

BMJ Open “Are you ready?” Validation of the Hospital Change Readiness (HCR) Questionnaire

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ABSTRACT

Objective Organisational change in hospitals is a frequent, seemingly inevitable occurrence. A critical precursor to successful organisational change is change readiness. This paper presents the adaptation of a self-report measure of change readiness for hospital staff, examines its reliability and validity, and evaluates the relationship between hospital change readiness (HCR) and staff well-being.

Methods The questionnaire was piloted among 153 staff from a large metropolitan, public hospital in Sydney, Australia. The hospital was undergoing a major change involving a multimillion-dollar development project that included a new building and new models of care. Construct validity was evaluated by confirmatory factor analysis (CFA) and reliability was assessed by internal consistency. Differences between professional groups were examined using regression analyses and structural equation modelling (SEM) was used to test the relationship between change readiness and staff well-being (job satisfaction and burnout).

Results The HCR Questionnaire was found to reflect theoretically derived and empirically observed domains and have high internal reliability. CFA identified that a two-factor structure demonstrated excellent fit. Cronbach's alpha for the two subscales (appropriateness and change efficacy) was 0.85 and 0.75, respectively. No statistically significant differences of HCR were identified between professional groups. SEM revealed that perceiving change as appropriate was significantly positively related to job satisfaction (0.33) and significantly negatively related to burnout (−0.30), and feeling capable in implementing the change was significantly negatively related to burnout (−0.40).

Conclusions The HCR Questionnaire provides reliable information on how prepared hospital staff felt for organisational change and showed significant relationships with staff well-being. This questionnaire is validated for the Australian hospital context, particularly in the case of hospital redevelopment. It can be used to help manage times of hospital organisational change with minimal disruption to the quality and safety of patient care.

INTRODUCTION

The acute healthcare sector is a highly dynamic and challenging workplace for staff who are required to provide high-quality and

Strengths and limitations of this study

- The validation of the Hospital Change Readiness (HCR) Questionnaire was based on an established questionnaire.
- A key strength of the study is the inclusion of clinical and non-clinical hospital staff.
- A limitation of the study is that data were collected from one Australian hospital, thus limiting the generalisability of study findings.

safe care. Hospitals are constantly required to adapt in response to new evidence and new models of care, changes to workforce, governing structures, policy and legislation, or the introduction of new technologies and equipment.¹ In addition to these changing elements, reconfiguring the physical infrastructure of hospitals, such as through redevelopment and modernisation of buildings, is among the most significant events in hospitals. This is because altering the physical infrastructure is often accompanied by organisational, behavioural, and social changes, such as requiring that staff work differently as a team.² A key challenge is ensuring that these organisational change initiatives (eg, redeveloping a hospital) have long-term success in being sustained, with minimal disruption to the quality and safety of patient care.

From an organisational change management point of view, the success of past hospital redevelopments has been questionable. Issues have included staff perceptions that changes are excessive, with too many new and unfamiliar processes being implemented.³ There have also been reports of insufficient staffing and resources, as well as experiences of feeling uninformed.^{2 4} Staff perceptions of poor management of hospital redevelopments has been associated with low staff morale in various settings internationally.^{3 5} One contributing factor to the negative influence of hospital redevelopment on staff

is a lack of awareness, and thus not feeling ready for the change to come,⁶ also known as, change readiness.⁷

Change readiness

Change readiness reflects the extent to which individuals are cognitively and emotionally inclined to accept, embrace and adopt a particular change that will alter the status quo.⁷ At the psychological, individual level, change readiness relates to individual beliefs. These include whether or not individuals: (1) feel a change is appropriate (ie, appropriateness), (2) believe management are committed to the change (ie, management support), (3) feel capable of implementing the proposed change (ie, change-specific efficacy) and (4) believe the change is personally beneficial (ie, personal valence).⁸ Change readiness is among the most commonly studied attitude in the organisational change literature.⁹ The importance of change readiness lies in its relations to the adoption or acceptance of the change initiatives at hand,¹⁰ which contributes to the success of organisations.¹¹ In the case of healthcare, successful implementation of change initiatives are integral to the delivery of safe and quality care.¹²

