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Research Article

The Relationship between Work Engagement and Change Readiness Under Pressure: Do Job Categories and Adoption Categories Provide Insights for Change?

Monique M. A. Penturij[1], Carolina J. P. W. Keijsers[2]*, Babette C. van der Zwaard[3], Fedde Scheele[4,5]

[1]Department of Quality and Safety, Jeroen Bosch Academy, Jeroen Bosch Hospital, 's-Hertogenbosch 5200ME, North Brabant, the Netherlands

[2]Department of Geriatric Medicine, Jeroen Bosch Hospital, 's-Hertogenbosch 5200ME, North Brabant, the Netherlands

[3]Research Department, Jeroen Bosch Hospital, 's-Hertogenbosch 5200ME, North Brabant, the Netherlands

[4]Department of Athena Institute for Transdisciplinary Research, Faculty of Science, Free University, 1081 HV Amsterdam, North Holland, the Netherlands

[5]Faculty of Academic Centre for Dentistry, 1081 HV Amsterdam, North Holland, the Netherlands

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Background

Hospital boards and management should support hospital workers in maintaining engagement under pressure and remaining prepared to adapt care delivery.

Objective

This study evaluates the relationship between work engagement (WE) and change readiness (CR) among hospital workers and examines differences across job and adoption categories using pandemic data.

Methods

We conducted an observational cross-sectional survey among all hospital workers at the Jeroen Bosch Hospital, the Netherlands. The employee satisfaction survey measured WE and CR. Participants were grouped by job category and Rogers' adopter categories.

Results

The correlation between WE and CR across all hospital workers was moderate ($r = 0.362$, $p < 0.001$). No significant differences were observed in the WE–CR correlation or mean WE scores across job categories. However, mean CR differed significantly among job categories: physicians scored higher than other clinical roles ($p = 0.011$); nursing professionals higher than other clinical roles ($p = 0.001$); professionals in quality, education, HR, finance, and management higher than other clinical roles ($p = 0.023$); and nursing professionals higher than support staff not involved in clinical care ($p = 0.029$). Across adoption categories, the WE–CR relationship is strongest in laggards ($r = 0.298$, $p = 0.005$), the lowest adoption category, and significantly stronger than in innovators/early adopters, the highest adoption category ($r = 0.185$, $p = 0.041$).

Conclusion

The study demonstrates a correlation between CR and WE, with the strongest association observed in laggards among adoption categories.

***Corresponding author:**
Carolina J. P. W. Keijsers
Department of Geriatric Medicine, Jeroen Bosch Hospital, 's-Hertogenbosch 5200ME, North Brabant, the Netherlands.
Email: k.keijsers@jbz.nl

1. INTRODUCTION

In the coming years, healthcare organizations will be challenged to keep employees engaged[1] while remaining prepared to adapt, as new approaches to care delivery are essential to meet the demands of the evolving healthcare era.[2,3] The scale and complexity of challenges faced by organizations can be overwhelming, placing employees under pressure.[4] This environment requires resilience and readiness to embrace change while identifying opportunities for innovation.[5] Consequently, change readiness (CR) and work engagement (WE) are critical parameters; however, the relationship between CR and WE under pressure remains underexplored.

To address this gap, it is important to define CR and WE. WE is a positive, fulfilling, work-related state of mind characterized by three core dimensions—vigor, dedication, and absorption—described by Schaufeli and Bakker.[6] Vigor involves high energy and mental resilience at work, with a willingness to invest effort and persist despite difficulties. Dedication reflects strong involvement in one's work, accompanied by feelings of significance, enthusiasm, inspiration, pride, and challenge. Absorption refers to full concentration and deep immersion in work, where time passes quickly and detachment becomes difficult.[6]

Work engagement among hospital workers is an important outcome because it enables them to drive organizational change,[7] enhances performance through innovation-oriented behaviors,[8,9] and fosters a mindset open to change.[10,11] Meta-analytic research indicates that WE is a key determinant of patient care quality in hospitals,[9] and higher engagement correlates with greater perceived readiness for change.[12] Given the current pressures on healthcare, high readiness for change is essential.

Change readiness is a critical precursor to successful change implementation[13-15] and reflects the extent to which organizational members are psychologically and behaviorally prepared to implement planned change efforts. Organizational readiness for change (ORC) is a multilevel and multifaceted construct. It is multilevel because it can be assessed at supra-individual (e.g., organization, department) or individual levels.[16,17] It is multifaceted because it encompasses psychological aspects such as attitudes, beliefs, and intentions,[16,18] as well as structural aspects, including conditions under which change occurs—such as clear goals, a supportive environment, and aligned skills.[16] When ORC is high, staff are more dedicated to contributing to change processes and are better able to cope with setbacks. Conversely, when ORC is low, staff are more likely to perceive change as undesirable and may avoid or resist participation.[15,17,19]

Scientific knowledge on how healthcare organizations develop readiness for change is relatively recent[3] and often employs Rogers' adopter categories, as depicted in Figure 1.[20] The adoption category is based on innovativeness—the relative earliness with which an individual adopts new ideas compared with other members of a social system. Adopter distributions approximate a normal distribution, in which the mean and standard deviation (SD) are used to divide individuals into five categories—innovators, early adopters, early majority, late majority, and laggards.

