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INTERACTIONAL QUALITY AS AN ANTECEDENT OF PATIENT ATTITUDES: EVIDENCE FROM AN ARMY HOSPITAL IN THE FEDERAL TERRITORY OF KUALA LUMPUR

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ABSTRACT

Background and Purpose: Interactional quality between service providers and patients plays a critical role in shaping patient attitudes, as evidenced by numerous quality management studies in the 21st century. While this relationship has been widely explored in public and private healthcare settings, limited research addresses the impact of interactional quality in army hospitals. This study aims to examine the influence of interactional quality on patient attitudes in this unique organizational context.

Methodology: A cross-sectional research design was employed, utilizing data collected through 212 self-administered questionnaires from patients at an army hospital in the Federal Territory of Kuala Lumpur, Malaysia. A purposive sampling technique was used to select participants. The data were analyzed using SmartPLS to evaluate the measurement and structural models.

Findings: Structural equation modeling revealed that key interactional quality attributes—responsiveness, assurance, and empathy—are significant predictors of patient attitudes, specifically satisfaction and loyalty.

Contributions: This study underscores the importance of fostering high-quality interactions between employees and patients to enhance service performance in army hospitals. The findings suggest that responsiveness, assurance, and empathy are critical components for building patient satisfaction and loyalty. These insights can inform the development of patient relationship management programs and guide practitioners in improving interactional quality within daily service delivery.

Keywords: Interactional quality, patient satisfaction, patient loyalty, army hospital.

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1.0 INTRODUCTION

Improving the quality and effectiveness of hospital services is essential for health policy to maintain competitive advantages. The emergence of radical changes in the present demands and expectations of patients, the awareness of healthcare beneficiaries, the increased use of industry 4.0 health technology, and the threat of the COVID-19 pandemic have placed strong pressure on hospital networks, requiring unprecedented reorganization and restructuring actions. previously to improve their quality management (Grossu-Leibovica & Kalkis, 2023; Petry et al., 2023; Signorelli et al., 2024; Sony et al., 2023). The success or failure of a service is more complex than the quality of manufactured commodities because it is determined by the customers' perceptions (Ammar & Saleh, 2023; Muhammad, 2023; Yusuf et al., 2023). According to an expectation disconfirmation perspective, the level of patient satisfaction is affected by the contrast between expectations and outcomes. For example, satisfaction with service quality offered by an organization is achieved when clients judge that what they want

or expect matches or exceeds what they get or feel they get (Abd Majid et al., 2019; Dandis & Wright, 2020; Parasuraman et al., 1985).

A critical review of the service quality literature reveals that how employees interact with customers plays a role in determining the quality of the service. This aspect has been studied under dimensions like outcome quality (Parasuraman et al., 1985), functional quality (Grönroos, 1984), and interactive quality (Lehtinen & Lehtinen, 1991). Assessing how well employees (as service providers) can meet the needs, desires, and demands of clients (Asubonteng et al., 1996; Ammar & Saleh, 2023) has recently gained important recognition as a criterion to maintain and enhance the service performance of healthcare organizations in an era of global competition (Elkomy et al., 2023; Noronha et al., 2023).

Irrefutably, some recent studies relating to healthcare organizations published in the 21st century disclose that despite how well service quality systems are formulated, they will not be able to support their purposes if employees have not implemented effective interactional quality (Ampaw et al., 2020; Fatima et al., 2018; Ismail et al., 2016). In established hospitals, effective interactional quality has three salient dimensions: responsiveness, assurance, and empathy. For example, they have been widely practised to improve the registration and queuing procedures, accurately control the time of diagnosis and treatment, and periodically check the accuracy of drug dispensing (Wu et al., 2024), communication between medical staff and residents in the rehabilitation process for drug addicts (Aglia et al., 2024), decrease emotional exhaustion of emergency nurses (Koksal & Mert, 2024), and communication, physical contact and emotional support in diagnostic medical imaging context (Ding & Makanjee, 2024), and effectiveness of health information management practitioners (Olatunji et al., 2024). Hence, this interaction quality practice can satisfy clients' wants, needs, demands and preferences (Parasuraman et al., 1985, 1988; Amankwah et al., 2023).