Employee's attitudes towards an expected change (ie, change readiness) are also related to staff well-being.¹³ Low staff well-being is a serious concern in healthcare workers as it may affect the quality of professional care delivered to patients.¹⁴ Indeed, poor well-being and experiences of burnout are associated with poor patient safety outcomes such as medical errors.¹⁵ Recent literature has examined the psychological impact of organisational change, specifically, how not feeling ready or informed can have negative effects on staff well-being.¹⁶ Further, when staff feel ready and prepared for organisational change, they tend to experience higher levels of job satisfaction.^{16 17} In addition to job satisfaction, past research has also shown that when staff have high perceptions of individual change readiness they experience low overall burnout.¹⁷ This is consistent with the experiences of burnout and fatigue reported in a recent study of large organisational change, where hospital staff reported feeling fatigued, uninformed and 'not ready'.² With limited research exploring the influence of change readiness on staff well-being in hospitals, it is important that this relationship is further explored.

Change readiness instruments

Given the importance of change readiness to ultimate success of a change, there has been considerable research focused on developing instruments to assess this construct,^{18 19} with cross-sectional questionnaires being the most common.²⁰ Some of these questionnaires include: 15-item measure of Organizational Readiness for Implementing Change (ORIC)²¹; 77-item measure of Organizational Readiness to Change Assessment²²; 59-item Organizational Readiness for Knowledge Translation in healthcare organisations²³ and 25-item Readiness for Organisational Change Instrument.⁸ These questionnaires vary in their reliability and validity, dimensions

measured and applicability within the healthcare context.¹⁸

A point of difference between many existing measures of change readiness is that several consider this phenomenon on the organisational—rather than the individual level. For example, items related to change efficacy from the ORIC focus on collective attitudes (ie, the supra-individual level): 'People who work here feel confident that they can handle the challenges that might arise in implementing this change'.²¹ This limits the potential to evaluate change efficacy as an individual factor. It is important to consider the individual attitudes and experiences of change because how members of an organisation are psychologically and behaviourally prepared for change implementation on the individual level²⁰ can predict the success of the change—'organisations only change and act through their members' (George and Jones,²⁴ p420). One survey instrument that has received considerable attention and does consider individual (rather than organisational) readiness for change (eg, "I have the skills that are needed to make this change work") is the Readiness for Organisational Change Instrument developed by Holt *et al.*⁸ The original scale was developed through a systematic process of measurement development and psychometric testing. The instrument exhibited evidence of convergent, discriminant and concurrent, and predictive validity and has been rated superior to other surveys of change readiness that did not include such rigorous psychometric testing.²⁰ The Readiness for Organisational Change Instrument was developed in a general setting of public and private sector organisations⁸ and has been used in healthcare contexts, including: to study clinicians' perceptions of change readiness for clinical information system projects,²⁵ examining healthcare provider readiness for the application of eHealth in primary healthcare centres²⁶ and a study of the changing organisational climate and leadership practices in residential aged care facilities.²⁷ While one study used items from The Readiness for Organisational Change Instrument to examine change readiness in the context of a hospital redevelopment in Canada,¹⁷ there is a lack of psychometric validation of the instrument in hospital settings. The reliability and validity of change readiness instruments are context dependent,¹⁸ thus validation in the hospital setting is required.

Hospitals are a unique context for survey use because pressures of service delivery in acute care hospitals may mean that staff have limited time to participate in research; instruments to be used in this context must be developed in consideration of feasibility (ie, the number of items and time it takes to complete the questionnaire). In regards to organisational change in Australian hospitals, there are certain contextual nuances that must be considered. The Australian healthcare system—considered one of the best in the world²⁸—is a hybrid model, combining welfare state and market models, where state and territory governments are responsible for operating public hospitals.²⁹ A common change in Australian

hospitals is the redevelopment of hospitals,^{30 31} which is often externally commissioned and funded by state governments³² and entails transformative, multidimensional change (eg, organisational, physical and social change).³³ For example, in 2015–2016, \$A10 billion was spent on capital expenditure,³⁴ and such expenditure is promised to continue.³⁵

In response to the call to validate the application of change readiness instrument in different contexts¹⁸ we propose to adapt the Readiness for Organisational Change Instrument⁸ to a measure of hospital change readiness (HCR) feasible for hospital staff (ie, minimal number of questions) and validated for the Australian hospital context.

Study aim

The objectives of the current study were: (1) to adapt a self-administered questionnaire (based on an established instrument;⁸ (2) examine its reliability and validity in measuring change readiness in the Australian hospital context; and, (3) evaluate the relationship between HCR and staff well-being.