Innovators introduce new ideas into the system, such as replacing follow-up appointments for patients with chronic illness with telemonitoring. While innovators are often the first to adopt new ideas and can manage uncertainty or occasional setbacks, they may lack recognition from other system members. Early adopters implement telemonitoring with some patients, reducing uncertainty about the idea. They are respected by peers and serve as role models. The early majority adopt telemonitoring slightly ahead of the average member and constitute one of the largest adopter groups, accounting for roughly one-third of all members. The late majority adopt due to increasing peer pressure and economic necessity once most uncertainty is resolved, but they remain skeptical and cautious, representing another third of the system. Laggards adopt telemonitoring only when confident it will succeed and are suspicious of the idea and those introducing it. Although the adoption categories framework is well established, scientific knowledge on CR in healthcare organizations remains limited.

In contrast to the limited research on CR, WE in healthcare has been extensively studied, particularly among those working directly with patients—such as nurses, doctors, and allied health professionals—collectively referred to

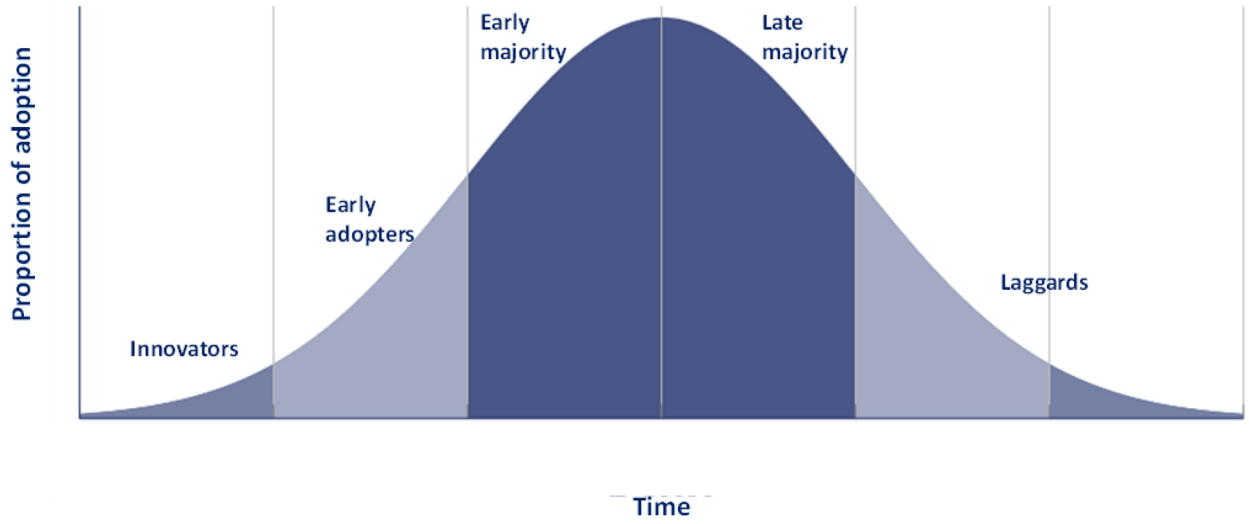

Figure 1. Relationship between adopter types, classified by innovativeness, and their position on the adoption curve. Adapted from Rogers.[20]

as clinical hospital workers.[21,22] However, healthcare systems include additional job categories, such as administrators, human resource (HR) advisors, quality and safety officers, and training or maintenance personnel. The WE of non-clinical hospital workers, whose prevalence and importance continue to increase,[23,24] is critical, as it can influence individual[25,26] and organizational performance,[27] as well as overall quality of care delivered.[9,28] The success of transformational change also depends on how non-clinical departments collaborate with clinical staff.[29]

Research on WE is unbalanced across job categories; clinical healthcare workers are largely studied, while non-clinical staff remain understudied, even though organizational change relies on their collaboration.

