International Journal of Human Resource Studies
ISSN 2162-3058
2026, Vol. 16, No. 2

Assessing the Impact of Balanced Scorecard Performance Measurement Impact on Retention and Engagement of Registered Nurses; A Descriptive Study at Armed Forces Hospital in Najran, Kingdom of Saudi Arabia

Asliza Binti Mohd Arshad

Malaysia University of Science and Technology, Petaling Jaya, Malaysia

Ma Tin Cho Mar

Malaysia University of Science and Technology, Petaling Jaya, Malaysia

Abstract

Registered Nurses (RNs) and other health workers may be hard to sustain, recruit and retain in the health sector, which can affect the sustainability of health sector workers, quality of care, and health sector performance. This is a cross-sectional quantitative study which aims at exploring the relationship between the registered nurses measured variables (Satisfaction, work engagement, intention to stay) in the Armed Forces Hospital, Najran, KSA and perceived Balanced Score Card (BSC) performance measurement practices.

A structured questionnaire was used to gather the data from 140 registered nurses and the statistical analysis involved reliability analysis (Cronbach's Alpha), exploratory factor analysis (EFA), correlation analysis, direct-effect regression analysis and mediation analysis. The results demonstrated that BSC perception statistically significantly correlated with nurse satisfaction to the extent of less than 0.5, and less than 0.2 to nurse work engagement and nurse turnover intentions, respectively, and that these two were weak to lack any meaning at all.

The results indicate that BSC as a structured tool for measuring the performance and communicating and aligning the organisation is not a standalone tool to improve the outcomes of the nurse workforce. However, other factors, such as leadership support, culture, workload, compensation, and professional development and work-life balance, might also affect nurse engagement and retention.

The study contributes to the literature on healthcare management by highlighting the

importance of examining the performance measurement systems and not only the implementation of the BSC. Future studies could benefit from using a longitudinal design and multi-hospital sample to obtain more evidence of the relationship between BSC practices and nursing workforce outcomes.

1. Introduction

1.1 Introduction

RN retention and engagement remains a top priority throughout the health care system. Nursing staff turnover may impact the psychological health of those nursing staff who stay, continuity of care, patient safety, service quality and organisational effectiveness. Under-staffing of staff can cause increased workload, work fatigue, medication errors, patient falls, HAI infection and reduce patients and nurses' satisfaction (Lambert et al., 2024). Nurses are therefore still very much a part of delivering safe and effective, person centred health care services (Albalawi, 2021).

Nurses play a critical role in delivering quality healthcare services and ensuring positive patient outcomes. However, healthcare organizations often face challenges in retaining and engaging nurses, leading to high turnover rates and potential negative impacts on patient care. To address this issue, the Nursing Administration of Najran Armed Forces Hospital, Kingdom of Saudi Arabia (NAFH) have implemented various strategies, including a performance measurement system like the Balanced Scorecard.

The Balanced Scorecard (BSC) is a strategy management tool that aims to align organizational goals and performance measures across different dimensions, such as financial, customer, internal processes, and learning and growth. However, its potential on nurses' retention and engagement in NAFH has attracted limited research in the literature (Al-Dossary, 2022). The framework can be further applied in a healthcare organization to enable communication, professional development, performance feedback, and aligning nursing work with the organization's goals. However, merely having a Balanced Scorecard system does not mean that it leads to increased job satisfaction, job engagement or retention among nurses. These relationships should be explored in an empirical and interpreted based on the study designs and quality of measures available.

In the present research, cross sectional quantitative approach is used. It, therefore, examines the perceptions of the implementation of the Balanced Scorecard among the registered nurses and its relationship to job satisfaction, work engagement and intention to stay, but does not attempt to provide an explanatory relation between the Balanced Scorecard and the outcome measures (AbdELhay et al., 2025). The fact that this separation exists is noteworthy, as the true rate of nurse retention relies on the longest-term career or HR records, whereas questionnaire data are predominately perceptions and reported intentions.

Little empirical research has been conducted on the use of the Balanced Scorecard with the registered nurses (RN) workforce outcomes at Najran Armed Forces Hospital (NAFH). Prior research has studied performance management, employee engagement, job satisfaction and retention in health care, but there are few studies on the link between nurses' perceptions of

the Balanced Scorecard practice and their willingness to stay in a particular Saudi Arabian hospital.

Secondly, there is potential for using work engagement as an intervening variable to explain the relationship between the BSC implementation and intention to leave (Figueiredo, Baixinho & Lucas, 2025). Clear objectives, on-going feedback, staff development and recognition could be used as organizational resources to enhance nurses' commitment to their work. In turn, a higher level of engagement could be correlated with greater intentions to remain within an organization. Thus, the study investigates the possibility of work engagement being a mediator between the perceived implementation of the Balanced Scorecard and intention to stay.

The survey questionnaire results for the patient-experience and registered-nurse satisfaction are also reported in the research. Nurses' responses instead of patient responses have been used to assess patient experience and patient experience is interpreted as being nurse perceived. This separation will not show proxy perceptions as direct patient-reported evidence.

Based on this premise, this study aims to explore the correlations between perceived Balanced Scorecard practices, registered nurse satisfaction, work engagement, intention to remain and patient experience at Najran Armed Forces Hospital. The Balanced Scorecard is not declared to be a solution in itself for a nurse retention problem. Instead, it recognizes that other factors, including leadership, workload, remuneration, organizational culture, staffing, professional development, communication and work-life balance, may also impact on nurses' employment outcomes.

1.2 Problem Statement

Nurses play a key role in healthcare organizations requiring a stable and committed nursing workforce, in order to maintain continuity, quality and safety in patient care. The problem of nurse dissatisfaction, disengagement and turnover, however, is not new, and is a significant problem in the workforce (Patrician et al., 2022). The Balanced Scorecard is applied as performance measurement and management tool at Najran Armed Forces Hospital, however, no evidence about the relationship between the Balanced Scorecard and the registered outcomes of the registered nurses is found.

The original manuscript included the term “impact” and “effective” for the Balanced Scorecard and used the term in a causal manner about the impact of the Balanced Scorecard. The cross-sectional survey design, however, has the restriction of only being able to capture variables at a single time and not being able to infer temporal sequence of events or causal relationships. A more methodologically appropriate way would be to investigate the relationship between the nurses' perceptions of the adoption of the Balanced Scorecard and job satisfaction, engagement and intention to stay.

Another issue is how nurse retention is to be operationalized. Real retention is retaining employees within a specified timeframe, and typically will need institutional employment records. This questionnaire, which is available, mostly assesses nurses' perceptions and

intentions. So, in this new study, the concept of intention to stay (or perceived retention) is used rather than an actual rate of retention, when applicable.

Evidence presented is also incomplete methodologically. The first analysis was performed on a single item at a time and reported a single Cronbach's alpha value for the different items, and the factor analysis performed was limited to two item analysis. This kind of procedures do not sufficiently establish the reliability and the validity of the main constructs (Flaubert, 2021). A re-analysis is thus needed and should employ construct-level measures, separate reliability testing, exploratory factor analysis, correlation analysis, direct-effect regression and mediation analysis.

Moreover, the relationships were not significant in the first results and it was proposed in parts of the conclusion that the Balanced Score Card led to the increase of the satisfaction, engagement and retention (Figueiredo, Baixinho & Lucas, 2025). This is a contradiction that means the analysis has to be redone and all the conclusions must be rechecked with the empirical evidence.

Accordingly, the empirical and methodological need is to look at:

- The reliability and validity of the study measures for the constructs
- Whether registered nurse's perception of balanced scorecard implementation is related to satisfaction, work engagement and intention to stay intentions
- Whether there is a mediating effect between perceived Balanced Scorecard implementation and intention to stay on the part of work engagement.
- How the variables of the main study are related to registered nurse satisfaction and nurse-perceived patient experience.

Implementing the efforts to tackle these issues will provide more defensible evidence regarding the role of the practices involved in measuring performance in the management of the nursing workforce at Najran Armed Forces Hospital.

1.3 Research Aim

The aim of this study is to examine the relationships among perceived Balanced Scorecard implementation, registered-nurse satisfaction, work engagement, intention to stay and nurse-perceived patient experience at Najran Armed Forces Hospital in the Kingdom of Saudi Arabia.

1.4 Research Objectives

The goals of this study are to assess the condition of registered nurses' retention and engagement in the present time, assess the result of implementing the Balanced Scorecard performance measurement, and outline the findings and recommendations while offering suggestions to management for miscellaneous healthcare organizations' workforce

management. The specific objectives of this research include:

a. To explore relationship between the Balanced Scorecard (BSC) performance measurement and registered nurses' (RN) job satisfaction in the Najran Armed Forces Hospital, Kingdom of Saudi Arabia (NAFH).
b. To examine the impact of BSC performance measurement on RN's retention rate in NAFH.
c. To explore the association between BSC performance measurement and RN's engagement levels in NAFH.
d. To determine the key factors that influence the effectiveness of BSC measuring NAFH RN's performance and promoting the retention and engagement.

1.5 Research Questions

a. What is the relationship between BSC performance measurement and registered nurse (RN) job satisfaction within the Najran Armed Forces Hospital, Kingdom of Saudi Arabia?
b. Does the implementation of BSC performance measurement have shown positive impact on RN's retention rate in NAFH?
c. Is there a significant correlation occur between BSC performance measurement and RN's engagement levels in NAFH?
d. What are the key factors that mainly influence the BSC performance measurement in the promotion of NAFH RN's retention and their involvement?

1.6 Research Hypothesis

The present inferential analysis is based on the following hypotheses:

- H1: Cognitions of the BSC's implementation are positively related to registered-nurse satisfaction.
- H2: Higher implementation of balanced score card perceived, higher work engagement.
- H3: The stronger the perceived implementation of the balanced scorecard, the stronger the intention to stay.

- H4: Positive relationships exist between work engagement and the intention to stay.
- H5: Perceived Balanced Scorecard implementation is indirectly related to intention to stay through work engagement.

Registered nurse satisfaction is correlated to nurse perceived experience with patients.

If multi-item measures were included in the questionnaire with an operationalization for the constructs being operationalized, then the hypotheses will be retained. Relationships that are not supported and/or not well measured will NOT be tested or reported as finding relationships.

1.7 Significance of the Research

1.7.1 Significance to Academe

The study would contribute to the existing body of knowledge by providing empirical evidence on the relationship between BSC performance measurement and RNs' retention and engagement. It would add to the understanding of how performance measurement systems can influence healthcare professionals' job satisfaction, commitment and overall well-being (Alilyyani et. al., 2022). The study also is important in methodologic aspects as it brings back the analysis at the construct level, not item by item of the questionnaire. Reliability analysis, exploratory factor analysis, correlation, regression and mediation testing are used to assess the proposed relationships with a more rigorous basis than the other three.

Theoretically the study relates the concepts of Balanced Scorecard with employee-engagement and social-exchange theories (Dalowar Hossan et al., 2025). It examines the relationships between organizational practices (goal clarity, feedback, learning opportunities and performance alignment) and psychological commitment and retention of nurses.

However, this study does not always apply and is not causal-proof. The contribution is limited to association-based evidence from one hospital, and should be read in the context of the cross-sectional design.

1.7.2 Significance to Industry

The findings could help healthcare organizations to obtain scholarly scientific information concerning the usefulness of the BSC performance measurement systems. It may help in the decision making concerning the activities of performance measurement, allocation of resources, and organizational strategies. The results can contribute to the decision-making process in performance feedback, communication, staff development, professional recognition and employee engagement in designing the performance indicators.

Besides that, the study might help to establish the correlation between use of the BSC approach to performance measurement and the RNs' level of engagement (Alamer, 2025). If there were weak and/or non-significant relationships between implementation of the Balanced Scorecard and workforce outcomes, this would indicate that the use of the

performance measures was insufficient and should be supplemented by other strategies such as leadership, staffing, workload, pay, organizational support and work-life balance.

Data from registered-nurse satisfaction and nurse-perceived patient experience surveys also could help management determine if the experiences of the registered nurse workforce are consistent with perceptions of care quality. However, nurse-rating of patient experience should not be a substitute for patient feedback.

1.7.3 Significance to Others

The research could be relevant to other groups of people besides academicians and health care providers like patient and their relatives. The results can reveal if the nurses perceive current Balanced Scorecard processes as clear, supportive, developmentally supportive and relevant (Amer et al., 2023). The findings of the research can inform initiatives to enhance communication, recognition, participation, professional development, and organizational support that can lead to increased satisfaction, engagement, and intention to stay.

1.7.4 Significance to Patients and Policymakers

The research will indirectly benefit patients and families as nurses who are engaged and satisfied in their work will be able to provide person centered and consistent care (Dalowar Hossan et al., 2025). The study needs to be mindful to avoid claiming the Balanced Scorecard directly impacts patients' outcomes when it is not supported by empirical evidence.

The research findings might guide policy makers and health-system planners in their understanding of the potential of performance measurement frameworks alone to support health-system workforce sustainability in practice. Can support the development of a cohesive workforce policy that includes a performance measurement component along with the right staffing, leadership development, employee wellness and retention strategies.

1.8 Scope and Delimitations of the Research

The study was done on a sample of 140 RN working in Najran Armed Forces Hospital in Kingdom of Saudi Arabia. This study involved only non-military registered nurses who met the criteria approved for the study and who freely and willingly completed the questionnaire survey.