METHODS

Participants

The change readiness instrument was part of a cross-sectional survey administered to staff from a large metropolitan, public hospital in Australia. The hospital had between 200 and 500 beds and, at the time of data collection, was undergoing a multimillion-dollar development project to meet the growing needs of the community. The redevelopment comprised the opening of a new acute services building, the relocation of several wards to this new building, increases in resources (equipment, staffing), greater space (with implications for cleaning, and staff and patient transport between departments),² changes in ward layouts requiring reconfiguration of teams and the adoption of new e-medical systems of care delivery. Further details of the redevelopment are provided elsewhere.³⁶ The survey was conducted between July and August 2019 and was open to all hospital staff (clinical and non-clinical). The study was supported by the hospital executive managers and advertised as a way to understand the experiences of staff as direct users of the organisational change. Distribution was both online and via paper-based form. Online questionnaires were distributed to staff via email from an online all-staff bulletin. Hospital staff were invited to participate by clicking on a link powered by Qualtrics.³⁷ Paper-based questionnaires were distributed in person by line managers and health professional directors. Informed consent to participate in the research was obtained on a voluntary basis.

Questionnaire development

The initial pool of items for the HCR Questionnaire were based on items from the Readiness for Organisational Change Instrument.⁸ We adapted this original measure

for two reasons: (1) to create a survey that was feasible for use among hospital staff (ie, shorter in length) and (2) valid for the Australian hospital context. Holt *et al's*⁸ questionnaire comprised four dimensions: appropriateness, change efficacy, personally beneficial and management support. Only three dimensions were selected for the HCR Questionnaire because the fourth dimension (management support) was not deemed relevant to how management operates in the Australian hospital context (ie, evidence suggests that questions regarding management are not interpreted in the same way across all staff³⁸). Item selection within the three dimensions was based on consideration of strongest item factor loadings from Holt *et al's*⁸ study and relevance to the site (Australian hospital context), a judgement based on the authors' experience as health services researchers and their previous research at the site.² Based on this previous research, an additional item was added: 'This change will improve my communication with other staff'. This resulted in a 12-item instrument to capture change readiness in the Australian hospital context (table 1). The items were measured on a seven-point Likert Scale ranging from 1=strongly disagree to 7=strongly agree, with higher scores indicating a greater degree of change readiness. Survey instructions included a definition of 'change' as 'the opening of the new acute services building'. Survey items were reviewed by an expert panel (n=10; researchers and hospital staff not involved as participants in the study) and modified where necessary to increase clarity. See online supplementary appendix 1 for the final version of the questionnaire.

Staff outcome measures

The survey included measures of staff well-being: job satisfaction and burnout. Job satisfaction was measured with the Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale,³⁹ a validated, three-item scale used in past healthcare research.⁴⁰ Responses were made on a seven-point scale ranging from 1=strongly disagree to 7=strongly agree, with higher scores indicating a greater degree of job satisfaction. A sample item is: "In general, I like working here". Bowling and Hammond³⁹ reported an acceptable level of internal reliability (0.84). In the present study, our Cronbach's alpha (internal consistency) coefficient was 0.71. Burnout was assessed using a 10-item version of the Maslach Burnout Inventory,⁴¹ similar to past research in healthcare.⁴² In this survey, five items each were used to assess emotional exhaustion and depersonalisation—the third subscale, personal accomplishment, was deemed less relevant to non-clinical staff. Items were measured on a seven-point Likert Scale. An example item is: "I feel emotionally drained from my work". Higher scores indicated a greater degree of burnout. The internal consistency of the present study (0.93) was similar to the original (0.91).

Data analysis

Where necessary, items were reverse coded so that items with a value of one indicated low change readiness, low