Research on the relationship between WE and CR in healthcare remains limited. It is understood that the positive impact of employee engagement on performance primarily operates through individual readiness to embrace change,[30] and that successful organizational change requires an engaged workforce prepared to participate.[31] Although a connection between workforce engagement and readiness for potential disruptions is established,[12] differences exist in how healthcare professionals perceive the need for change.[16] For instance, professionals without managerial responsibilities may be less aware of external pressures for change and focus more on operational issues requiring predictability rather than readiness to change.[32,33] This highlights the differences across the previously mentioned job categories.

Taken together, a gap remains in understanding the relationship between WE and CR in hospital care, both of which can be measured using questionnaires. Based on the literature reviewed above, we hypothesize a positive correlation between these constructs. A secondary, less explored question is whether this correlation varies across different groups of healthcare professionals. The present study therefore examines differences across job categories and adoption categories.

2. RESEARCH QUESTIONS

To address this knowledge gap, the study aims to answer the following research questions (RQs) in the context of a recent high-pressure situation in healthcare—the COVID-19 pandemic:

RQ1: Is there a positive association between WE and CR under pressure for all hospital workers?

RQ2: (a) Which job category shows the highest score in CR?
(b) Which job category shows the highest score in WE?

RQ3: Is there a difference in the relationship between WE and CR across different job categories in a hospital?

RQ4: What is the relationship between WE and CR when hospital employees are categorized into adoption categories based on their CR scores?

3. METHODS

3.1. ETHICAL CONSIDERATIONS AND APPROVAL

This study was approved by the Medical Ethics Committee Brabant (METC; NW2020-83). All employees were invited to participate via email, which clearly stated that participation was voluntary, responses were anonymous, and data could not be traced back to individual participants.

3.2. STUDY DESIGN

A cross-sectional, single-center study was conducted among hospital workers to evaluate the relationship between WE and CR under acute pressure.

Online questionnaires were used to measure WE with the Utrecht Work Engagement Scale-17 (UWES-17)[6] and CR with the Specialty Training's Organizational Readiness for Curriculum Change (STORC).[34] The survey was conducted during the COVID-19 pandemic, a natural experiment of acute pressure in healthcare. This observational study was designed and reported following the STROBE checklist.[35]

3.3. STUDY SETTING

Data collection was conducted in July 2020 at Jeroen Bosch Hospital, a general teaching hospital in the south of the Netherlands, with approximately 4,400 employees. At that time, healthcare was under extreme pressure due to the COVID-19 pandemic, with shortages of materials, staff, and expertise. Hospital workers were required to demonstrate high flexibility and adaptability while organizing care for a large number of patients with an unfamiliar disease.[24]

3.4. PARTICIPANTS

All 4,412 hospital employees employed at the time, as reported by the HR department, were invited to participate via email. Employees reported their job roles in the baseline characteristics section (e.g., nurse, manager). Using the International Standard Classification of Occupations-08, groups were formed, with main categories defined for roles representing >10% of employees (e.g., nurses). The specific job assignments for each category are detailed in Table A1. Only categories representing >10% of all jobs were included in group analyses.

Among these groups, some were classified as clinical hospital workers (e.g., nurses, physicians), who deliver patient care, and others as non-clinical hospital workers (e.g., managers, financial staff, HR advisors, maintenance personnel), who do not deliver direct patient care.

3.5. DATA COLLECTION PROCEDURE

The survey was conducted using the online tool Enalyzer (enalyzer.com). All hospital workers, including medical specialists employed on a self-employed basis, received an invitation by email in July 2020. Invitations were sent simultaneously by the hospital board, with a reminder 10–14 days later. A notice about the survey was also posted on the hospital's internal intranet, accessible only to staff. The survey took approximately 12 minutes to complete and could be answered on a computer or mobile device. Participants could pause and resume the survey using the individualized link provided. All data were collected anonymously.

3.6. INSTRUMENTS

3.6.1. UTRECHT WORK ENGAGEMENT SCALE-17

Work engagement was assessed using the UWES-17 (long

version). This questionnaire consists of 17 statements rated on a seven-point Likert scale from 0 (never) to 6 (always),[6] with three subscales—vigor, dedication, and absorption—which are strongly correlated. Higher scores indicate higher WE. Vigor includes six items (e.g., "At my work, I feel bursting with energy"), absorption includes six items (e.g., "I am immersed in my work"), and dedication includes five items (e.g., "I am enthusiastic about my job"). The overall WE score was calculated as the average of all 17 items, while subscale scores were calculated as the average of the items within each subscale. Reliability, assessed using Cronbach's α, is very high for the overall WE scale (α = 0.93), good for vigor (α = 0.83) and absorption (α = 0.82), and excellent for dedication (α = 0.92).[6]

3.6.2. SPECIALTY TRAINING'S ORGANIZATIONAL READINESS FOR CURRICULUM CHANGE

Change readiness was measured using the 43-item STORC questionnaire, based on the established ORC framework but specifically developed for hospital settings. At the time of the study, no other validated instrument was identified that measured organizational readiness at the individual level under pressure in hospitals.[36]

For this study, the wording of the STORC was slightly adapted to reflect an individual rather than a collective perspective. Specifically, items were reformulated from "we" to "I" or "in my department," and references to "innovation in residency training" were broadened to "innovation in general," where appropriate. For example, "We need to improve our residency training curriculum" was adapted to "Our healthcare system needs to change," enabling all hospital workers to relate to the item. The full questionnaire and reliability coefficients are presented in Table A2.