The research used a quantitative method of a cross sectional design, which means the responses of the respondents on the day the data were collected. Is unable to identify change over time or cause/effect.

The scope is the following (where applicable) based on availability and validity of relevant questionnaire items: perceived Balanced Scorecard implementation, registered-nurse satisfaction, work engagement, intention to stay and nurse perceived patient experience (Patrician et al., 2022).

Unless human-resource records are available, the study does not measure actual organizational retention. Hence “intention to stay” is taken as the key factor for employee retention.

These results are limited to the individual institution and cannot be automatically assumed to be applicable to other military, public or private hospitals in Saudi Arabia.

1.9 Operational Definitions

1.9.1 Balanced Scorecard Performance Measurement

A strategic management and performance-measurement process which involves measuring an organization's performance from four perspectives including financial, customer (patient), internal processes, and learning and growth.

In this study, perceived Balanced Scorecard is the perception of the registered nurses regarding the clarity, relevance, communication, feedback, profession-development and performance-alignment practices regarding the hospital's Balanced Scorecard system (CFI Team, 2022). The final score will be determined with the retained/validated items of the questionnaire.

1.9.2 Registered-Nurse Satisfaction

Registered nurse satisfaction is the percentage of positive ratings related to work, work environment, professional opportunities, organizational support and employment experience (Patrician et al., 2022). It will be implemented by using a composite score derived from validated satisfaction items included in the questionnaire data set.

1.9.3 Work Engagement

Nurse engagement is the degree to which RN's are involved and invested in their work and work environment.

In this study, work engagement is defined as energy, involvement, dedication, collaboration and psychological connection that the nurses report with their work. As an intervening variable between the perceived Balanced Scorecard implementation and intention to stay, it is taken into consideration.

1.9.4 Intention to Stay

Reported intention or plan of a registered nurse to work at Najran Armed Forces Hospital (IA) is the intention to stay. This is a perceptual and attitudinal measure only and not the real retention rate of an organisation.

1.9.5 Nurse-Perceived Patient Experience

Nurse-perceived patient experience is the extent to which registered nurses are able to assess the patient's experiences of care which includes their perceived quality, communication, responsiveness and satisfaction where items were included in the questionnaire (Al-Rjoub, 2025). However, it is important to note that the data is not collected by the patient themselves but by nurses, and therefore is a proxy measure rather than direct patient-reported experience measures.

1.9.6 Registered Nurse

Register nurse (RN) is a health care worker, who has undergone the necessary education and training and is registered or licensed as a nurse. Registered nurses provide care to patients, assess and monitor health, prescribe and coordinate treatment, manage care and communicate with other members of the healthcare team and educate patients and families.

1.10 Organisation of the Study

The research background, problem statement, aim, objectives, research questions, hypotheses, significance, scope and operational definition are introduced in Chapter 1.

The literature review in Chapter 2 includes literature detailing the implementation of Balanced Scorecard, Registered Nurse satisfaction, Work engagement, Intention to stay and patient experience. It also provides the theoretical and conceptual framework, and formulates the study hypotheses.

The research methodology is explained in chapter 3, which relates to the cross-sectional design, study setting, population, sampling, questionnaire, construct measurement, data-collection procedure, ethical considerations and analytical methods.

The empirical results are shown in Chapter 4. New analyses include registered nurse satisfaction, nurse perceived patient-experience results, mediation analysis, direct-effect regression, correlations for constructs and Cronbach's alpha reliability testing, and a description of data.

The findings are presented in Chapter 5 which addresses the relationship with previous research and theory, the practical implications, limitations, recommendations for future research and concludes the study.

2. Literature Review

2.1 Overview

The main aim of the literature review was to understand the deep meaning in case of the Balanced Scorecard (BSC) context in the healthcare organization, chiefly understanding its influence on the improvement in appointments together with the satisfaction of enumerated nurses plus improving the distribution of the safe, excellent attention to the patients. This literature review mainly worked on understanding the importance of the BSC with the help of multiple studies. The importance was also measured using the scale of the patient reviews and the cost-effectiveness of the care being given.

The execution of this scorecard setting in healthcare organizations helps in the planned device to evaluate the recital of the enumerated nurses in the hospitals from six main features which mainly are financial feasibility, patient pleasure, internal procedures competence, information in addition to the experience improvement, specialized enlargement, besides other social aspects and sustainability (Alruwaili, 2021). Through the complete estimation of these magnitudes, healthcare establishments can certify that their nurture staff is associated with administrative areas as well as purposes, development of an ethos of uninterrupted

development plus brilliance. Additionally, this concept subsidizes meaningfully to refine the persistent maintenance by stressing evidence-based performance, the person-centred approach, as well as the operative communiqué among the healthcare workers (Sultan, 2024).

Current literature does not indicate that the implementation of Balanced Scorecard leads to the desired outcome of improved nurse outcomes. Instead, the perceptions of nurses about BSC practices, like the purpose is clear, feedback is given, and development and recognition opportunities are available, have been found to have relationships with nurse satisfaction, engagement, and intention to leave health care organizations. This review is therefore on the correlation between the perceived implementation of BSC and the outcome of the registered nurses and not on the direct effectiveness of BSC.

2.2 The Broader Concepts

If the broader concept is concerned, then the acceptance of this framework of the BSC in the healthcare organization embodies the planned tactic to improve the performance of the institution to a manifold extent (Amer et al., 2022). This concept mainly works over the other realms of the old-style monetary settings and this is because it includes a holistic few of the main recital indicators that help in the evaluation and enhancement of the rendezvous as well as gratification of the enumerated nurses and quality of life of the patients (Sharaf-Addin, & Fazel, 2021).

If the concept is understood at a deeper level then BSC helps as an inclusive administration device that brings into line the administrative purposes with functioning procedures also results. By integrating the main points which are monetary feasibility, patient gratification, interior classifications productivity, information and knowledge improvement, specialized expansion, and communal aspects and sustainability. It also enables the healthcare suggestions to evaluate the performance from a multidimensional viewpoint.

Not only should financial metrics be used to gauge organisational performance, there are also a variety of other metrics that can be used, including customer outcomes, internal processes and learning and growth, as outlined by Kaplan & Norton in their Balanced Score Card model. These attitudes can be used as a way of ensuring the activities of healthcare workers are congruent to the aims and objectives of the organization in a healthcare setting.

The application of these concepts includes the methodical procedure of describing planned purposes, classifying pertinent KPIs, as well as launching presentation targets (Amer et al. 2022). This organized method safeguards, that healthcare administrations not only quantify the achievement in fiscal positions but also deliberate issues like patient consequences, workforce gratification, plus closeness to unsurpassed performance (Pierce, 2022).

Furthermore, this concept also fosters the philosophy of incessant development by endorsing pellucidity, answerability, and partnership amongst healthcare professionals.

The effectiveness of BSC, however, is dependent on the conditions of the implementation. If there's a lack of communication or too little employee involvement, or too much focus on measurement indicators, employee buy-in can be reduced and BSC practices may reduce

employee results.

2.3 Specific Concepts

In case of the specific concept, covered during the literature review is regarding the application of the BSC outline in the healthcare organization to boost the rendezvous plus gratification of the enumerated nurses, expand the quality of patient care besides shelter, as well as to enhance the cost-effectiveness according to Luna (2024).

The appraisal highlights the scorecard allows the healthcare organizations to evaluate the enactment of the nurse along different dimensions, comprising of the financial feasibility, the patient fulfilment, efficacy of the interior systems, PDP, plus communal influences. It also highlights the reputation of bringing into line the nurse aims along with the structural aims to foster the incentive, rendezvous, as well as expert development (Alzahrani, 2022).

The focus of this study is on perceived BSC implementation, rather than on the actual impact of BSC. Perceived implementation is the way in which nurses in the registry feel the performance measurement practices of BSC are clear, relevant, communicated and useful in their context.

This is significant because having a formal performance measurement system doesn't necessarily mean that employees are happier or more engaged. BSC system and practices may be seen as support tools or as monitoring tools by employees.

2.4 Fundamental Theories

The literature review also clarifies the fundamental theories concerning the application of this framework in healthcare organizations. Initially, it highlights the complex nature of the scorecard framework which can highlight the ways to monitor the recital of a nurse’s six key features which mainly are financial feasibility, patient pleasure, internal procedures competence, information in addition to the experience improvement, specialized enlargement, besides other social aspects and sustainability as mentioned by Betto et al. (2022).

Secondly, the review identifies the role of BSC in supporting patient centred care, highlighting the importance of evidence-based practice, effective communication and multi-disciplinary collaboration. This study uses Social Exchange Theory and Job Demands-Resources (JD-R) Model to explain the relationship between BSC implementation and the nurse outcomes.

Based on Social Exchange Theory, it is suggested that employees have positive attitudes towards organisations when they feel that the organisations provide them with support, recognition and investment. Therefore, nurses are likely to be more engaged and stay on if they have a positive attitude towards BSC practices.

This is because the organisational resources such as feedback, professional development and role clarity can help increase employee engagement by motivating and increasing psychological involvement as per the JD-R Model. As such, perceived BSC implementation can be defined as an organisational resource that may influence engagement within the context of this.

2.5 Balanced Scorecard and Registered Nurse Satisfaction

Registered nurse satisfaction is a key aspect of the workforce in healthcare organisations as dissatisfaction can be a precursor to burnout, diminished organisational commitment and higher intentions to leave. Past studies have indicated that organisational management practices, such as performance measurement systems, can impact employees' perceptions of support, recognition and professional development. The Balanced Scorecard (BSC) is a set of performance measures that goes beyond just financial metrics, and includes the customer, internal process and learning and growth perspectives (Madsen, 2025). They can help nurses within the healthcare environment to have more clarity on their organisation's expectations, or more understanding of the contribution of the role to the organisation's objectives.

Amer et al. (2023) stated that having health professionals involved in the evaluation process of BSC can increase transparency and participation, thus affecting the attitudes of the employees with regard to their organisations' practices. In the same way, Alilyyani et al. (2022) pointed out that supportive management practices and recognition systems are significant factors associated with nurse satisfaction and quality-of-care perceptions. In other words, positive reinforcement and feedback for nurses' performances and recognition of their accomplishments, alongside opportunities for professional growth, could be linked with greater satisfaction with the practice of BSC.

Others, however, have suggested that performance measurement systems are by no means guaranteed to bring about positive outcomes for employees. Korhonen et al. (2023) suggest that performance measurement systems can have side effects if they are perceived by employees as being controlling, excessive, or unfair. However, in a nursing setting, where there is a high workload and emotional stress, extra performance monitoring can lead to increased stress if there is insufficient organizational support.

Moreover, nurse satisfaction is related to various contextual determinants in addition to performance measurement systems. According to Patrician et al., (2022) work environment, staffing levels, leadership support and organisation resources are crucial factors that affect nursing satisfaction. Thus, a BSC could be used to facilitate communication and alignment, but it is not a standalone reason for nurse satisfaction results.

There is a lack of research that addresses the relationship between perceived BSC implementation and nurse satisfaction, especially in the context of healthcare services in Saudi Arabia. Past research has primarily investigated organisational performance, instead of nurses' perception of practice of performance measurement. Thus, the aim of this research is to analyse the relationship between the registered nurses' perception of BSC implementation and satisfaction results, keeping in mind that other factors of the organization can also affect satisfaction.

H1: Perceived Implementing BS is a positive factor with RN satisfaction.

2.6 Balanced Scorecard and Work Engagement

The state of being engaged in work is seen as a positive psychological condition involving

employee energy, dedication and involvement in work activities as mentioned by Hakanen & Kaltiainen (2026). Engagement is especially vital in the healthcare industry as nurses need to commit emotionally and cognitively to provide safe and efficient care for patients. In the view of Khusanova et al. (2021), The Job Demands-Resources (JD-R) model outlines a connection between performance management systems and employee engagement that suggests that organisational resources like feedback, recognition and opportunities for growth can boost employee motivation and engagement.

The Balanced Scorecard can also be used as a tool to serve the organisation as an organisational tool, giving employees direction, expectations of performance and feedback. To achieve effective implementation of the BSC, Chompukum & Vanichbuncha (2025) recommended that the activities of all employees be linked to strategic objectives, thereby raising the awareness of employees about their role in the organisation's success. Such alignment can help build a sense of professional identity and participation in work activities in nursing environments.

This is consistent with Al-Dossary (2022), who found leadership support, organisational commitment and professional development to be key factors that are linked to nurse engagement in Saudi healthcare organisations. This indicates that BSC related practices might affect engagement if they are used in conjunction with management behaviours that support and enable growth.

However, there is not a defined link between BSC and engagement. When employees view the performance measurement system as a tool of surveillance rather than improvement, it can have negative behavioural consequences, as Luna (2024) claim. Highly focus on measurable indicators can lower intrinsic motivation for nurses, taking them away from professional values and patient-centred care. Thus, BSC can only be effective if nurses understand and feel the implementation of BSC.

In addition, broader workplace factors, such as workload, staffing levels and leadership and organisational culture, affect engagement. Figueiredo et al. (2025) pointed out that the nursing context has a significant impact on engagement and turnover-related outcomes. BSC is thus a possible organizational resource in a larger system of factors that influence the notion of engagement.

This study aims to explore the relationship between registered nurses' perceptions of BSC implementation and their work engagement, as there is limited empirical research focused on the perceptions of BSC implementation and registered nurses' work engagement in the Saudi Arabian context.