Table 1 Descriptive statistics for all items

Questionnaire item	M (SD)	Skewness Index	Kurtosis Index
Appropriateness			
A1. I think the (hospital name) will benefit from this change.*	5.40 (1.54)	-6.16	2.7
A2. There are legitimate reasons for us to make this change.*	5.73 (1.18)	-7.94	8.7
A3. This change will improve our (hospital name) overall efficiency.*	4.63 (1.68)	-2.09	-1.25
A4. I am sceptical of the promise that things will be better for the organisation after we change.	4.48 (1.72)	0.84	2.48
Change efficacy			
C1. I do not anticipate any problems adjusting to the work I will have when this change occurs.*	3.33 (1.81)	2.32	-2.08
C2. There are some tasks that will be required when we change that I do not think I can do well.*	3.57 (1.70)	-1.61	1.8
C3. When we implement this change, I feel I can handle it with ease.*	4.44 (1.54)	-2.23	-0.39
C4. I have the skills that are needed to make this change work.*	5.18 (1.23)	-2.29	0.08
Personally beneficial			
P1. This change will disrupt many of the personal relationships at work.	3.37 (1.61)	-1.22	1.49
P2. In the long run, I feel it will be worthwhile for me when the change occurs.	4.90 (1.47)	-3.32	0.44
P3. This change makes my job easier.	3.56 (1.53)	-0.77	-1.52
P4. This change will improve my communication with other staff.	3.65 (1.31)	-1.6	0.62

*Items included in final model after confirmatory factor analysis.

job satisfaction and low burnout. Skewness and Kurtosis were calculated to test whether items violated assumptions of normality (ie, Skewness Index ≥ 3 , Kurtosis Index ≥ 10 ⁴³). As a couple of items were skewed, the χ^2 significance value was corrected for bias using the Bollen-Stine bootstrapping method based on 1000 bootstrapped samples.⁴⁴

Confirmatory factor analysis (CFA) was run using Analysis of MOment Structures (AMOS) Version 25 to psychometrically evaluate items and assess construct validity (ie, to determine if the hypothesised statistical model fits the actual dataset by using a number of 'goodness-of-fit' statistics⁴⁵). This involved loading each item to its original factor.⁸ Fit was examined using the following statistics: χ^2 , Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) and the root mean square error of approximation (RMSEA). The χ^2 test statistic is expected to have a p value > 0.05 . The CFI and TLI vary between 0 and 1 where values greater than 0.90 and 0.95 reflect acceptable and excellent fits to the data, respectively. RMSEA values of less than 0.05 reflect a model with a close fit and 0.08 reasonable fit to the data.⁴⁶ The reliability of each subscale was measured using Cronbach's alpha (α). Although there is no universal consensus on what indicates an acceptable level of reliability, we take the general consensus that an alpha greater than 0.7 is appropriate.⁴⁷ Further, differences in change readiness between professional groups were analysed using regression analyses. Lastly, the relationship between HCR and staff well-being was then assessed using structural equation modelling

(SEM) in AMOS. Outcome measures of staff well-being were job satisfaction and burnout.

Patient and public involvement

Although we acknowledge the importance of external stakeholder engagement in change initiatives (including hospital redevelopment), this study, part of a larger programme of work, focused on the experiences of staff.

RESULTS

Sample characteristics

We received 211 surveys; only complete data were used (ie, non-complete questionnaires were excluded), resulting in 153 usable responses. The estimated survey response rate is 21%, similar to other surveys conducted in hospitals.⁴⁸ Sample characteristics are detailed in table 2. Independent sample t-tests revealed no significant differences between response medium (online (n=132; 86.3%) or in person (n=21; 13.7%)), or for gender, age, role, and experience working at the hospital under investigation (p<0.001). The means, SD, and Skewness and Kurtosis Index scores for all items are provided in table 1.

Confirmatory factor analysis

A series of CFA models was conducted using AMOS to identify the most suitable factor model.⁴⁹ We first tested a three-factor model for appropriateness, change efficacy and personally beneficial, with four items in each factor. Factor loadings in this model were poor with an overall poorly fitting model (online supplementary appendix

Table 2 Participant characteristics (n=153)

Characteristics	Includes	n (%)
Gender	Male	41 (27)
	Female	109 (71.7)
	Other	2 (1.3)
Age (years)	18–24	8 (5.2)
	25–34	36 (23.5)
	35–44	33 (21.6)
	45–54	44 (28.8)
	55–64	26 (17)
	65+	6 (3.9)
Role	Clinical	93 (61.6)
	Non-clinical	37 (24.5)
	Both	20 (13.2)
	Other	1 (0.7)
Profession	Administration/clerical	20 (13.1)
	Allied health professional	12 (7.8)
	Management	17 (11.1)
	Medical officer/consultant	26 (17)
	Registered nurse/midwife/enrolled nurse	60 (39.2)
	Other (eg, cleaning, porter, security and chaplain)	22 (14.4)
Experience at hospital (years)	<1	15 (10.1)
	1–3	37 (24.8)
	4–6	35 (23.5)
	7+	62 (41.6)

Responses may not equal 153 usable responses due to missing data.