3.7. DATA ANALYSIS

Participants were included in the analyses only if they completed age, sex, WE, and CR measures. Participant characteristics were summarized using descriptive statistics.

For RQ1, the Pearson correlation coefficient was calculated. For RQ2a and RQ2b, analyses of variance (ANOVA) with least significant difference post hoc tests were performed.

For RQ3, regression analyses were conducted, including an interaction term (job group × WE score) to assess differences in the WE–CR relationship across job categories. Nurses, as the largest group, were used as the reference category.

For RQ4, adoption categories were constructed based on Rogers' theory.[20] Three groups were defined: laggards, majority, and innovators/early adopters (Figure 1). CR scores were categorized as follows: laggards (< mean − 1 SD), majority (mean ± 1 SD), and innovators/early adopters (> mean + 1 SD). The correlation between CR and WE was calculated within the adoption category and subsequently compared using regression analyses.

All analyses were conducted using SPSS version 27 (IBM, USA). For RQ3, the WE–CR correlation was considered statistically different between groups if the interaction term had $p \leqslant 0.1$. For all other analyses, statistical significance was set at $p \leqslant 0.05$.

4. RESULTS

4.1. PARTICIPANT CHARACTERISTICS

Of the 4,412 hospital workers invited, 654 were included in the final analyses as presented in Figure 2. Participant characteristics are presented in Table 1.

4.2. CORRELATION BETWEEN WORK ENGAGEMENT AND CHANGE READINESS UNDER PRESSURE

The results show a moderate positive correlation between CR and WE ($r = 0.362$, $p < 0.001$), as shown in Table 2.[37] This analyses was for all hospital workers.

4.3. DIFFERENCES IN CHANGE READINESS AND WORK ENGAGEMENT ACROSS JOB CATEGORIES

Figure 3A and 3B present the mean CR and WE scores by job category. Physicians scored significantly higher on CR than other clinical roles ($p = 0.011$). Nursing professionals scored higher than other clinical roles ($p = 0.001$). Professionals in quality, education, HR, finance, and management also scored higher than other clinical roles ($p = 0.023$). In addition, nursing professionals scored higher than non-clinical support staff ($p = 0.029$). Regarding WE, no differences were found across job categories.

4.4. DIFFERENCES IN THE RELATIONSHIP BETWEEN CHANGE READINESS AND WORK ENGAGEMENT ACROSS JOB CATEGORIES

Differences in correlations were examined using regression analyses (Table 3) with nurses as the reference category and an interaction term (job category × WE score). Although all correlations between WE and CR per job category were significant ($r = 0.278$–0.448), no significant differences were found between job categories in the strength of the WE–CR association.

4.5. THE RELATIONSHIP BETWEEN CHANGE READINESS AND WORK ENGAGEMENT ACROSS ADOPTION CATEGORIES

Healthcare workers were categorized into three groups (Table 4) based on CR scores: innovators/early adopters (> mean + 1 SD; 13.8%), majority (mean ± 1 SD), and laggards (< mean − 1 SD; 13.1%).

The correlation between WE and CR was the strongest in the low CR group (laggards) and was significantly stronger than in the high CR group (innovators/early adopters). However, mean WE scores were highest in the high CR group and lowest in the low CR group (all group comparisons $p < 0.001$).

5. DISCUSSION

Under the high-pressure conditions of the COVID-19 pandemic, the relationship between WE and CR among hospital workers was moderate ($r = 0.362$). Across job categories, no