In healthcare organizations, interactional quality is extensively practised through responsiveness, assurance and empathy in telemedicine and face-to-face consultations. Implementation of this interaction style has produced mutual benefits, such as clients getting clear, accurate and reliable information about their health and medical treatment procedures (Dalley et al., 2021; Janakiraman et al., 2023), bridge a big gap and establish a long term engagement, build trust and intention to use, and support and appreciate the healthcare services (Amankwah et al., 2023; Ben Amor et al., 2018; Ratnawati et al., 2020). As a result, the interaction styles can strongly invoke positive patient attitudes, by demonstrating their satisfaction (Fatima et al., 2018), and loyalty (Rosmayani et al., 2023**).**

Some recent meta-analyses of army hospital management show that interactional quality is often viewed as a single construct and an important component of service quality models. Still, its multifaceted construct, namely responsiveness, assurance, and empathy, is given less attention. The effect of such quality features on patient satisfaction and loyalty is clearer and stronger even mediators such as adopting mobile health technology and fairness (Seo & Um, 2019) are included in the relationships or excluded (Marshall-Aiyelawo et al., 2023; Sutrisno et al., 2023). Although the relationship has widely been examined, the effect size and nature of interactional quality as an essential predictor is not thoroughly discussed in the army hospital research literature (Marshall-Aiyelawo et al., 2023; Sutrisno et al., 2016)

Many scholars argue that the condition may be affected by several factors. First, most earlier research in healthcare management has focused on two major enhancers of service quality improvements, namely personal and healthcare care. Personal factors include the patient's intention to prioritise safety, usability and acceptance of medical information systems, and health literacy (Alsyouf et al., 2023), age, gender, years of experience, current work setting, education, nationality, years of experience, and participation in work teams (Alkorashy & Alanazi, 2023). While health care providers consist of visionary leadership, planning, education and training and resource management (Mosadeghrad, 2014), modern decision-making approach (Li et al., 2023), and digitalization of healthcare services (Sony et al., 2023). These service quality enhancers have received considerable support, but the specific influence of interaction quality has received less emphasis (Choi et al., 2023; Petry et al., 2023).

Banville (2021) explored the effectiveness of the United States Army Health System in managing 49 hospitals and inpatient medical centres, 465 military occupational health facilities and ambulatory care, and 192 dental offices. Of those, four major military hospitals and medical centres in the United States are Brooke Army Medical Center, Dwight D. Eisenhower Army Medical Center, San Diego Naval Medical Center, and Walter Reed National Military Center. The success of these hospitals is not solely dependent on medical care facilities, but their abilities to implement interactional quality with armies, armies' families, and veteran armies.

Second, numerous previous studies have emphasized the internal properties of interactional quality, such as conceptual definitions contingent on confirmation and disconfirmation perspectives, broad and specific objectives, quality improvement elements, and general benefits of the constructs in the commercial and non-commercial healthcare organizations (Dewi et al., 2023; Grossu-Leibovica & Kalkis, 2023; Noronha et al., 2023). Third, a bulk of past studies have used a simple correlational method to describe the association

between interactional quality and armies' quality of life (Hariyanti et al., 2023; Wilk et al., 2023). For example, a descriptive study has largely been applied by researchers to collect data through document review, observation, and interview methods. Data collected from this method are used to report the general and specific features of technical quality and functional quality, as well as their associations with general armies' quality of life, such as the morale of army personnel, disaster war training, health logistics and treatments, burnout, and negative health (Hariyanti et al., 2023; Wilk et al., 2023).

Further, basic statistical analyses (e.g., descriptive and bivariate statistics) are added to enrich the descriptive research reports. This statistical analysis is used to measure the perceptions of army officers on the quality of health facility management in army health organizations. The outcomes of the research approaches can only explain the strong, moderate, and/or weak associations between general service quality practices and patient attitudes toward health services (Hariyanti et al., 2023; Ibu & Mhlongo, 2023; Wilk et al., 2023). Consequently, outcomes from the prior studies have only provided general findings, and this may not offer adequate recommendations that practitioners can use to understand the multidimensional paradigms of interactional quality and formulate client relationship management programs to remain and increase the service superiority of army healthcare organizations (Hariyanti et al., 2023; Ibu & Mhlongo, 2023; Wilk et al., 2023).

This study offers new insights that differ from the existing army healthcare organization literature. First, it adds to prior studies by promoting effective service quality influenced by interactional quality rather than personal and service provider factors, which is a significant determinant of successful service quality (Khan et al., 2022; Ismail & Mohd Yunan, 2016). Second, it extends the interactional quality literature by discovering the interactional quality characteristics, namely responsiveness, assurance, and empathy, as important antecedents, which have been less emphasized. This interaction characteristic may directly affect patient attitudes (Amara et al., 2023; Yaghoubi et al., 2017).