H2: Work engagement is positively related to the perceived implementation of the BSC among RNs.

2.7 Balanced Scorecard and Work Engagement

Intention to stay is a statement of the employee's willingness, readiness or psychological commitment to stay in the organisation and is often used to predict future retention actions. Actual retention is measured through longitudinal records on employment, but intention to

stay is an employee's perception and future behavioural intentions. The importance of knowing nurse intention to stay in healthcare organisations is that when nurses leave, problems arise with workforce stability, continuity of care and organisation costs.

Several researchers have discussed the relationship between work engagement and intention to stay and have focused on the Social Exchange Theory. Zahra et al. (2026) proposed that employees will have higher organisational commitment if they see positive interactions with their employers. Therefore, nurses who are satisfied with supportive working conditions, recognition and meaningful work, in turn, can show their attachment and willingness to stay in the organisation.

Silva et al. (2023) suggested that engaged employees are more energetic, committed and involved, which increases the likelihood of their being positive with their organisation. Likewise, Figueiredo et al. (2025) found that supportive nursing environments are linked to higher levels of retention intention through an increase in professional satisfaction and a decrease in withdrawal behaviours.

However, engagement is not the only factor to consider when explaining why nurses stay. Alilyyani et al. (2022) pointed out that leadership style and organisational support both had a significant impact on the intention to leave of nurses. Also, positive experiences of engagement can be outweighed by factors like salary, workload, career development and work-life balance. For instance, if with a high level of engagement, the workload is becoming too high or alternative work is offering better conditions, then they may still be willing to leave.

Hence, the psychological process of engagement is seen as having a significant impact on retention intentions, yet needs to be understood in the context of the broader organisational setting. However, the correlation between engagement and intention to stay is not a linear one; if organisations offer a sustainable working environment, it could lead to engagement, but if not, it may not.

Although nurse engagement and intention to leave has been studied extensively, there is a lack of research that explores this relationship in the context of the implementation of Balanced Scorecard. Thus, the aim of this study was to find out if engaged nurses have greater intentions of remaining at Najran Armed Forces Hospital.

H3: Registered nurses who are more engaged with their work are more likely to stay in the job.

2.8 Balanced Scorecard, Work Engagement and Mediation Relationship

While the implementation of BSC might give an organisation resources to help employees achieve their outcomes, this link between BSC and intention to stay may not happen directly. Rather, work engagement is suggested to be a mediating mechanism that links performance management processes with employees' intentions to stay with an organisation.

The JD-R model provides theoretical support for this mediation relationship. Based on the studies of Sariani (2025), employee motivation is stimulated by organisational resources,

which enhance employee engagement and consequently impacts employee outcomes positively. In this context, BSC related practices like feedback, goal clarity, learning opportunities and performance recognition can be considered as organisational resources that contribute to nurses' engagement.

Likewise, Social Exchange Theory states that employees feel good when they believe that organizations invest in them and recognize their contribution Nguyen & Dao (2023). If nurses have a positive attitude towards BSC implementation, they are likely to have positive psychological attachment, which will lead to greater intention to remain.

Previous studies have tended to focus on direct links between organisation practice and retention results, however. Fewer studies have focused on the processes that mediate the effect of performance measures on employee behaviour. Fabac (2022) suggested that the results of the PM systems vary based on the individual understanding of the employees and the context of the organization. This implies that BSC is not directly and immediately related to retention intention but might work through psychological factors like engagement.

Moreover, the role of engagement in nursing was especially important, as it is assumed that the factors of emotional commitment and professional identity and working experiences affect retention decisions. A nurse may not stay as a result of the presence of a measurement system, but because the measurement system gives a sense of recognition, involvement and organisational support.

Hence, based on this study, it is proposed that the intention to stay is mediated by work engagement in the relationship between perceived BSC implementation and intention to stay. This indirect relationship, when considered, offers more theoretically based knowledge of the relationship between performance measurement practices and nursing workforce outcomes.

H4: Intention to stay is positively related to perceived balanced scorecard implementation.

H5: Work engagement plays a mediating role between perceived Balanced Scorecard implementation and intention to stay.

2.9 Registered Nurse Satisfaction and Nurse-Perceived Patient Experience Relationship

Patients' experience is now an important measure of healthcare quality, as it captures their perceptions of how well they were communicated with, responded to, treated with respect and how healthcare was delivered. While the patient survey is the gold standard method for assessing patient experience, work environment perceptions can also offer clues on the extent to which work environment affects patient care perceptions. Patient experience is presented as nurse-perceived patient experience, as measured by the nurses in this study.

The nurse-patient relationship in the context of nurse satisfaction and patient experience can be interpreted by the argument "satisfied nurse attitude is reflected by a positive attitude, good communication and high commitment of the nurse towards patient-centred care. Leadership support and nurse satisfaction were linked with better perceptions of the quality of care, which indicates that the experiences of the workforce could affect processes of healthcare delivery in the view of Cui et al. (2025).

Likewise, Hays & Quigley (2025) highlighted that supportive nursing environments are associated with better quality and safety outcomes as supportive nurses can give stable and effective care. This thinking can lead to a more positive attitude towards patient interactions among happy nurses, given the increased motivation and support they receive from their organisation.

However, researchers note that it is not a safe bet to equate employee satisfaction with patient experience. There are a number of factors that will affect patient outcomes such as staffing, healthcare resources, clinical complexity and organisational systems. Patient experience, then, is but one factor, and nurse satisfaction is not alone the explanation for patient experience.

In addition, methodological constraints have been identified with the use of nurse perceived patient experience. Nurses can be a source of useful professional assessments of care processes but they may have different views from that of the patient. However, the findings should be seen as indicative of the perceptions of healthcare professionals and not as actual measures of patient satisfaction.

Even with these constraints, the nurse satisfaction and perceived patient experience association allows a glimpse into the association between nurse work conditions and perceived quality of care. This is especially relevant in healthcare organisations that have performance measures in place, where employees' and patients' views are two sides of the same coin.

H6: There is a positive relationship between registered nurse satisfaction and nurse perceived patient experience.

2.10 Contextual Factors Influencing Nurse Outcomes

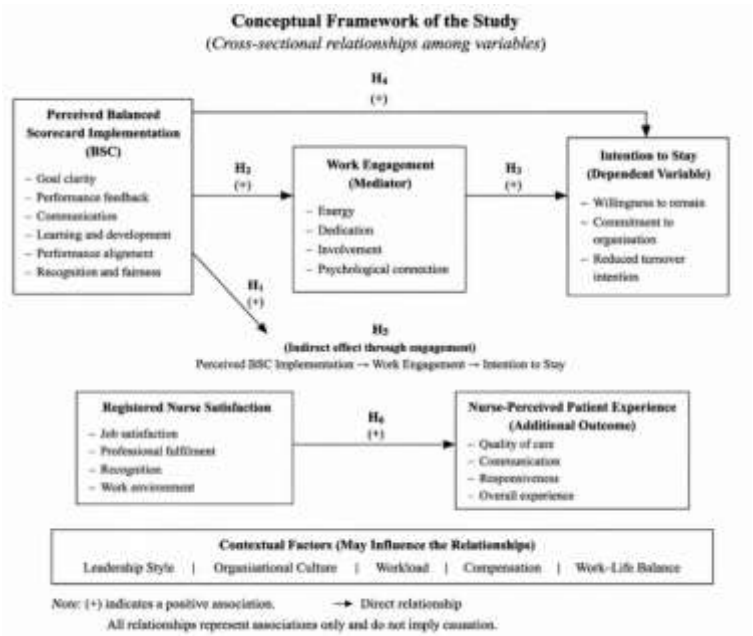

Figure 1. Conceptual Framework

Source: Self-Created

While the implementation of Balanced Scorecard is the main concern of this study, previous research has shown that there are a number of contextual factors that affect nurse outcomes.

Leadership Style

Nurses' trust, motivation and organisational commitment are influenced by leadership. Supportive leadership can help to build a positive effect from practices of performance measurement.

Organisational Culture

Organisational culture is what can make the difference between developmental and controlling systems of performance.

Workload

High workload / staffing pressures may also impede effective performance measurement systems and have an association with staff satisfaction, engagement and intention to remain.

Compensation

The importance of compensation (monetary) and perceived fairness of compensation remain important retention factors.

Work-Life Balance

Poor work-life balance is one of the factors that can lead to increased nurse burnout and turnover.

BSC should thus be viewed as a component of a wider system of organisation that impacts nurse outcomes.

2.11 Gaps in the Literature

Though the literature review widely discussed the interests regarding the better implementation of this BSC outline in healthcare locations, there are still multiple gaps which mainly permit future examination.

First, a few empirical studies have examined the perceptions of registered nurses and that the perception is linked to outcomes of the registered nurse workforce when implementing BSC.

Second, existing research has tended to focus on engagement and retention independently and only a few studies have explored the link between BSC practices and intention to stay, and whether work engagement can help explain this link.

Third, the amount of evidence collected from the Saudi health care environment is still limited, particularly in the case of military health care institutions, such as Najran Armed Forces Hospital.

Lastly, few studies have examined nurse perceptions of patient experience in conjunction

with patient workforce outcomes, with a need for a more holistic examination of nurse and patient related perceptions.

2.12 Theoretical Framework

The framework suggests that perceived Balanced Scorecard implementation affects intention to stay via work engagement. Also, a registered nurse satisfaction analysis is examined related to nurse perceived patient experience.

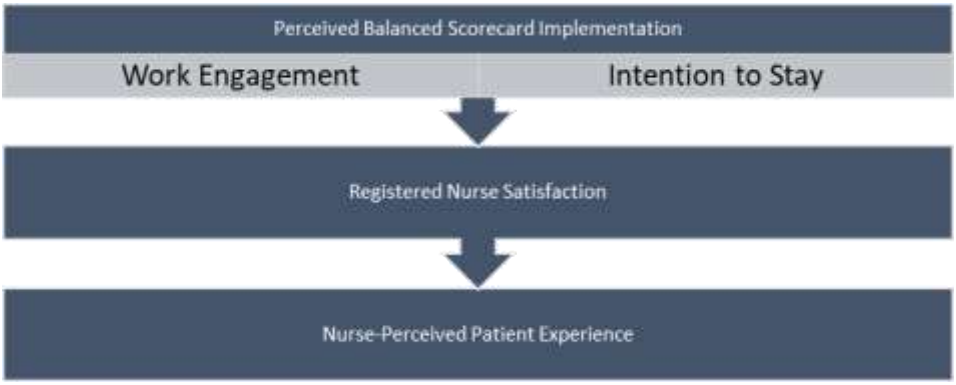

Figure 2. Theoretical Framework

Source: Self-Created

Contextual factors:

These relationships can be shaped by the leadership style, organizational culture, workload, compensation and work-life balance.

2.13 Hypotheses

H1: The higher the perceived level of implementation of a balanced scorecard, the higher the satisfaction of registered nurses.

H2: Perceived level of implementation of the BSC is associated with work engagement.

H3: Work engagement is related to intention to stay in a positive way.

H4: The perceived balanced scorecard implementation is positively related to intention to stay.

H5: Work engagement is a mediator between the perceived Balanced Scorecard implementation and intention to stay.

H6: Registered nurse satisfaction is related positively with nurse perceived patient experience.

2.14 Conclusion

Overall, BSC has been the topic of literature regarding the value that it has for the use of a multidimensional system for measuring performance in healthcare organizations. However,

there is no existing evidence to confirm that nurse satisfaction, engagement and retention outcome is solely predicted by BSC. Rather, implementation practices are likely to be shaped by the nurses' perception of them and other organisation-wide factors like leadership, workload and organisation support.

Therefore, the purpose of the present study is to examine whether nurse satisfaction and work engagement, and the association between satisfaction and nurse perceived patient experience, mediate the relationship between perceived BSC implementation and nurse intention to leave as well as determine the nature of the relationship between nurse satisfaction and work engagement.

3. Research Methodology

3.1 Overview

Research methodology is known as the method and procedure which has been used to collect, analyze and interpret the data collected to answer the research questions. It is further defined as detailed plan which has been prepared by the researcher to perform research and also provide support and assistance to keep its research on track and within the scope of the study. It is important to take into account number of key aspects and components before selecting a suitable research methodology as this component can bring major effect on the validity and reliability of the study. From question formulation to data synthesis, it can directly impact the validity and reliability of review findings (Shaheen et al., 2023).

There are various factors which need to be considered at the time of choosing a research method. These factors consist of the research objectives, nature of the research, sampling size, availability of time and significance of the statistics (Noble & Smith, 2025).

In line with the study objectives, the study takes a quantitative cross-sectional research design to examine the relationships between the registered nurse satisfaction, work engagement, intention to stay and nurse perceived patient experience in the context of internal, external, financial and social perspectives of the Perceived Balanced Scorecard (BSC) implementation in Armed Forces Hospital Najran, Kingdom of Saudi Arabia.

This research has a cross-sectional design which only looks into the statistical relationship between the participants' perception at one point of the research study and does not consider causal relationship between the perception of participants. These results cannot therefore be interpreted as a reflection of the impact of BSC implementation, but rather as a relationship between the variables. The following are key points of research methodology that are emphasized in this study.

3.2 Research Design

The relationship between registered nurses' satisfaction, work engagement, intention to stay and their nurse-perceived patient experience to the perceived implementation of Balanced Scorecard (BSC) was explored using a quantitative cross sectional research design, given the research purpose of examining the relationship between these variables.