2). At this stage, we removed five items (A4, P1, P2, P3 and P4), one at a time, based on the examination of modification indices and standardised factor loadings, which suggested that their removal may improve model fit. Theoretical content and meaning of the proposed construct were considered before removing items. This led to the second and final model that showed adequate model fit.

In the second CFA, a two-factor model (appropriateness, change efficacy) was run using the reduced item set. Inspection of fit statistics, factor loadings, standardised residuals and modification indices was undertaken. The moderate covariance (0.642) between the two factors was significant, showing that both subscales measured components of the same construct. There was moderate and significant correlations (r : 0.30–0.72) between the items for each subscale. Pearson correlation statistics were all less than 0.85 indicating that multicollinearity was not of concern. The chi-square test did not show significance ($\chi^2=18.289$, $df=13$, $p=0.147$); which is desirable, further supporting the two-factor model. The model demonstrated excellent fit across all additional fit measures

(CFI=0.986, TLI=0.978 and RMSEA=0.052 (90% CI: 0.00 to 0.102)). The overall internal consistency for the final model was 0.81, strongly supporting scale reliability (appropriateness (0.85) and change efficacy (0.75)).

Comparisons between professional groups

A one-way Analysis of Variance (ANOVA) was conducted to determine if profession predicted differences in HCR (total score of final seven items). Professional groups remained their own category if there were more than five respondents per group (administration/clerical, allied health professional, management, medical officer/consultant and registered nurse/midwife/enrolled nurse). For professions with less than five respondents (eg, security officer) data were designated to the 'other' category. There was no statistically significant difference in HCR based on staff profession, $F(5, 147)=0.378$, $p=0.86$.

Structural equation modelling

The relationship between HCR and staff well-being (job satisfaction and burnout) was assessed using SEM (figure 1). Three respondents were removed from this analysis due to missing data on well-being questions ($n=150$). First, we tested a model examining the relationship between job satisfaction (endogenous) and appropriateness and change efficacy (exogenous variables) (figure 1). The model accounted for 19% of variance in job satisfaction. The hypothesised model provided an acceptable fit to the data (CFI=0.990, TLI=0.980 and RMSEA=0.039 (90% CI: 0.00 to 0.085), $\chi^2=22.139$ ($df=18$, $p=0.226$)). Perceiving the change as appropriate (appropriateness) was significantly, positively related to job satisfaction ($\beta=0.33$, $p<0.001$). However, there was no significant direct effect of change efficacy on job satisfaction ($\beta=0.16$, $p=0.132$).

For the second model (with burnout as the endogenous variable), there was an acceptable fit to the data (CFI=0.987, TLI=0.974 and RMSEA=0.045 (90% CI: 0.00 to 0.524), $\chi^2=23.699$ ($df=18$, $p=0.165$)). The model accounted for 38% of variance in burnout. The results of the analysis showed that perceiving the change as appropriate (appropriateness; $\beta=-0.30$, $p<0.001$) and feeling capable in implementing the change (change efficacy; $\beta=-0.40$, $p<0.001$) were significantly, negatively related to burnout.

DISCUSSION

The seven-item HCR Questionnaire is a reliable and valid measure that can be used to assess hospital staff's attitudes towards, and readiness for, organisational change. It is suitable for the Australian hospital context, where redevelopments and organisational changes are common occurrences^{30 31} and short surveys are needed for hospital staff because pressures of service delivery in acute care hospitals may mean that staff have limited time to participate in research. The present study found that perceiving an organisational change in a hospital as appropriate