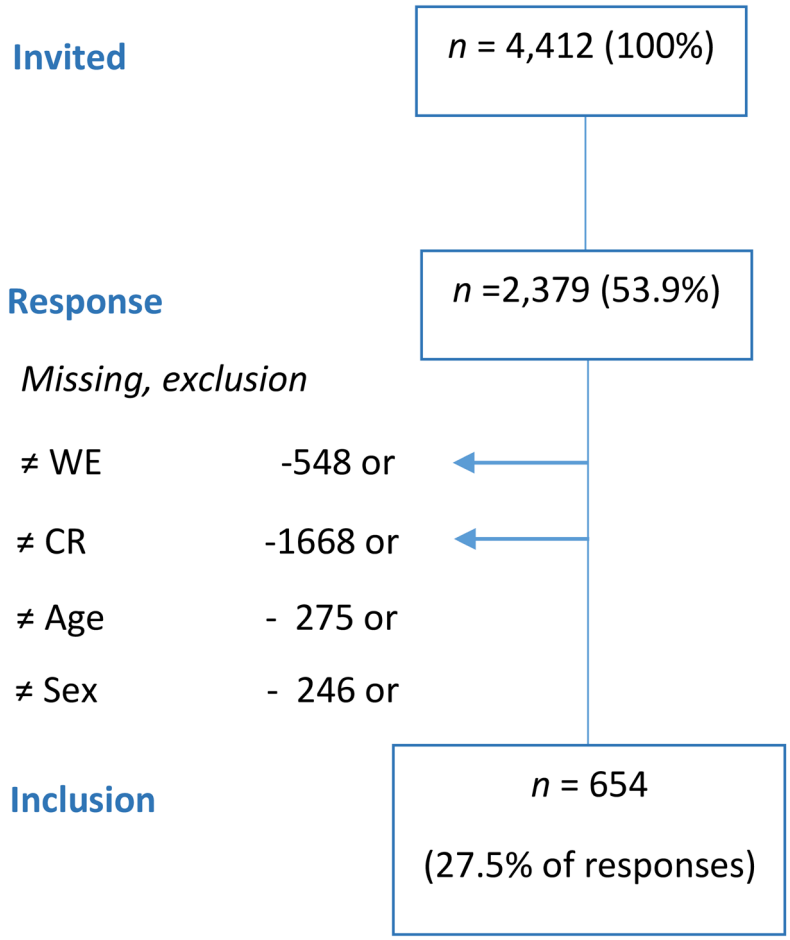

Figure 2. Flow of participants: number of employees invited, responses received, and inclusion in the analysis
Abbreviations: CR: Change readiness; WE: Work engagement.

Table 1. Participant characteristics

Characteristics	Value
Number of participants, *n* (%)	654 (100)
Age, mean (SD)	44.1 (12.0)
Sex, *n* (%)	
Female	541 (82.7)
Male	113 (17.3)
Number of healthcare professionals, *n* (%)[a]	639 (97.7)
Clinical hospital workers	391 (61.2)
Physicians	61 (11.1)
Nursing professionals	195 (35.5)
Other clinical roles (paramedical practitioners, support hospital workers in clinical care, and students)	135 (24.6)
Non-clinical hospital workers	248 (38.8)
Non-clinical support staff	144 (16.7)
Professionals in quality, education, human resource, finance, and management	104 (12.1)

Notes:[a]Categories for group analyses included all hospital worker function groups comprising >10% of participants (see Table A1). The lower number in number of healthcare professionals is due to missing data on job category.

Table 2. Mean scores of work engagement, its subscales, and change readiness among hospital workers

Variable	*r*	Instrument	
		UWES-17	STORC (adjusted)
Work engagement (n = 654)			
Work engagement overall (mean, SD)	-	3.93 (0.806)	-
Vigor (mean, SD)	-	3.93 (0.849)	-
Dedication (mean, SD)	-	4.33 (0.965)	-
Absorption (mean, SD)	-	3.60 (0.863)	-
Change readiness (n = 654)			
Change readiness (mean, SD)	-	-	3.41 (0.398)
Correlation coefficient of work engagement–change readiness	0.362 (p < 0.001)	-	-

Abbreviations: STORC: Specialty Training's Organizational Readiness for Curriculum Change; UWES-17: Utrecht Work Engagement Scale-17.