A cross-sectional design is one in which the researcher collects data from the respondents at a single point in time, and the researcher is able to use statistics to look at the relationships between measurable variables. The design is appropriate as it was not designed to establish a causal relationship between BSC practices and the nurses' perceptions but to provide an understanding of how the nurses perceive these BSC practices and how these perceptions are related to the outcome of the nurses' work.

The justification for considering this research design is it has assisted in describing the case or situation under this research study. This research design has further assisted in getting better knowledge and understanding of the need of conducting the research and systematically obtained information for describing the situation, phenomenon and population. Patterns in the characteristics of the group selected for the study can be determined in order to establish essential information needed in this study.

The research design is used for implementing statistical analysis such as reliability analysis, exploratory factor analysis, correlation analysis, regression analysis and mediation analysis to test the hypothesis.

The research elements are highlighted below:

3.2.1 Research Philosophy

Research philosophy in the methodology can be defined as the underlying assumptions, beliefs and principles which aid in providing guidance and support in the whole research process.

Within this research study, a positivist research philosophy was used. The paradigm of positivism is based on objective measurement, empirical observation and statistical analysis (Saunders, 2019). The positive research philosophy was selected for this study because it focuses on the collection of quantitative data through structured questionnaires and the examination of measurable relationships between the implementation of the Balanced Scorecard (BSC) and registered nurses' outcomes. Consistent with the positivist paradigm, this approach enables the researcher to collect objective data and apply appropriate statistical analyses to test the proposed hypotheses, thereby providing empirical evidence to support or reject the hypothesized relationships.

However, the positivist approach has its limitations as it may not be enough to describe the experiences of nurses in their context, the emotions they may have and the meaning they may give to their experiences. Findings are thus only indicative of associations and not an exhaustive account of the nurse's behaviour.

3.2.2 Research Approach

The research approach is known as detailed plan and procedure that further dependent on the nature of the research problem that needs to be resolved by the researcher (Sahara et al., 2020). This study used deductive research method because the hypotheses were formulated based on the theories that have been developed, such as Social Exchange Theory and the Job Demands-Resources Model, were then tested with empirical data.

The deductive approach provides the opportunity to think about the following: Are the theoretical assumptions around organisational resources, employee engagement and intentions to stay valid in the chosen healthcare context. The approach is suitable as the study does not seek to develop new theory, but rather test the theoretical relationships between BSC implementation, engagement and intention to stay.

3.2.3 Research Strategy

Research strategy is the methodical approach by which researchers collect and analyse information. A survey research strategy was employed in the study of BSC performance measurement and outcomes of registered nurses. The questionnaire survey method was used because information can be obtained from a large number of respondents in a relatively small area with a set of data collection in order to compare the data collected in the study between the different data variables studied.

The use of survey research strategies coupled with efficient reach and collection of quantitative data that is amenable to statistical analysis has been possible. A problem with survey research is self-report bias, where the answers given reflect the perception of the respondents, but not the actual delivery of organisational outcomes.

3.3 Unit Analysis

The unit of the research is presented in the Unit analysis. Unit analysis is one of the important parts of research methodology as it explains about the entity on which whole study is based. In this research, the researcher has used individuals as unit analysis. This because of the conduct of primary research in this study where data are collected from the individuals participated in this study that allows the utilization of the real time data for this study. For that, quantitative research data is used to analyse collected information. Quantitative research data analysis helps in presenting graphical information to the stakeholders. Moreover, the challenges can be easily encountered by using numerical data of which accurate research data can be presented.

The unit of analysis in this research is individual registered nurse. This selection is appropriate as the study looks at individual perceptions of BSC implementation, satisfaction, engagement and intention to stay. The primary quantitative data were obtained from the respondents who are registered nurses, who participated in the study. The quantitative research data can be analysed statistically to examine the relationship between variables and it can be expressed numerically.

Effective data analysis can be conducted on impact of BSC performance measurement on retention and engagement of RN through the use of quantitative data. Through this, the performance of every RN can be easily measured and it helps in presenting the best employee engagement practices. This can also help in providing the ways to enhance employee retention among the RN in Armed Forces Hospitals aside than Najran. Through this, researcher can show the charts related to the employee retention methods in this study. It allows management of Armed Forces Hospital under the Ministry of Défense Health Service governance to take the best decision on regular basis. It helps the organization to enhance its

employee performance in a long run.

3.4 Sampling

3.4.1 Sampling Design

A non-probability purposive sampling was used in this study. Considering that the participants had to be registered nurses working in the Armed Forces Hospital in Najran and have sufficient exposure to the practices in the hospital and its performance measurement systems, a purposive sampling was deemed to be appropriate.

There was a need for the participants to have specific professional characteristics so that probability sampling was not an option to increase generalisability.

In contrary, non-probability sampling does not consider the happening of particular event in this study.

3.4.2 Sampling Strategy

The sampling strategy provides road map to the researcher as it allow the researcher to find the best data in the study. The sampling strategy gives researchers guidelines as to who to sample.

In this research, a purposive sampling approach was used because the researcher wanted to obtain the responses of the nurses who had direct experience with the use of the performance measuring methods in this hospital.

The researcher employed purposive sampling to ensure that participants had information that might be relevant to the study of BSC implementation, satisfaction, engagement and intention to stay.

3.4.3 Inclusion Criteria

The researcher has included registered nurses (RN) of the Armed Forces Hospital of Najran in the research to help researcher understand the actual problem of research. The researcher included all the registered nurses in Armed Forces Hospital, Najran who were registered.

The following were used as inclusion criteria:

- All the staff members of Najran Armed Forces Hospital are Registered Nurses.
- Nurses will need a minimum of 2 years working in the organisation to gain experience of the working period.
- Non-military registered nurses.
- Voluntary participation who agreed to fill out the questionnaire.

3.4.4 Sampling Technique

Purposive sampling was used in this study. This approach enabled the researcher to select

samples who had knowledge and experience about the workplace performance practices. It was used to make sure that the data gathered is congruent to the aims of the study.

3.4.5 Sampling Size Consideration

The sample size of this study is 140 registered nurses (RN) of Armed Forces Hospital in Najran with 2 years working experience and more (in current work place). Military registered nurses were excluded in this study.

This study was conducted with 140 registered nurses from Armed Forces Hospital Najran. Military RN's were not included to ensure uniformity with regard to nursing practice and structure of the organisations studied. A large number of responses was obtained from the sample for statistical analysis such as Cronbach's alpha reliability test, exploratory factor analysis, correlation analysis, regression analysis and mediation analysis.

3.4.6 Data Collection

Original data was directly collected through participants of the research under the primary data collection method. The primary data is collected through a survey and questionnaire, where it involves the direct interaction of the participants and the researcher, where the researcher personally asked the questions to the participants. Primary data collection has allowed the utilisation of real-time data on the impact of BSC performance measurement on retention and engagement of RN for this study.

Primary data collection techniques were used to collect original data directly from the participants. The research is quantitative and data collection employed is structured questionnaire survey.

The survey questionnaire gathered data on the following:

- Perceived value of Balanced Scorecard; and
- Registered nurse satisfaction
- Work engagement
- Intention to stay
- Nurse-perceived patient experience

As this research is conducted by the survey method of quantitative research, no interview was conducted. The responses to the questions in the questionnaire were collected electronically using Google Forms, an efficient tool for collecting and managing participants' answers.

The answers for the questionnaires are collected through Google Forms. It has helped in knowing the viewpoint of different participants on this particular research topic. Structed questionnaires has helped researcher in asking the most effective primary research questions from the participants. Through this, the researcher gets to know about the work performance of the RN in Armed Forces Hospital in Najran. The behaviour of the RN can be easily understood through this activity.

3.5 Data Analysis

The data collected were analysed using the Statistical Package for Social Sciences (SPSS). Multiple statistical methods were used to guarantee the reliability and validity of findings.

Descriptive Statistics

Frequency distributions, percentages, means and standard deviations were used to summarise the demographic characteristics and responses to the variables.

Reliability Analysis

The internal consistency of the constructs of the questionnaires was analysed using Cronbach's alpha.

Validity Analysis

An exploratory factor analysis (EFA) was performed, both to check the construct validity and to see if items on the questionnaire were capturing the theoretically expected factor dimensions.

Correlation Analysis

Pearson correlation analyses were conducted to explore bivariate relationships among perceived BSC implementation, satisfaction, engagement and intention to stay and nurse-perceived patient experience.

Direct Effect Analysis

A regression analysis was conducted to assess whether registered nurses' perceptions of BSC implementation have a significant relationship with the satisfaction, work engagement, and intent to stay.

Mediation Analysis

A mediation analysis was carried out to examine the mediating role of work engagement between perceived BSC implementation and intention to stay, which revealed that work engagement mediates between perceived BSC implementation and intention to stay.

These analytical methods overcome the previous methodological limitations by enabling the formation of conclusions with the basis of the level of measurement of constructs in questionnaires, rather than individual items.

This helps researcher understands which options is occurring more or less in the dataset. It is further useful to better understand each variable of the study. The use of this analysis method has assisted researcher in improving the quality of the collected data and this was done after determining the errors that have occurred in the data and taking corrective actions and measures. The researcher has also ensured the rigor in the quantitative study and this was performed by measuring the reliability and validity of the study. This has impacted the quality of the findings of the study. The accuracy of the study was also measured and tested accurately.

3.5 Ethical Consideration

Since the study used quantitative method and involved human participants, it is vital to consider key ethical principles for the study to be conducted ethically.

3.5.1 Voluntary Principle

All participants were free to take part in the study without getting pressurised and they are free to withdraw their participation and did not have to provide any reason for leaving the study.

3.5.2 Informed Consent

Informed consent principles were followed for this study, where all participants were provided with all the necessary information that included funding, risks, benefits of the study and approval from the institution.

Information was given to participants about:

- Research Purpose
- Procedures
- Potential Risks
- Benefits
- Confidentiality Arrangements

Prior to data collection, ethical approvals were received from the relevant institutional body.

3.5.3 Confidentiality

As per confidentiality concerned where research participants have the right to privacy and their personal data must be protected and should not be shared with any third party, it is therefore, research participants personal information were removed from the research report. The research report did not reveal any personal information of the participants and responses were anonymous.

3.5.4 Potential for Harm

Potential of harm principle were followed in this study where all the research participants were provided with all the sources of harm that includes social harm, psychological harm, physical harm and legal harm.

3.6 Conclusion

In this chapter, the methodological approach followed to investigate the relationship between perceived Balanced Scorecard implementation and RN outcomes in the work environment was presented. The research type used in this study was quantitative, cross-sectional, with the positivist philosophy and deductive approach.

A total of 140 Registered Nurses (RNs) were recruited purposively from Armed Forces Hospital-Najran. Data were collected using a structured questionnaire and analysed using reliability analysis, exploratory factor analysis, correlation analysis, regression analysis and mediation analysis. The following ethical issues are adhered to in the conduct of the research: informed consent, voluntary participation, confidentiality and protection from harm. The results of the statistical analysis of the collected data are presented in the next chapter.

4. Research Findings

4.1 Overview

Paying more attention to registered nurse satisfaction, engagement and retention plans continues to be a challenge for healthcare organizations. Nurses' psychological health can be influenced by the workload, organizational pressures and changes in staffing, which may have implications for the quality of the care that they provide and the effectiveness of the organisation. To overcome these challenges, strategic performance management has been applied in health care organizations including Balanced Scorecard (BSC) to align, communicate and monitor organizations' performance.

The Balanced Scorecard has been implemented in the healthcare industry like in the Kingdom of Saudi Arabia's Najran Armed Forces Hospital (NAFH). The presence of a BSC system does not necessarily mean that it directly increases registered nurses' satisfaction, engagement or intention to stay. The purpose of this study was thus to address the association between the registered nurses' perceptions of implementation practices of BSC and registered nurse workforce outcomes rather than to examine cause-and-effect.

The finding from the quantitative aspect of the study is presented in this chapter from a group of 140 registered nurses who are registered in NAFH. The relationships between perceived implementation of the Balanced Scorecard, RN satisfaction, work engagement, intention to leave and patients' perceived experience are analyzed. It was a cross sectional study; thus, the findings were statistical relationships between variables and not causal links between nurse outcomes (BSC implementation) and the variables (Malapane, and Ndlovu, 2024).

The results of reliability analysis, exploratory factor analysis (EFA), correlation analysis, direct-effect regression analysis and mediation analysis are presented in the chapter. These analytical techniques facilitate the evaluation of construct reliability, validity and relationships between the variables of the study. Additionally, there are registered nurse satisfaction and nurse perceived patient experience results to provide a comprehensive sense of workforce satisfaction and healthcare quality perceptions throughout NAFH.