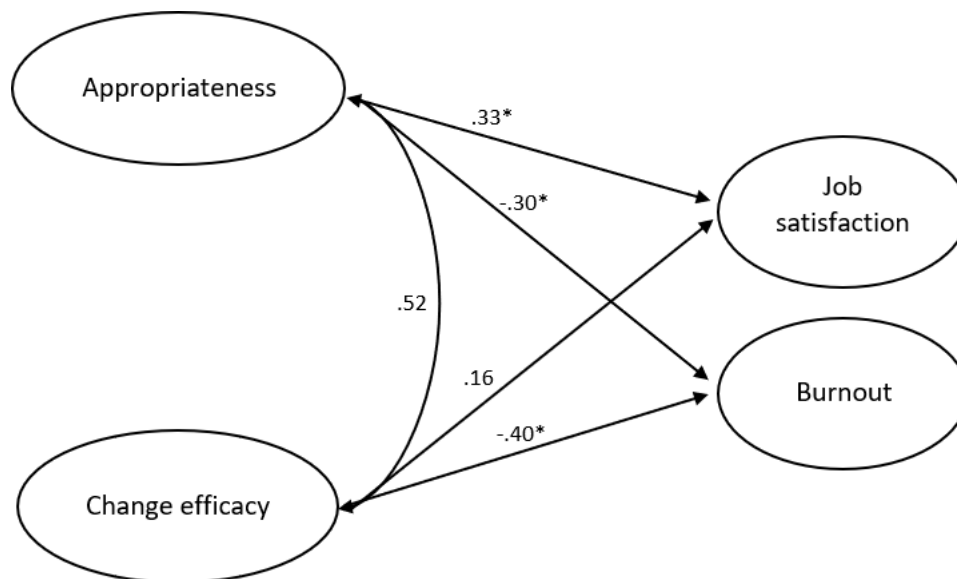


Figure 1 Structural equation modelling of hospital change readiness and staff well-being. *Significant finding ($p < 0.001$).

(appropriateness) was positively related to job satisfaction and negatively related to burnout, and individual belief about their capability in implementing the change (change efficacy) was negatively related to burnout but was not significantly related to job satisfaction.

The present study found that change readiness for hospital staff comprised two factors: appropriateness and change efficacy. A third subscale from the original 'Readiness for Organisational Change Instrument',⁸ Personally beneficial, was however, deemed not applicable to the hospital context. The development of the HCR Questionnaire was largely based on the Readiness for Organisational Change Instrument, where the development of items stemmed from the perceptions of managers from public and private sector organisations (not specific to healthcare).⁸ One reason why 'personally beneficial' did not fit appropriately into the model of change readiness for this hospital-based study may be because healthcare services are orientated around what is best for the patient, rather than considering staff needs. That is, hospital staff may prioritise the benefits of the patient or the benefits of the team over their own (ie, personally beneficial—how will I cope?). Thus, the present study suggests that unlike other organisations, 'personally beneficial' may not be an appropriate factor in measuring change readiness in hospital contexts.

We found that HCR did not differ based on professional group. This contrasts to past hospital research that found differences in the attitudes (including change readiness) and experiences of change between different professional groups.^{50–52} For example, Martin *et al*⁵⁰ examined the effect of professional group on adjusting to change (amalgamation and deamalgamation of hospital departments) and found that non-clinical staff reported more negative attitudes compared with other professional groups. In another study, Abrahamsen *et al*⁵² found that change readiness for a new interprofessional

orthogeriatric unit differed between professional groups (nursing staff, physicians, therapists and other). One reason for the contrasting findings reported in the present study compared with past literature may be that there was a generally low perception of change readiness among all participants towards the hospital redevelopment (supported qualitatively in past research⁹). Staff at this hospital—including executives—reported that they were uncertain and uninformed about the change²; this may explain why staff were consistent in their views of change readiness and no differences were found between professional groups. These findings may also be specific to the context of hospital redevelopment. Unlike other organisational change initiatives that may be driven by hospital executives or even staff working within the hospital, in Australia, public hospital redevelopments are commissioned and funded by state government (ie, 'top-down').³² Staff may, hence, experience this change as an imposition, particularly when there is little consultation about their concerns or goals for the redevelopment.² This highlights the importance of assessing change readiness for this type of organisational change.

Consistent with past research, we found that change readiness was significantly, positively related to job satisfaction.^{16 17 53} We investigated the relationships of the two subscales in predicting staff outcomes separately. For job satisfaction, we found a significant, positive relationship for appropriateness; however, there was no significant relationship for change efficacy. This implies that while perceiving a hospital redevelopment as appropriate is associated with higher levels of job satisfaction, one's capability of being involved in the redevelopment was not associated with job satisfaction. This finding is partially consistent with past research. Specifically, Holt *et al*⁸ found that both appropriateness and change efficacy were positively related to job satisfaction. One potential reason for this discrepancy is that during hospital redevelopment