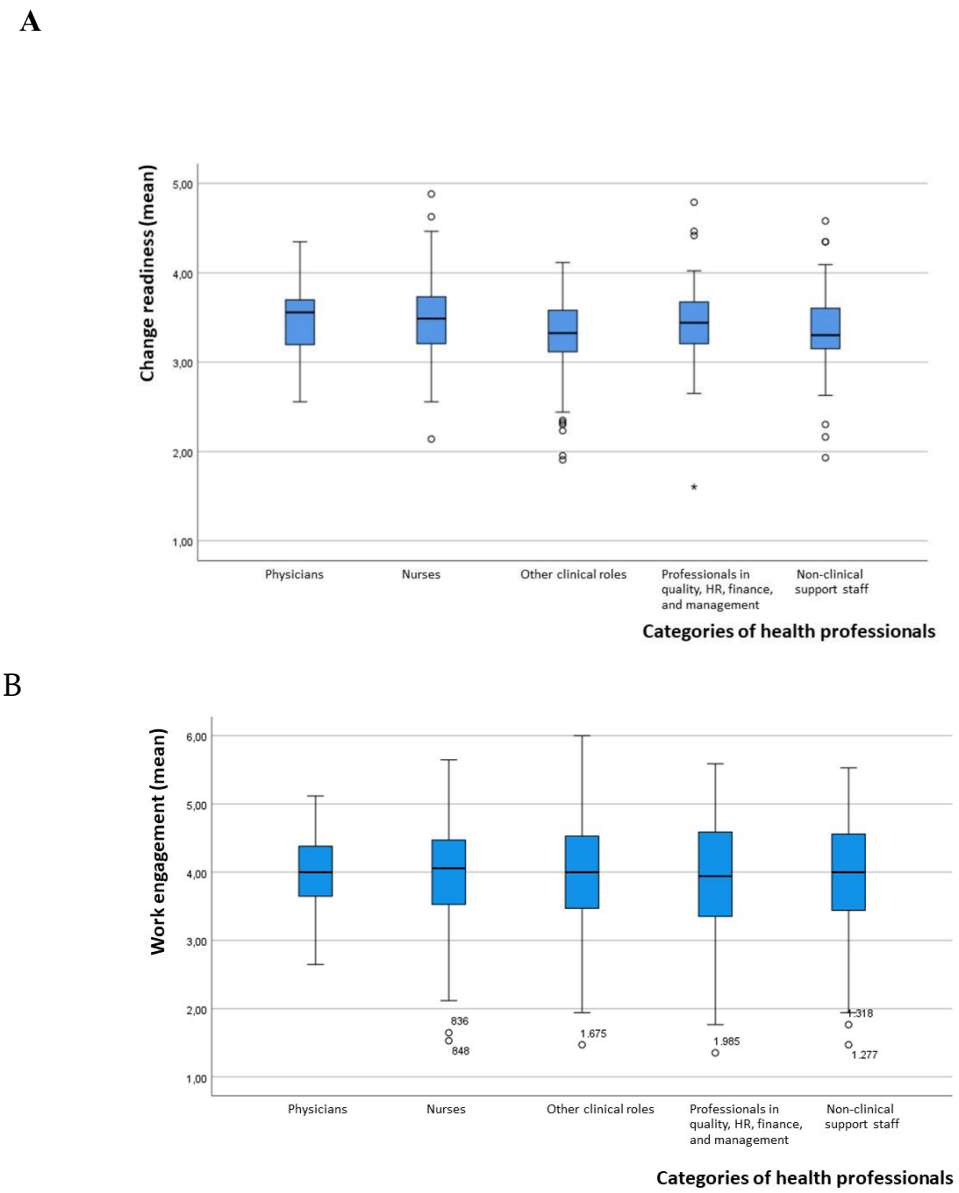

Figure 3. Mean scores of (A) change readiness and (B) work engagement by job category
Abbreviation: HR: Human resource.

Table 3. Pearson correlation coefficients between work engagement and change readiness by job category

Job category	Correlation coefficient (*r*)	*p*-value
Overall correlation (for all job categories)	0.362	<0.001
Physicians	0.276	0.010
Nursing professionals	0.414	<0.001
Other clinical roles	0.296	<0.001
Professionals in quality, education, human resource, finance, and management	0.448	<0.001
Non-clinical support staff	0.310	<0.001

Table 4. Change readiness and work engagement by adoption category

Adoption category	*n* (%)	Mean CR (SD)	Mean WE (SD)	*r* CR–WE	*p*-value (correlation)	*p*-value (comparison)
Laggards (low CR)	13.1%	2.71 (0.29)	3.39 (0.92)	0.298	0.005	Reference
Majority (middle CR)	74.6%	3.40 (0.23)	3.95 (0.77)	0.224	<0.01	0.114
Innovators/early adopters (high CR)	13.8%	3.99 (0.23)	4.31 (0.67)	0.185	0.041	0.033

Abbreviations: CR: Change readiness; WE: Work engagement.

significant differences were observed in WE scores or in the strength of the WE–CR association. However, significant differences were found in mean CR scores: nursing professionals, physicians, and professionals in quality, education, HR, finance, and management demonstrated significantly higher CR than other clinical roles. Additionally, nursing professionals scored significantly higher on CR than non-clinical support staff ($p = 0.029$).

Furthermore, analysis based on Rogers' adopter categories showed that the relationship between WE and CR was strongest among laggards, the lowest adoption category, and significantly stronger than among innovators/early adopters.