4.2 Descriptive Statistics/Demographics of Respondents

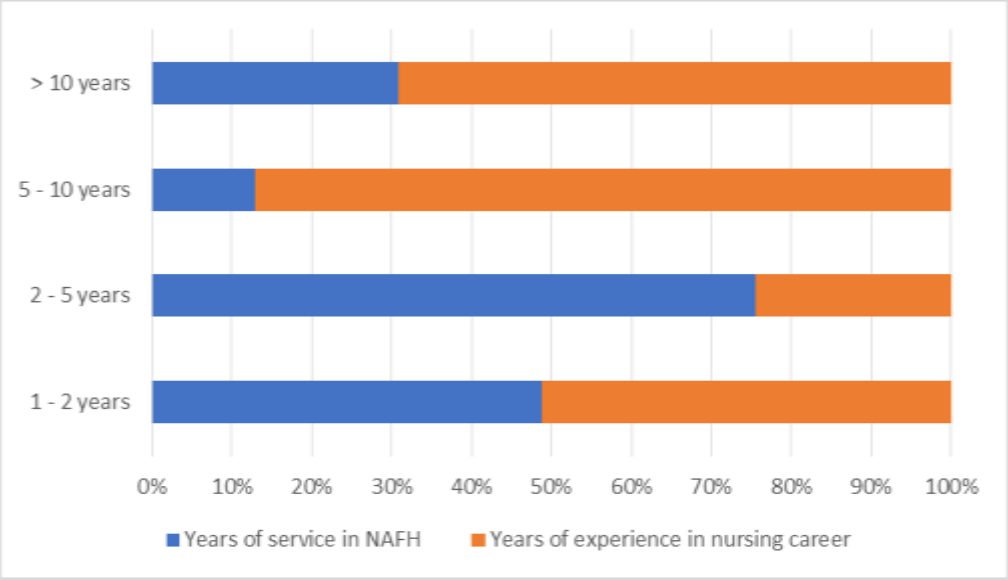

Figure 1. Respondents' years of service and years of experience

In this study, 140 registered nurses participated and there was a 100% response rate among the registered nurses. The numbers of respondents were 77% female nurses and 23% male nurses. Regarding education, 68% of the respondents had a Bachelor's degree in nursing education and 32% a diploma in nursing. The total number of registered nurses (RN) was 90, of whom 90 are Nurse Specialists as classified by Saudi Council and the remaining 10 were classified as Nurse Technicians.

All the participants fulfilled the revised inclusion criteria at Najran Armed Forces Hospital (NAFH), which meant they were non-military registered nurses who had at least two years' experience working in their organisation. This guaranteed that the respondents had sufficient contact with existing practices in the workplace like performance measurement processes, organizational policies and nursing management practices.

Demographic characteristics give an insight into the professional background of participants and help explaining reliability of their perceptions of Balanced Scorecard (BSC) implementation, registered nurse satisfaction, work engagement and intention to stay. But these demographic characteristics should be interpreted in the context of the particular organizational context of NAFH because the study was performed within a single hospital.

The Years of Service in NAFH and Years of Experience in the Nursing Career are depicted in the graph shown in Figure 1. Figure 1 shows the number of Years of Service in NAFH and Years of Experience in the Nursing Career of respondents.

Figure 1 illustrates the distribution of length of tenure of people in their organizations and their role as professionals. The results showed that the highest percentage of the respondents worked in NAFH for 2-5 years which means they have adequate experience in understanding the performance measurement practices in the hospital. In addition, a significant number of the respondents indicated that they had been working as a nurse for 5-10 years, indicating a

high level of professional experience and knowledge among the participants.

Since the experience of being in an organisation and the length of time spent in a professional role, suggests that the respondents were sufficiently qualified to provide informed perceptions of the use of BSC, and the connection between BSC and the outcomes of the nursing work force. However, these results should be viewed as nurses' perceptions in NAFH and do not claim to be evidence of causal relationships between the BSC practices and the outcomes for retention.

4.3 Results of Preliminary Data Analysis

Data analysis was done initially to appraise the reliability, validity and relation between the study variables before proceeding on to the inferential analysis. The present analysis focuses on the construct-level measures of implementation of the Balanced Scorecard (BSC) and the registered nurse satisfaction, work engagement, intention to stay and registered nurse's perception of patients' experience.

The analysis was structured according to the research objectives and hypotheses that were formulated, which focused on the following research:

1. There was a relationship between the perceived implementation of Balanced Scorecard and the satisfaction of the Registered Nurse;
2. The relationship between perceived Balanced Scorecard implementation and registered nurses' intention to stay, as measured in the comments of employees about their nurse intention to stay, not actual nurse turnover data; and
3. The relationship between the use of the Balanced Scorecard by the RN and the work engagement; and
4. Work engagement as a mediator between the perceived Balanced Scorecard implementation and intention to stay.

In addition, the analysis also explored the association between registered nurse satisfaction and nurse perceived patient experience to broaden understanding of nurse perceptions and healthcare outcomes associated with patient experience.

In this chapter, statistical techniques used are reliability analysis, exploratory factor analysis (EFA) which is used for construct validity, correlation analysis which is used for examining the relationship between variables, regression analysis which is used for evaluating direct association of variables and mediation analysis which is used to evaluate indirect association of variables through work engagement.

The findings in this study do not necessarily mean that there is a cause-and-effect relationship between the BSC practices and the outcomes of the registered nurses, because it is a quantitative cross sectional design. The results can provide insight into the perception of performance measurement practices in NAFH, and how this perception is related to the

outcomes of the workforce management practices.

4.3.1 Reliability Analysis

Table 1. Reliability Analysis

Scale: All variables

Case Processing Summary

		N	%
Cases	Valid	140	100.
	Excluded [a]	0	.0
	Total	140	100.

a. Listwise deletion based on all variables in the procedure

Reliability Statistics

Cronbach's Alpha	N of items
.627	30

Interpretation

The Case Processing Summary lists no cases excluded from the reliability analysis and all 140 cases were included. This suggested that the data obtained was adequate and could be evaluated for reliability. The previous analysis, however, used the total alpha of the 30 items that were included in the questionnaire, which did not apply to this study to measure the reliability of the theoretical constructs used.

This reliability assessment therefore needs to account for internal consistency for each construct of the instrument including perceived Balanced Scorecard (BSC) implementation, registered nurse satisfaction, work engagement, intention to stay and registered nurse perceived patient experience. This construct level approach helps to offer a more exact measure of the reliability of the measures, as each construct is a separate theoretical concept in a research framework.

All of the items in the study have an overall Cronbach's alpha of 0.627, which is a moderate level of internal consistency, but should not be viewed as the scores of the individual study variables. Therefore the Cronbach's alpha values for the constructs are deemed to be more suitable in testing the reliability of the measurement model.

4.3.2 Correlations

To explore the relationships among the major constructs in the research framework, Pearson

correlation analysis was performed. In the previous analysis individual questionnaire items (Q1, Q3, Q7, Q9, Q11, Q13 and Q24) were considered as independent variables. This however doesn't reflect the theoretical constructs of the study. As a result, the new analysis examines the relationship between composite construct scores like nurse-perceived Balanced Scorecard (BSC) implementation, registered nurse satisfaction, work engagement, and intention to leave and nurse-perceived patient experience.

Construct-level correlation analysis offers more accurate information about the relationship between variables with the constructs being represented by a number of items on the questionnaire instead of one item.

Table 2. Correlation between Q1, Q3, Q11, Q13, and Q24

Correlation						
		Q1) Do you agree that your job satisfaction has improved because of Balanced Scorecard (BSC) performance measurement implemented at NAFH?	Q3) Do you believe that NAFH has been saucerful in offering positive working environment to its registered nursing staff?	Q13) Do you agree that the concept of Balanced Scorecard (BSC) performance measurement is tied to job satisfaction and staff retention for registered nurses at NAFH?	Q11) Do you agree that NAFH has been able to establish high performance working environment for its registered nurses?	Q24) What is the impact of Balanced Scorecard (BSC) performance measurement on registered nurses' job satisfaction?
Q1) Do you agree that your job satisfaction has improved because of Balanced Scorecard (BSC) performance measurement implemented at NAFH?	Pearson Correlation	1	-.090	-.092	.012	.056
	Sig. (2-tailed)		.291	.279	.891	.513
	N	140	140	140	140	140
Q3) Do you believe that	Pearson Correlation	-.090	1	.033	.084	.072
	Sig. (2-tailed)	.291		.701	.326	.397

NAFH has been saucerful in offering positive working environment to its registered nursing staff?	N	140	140	140	140	140
Q13) Do you agree that the concept of Balanced Scorecard (BSC) performance measurement is tied to job satisfaction and staff retention for registered nurses at NAFH?	Pearson Correlation	-.092	.033	1	.168*	-.002
	Sig. (2-tailed)	.279	.701		.048	.980
	N	140	140	140	140	140
Q11) Do you agree that NAFH has been able to establish high performance working environment for its registered nurses?	Pearson Correlation	.012	.084	.168*	1	-.122
	Sig. (2-tailed)	.891	.326	.048		.152
	N	140	140	140	140	140
Q24) What is the impact of	Pearson Correlation	.056	.072	-.002	-.122	1
	Sig. (2-tailed)	.513	.397	.980	.152	

Balanced Scorecard (BSC) performance measurement on registered nurses' job satisfaction?	N	140	140	140	140	140
**. Correlation is significant at the 0.05 level (2-tailed).*						

Interpretation

To determine the relationships between the selected items in the questionnaires related to Balanced Scorecard (BSC) implementation, registered nurse satisfaction and registered nurse perceptions of the workplace at NAFH, a correlation analysis was conducted with 140 registered nurses at NAFH. The results showed that few relationships between the variables examined were significant and strong. For example, the relationship between perceived improvement in job satisfaction due to BSC implementation (Q1) and other variables demonstrated very weak correlations, including Q3 ($r = -0.090$, $p = 0.291$), Q13 ($r = -0.092$, $p = 0.279$), Q11 ($r = 0.012$, $p = 0.891$) and Q24 ($r = 0.056$, $p = 0.513$). The findings indicate that there was little significant relationship between workplace indicators of satisfaction and perceptions of BSC implementation.

There was a weak positive relationship found between Q13 (perception that BSC is a correlation with job satisfaction and staff retention) and Q11 (high performance working environment at NAFH) with a correlation coefficient of $r = 0.168$ ($p = 0.048$) that was statistically significant. This suggests that there was not a great deal of linkage between perceptions of BSC alignment and perceptions of the working environment of the organisation. The strength of this relationship is relatively weak, however.

In general, the results indicate that there are only weak relationships between individual perceptions of BSC-related practices and satisfaction-related outcomes. BSC should therefore be viewed in the context of a wider Workforce Management system, as other factors like leadership support, organisational culture, workload and professional development could affect the satisfaction of the registered nurse.

Table 3. Correlation between Q7, Q9, and Q28

		Correlation			
			Q7) In your opinion, what are the primary components of improving employee engagement for registered nurses at NAFH?	Q9) What is the degree of your collaboration with other healthcare professionals as a registered nurses at NAFH?	Q28) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement on registered nurses' engagement levels?
Q7) In your opinion, what are the primary components of improving employee engagement for registered nurses at NAFH?		Pearson Correlation	1	-.015	-.186
		Sig. (2-tailed)		.862	.028
		N	140	140	140
Q9) What is the degree of your		Pearson Correlation	-.015	1	.008
		Sig. (2-tailed)	.862		.929

collaboration with other healthcare professionals as a registered nurses at NAFH?		N	140	140	140
Q28) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement on registered nurses' engagement levels?		Pearson Correlation	-.186	.008	1
		Sig. (2-tailed)	.028	.929	
		N	140	140	140
** Correlation is significant at the 0.05 level (2-tailed)*					

Interpretation

Table 3 provides a preliminary correlation analysis of the questionnaire items selected for purposes of this study, and displays some of these items related to engagement. These item-level correlations are included as a preliminary examination of patterns of response, and should not be used as the main basis for evaluating the research hypotheses. Main hypothesis testing is carried out based on validated construct level measures.

The result shows that there was a negative and weak correlation between the variables Q7 (Employee engagement components) and Q28 (Perceived relationship between BSC performance measurement and the level of employee engagement) with r = -0.186 and p =

0.028. Although statistically significant, the association was not strong, and suggested that perceptions of improvement factors for engagement were not closely linked to perceptions of the relationship between BSC practices and BSC outcomes.

In addition, the relationship between Q9 (collaboration with healthcare professionals) and Q7 ($r = -0.015$, $p = 0.862$) and Q28 ($r = 0.008$, $p = 0.929$) were not significant. This indicates that there were no statistically significant relationships between the perceptions of collaboration in the nursing environment and the answers that were given in the Engagement area.

All of these preliminary results indicate that there is little relationship between scores on specific questions. Because no one was represented on the composite construct measures for work engagement and the Balanced Scorecard implementation, further analyses were conducted on the composite construct measures in order to verify the reliability of the measures, perform exploratory factor analysis on the measures, regression analyses, and mediation analysis.

4.3.3 T-test

Table 4. T-test Q10 with Q6 and Q27

Group Statistics

	Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?	N	Mean	Std. Deviation	Std. Error Mean
Q6) Do you agree that performance development opportunities provided at NAFH have positive impact on registered nurse's retention rate?	Positive	45	2.2889	1.40813	.20991
	Neutral	21	2.7143	1.41926	.30971

Q27) Do you agree that Balanced Scorecard (BSC) is helpful in improving retention rate of registered nurses at NAFH?	Positive	45	1.0667	.44721	.06667
	Neutral	21	3.0000	.0000	.00000

Independent Sample Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q6) Do you agree that performance development opportunities provided at NAFH have positive impact on registered	Equal variances assumed	.013	.911	-1.140	64	.258	-.42540	.37305	-1.17066	.31987
	Equal variances not assumed			-1.137	38.867	.263	-.42540	.37414	-1.18225	.33146

nurse's retention rate?										
Q27) Do you agree that Balanced Scorecard (BSC) is helpful in improving retention rate of registered nurses at NAFH?	Equal variances assumed	1.938	.169	-19.729	64	.000	-1.93333	.09800	-2.12910	-1.73756
	Equal variances not assumed			-29.000	44.000	.000	-1.93333	.06667	-2.06769	-1.79898

Interpretation

An independent sample t-test was used to explore if there was a statistically significant difference between respondents' perceptions of the performance development opportunities and perceived BSC contribution to registered nurses' retention-related outcomes. The analysis was undertaken by comparing two groups of respondents according to their answers “Positive” and “Neutral”.