hospital staff feel uninformed about the change, fatigued and understaffed²; this leaves little room for feeling capable to take on the change. More so, it may be the case that staff feel powerless to influence decisions and implementation of the hospital redevelopment. In the context of a hospital redevelopment, staff are passive to changes (ie, have little choice whether to adopt a change as their work is physically moved regardless of if they are ready or not). This may be different to other changes such as policy implementation where staff take a more active approach to change (ie, will I adopt this new policy change or just keep doing what I have been doing?). It is important that hospital staff maintain a sense of ownership and capability during organisational change as this is a known predictor of the success of change initiatives in healthcare.¹¹ For hospital redevelopment, this may mean asking for staff input throughout the design phase and involving them on decisions regarding resources (eg, will this new equipment work?). By measuring change readiness, we can gain an understanding of the current attitudes to hospital staff, and thus support their readiness—and in turn, heighten job satisfaction and ultimately support the delivery of safe and high-quality care.

In addition to job satisfaction, we also evaluated the relationship between change readiness and burnout. We found that both subscales (appropriateness and change efficacy) were significantly, negatively related to burnout. This finding is consistent with a past study examining the relationship between change readiness and burnout in hospitals¹⁷ and the broader healthcare literature regarding the association between organisational change and burnout. In this regard, organisational change is found to be a major source of workplace stress and associated with a wide range of negative behavioural, psychological and physiological outcomes.^{54–56} Burnout is a common experience among healthcare professionals and can have substantial effects on clinical care and patient safety.⁵⁷ It is important that staff feel ‘ready’ for organisational change, specifically believing the change is appropriate and that they are capable of implementing the change, in order to reduce the chance of experiencing high levels of burnout and consequently, reduce threats to the delivery of safety and high-quality patient care.

The findings of this study should be considered in light of its limitations. One Australian hospital was used for examining the reliability and validity of the HCR Questionnaire, and thus some findings may be limited to the contextual nuances of that hospital and the nature of the change (ie, an external, government led hospital redevelopment). Further, the removal of the subscale ‘management support’ from the original scale was another potential limitation. Future validations of this HCR Questionnaire in hospital settings should consider including this subscale to determine its relevance. A strength of this study was that it included a variety of hospital staff, such as medical specialists, cleaners, porters, nursing unit managers, administrative staff and hospital executives. Coupled with the finding that there were no significant

differences in HCR between professional groups, this contributes to the broad applicability of the questionnaire across various clinical and non-clinical hospital staff. However, this finding is limited to the number of participants in which to make comparisons across professional groups. The overall number of participants (n=153) may also be considered a limitation of this study. While the sample size necessary for an adequately powered CFA is widely debated, some researchers suggest minimum sample size can be derived by multiplying the number of variables by a factor, while others recommend a numerical minimum, ranging from 100 to 1000 participants. Others suggest that 10 participants per estimated parameter are acceptable.⁵⁸ For this study, the numeric minimum (n=100) was met, and thus the power of the CFA deemed acceptable.^{59 60} Lastly, a notable strength of this study was that factors of HCR (appropriateness and change efficacy) were included independently in the SEM. This provided a more detailed understanding of the predictive relationships between HCR and staff well-being.

The HCR Questionnaire fills an important gap in assessing the attitudes and change readiness of hospital staff—an important factor in predicting the success of such a large organisational change. The questionnaire may be used to determine whether staff are adequately prepared for organisational change (such as hospital redevelopment) and if further training is required. Specifically, the questionnaire should be used as part of change management initiatives during hospital organisational change to gain an understanding of how ‘ready’ staff feel for the change, and thus highlight areas of tension that may threaten the success of the change and adversely affect quality of care and safety of patients. After all, staff are integral for change implementation success.^{20 24}

CONCLUSION

The HCR Questionnaire can provide novel information for health systems researchers and policy improvement regarding how prepared hospital staff are for organisational change. A two-factor model comprising appropriateness (three items) and change efficacy (four items) yielded acceptable fit. SEM revealed that appropriateness was negatively related to burnout and positively related to job satisfaction. Change efficacy was negatively related to burnout but had no effect on job satisfaction. This is an important finding as hospital redevelopments are frequent and inevitable occurrences worldwide. The HCR Questionnaire can be used to help manage times of large organisational change and identify in what ways we can help staff feel more prepared, to ensure the long-term success of organisational change, with minimal disruption to the safety and quality of patient care.

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Patient consent for publication Not required.

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Data availability statement Data are available upon reasonable request. The datasets analysed in the current study are not publicly available due to individual privacy, but de-identified data are available from the corresponding author on reasonable request.

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