These findings raise an important question: what do they imply for future crises or periods of heightened pressure in healthcare, where maintaining engagement while remaining prepared for change is critical?[1] Although prior research on the relationship between WE and CR in healthcare is scarce, our findings align with evidence from another sector—an accounting firm—where a similarly positive and moderate relationship was reported ($r = 0.452$).[38]

The findings show no significant differences in WE across job categories, suggesting that there is no specific leverage point for selectively enhancing engagement in particular employee groups to promote CR. Rather, strengthening WE appears beneficial across all employee groups.[28,39,40]

Results for CR indicate that the job category "other clinical roles"—a heterogeneous group including paramedical practitioners, dietitians, medical secretaries, and students (approximately 25% of hospital workers)—demonstrated significantly lower CR than physicians, nursing staff, and professionals in quality, education, HR, finance, and management. This finding suggests that further investigation is warranted to better understand the work context, priorities, and potential barriers influencing CR within this group.

Regarding the job category "quality, education, HR, and finance professionals," it is important to note that their areas of expertise directly influence the daily practice of nurses, physicians, and other clinical staff. Their approaches shape how clinical hospital workers operate and learn, and the success of transformational change largely depends on how effectively these professionals collaborate with staff involved in direct patient care.[24,29]

The management subgroup within this category is distinctive. The relationship between managers and organizational members is a known predictor of innovation[41,42] and individuals in leadership positions often demonstrate greater awareness of organizational challenges and a stronger willingness to engage in change initiatives.[43,44]

When shifting the perspective to adoption categories, the strongest association between WE and CR was observed in the laggard group, which was characterized by the lowest levels of both WE and CR. Despite these relatively low scores, the strength of the association between the two constructs was greatest within this group. In contrast, innovators and early adopters—who demonstrated the weakest association between WE and CR—reported the highest levels of both WE and CR.

According to Stewart *et al.*,[45] laggards, also referred to as non-adopters, are frequently mischaracterized in implementation research. Research on the adoption of evidence-based practice indicates that laggards do not conform to Rogers' traditional characterization. They are neither uneducated nor socially isolated, may possess opinion leadership, and are generally aware of the available evidence. Their resistance is directed not toward the evidence itself, but toward externally imposed protocols that conflict with their professional experience. As a result, laggards may be unjustly portrayed as resistant to change, despite offering valuable and practice-informed insights. Engaging this group in dialogue, explicitly addressing perceived barriers, and incorporating their perspectives into change strategies

may therefore be essential for successful implementation.[45]

5.1. POTENTIAL VALUE FOR FUTURE RESEARCH

A longitudinal follow-up of this employee satisfaction survey could provide insight into the temporal relationship between WE and CR. Additionally, qualitative research exploring the perspectives of laggards may deepen understanding of the mechanisms underlying lower readiness and inform strategies to enhance engagement within this group. Without such inquiry, valuable context-specific insights may remain unrecognized. Furthermore, additional research is warranted to examine how to sustain or restore WE and CR among nursing professionals, physicians, professionals in quality, education, HR, finance, and management during ongoing healthcare transformation.

5.2. STRENGTHS AND LIMITATIONS

This study contributes to the literature by examining the previously understudied relationship between WE and CR under the high-pressure conditions of the COVID-19 pandemic. However, the findings should be interpreted in light of several limitations.

Regarding the CR questionnaire, two modifications were made to the original STORC instrument. First, items originally phrased in terms of "we" were adapted to "I." Second, references to "team" were replaced with "department." These adaptations were undertaken in consultation with one of the original STORC authors, who is also a co-author of the present study. However, no formal validation study was conducted following these modifications, which may affect the construct validity of the adapted scale.

Although the response rate was relatively low, the absolute sample size remained substantial (n = 654). Due to the study design, baseline characteristics of non-responders (e.g., age) could not be collected, as these data were obtained directly from respondents. Consequently, differences between responders and non-responders could not be examined, and potential selection bias cannot be ruled out.

The reasons for non-participation were also unknown. One plausible explanation is the timing of the survey during a period of extreme workload associated with the COVID-19 pandemic. Under such circumstances, completing a questionnaire may not have been a priority, and lower response rates may therefore have been expected.

In addition, the full questionnaire on CR was relatively long, and attrition was highest in this section of the survey. Nevertheless, the final analytical cohort remained considerable (n = 654). In retrospect, the shorter version of the WE scale (UWES-9) might have reduced respondent burden, particularly given the high internal consistency observed ($\alpha > 0.9$). However, the UWES-17 is also widely used and well established in the literature.

Furthermore, potential confounding variables were not measured and therefore could not be included in the analyses, including burnout, fear, and moral distress. Finally, given the cross-sectional design, causal inferences regarding the relationship between WE and CR cannot be drawn.