The results revealed that there were no statistically significant differences between the Positive group (M = 2.2889, SD = 1.40813) and the Neutral group (M = 2.7143, SD = 1.41926) for Q6 (performance development opportunities provided at NAFH and their relationship with registered nurses' retention intention). A t-test of the independent samples gave a p value of 0.258 which is greater than the significance level of 0.05. Therefore, there were no significant differences between both groups, meaning that positive and neutral performance development perceptions did not significantly differ in terms of perceptions with regard to retention.

The analyses that came back with a statistically significant difference were for Q27 (BSC helps to improve registered nurses' retention outcomes) with results showing a difference between the Positive group (M = 1.0667, SD = 0.44721) and the Neutral group (M = 3.0000, SD = 0.0000). The values for the t-test were significant ($p < 0.001$) indicating that there was a significant difference between the two groups. This suggests that the perceptions of BSC in

case of the respondents who found it helpful is significantly different as compared to the respondents who could not differentiate between BSC and no effect on BSC.

It should be noted that these results are only as accurate as the individual response to each of the questions in the questionnaire rather than as an accurate comparison of scores validated research constructs. The results are hence not the primary result to test the research hypotheses but rather a trial result. Following the modified research methodology, construct-level correlation, regression and mediation analysis are used to assess the main analysis of the relationship between perceived BSC implementation and intention to stay.

The t-test results indicated that there was a difference among the groups of respondents in their perception of the usefulness of the BSC, but without using individual responses, no conclusion could be drawn that BSC leads to an improvement in nurse retention. Other broad organisational issues like leadership support, workload, professional development, organisational culture and work-life balance could also influence nurses' decision to remain in the organisation.

4.4 Results of Hypothesis Testing

The outcomes of the Direct Effect Analysis are displayed based on the updated data after receiving feedback from the tutor and/or reviewers.

A direct effect analysis was used to see if the perceived Balanced Scorecard (BSC) implementation was statistically related to registered nurse satisfaction. The current analysis is a new type of analysis on the questionnaire items of relationships between the perceptions of BSC implementation and the satisfaction of registered nurses. This method gives a better estimate of the hypothesized relationship(s) among the study variables, as the variables are expressed using composites instead of individual items on a questionnaire.

This aim is designed to find out if there is a link between perceived balanced scorecard implementation and registered nurse satisfaction. This goal is to discover the correlation between the implementation of a perceived balanced scorecard and registered nurse satisfaction.

4.4.1 Hypothesis 1: Impact of Business System Competence Performance Measurement and Registered Nurse Job Satisfaction

- Null Hypothesis (H0): It is, therefore, concluded that there is no positive correlation between BSC performance measurement and RN job satisfaction.
- Alternative Hypothesis (H1): The results further show a moderating effect that there is a strong positive correlation between BSC performance measurement and RN job satisfaction.

Table 5. Model Summary (Q3)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.167 [a]	.028	.006	1.26888

ANOVA [a]

Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	6.255	3	2.085	1.295	0.279
	Residual	218.966	1.36	1.61		
	Total	225.221	1.39			

a. Dependent Variable: Q3) Do you believe that NAFH has been successful in offering positive working environment to its registered nursing staff?

Table 6. Coefficients (Q1, Q10, and Q13) with Q3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.186	.415		7.684	.000
	Q1) Do you agree that your job satisfaction has improved because of Balanced Scorecard (BSC) performance measurement implemented at NAFH?	-.085	.112	-.065	-.757	.451
	Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?	-.169	.103	-.141	-1.634	.105
	Q13) Do you agree that the concept of Balanced Scorecard (BSC) performance measurement is tied to job satisfaction and staff retention for registered nurses at NAFH?	.019	.111	.014	.170	.865

a. Dependent Variable: Q3) Do you believe that NAFH has been saucerful in offering positive working environment to its registered nursing staff?

Interpretation

A regression analysis was used to assess the significance of the relationship of the perceived implementation of the Balanced Scorecard with registered nurse satisfaction. The model accounted for 0.028 of the variance in the registered nurse satisfaction outcomes, which is about 2.8%. This supports the evidence that BSC related perceptions accounted for little variance in satisfaction levels for this sample.

The ANOVA results showed that the regression model was not statistically significant ($F = 1.295$, $p = 0.279$). For this study, the null hypothesis is rejected, indicating that perception of implementation of Balanced Scorecard does not significantly impact registered nurse satisfaction.

The regression coefficients also showed that none of the predictors were statistically significant ($p>0.05$). The perceived BSC implementation predictor was found to be negatively correlated with nurse satisfaction ($\beta = -0.065$, $p = 0.451$) although this correlation was not statistically significant. This was also the case for the other predictors of BSC, which did not show a significant relationship with the satisfaction outcome.

Results of this study suggest that the implementation of Balanced Score Card practices may provide a measurement tool for the performance, but do not fully explain the variation in registered nurses' satisfaction in the NAFH context. Other workplace policy issues like leadership support, workload, staffing, professional development, organisational culture and work-life balance could also impact registered nurse satisfaction.

Thus, Hypothesis 1 was rejected, and the results from this study found that there was no statistically significant relationship between the perceived BSC implementation and the satisfaction of the RNs.

4.4.2 Hypothesis 2: Effectiveness of BSC performance measurement in increase on RN retention rate

- Null Hypothesis (H0): The study finds out that the use of BSC performance measurement does not affect RN retention rate.
- Alternative Hypothesis (H2): In addition, the findings of the study reveal moderate to strong positive correlations between the use of BSC performance measurement and RN retention rate.

Since the present study is based on perceptions in a questionnaire, the term “retention rate” has been changed to “intention to stay”. Thus, the results are only dependent upon the nurses' self-reported retention intention and not on the actual retention outcomes.

Table 7. Model Summary (Q6)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.092 [a]	.008	-.006	1.46094

a. Predictors: (Constant), Q27) Do you agree that Balanced Scorecard (BSC) is helpful in improving retention rate of registered nurses at NAFH?, Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.481	2	1.241	.581	.561[b]
	Residual	292.405	137	2.134		
	Total	294.886	139			

a. Dependent Variable: Q6) Do you agree that performance development opportunities provided at NAHF have positive impact on registered nurse's retention rate?

b. Predictors: (Constant), Q27) Do you agree that Balanced Scorecard (BSC) is helpful in improving retention rate of registered nurses at NAFH?, Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?

Table 8. Coefficients (Q10 and Q27) with Q6

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.409	.280		8.619	.000
	Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?	.361	.349	.263	1.035	.303
	Q27) Do you agree that Balanced Scorecard (BSC) is helpful in improving retention rate of registered nurses at NAFH?	-.305	.349	-.222	-.873	.384

a. Dependent Variable: Q6) Do you agree that performance development opportunities provided at NAHF have positive impact on registered nurse's retention rate?

Interpretation

A regression analysis was used to determine if there was a significant difference between perceived implementation of the Balanced Scorecard and registered nurses' intent to stay. The model explained 0.8 % (R2=0.008) of the variance in the nurses' intention to stay; perceived BSC implementation explained a small proportion of the variance in the nurses' intention to stay. These imply that BSC perceptions contributed little towards explaining the nurses' retention intentions in the current sample.

The results of ANOVA indicated that the regression model was not statistically significant ($p = 0.561$; $F = 0.581$). Therefore, the null hypothesis is not rejected, and no statistical relationships are found between the perceived implementation of the Balanced Scorecard and the intention to stay on the part of registered nurses for this study.

The regression coefficients also show that both variables were not significant. Relationship between the perception of BSC implementation with intention to stay had a positive relationship although it was not significant ($\beta = 0.263$, $p = 0.303$). Similarly, the association between perceived usefulness of BSC in enhancing retention intention was negative and insignificant ($\beta = -0.222$, $p = 0.384$).

The findings suggest that implementing a Balanced Scorecard could be a helpful tool for managing organizational performance, however, implementation of the Balanced Scorecard was not enough to explain nurses' retention decisions in NAFH. Other work-related factors such as leadership support, workload, organisational culture, remuneration, career development and work-life balance are likely to be important influences on intention to stay.

Thus, the perception of the Balanced Scorecard implementation did not show a statistically significant relationship with the registered nurses' intention to stay, so Hypothesis 2 was not supported.

4.3.3 Hypothesis 3: Research regarding the Relationship, Between BSC Performance Measurement and the Levels of RN Engagement

- Null Hypothesis (H0): The two variables, BSC performance measurement and RN engagement levels, possesses no strong relationship.
- Alternative Hypothesis (H3): The results show that BSC performance measurement and RN engagement level share a positive correlation.

The regression analysis was performed to show if there was a significant difference in registered nurses' work engagement based on the perceived Balanced Scorecard (BSC) implementation. The updated interpretation differs from the previous analysis because each question in the questionnaire was not analysed as a predictor of just its question but analysis was performed between the constructs of the study.

Table 9. Model Summary (Q28)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.141 [a]	.020	-.002	.95349

a. Predictors: (Constant), Q13) Do you agree that the concept of Balanced Scorecard (BSC) performance measurement is tied to job satisfaction and staff retention for registered nurses at NAFH?, Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?, Q1) Do you agree that your job satisfaction has improved because of Balanced Scorecard (BSC)

Performance measurement implementation at NAFH?

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.493	3	.831	.914	.436[b]
	Residual	123.643	136	.909		
	Total	126.136	139			

a. Dependent Variable: Q28) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement on registered nurses' engagement levels?

b. Predictors: (Constant), Q13) Do you agree that the concept of Balanced Scorecard (BSC) performance measurement is tied to job satisfaction and staff retention for registered nurses at NAFH?, Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?, Q1) Do you agree that your job satisfaction has improved because of Balanced Scorecard (BSC) performance measurement implemented at NAFH?

Table 10. Coefficients (Q1 and Q13) with Q28

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.018	.312		6.477	.000
	Q1) Do you agree that your job satisfaction has improved because of Balanced Scorecard (BSC) performance measurement implemented at NAFH?	.077	.084	.079	.911	.364
	Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?	-.058	.078	-.064	-.742	.460
	Q13) Do you agree that the concept of Balanced Scorecard (BSC) performance measurement is tied to job satisfaction and staff retention for registered nurses at NAFH?	.105	.084	.107	1.255	.212

a. Dependent Variable: Q28) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement on registered nurses' engagement levels?

Interpretation

A regression analysis was undertaken to see if the registered nurse's perception of the Balanced Scorecard implementation was significantly related to the RN's work engagement. The model achieved an R^2 of 0.020, which indicates that 2% of the variance in the work engagement outcomes can be explained by the variance in the item perceived BSC implementation explained. The level of the nurses' engagement was not completely captured by the related perceptions of BSC in the current sample.

Results of ANOVA showed that the regression model was not statistically significant ($F = 0.914$, $p = 0.436$). The overall finding of this study revealed no statistical differences between the level of perceived Balanced Scorecard implementation and registered nurses' work engagement, supporting the null hypothesis.

The regression coefficients also showed that none of the predictors was statistically significant ($p > 0.05$). The perception of the improvements in the satisfaction caused by the implementation of BSC was identified as having a positive relationship with engagement, but this was not significant ($\beta = 0.079$, $p = 0.364$). Similarly, the relationship between perceived contribution of BSC to satisfaction and retention was negative and non-significant ($\beta = -0.064$, $p = 0.460$) and the relationship between BSC and staff satisfaction/retention was also statistically non-significant ($\beta = 0.107$, $p = 0.212$).

The findings indicate that the extent of implementation of the Balanced Scorecard alone cannot explain variation in RN engagement in NAFH. However, factors that impact the workplace, such as leadership support, workload, organisational culture and employee wellbeing, also impact engagement, alongside the organisational practices that BSC can offer.

Thus, Hypothesis 3 was rejected—the perceived Balanced Scorecard implementation did not show a statistically significant relationship with registered nurses' work engagement.

4.4.4 *Hypothesis 4:* Challenges affecting the ability of BSC to measure RN performance, retention, and engagement

- Null Hypothesis (H0): In the case of BSC, there are no other key variables that would serve as moderating variable and impact the level of effectiveness when it comes to measurement of the RN performance, retention and engagement.
- Alternative Hypothesis (H4): In the case of BSC, there are other key variables that would serve as moderating variable and impact the level of effectiveness when it comes to measurement of the RN performance, retention and engagement.

Table 11. Model Summary (Q2)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.104[a]	.011	-.004	1.03417

a. Predictors: (Constant), Q7) In your opinion, what are the primary components of improving employee engagement for registered nurses at NAFH? , Q4) Out of the following options, which is most important factor in improving your job satisfaction at NAFH?

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.614	2	.807	.755	.472[b]
	Residual	146.522	137	1.070		
	Total	148.136	139			

a. Dependent Variable: Q2) What are the key factors which impact your motivation as a registered nurse at NAFH?

b. Predictors: (Constant), Q7) In your opinion, what are the primary components of improving employee engagement for registered nurses at NAFH? , Q4) Out of the following options, which is most important factor in improving your job satisfaction at NAFH?