Third, the first attempt to specifically investigate the combined effects of interactional quality in affecting patient attitudes, disclosing that patients' satisfaction and loyalty are strongly influenced by three salient dimensions, including responsiveness, assurance and empathy (Ibu & Mhlongo, 2023; Yudhawati, 2019). Lastly, this study has specifically applied the human-oriented SERVEQUAL model (Parasuraman et al., 1988) in army healthcare organizations, in which it predicts that the relationship between interactional quality and patient attitudes through responsiveness, assurance and empathy can directly influence patients' satisfaction and loyalty (Marshall-Aiyelawo et al., 2023; Sutrisno et al., 2023). This prediction

can be justified by testing the causal relationship in the study framework. The paucity of existing empirical evidence inspires the researchers to extend the literature by examining the effect of interactional quality on patient attitudes.

The purpose of this study is to assess two primary relationships: First, the relationship between interactional quality and patient satisfaction. Second, the relationship between interactional quality and patient loyalty.

2.0 LITERATURE REVIEW

2.1 Construct of the Study

2.1.1 Interactional Quality

According to Parasuraman et al. (1985, 1988), interactional quality is a crucial functional quality element where employees apply humanistic skills, namely responsiveness, assurance, and empathy in dealing with clients. Responsiveness refers to employees reacting quickly and positively to meet clients' needs. For example, responsiveness is often done in military healthcare systems by assisting armies update information in electronic health record systems (Adomah-Afari et al., 2023), treating armies who are involved in disasters and affected by dangerous infectious diseases (Naor & Bernardes, 2016), utilizing mentoring programs to prevent armies from HIV disease (Ibu & Mhlongo, 2023), and simplifying the healthcare administration systems to help armies improve their health statuses (Schafer & Schafer, 2023).

Assurance is associated with employees demonstrating knowledge, competence, politeness, and trusted characteristics in making clients feel confident, trusting, free of risk, and having no doubt about the service provided. For example, assurance is normally practised in military healthcare systems by demonstrating a commitment to formulate standard operating procedures and use modern medical equipment for improving armies' health and safety (Granger et al., 2010; Schafer & Schafer, 2023), complying with ethical principles of cybersecurity in generating health data and producing better health treatment decisions (Oniani et al., 2023), and using the ability to safely transport critically ill navy patients with no adverse outcomes.

Empathy is related to employees implementing a good relationship and communication, giving personal attention and understanding clients' needs. For example, empathy is always implemented in military healthcare systems by delivering correct information about Covid 19 vaccines to patients, paying attention to patients who experience distress and injury (Chamberlin et al., 2023), and supporting patients who want to abandon aggressiveness (Gantiva et al., 2023). Further studies on military healthcare system recognize that such

interactional quality features are important enhancers of patients' satisfaction (Amara et al., 2023; Ibu & Mhlongo, 2023) and loyalty (Yudhawati, 2019; Sutrisno et al., 2023).

2.1.2 Patient Satisfaction

Patient satisfaction is normally measured according to a treatment outcome approach (Afrashtehfar et al., 2020), where individual users perceive that services offered by health providers can fulfil their needs, desires or expectations (Afrashtehfar et al., 2020). In military healthcare systems, for instance, patient satisfaction is often exhibited in various healthcare service forms, such as their satisfaction with medical and dental care (Afrashtehfar et al., 2020), medical and surgical care patients (Marshall-Aiyelawo et al., 2023), sleep duration treatments (Zeller & Tagler, 2023), medicare and medicaid beneficiary plans (Jennings & Loan, 1999). Hence, recent studies about military healthcare organizations advocate that patient satisfaction is an essential result of interactional quality, whereby the quality of the relationship between employees and patients in delivering medical services may strongly invoke patient satisfaction with the healthcare systems (Ibu & Mhlongo, 2023; Marshall-Aiyelawo et al., 2023).

2.1.3 Patient Loyalty

Patient loyalty is usually defined as an individual user having a high commitment to continuously use healthcare services, repeating the services offered by the healthcare provider or deciding not to consider using healthcare services provided by other healthcare service providers (El Garem et al., 2024). In military healthcare systems, for example, patient loyalty is often associated with diverse healthcare service types, such as their loyalty to follow medical ethics during conflict, in garrison healthcare, and during the COVID-19 epidemic, appreciate the importance of individual patient and missional obligation (Sisbarro et al., 2022), practice professional medical ethics and human rights in period of emergencies and humanitarian crises (Bricknell & Story, 2022; London et al., 2006), care sick and wounded armies in the area of operations (Reade, 2023), and employees who have abilities to create brand trust (Hariyanti et al., 2023). Thus, extant studies about military healthcare systems prove that patient loyalty is an important outcome of interactional quality, where the quality of the relationship between employees and patients in executing medical services may strongly evoke patient loyalty to the healthcare systems (Sutrisno et al., 2023; Yudhawati, 2019).

