chen, N. Wang, Y. Li, X. Li, and Y. Liu, "The mediating role of job satisfaction between psychological capital and work engagement among Chinese nurses during COVID-19 outbreak: A comparative study between nurse specialists and general nurses," *Front. Psychiatry*, vol. 13, Art. no. 990216, Jan. 2023.

[56] M. Zhang, P. Zhang, Y. Liu, H. Wang, K. Hu, and M. Du, "Influence of perceived stress and workload on work engagement in front-line nurses during COVID-19 pandemic," *J. Clin. Nurs.*, vol. 30, no. 11–12, pp. 1584–1595, Jun. 2021.

[57] N. Zhang, D. Xu, J. Li, and Z. Xu, "Effects of role overload, work engagement and perceived organisational support on nurses' job performance during the COVID-19 pandemic," *J. Nurs. Manage.*, vol. 30, no. 4, pp. 901–912, May 2022.

[58] X. Zhong *et al.*, "Current status and influencing factors of nurses' work engagement in Chinese tertiary hospitals: A latent profile analysis," *PLOS ONE*, vol. 20, no. 4, Art. no. e0321398, Apr. 2025.