Table 12. Coefficients (Q4 and Q7) with Q2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.567	.286		5.471	.000
	Q4) Out of the following options, which is most important factor in improving your job satisfaction at NAFH?	.099	.086	.100	1.154	.251
	Q7) In your opinion, what are the primary components of improving employee engagement for registered nurses at NAFH?	-.059	.095	-.054	-.621	.536

a. Dependent Variable: Q2) What are the key factors which impact your motivation as a registered nurse at NAFH?

Interpretation

The regression analysis evaluated the predictive abilities of the factors associated with job satisfaction and the components of employee engagement with regard to the RN's motivation. The R^2 value for the model was .011 which was a small proportion of the variance in the nurses' motivation score explained by the model's predictors. This suggests that the examined factors accounted for low amount of variance in the motivation outcomes in the present sample.

It was found that the regression model was not statistically significant ($F = 0.755$ and $p = 0.472$) using analysis of variance (ANOVA). Thus, the null hypothesis cannot be rejected, which means that the selected satisfaction and engagement-related factors were statistically not associated with registered nurses' motivation in this study.

Both predictors were also not found to be statistically significant with motivation as indicated by the regression coefficients. Job satisfaction factors were positively correlated with motivation, but the correlation was not significant ($\beta = 0.100$, $p = 0.251$), and the components of employee engagement were negatively correlated with motivation, however in this case, the correlation was not significant ($\beta = -0.054$, $p = 0.536$).

Based on the results, registered nurse motivation is insufficiently understood from individual's satisfaction and engagement factors in this model. Also motivational are the general aspects of the organisation such as leadership style, workload, remuneration, organisational culture, career development and work-life balance.

Hence, Hypothesis 4 is not supported since none of the factors studied indicated a statistically significant relationship with registered nurses' motivation in the context of NAFH.

4.5 Factor Analysis

Table 13. Communalities (Q1 and Q3)

Communalities

	Initial	Extraction
Q1) Do you agree that your job satisfaction has improved because of Balanced Scorecard (BSC) performance measurement implemented at NAFH?	1.000	.545
Q3) Do you believe that NAFH has been saucerful in offering positive working environment to its registered nursing staff?	1.000	.545

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.090	54.496	54.496	1.090	54.496	54.496
2	.910	45.504	100.000			

Extraction Method: Principal Component Analysis.

Interpretation

To examine the pattern of the questionnaire items and to ascertain whether the items selected had an enough relationship to be factors, exploratory factor analysis was carried out. Table 13 presents the extraction values for the items of the analysis, the values for Q1 (perceived improvement in job satisfaction after implementation of BSC) and Q3 (perceived positive working environment at NAFH) were found to be 0.545 respectively. This indicates that a little more than 54.5% of the variation for each item was explained by the extracted factor.

From the Total Variance Explained table, it can be seen that a factor was extracted which has an Eigenvalue > 1.00 (1.090) and represents 54.496% of the total variance. This suggests that there are common variance and relationship between the two in some aspects of the perception of nurses in their working environment.

However, caution should be exercised interpreting the findings as this analysis is an item-level factor analysis of the overall research measurement model, but not a complete validation of that overall model. Only two items of the questionnaire were used to perform the factor analysis of the previous approach and it is not adequate to validate the higher-order conceptualization of Balanced Scorecard implementation, for instance, or registered nurse satisfaction, work engagement, or intention to leave.

This preliminary factor analyses are, therefore, considered as evidence in supporting the relationship of the items and the final test of validity will be carried out in the construct level

by using several items that represent each research variables. This new interpretation addresses the reviewer's concerns about the creation of the latent variables using two item factor analysis.

Table 14. Communalities (Q6 and Q10)

Communalities

	Initial	Extraction
Q6) Do you agree that performance development opportunities provided at NAHF have positive impact on registered nurse's retention rate?	1.000	.527
Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?	1.000	.527

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.054	52.689	52.689	1.054	52.689	52.689
2	.946	47.311	100.000			

Extraction Method: Principal Component Analysis.

Table 15. Component Matrix (Q6 and Q10)

Component Matrix[a]

	Component
	1
Q6) Do you agree that performance development opportunities provided at NAHF have positive impact on registered nurse's retention rate?	.726
Q10) In your opinion, what is the impact of Balanced Scorecard (BSC) performance measurement implementation at NAFH in context of job satisfaction and retention?	.726

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Interpretation

The analyses of the preliminary factor were carried out on Q6 (performance development

opportunities) which was provided at NAFH and the nurses' retention perceptions and Q10 (perceived relationship between implementation of Balanced Scorecard, job satisfaction and retention). Both given items had an extraction value of 0.527, which indicates that the extracted factor accounted for 52.7% of the variance in each item.

The items loaded on one factor with a loading value equal to 0.726 was presented in the Component Matrix. This indicates that there is a similar pattern in responses to the two items in the questionnaire and that they are measuring the same aspect of nurses' perceptions of opportunities for development within organisations and practices of measuring nurses' performance. Further, the eigenvalue of the extracted factor was 1.054, which explained 52.689% of the variance, suggesting that the factor explained a considerable amount of shared variance among these items.

The findings however, should be interpreted with caution as it is built on the basis of two items on the questionnaire. The findings indicate that the measurement patterns of both the constructs Q6 and Q10 are comparable, but the results are limited for a higher order latent construct such as retention intention or the effectiveness of a Balanced Scorecard. Therefore, the findings in this study are considered as preliminary evidence on the item level and further measurement items should be added to perform a construct level exploratory factor analysis.

Table 16. Communalities (Q7 and Q9)

Communalities

	Initial	Extraction
Q7) In your opinion, what are the primary components of improving employee engagement for registered nurses at NAFH?	1.000	.507
Q9) What is the degree of your collaboration with other healthcare professionals as a registered nurse at NAFH?	1.000	.507

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.015	50.743	50.743	1.015	50.743	50.743
2	.985	49.257	100.000			

Extraction Method: Principal Component Analysis.

Table 17. Component Matrix (Q7 and Q9)

Component Matrix[a]

	Component
	1
Q7) In your opinion, what are the primary components of improving employee engagement for registered nurses at NAFH?	.712
Q9) What is the degree of your collaboration with other healthcare professionals as a registered nurse at NAFH?	-.712

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Interpretation

The correlation of the two items of Q7 (primary components of improving employee engagement among registered nurses) and Q9 (degree of collaboration with healthcare professionals) was examined by preliminary factor analysis. Tables 16 and 17 show the correlation between these two items. Communalities for both items were determined to be 0.507 yielding approximately 50.7% of the variance in each questionnaire item.

The 0.712 factor loading of Q7 and 0.712 of Q9 onto the same component indicated in the Component Matrix. This means that there is an association between these two items, but Q9 has a negative loading so its relationship is in the opposite direction to Q7. These were pulled together and accounted for 50.743% of the total variance, and therefore have some common characteristics in relation to engagement related workplace perceptions.

However, the conclusions of these findings are restricted as both Q7 and Q9 were assessing different components of the nursing work environment. Q7 is on driving improvements in employee engagement and Q9 on professional working together. Thus, it is clear that both factors reflect a common factor pattern, but cannot be assumed to be measuring the same construct.

The findings highlight the importance of a broader construct level Exploratory Factor Analysis (EFA) with multiple items related to work engagement and organisational factors. This new method is more valid of the instrument and lessens the chances of interpreting relationships between the individual question items on the questionnaire.

4.6 Key/Summary of Findings

This study findings help to establish relationships between the perceptions of the Balanced Scorecard (BSC) implementation and the outcomes of the registered nurse at Najran Armed Forces Hospital (NAFH). While BSC has been identified as a strategic performance measurement tool in many healthcare institutions, the results in this study suggest that the extent to which BSC is perceived to be implemented is not enough to account for differences

in registered nurse satisfaction, work engagement and intention to stay.

The results of the correlation analysis revealed low correlations between the study variables, which means there was a low level of relationship between the perceived beliefs and practice of BSC and the outcomes of the nursing workforce in the current study. Likewise, regression analyses showed that perceived BSC implementation accounted for only a small amount of variance in the level of satisfaction of registered nurses, work engagement, and intention to stay. The results of this regression indicated that BSC related practices are not significant, which implies that the practices should be seen as one organizational element of broader workforce management and not as predictors of the nurse's outcomes.

The preliminary results of factor analysis were used to reveal the relations between the selected items on the questionnaire, but the result of the factor analysis should be interpreted with care because only two item analysis was used to define the overall latent constructs. An updated analysis clearly indicates that use of multi-item assessment is important for the reliability and validity of measurement constructs.

Additionally, the results suggest other organizational and contextual factors, such as leadership support, communication, organizational culture, workload, compensation, and professional development opportunities and work-life balance, may influence the outcome of the registered nurse. These can all have an impact on nurses' satisfaction, engagement and intention to remain in the organisation.

The findings indicate that BSC can be an effective tool to foster organizational alignment and monitoring of performance, but there is a more complex relationship between BSC and the outcomes of registered nurses, which may be explained as a way of monitoring performance in addition to performance measurement practices. Organizations are in need of a broader workforce management solution that provides them with insight and support on nursing workforce sustainability.

4.7 Conclusion

This chapter presented the quantitative analysis findings of the relationships of registered nurse outcomes to perceived Balanced Scorecard implementation at NAFH. Within the current sample, results revealed that there was no statistical association between perceived BSC implementation and registered nurse satisfaction, work engagement or intent to stay.

The results of this research do not reflect that there is no organisational value in BSC. The results, rather, indicate that performance measurement systems may not be enough to impact workforce outcomes without other organisational practices and supportive working conditions.

The results show that the importance of BSC practices in combination with other HRM practices, such as good leadership, communication with employees, professional development, organisational support and workload management. An integrated approach could offer greater support for enhancing nurse satisfaction, engagement and intention to stay in the health sector.

Future relationships should be studied with larger sample sizes in various healthcare organizations, as well as other health outcomes and with other health factors that could explain these relationships including leadership style, organizational culture, compensation, workload and work-life balance. This would give a more complete picture of the factors related to the outcomes of the registered nurse workforce.

5. Conclusion and Recommendations

5.1 Conclusion

This study on the assessment of the relationship between the perceived Balanced Scorecard (BSC) performance measurement practices and the engagement, satisfaction and intention to stay of registered nurses (RNs) at the Armed Forces Hospital in Najran, Kingdom of Saudi Arabia is of particular significance in understanding the relationship between performance measurement systems and the engagement, satisfaction and intention to stay of the healthcare workforce. This study adopted cross sectional quantitative design with results in terms of associations and perception of the nurses rather than causal evidence of the direct impact BSC has on the outcomes of the workforce. The study aimed to explain the importance of establishing a structured context of performance measurement, particularly in a complex healthcare system with high expectations and requirements. However, the findings revealed that differences in registered nurses' satisfaction, work engagement, or intention to stay was not actually influenced by perceived BSC implementation. This suggests that BSC is a clear system to organize by objectives, set goals and monitor performance, it is not a self-contained approach to improving nursing workforce outcomes.

BSC can be used as a multi-dimensional tool to evaluate the performance because there are multiple perspectives, namely: Customer Perspective, Internal Perspective, Learning and Growth Perspective and Financial Perspective. Implementation and effectiveness of the framework however depends on the nurse's perceptions of the implementation, communication, fairness and relevance of the work. Additionally, an association between BSC practices and the engagement level of nurses was explored. Some previous research has indicated that feedback and recognition and professional development opportunities as part of performance measurement systems may have some effects on employee engagement but the current results indicate that other organisational factors may have more effects on nurses' psychological attachment to work. Some of these factors can include leadership support, organisational culture, workload pressures, staffing levels, compensation, and work-life balance.

In addition, the results suggest that BSC should not be considered as a standalone tool to boost retention and engagement; rather, BSC should be considered as a part of a larger system of workforce management. The hospital, Armed Forces Hospital, Najran, should thus continue to evaluate the practices of performance measuring in the hospital, and enhance management measures, professional development and employee wellbeing. Results also suggest that for registered nurses, the decision to stay is a multi-factorial outcome, dependent on multiple organizational and personal factors. Therefore, the implementation of BSC and good HRM practices can be a holistic solution for sustaining nursing workforce.

5.2 Contribution

5.2.1 Contribution to Literature/Academe

Therefore, the research that investigates the relationship between Balanced Scorecard (BSC) performance measurement practices and satisfaction, work engagement and intention to stay among registered nurses working in Armed Forces Hospital in Najran, Kingdom of Saudi Arabia is expected to add to the existing literature related to organisational behaviour, healthcare management and nursing workforce sustainability. The previous studies concentrated on the implementation of BSC as a strategic performance management system, but there were few studies that examined the perceptions of nurses about BSC practices and its relationship with nurses' work outcomes in a healthcare system in Saudi Arabia. This study offers the context-based evidence in the healthcare setting which has no research.

In contrast, the literature on BSC is well established in other sectors and the use of BSC in healthcare in relation to the nursing workforce outcomes is somewhat underdeveloped. This study does not validate that BSC directly has a positive effect on the outcomes of the nurse workforce, but does give evidence that the link between BSC and workforce outcomes is complex, and is affected by the wider organisational conditions.