2.2 Relationship between Interactional Quality and Patient Attitudes

The influence of interactional quality in changing patient attitudes is consistent with Parasuraman et al.'s (1985, 1988) SERVQUAL Model, which suggests three essential interactional quality characteristics: responsiveness, assurance, and empathy. These humanistic characteristics are crucial aspects of functional quality, where their roles are more influential, easily and consistently used than technical quality (e.g., location, equipment, and procedure) in measuring the performance of diverse organizations' service deliveries, including military healthcare services (Ibu & Mhlongo, 2023; Ismail & Mohd Yunan, 2016). The use of this model in military healthcare management shows that interactional quality is an essential determinant of patient attitudes, especially their satisfaction (Amara et al., 2023; Khan et al., 2022), and loyalty (Yaghoubi et al., 2017; Yudhawati, 2019).

2.2.1 Interactional Quality and Patient Satisfaction

Some previous studies proved that patient loyalty is an important outcome of interactional quality. For example, Khan et al. (2022) collected a sample of 277 respondents at the Emergency and Trauma Center of Combined Military Hospital, Lahore. This study showed that the ability of employees to practice responsiveness (e.g., provide a good description of the recommended treatment plans to the patient, give complete and careful attention to the patient's words, explain the examinations, drug's side effects, and treatment decision and reasons why users need to choose, answer the patient's questions, and disseminate medical information to the patients), assurance (e.g., maintain dignity, truthfulness and respect in dealing with the patients, conducting careful and complete examination of the patients), and empathy (e.g., treat the patients politely, and understand of the patients' problems) in delivering medical services had led to higher patient satisfaction.

Amara et al. (2023) surveyed the opinions of 1,333 patients from governmental hospitals, primary healthcare centres, and military hospital pharmacies in Jordan. This study acknowledged that the capability of employees to practice responsiveness (e.g., provide information about the proper storage of patients' medication, patients' conditions and treatment options, and any problems that might occur from using medication), assurance (e.g., show courtesy and respect patients), and empathy (e.g., care about uncertainty of patients' conditions) in providing healthcare services had increased patient satisfaction.

Ibu and Mhlongo (2023) conducted six key informant interviews (three doctors and three nurses) and one focus group session with six Mentor Mothers at Nigeria Department of Defence hospitals. They discovered that the ability of employees to practise responsiveness

(e.g., respect for human rights regardless of class or statute, prevention of mother-to-child transmission, promotion of patients' rights, confidentiality, and tracking patients), assurance (e.g., educating patients, implementing task-shifting to speed up gains in service delivery, and flexibility of patients' care), and empathy (e.g., address patients' needs sufficiently by assisting patients to pay for services) were all important elements for patient satisfaction.

Marshall-Aiyelawo et al. (2023) surveyed the opinions of 338,124 patients aged 18 years and older in the US's military health system. This survey disclosed that the willingness of employees to implement responsiveness (e.g., providing almost the same health care to patients of different rankings), assurance (e.g., courtesy, respect, attentiveness, and explanation of care), and empathy (e.g., providing health care that matches patients' needs) in performing healthcare services had enhanced patient satisfaction. Thus, we hypothesize that:

H1: Responsiveness is positively related to satisfaction
H2: Assurance is positively related to satisfaction
H3: Empathy is positively related to satisfaction

2.2.2 Interactional Quality and Patient Loyalty

Several past studies support that patient loyalty significantly results from interactional quality. For example, Ismail and Mohd Yunan (2016) surveyed the opinions of 128 patients at army medical centres in West Malaysia. They found that the willingness of employees to practice responsiveness (e.g., priority, caring, feedback as well as urgent action), assurance (e.g., comfortable, polite, confident, no complaint and belief), and empathy (e.g., cooperation, understanding and delivery) in providing healthcare services had led to greater patient loyalty. Similarly, Yaghoubi et al. (2017) assessed the opinions of 378 patients at military hospitals in Tehran, Iran. This study displayed that the competency of employees to practice responsiveness (e.g., prompt and appropriate service provision), assurance (e.g., respect for patient's rights and security, use of professional skills in health treatments, and honesty in helping patients), and empathy (e.g., understand patients' needs and give special attention) in performing medical services had been an important antecedent of patient loyalty.