6. CONCLUSION

The correlation between WE and CR among hospital workers was moderate. Across job categories, no significant differences were observed in WE or in the strength of the association between WE and CR. However, differences in CR were identified between job categories. Further research, both quantitative and qualitative, is warranted to better understand hospital workers' daily practice and how their perspectives can be leveraged to sustain WE under pressure while maintaining readiness for change. Moreover, the adoption category "laggards" demonstrated a significantly stronger correlation between WE and CR than the "early adopters/innovators."

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

AUTHOR CONTRIBUTIONS

Conceptualization: All authors
Formal analysis: Monique M. A. Penturij, Carolina J. P. W. Keijsers, Babette C. van der Zwaard
Investigation: Monique M. A. Penturij, Carolina J. P. W. Keijsers, Fedde Scheele
Methodology: All authors
Writing–original draft: All authors
Writing–review & editing: All authors

ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by the Medical Ethics Committee Brabant (METC [NW2020-83]). In an email to invite all employees to participate in the survey, it was stated that participation was voluntary and that data were analyzed anonymously.

CONSENT FOR PUBLICATION

Not applicable, as the questonairre was voluntary. The Medical Ethical Committee Brabant approved that no further written informed consent was needed from the participants.

DATA AVAILABILITY STATEMENT

The datasets generated and/or analyzed during the current study are available from the corresponding author upon request.

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APPENDIX

Table A1. Categorization of occupations using ISCO-08 with a ≥10% representation criterion

Job type (open answer)	ISCO-08	Main occupational category in this study	Group >10%
110-Medical specialists	221-Medical doctors	Physicians	Physicians
120-Medical residents	221-Medical doctors		
210-Nurses	2221-Nursing professionals	Nursing professionals	Nursing professionals
220-Midwives	2222-Mid-wifery professionals		
230-Operating room assistant	2221-Nursing professionals		
310-Nurse practitioner	2240-Paramedical practitioners	Paramedical practitioners	Other clinical roles
320-Phycisian assistant	2240-Paramedical practitioners		
400-Paramedics	2240-Paramedical practitioners		
900-Students	Students in ISCO are classified within the occupation	Students	
620-Receptionist	4226-Receptionists (general)	Clinical support staff	
630-Nutritional assistant	2265-Dietitians and nutritionists		
640-Secretary	3344-Medical secretaries		
650-Not elsewhere classified	4419-Clerical support workers, not elsewhere classified		
660-Medical assistant	3256-Medical assistant		
670-Telephone operator	4223-Telephone switchboard operator		
510-Analysts, laboratory, and pharmacy	321-Medical and pharmaceutical technicians	Non-clinical support staff	Non-clinical support staff
520-Administration	3343-Administrative and executive secretaries		
610-Cleaner	9112-Cleaners and helpers in offices, hotels, and other establishments		
530-Not elsewhere classified	2269-Health professionals, not elsewhere classified		
540-Secretary	3343-Administrative and executive secretaries		
550-Planner	4419-Clerical support workers not elsewhere classified		
710-Consultant	2-Professionals	Professionals in quality, education, and finance	Professionals in quality, education, human resource, finance, and management
720-Not elsewhere classified	2-Professionals	Human resource professionals	
810-Manager	134-Professional services managers	Management	
820-Head of department	134-Professional services managers		

Abbreviation: ISCO-08: International Standard Classification of Occupations-08.

Table A2. Specialty Training's Organizational Readiness for Curriculum Change questionnaire

Category	Number of items	Topics covered	Example	Reliability (Cronbach's α)
Pressure to change	3	Which sources exert pressure to implement a particular change, and to what extent	Current pressures to implement innovation mainly come from healthcare professionals	0.338
Appropriateness	3	Is the innovation appropriate for the situation being addressed	This change will be an improvement over our current practices	0.757
Necessity to change	3	Is there a significant difference between the current state and the desired state	A change is needed to improve health care	0.548
Management support and leadership	2	Is the board (hospital level) committed and supportive of the change initiative	Our hospital board provides time and resources to implement this change	0.737
Staff culture	6	Do clinical staff members cooperate and share responsibilities, and are they willing to innovate	Staff members work together as a team	0.774
Formal leader	3	Does the program director accept responsibility and have the authority to lead the implementation of a particular change	The formal leader accepts responsibility for the success of this change initiative	0.805
Involvement	6	Involvement in the innovation initiative	In our department, we are sufficiently consulted about the change	0.836
Project resources	8	Which resources are available to implement a particular change, and to what extent	For successful innovation, there are enough financial resources	0.859
Clarity of mission goals	3	Are team members aware of the mission and goals of the change	Our duties are clearly related to the goals of this change	0.813
Implementation plan	5	Is there an implementation plan thatdescribes, among other elements, tasks, timelines, and an evaluation plan	The implementation plan describes clear tasks and timelines	0.892
Overall	43	-	-	0.935