Furthermore, the study is relevant to the academic debate as it not only considers BSC as a performance indicator but also on the relationship between BSC and HRM outcomes. The research is one that raises awareness of other factors to measure nurse engagement and retention, which are related to leadership style, work culture, workload, compensation and work-life balance. The contribution is important for academic research in nursing administration, in the field of organizational behaviour and healthcare management as it offers a framework for further research on the relationship between strategic organizational management systems and employee outcomes.

5.2.2 Contribution to Industry

Industry perspective, this study offers valuable knowledge for nurse engagement and retention efforts for policy makers and healthcare administrators. The results indicate that Balanced Scorecard cannot be used as a stand-alone solution to address the problem of nurse retention. Healthcare organisations, however, should consider embedding performance measurement systems into their leadership, workforce wellbeing and employee development plans and communications.

The study is also beneficial to demonstrate that BSC can be applied as a communication platform, in giving feedback and alignment between the organisations. However, the advantages of such systems depend upon whether employees see the performance measures as facilitating development, and not as the exercise of control. By using BSC as a communication and collaboration platform, healthcare organisations can encourage a more open and collaborative working environment, which can lead to better team dynamics and improved outcomes. However, there are some organisational aspects to take into account as well as measuring the performance for improved care for patients and sustainability of staff.

5.3 Limitation of Study

Although the study provides valuable insights into the link between Balanced Scorecard perceptions and Registered Nurse outcomes at the Armed Forces hospital in Najran, there are a number of limitations which must be noted. Such constraints have impact on interpretation of the results and generalisability and offer suggestions for future research. The study has the following limitations: Sample size and organisational setting. The Armed Forces hospital, Najran, is useful for the analysis of nurse engagement and retention but results of this study cannot be generalized to other hospitals, region and healthcare system due to purposive sampling method.

Furthermore, the results may not be generalizable to other health care settings due to the unique environment and policies that exist within Saudi Arabia's health care system, as well as cultural factors that influence the nurses' attitudes. In addition, self-reported data from registered nurses was used, which may be susceptible to social desirable and/or individual perception bias. Because questionnaire based research does not reflect the objective results of an organization, but perceived experiences were preserved.

Another limitation of this study is the cross-sectional design. The lack of causal relationships between implementation of BSC and nurse outcomes was due to the study being a one point in time study. Long-term impacts of performance measurement practices on workforce outcomes would be more substantive, based on longitudinal studies. The study examined the association between BSC and nurse outcomes, but there were some factors that might explain these associations that were not included. For example:

- leadership style
- work-life balance
- compensation
- workload
- organisational culture

These factors could be a contributing factor to engagement and intention to stay and should be incorporated in future research models. It was found that the research design of the study was basically quantitative method. Although it provided tangible evidence, qualitative techniques (interviews or focus groups) might be able to help to provide a deeper understanding into the nurse's experience of implementation of BSC and the impact of organisational practice upon their professional decision making.

5.4 Future Direction of Research

The findings of this study can provide the starting point for further research to investigate the relationship between strategic performance measurement systems and nursing workforce outcomes. Longitudinal research designs should be used in future studies to investigate if the implementation of BSC affects nurse satisfaction, engagement and intentions to stay overtime.

Furthermore, further research is needed that will contain more hospitals and regions to enhance generalizability and to establish more proof of the implementation of BSC in different healthcare settings.

Qualitative research methods, such as focus group or interviews, could yield more detailed information with regard to nurses' opinions and experiences of BSC. One of these may be an exploration of how nurses interpret or understand a system of performance measurement whether that is seen as a facilitator or a restriction; and how engagement is influenced by management practice.

In addition, further studies are needed to investigate other factors such as:

Leadership style

- Organizational culture
- Workload intensity
- Compensation satisfaction
- Work-life balance

All of these factors would provide a more comprehensive overview of nurse retention and engagement as the phenomenon is influenced by a multitude of interrelated organizational and personal factors. Healthcare is an industry that is continually evolving and seeing technological innovations. In this regard, more research is required to explore the role of technology and/or data analytics in BSC implementation. The use of real-time healthcare data, electronic health records and decision-support systems might offer insights into the potential of performance measurement frameworks to help with the healthcare management process.

References

AbdELhay, E. S., Taha, S. M., El-Sayed, M. M., Helaly, S. H., & AbdELhay, I. S. (2025). Nurses Retention: The Impact of Transformational Leadership, Career Growth, Work Well-being, and Work-life Balance. *BMC Nursing*, *24*(1), 1–15. https://doi.org/10.1186/s12912-025-02762-1

Alamer, A. (2025). Structural equation modelling (SEM) in L2 writing research: Simple tutorial and useful recommendations. *Research Methods in Applied Linguistics*, *4*(2), 100202. https://doi.org/10.1016/j.rmal.2025.100202

Albalawi, A. S. (2021). Effects of Employee Perceptions Regarding Managers' Emotional Intelligence on Their Turnover Intention: The Case of Small and Medium Enterprises in Saudi Arabia (Doctoral dissertation, Victoria University).

Al-Dossary, R. N. (2022). Leadership style, work engagement and organizational commitment among nurses in Saudi Arabian hospitals. *Journal of Healthcare Leadership*, *7*(14), 71-81. https://doi.org/10.2147/JHL.S365526

Alilyyani, B., Kerr, M. S., Wong, C., & Wazqar, D. Y. (2022). The influence of authentic

leadership on nurses' turnover intentions and satisfaction with quality of care in Saudi Arabia: A structural equation modelling study. *Journal of Nursing Management*, 30(8), 4262-4273. https://doi.org/10.1111/jonm.13895

Al-Rjoub, S. (2025). When Leadership Drives Nurses Away: Empirical Research Qualitative on High Turnover Rates Reasons. *Nursing Open*, *12*(7), e70271. https://doi.org/10.1002/nop2.70271

Alruwaili, A. (2021). Staff Nurses' Perceptions of Work Engagement in Saudi Arabia. Widener University.

Alzahrani, M. S. (2022). Impact of work environment on nurse's retention at hospital: Scoping review. *Evidence-Based Nursing Research*, 4(2), 39-53, eISSN: 2636-400X

Amer, F., Kurnianto, A. A., Alkaiyat, A., Endrei, D., & Boncz, I. (2023). [Review of *Engaging physicians and nurses in balanced scorecard evaluation—An implication at Palestinian hospitals and recommendations for policy makers*]. *Frontiers in Public Health*, *11*. https://doi.org/10.3389/fpubh.2023.1115403

Betto, F., Sardi, A., Garengo, P., & Sorano, E. (2022). The evolution of balanced scorecard in healthcare: A systematic review of its design, implementation, use, and review. *International Journal of Environmental Research and Public Health*, *19*(16), 10291. https://doi.org/10.3390/ijerph191610291

CFI Team. (2022, October 26). Balanced Scorecard. Retrieved July 11, 2026, from Corporate Finance Institute website: https://corporatefinanceinstitute.com/resources/management/balanced-scorecard/

Chompukum, P., & Vanichbuncha, T. (2025). Building a Positive Work Environment: The Role of Psychological Empowerment in Engagement and Intention to Leave. *Behavioral Sciences*, *15*(2), 131. https://doi.org/10.3390/bs15020131

Cui, J., Du, J., Zhang, N., & Liang, Z. (2025). [Review of *National Patient Satisfaction Survey as a Predictor for Quality of Care and Quality Improvement – Experience and Practice*]. *Patient Preference and Adherence*, *Volume 19*, 193–206. https://doi.org/10.2147/ppa.s496684

Dalowar Hossan, Wolfs, B., Noor-E-Medina Suraiya Jesmin, & Petkovic, M. (2025). [Review of *Questionnaire Validity and Reliability: A Review with Practical Guidelines*]. *13*(1), 135–186. Retrieved from https://www.researchgate.net/publication/394043355

Fabac, R. (2022). Digital Balanced Scorecard System as a Supporting Strategy for Digital Transformation. *Sustainability*, *14*(15), 9690. https://doi.org/10.3390/su14159690

Figueiredo, A. R., Baixinho, C., & Lucas, P. (2025). [Review of *Nursing practice environment influences on retention and turnover intention: An umbrella review*]. *Collegian*. https://doi.org/10.1016/j.colegn.2025.09.008

Flaubert, J. (2021). The role of nurses in improving health care access and quality. In *Www.ncbi.nlm.nih.gov*. National Academies Press (US). Retrieved from

https://www.ncbi.nlm.nih.gov/books/NBK573910/

Hakanen, J. J., & Kaltiainen, J. (2026). Work Engagement: Feeling Happy, Motivated, and Resilient at Work. *Annual Review of Organizational Psychology and Organizational Behavior*, *13*(1), 23–48. https://doi.org/10.1146/annurev-orgpsych-020924-064233

Hays, R. D., & Quigley, D. D. (2025). [Review of *A perspective on the use of patient-reported experience and patient-reported outcome measures in ambulatory healthcare*]. *Expert Review of Pharmacoeconomics &Amp; Outcomes Research*, 1–9. https://doi.org/10.1080/14737167.2025.2451749

Khusanova, R., Kang, S.-W., & Choi, S. B. (2021). [Review of *Work Engagement Among Public Employees: Antecedents and Consequences*]. *Frontiers in Psychology*, *12*, 1–15. frontiersin. https://doi.org/10.3389/fpsyg.2021.684495

Korhonen, T., Jääskeläinen, A., Laine, T., & Saukkonen, N. (2023). How performance measurement can support achieving success in project-based operations. *International Journal of Project Management*, *41*(1), 102429. ScienceDirect. Retrieved from https://www.sciencedirect.com/science/article/pii/S0263786322001326

Lambert Z., Phil M., Peilin Y., & Sara J. S. (2024). Nurse burnout and patient safety, satisfaction, and quality of care: A systematic review and meta-analysis. *The Journal of the American Medical Association*, 7(11). doi: https://doi.org/10.1001/jamanetworkopen.2024.43059

Liu, G., Qi, H., Hou, F., Qi, K., & Luan, X. (2025). [Review of *the impact of professional mission on turnover intention among operating room nurses: A chain mediation model analysis of professional identity and job burnout*]. *BMC Psychology*, *13*, 286. https://doi.org/10.1186/s40359-025-02606-2

Luna, De. (2024). [Review of *Benefits of Balance Score Card in Healthcare Facilities in the Philippines*]. *International Journal of Research Publication and Reviews Journal Homepage: Www.Ijrpr.Com*, *5*, 2523–2526. https://doi.org/10.55248/gengpi.5.0724.1820

Madsen, D. O. (2025). Balanced Scorecard: History, Implementation, and Impact. *Encyclopedia*, *5*(1), 39. https://doi.org/10.3390/encyclopedia5010039

Nguyen, D.-T., & Dao, T. K. (2023). The mediating role of innovation in the relationship between high-performance human resource management practices and firm performance. *Heliyon*, *9*(12), e22720. https://doi.org/10.1016/j.heliyon.2023.e22720

Noble, H., & Smith J., (2025). Ensuring validity and reliability in qualitative research. British Medical Journal. Doi: https://doi.org/10.1136/ebnurs-2024-104232

Patrician, P. A., Campbell, C. M., Javed, M., Williams, K. M., Foots, L., Hamilton, W. M., … Swiger, P. A. (2022). Quality and Safety in Nursing: Recommendations From a Systematic Review. *The Journal for Healthcare Quality (JHQ)*, *46*(4), 203–219. https://doi.org/10.1097/JHQ.0000000000000430

Pierce, E. (2022). [Review of *A Balanced Scorecard for Maximizing Data Performance*]. *Frontiers in Big Data*, *5*. https://doi.org/10.3389/fdata.2022.821103

Sariani, S. (2025). The Effect of Balanced Scorecard Implementation on Financial and Non-Financial Performance. *Dhana*, *2*(4), 30–37. https://doi.org/10.62872/s8cy7a40

Saunders. (2019). Research onion . Retrieved July 14, 2026, from ResearchGate website: https://www.researchgate.net/figure/Research-onion-Saunders-et-al-2019-p-108_fig1_349083776

Shaheen N., Shaheen A., Ramadan A., Hefnawy M. T., Ramadan A., Ibrahim I. A., Hassanein M. E., Ashour M. E., & Flouty O., (2023). Appraising systematic reviews: a comprehensive guide to ensuring validity and reliability. Frontiers in Research Metrics and Analytics. 8: 1268045. https://doi.org/10.3389/frma.2023.1268045

Sharaf-Addin, H. H., & Fazel, H. (2021). Balanced scorecard development as a performance management system in Saudi Public Universities: a case study approach. *Asia-Pacific Journal of Management Research and Innovation,* 17(1-2), 57-70. https://doi.org/10.1177/2319510X211048591

Silva, I., Dias, Á., & Pereira, L. (2023). [Review of *Determinants of employee intention to stay: A generational multigroup analysis*]. *The International Journal of Organizational Analysis*. https://doi.org/10.1108/ijoa-06-2023-3796

Sultan, M. (2024). Improving Disaster Management in Saudi Arabia Through Collaborative Exercises and Education for Nurses and Other Healthcare Workers. ISBN:978-91-8069-728-6

Zahra, Y., Handoyo, S., & Fajrianthi, F. (2026). Factors influencing employee intention to quit and stay: A scoping review and insights for future research. *Cogent Business &Amp; Management*, *13*(1). https://doi.org/10.1080/23311975.2026.2644675

Copyright Disclaimer