Yudhawati (2019) evaluated the perceptions of 268 patients at Dr. Soepraoen Army Hospital Malang, Indonesia. This study found that the readiness of employees to practice responsiveness (e.g., frequently meeting patients and giving special attention to them), assurance (e.g., complying with health requirements to avoid defects), and empathy (e.g., paying attention to individual patient's needs and expectations) in delivering health services

had enhanced patient loyalty. Further, Sutrisno et al. (2023) collected a sample of 246 patients at Indonesian National Army Hospitals. They reported that the ability of employees to practice responsiveness (e.g., explain health procedures and coverage to patients and provide feedback quickly), assurance (e.g., implement procedures and rules to allow patients to obtain first-level health facilities), and empathy (e.g., allow patients to choose the nearest referral hospitals, and armies families who change jobs or residence to get treatments at any army hospitals in the territory of the Republic of Indonesia and pay attention to patients personally) in delivering healthcare services had increased patient loyalty. Thus, we hypothesize that:

H4: Responsiveness is positively related to loyalty
H5: Assurance is positively related to loyalty
H6: Empathy is positively related to loyalty

2.2.3 Study Framework

Figure 1 depicts the study framework that was developed using the literature as a foundation. It demonstrates the relationship between the independent and dependent variables.

Figure 1: The relationship between the independent and dependent variables

3.0 METHODOLOGY

3.1 Research Design

The research strategy for the study is the survey method. Cross-sectional research was employed to gather survey questionnaires. This process might make it easier to gather accurate, high-quality, and relevant data using a quantitative approach (Clark & Creswell, 2015; Sekaran & Bougie, 2016). The study was conducted at an army hospital in the Federal Territory of Kuala Lumpur, Peninsular Malaysia. The actual name of this hospital is kept anonymous to safeguard its reputation. The development of this hospital has been given a top priority in the Blueprint of the Malaysian service sector (Economic Planning Unit, 2015). It was formed by the Malaysian federal government; however, it is managed by the Ministry of Defence Malaysia. Health employees (e.g., medical doctors, nurses, management and frontline staff) in

this hospital are military personnel, and their patients are armies, armies' family members, defence ministry staff and veteran armies. The main objective of this hospital is to maintain and upgrade patients' psychological and physiological health (Ismail & Mohd Yunan, 2016).

To support this objective, the hospital's leadership has periodically provided on-the-job and off-the-job training programs regarding service management to management staff and all frontline staff. These training programs help employees to comfortably implement interactional quality by promoting responsiveness (e.g., helping patients to get better healthcare treatments), assurance (e.g., using telemedicine, tele-Medicaid and courtesy in medical treatments) and empathy (e.g., giving personal attention to individual patients) in the interaction with patients. As published in some research reports circulated by academics and practitioners, interaction quality (e.g., help, courtesy, and no discrimination) has only been implemented as one of the service quality improvements, but it can meet patients' needs as compared to physical quality (e.g., equipment, buildings, and parking), which in turn may lead to lower patients' misunderstanding and prejudice, and higher their positive perceptions the hospital's services (Ismail et al., 2016; Wong et al., 2018). Even though the nature of this correlation has received major attention from the hospital leadership, the effect of interactional quality on patient attitudes has not been discussed in detail because of the scarcity of empirical evidence published in Malaysia (Ismail et al., 2016; Wong et al., 2018).

3.2 Participant

The target population is patients at an army hospital in the Federal Territory of Kuala Lumpur, Peninsular Malaysia. The target population is patients at an army hospital in the Federal Territory of Kuala Lumpur, Peninsular Malaysia. This hospital was chosen because it has extensively practised interactional quality by promoting responsiveness, assurance, and empathy in the following healthcare functions: anesthesiologist, dental surgeon, emergency physician, family physician, general physician, obstetrician and gynaecologist, ophthalmologist, orthopaedic surgeon, otorhinolaryngologist, paediatrician, pathologist, psychiatrist, public health physician, radiologist, sports physician, surgeon, and urologist. Besides, the diagnostic and therapeutic facilities are superbly operated by competent medical staff who are always ready to provide health care in peace or hazardous times. The implementation of interactional quality is significant, but its impact on patient satisfaction and loyalty is little known because of the paucity of empirical studies circulated in the Malaysian military healthcare system.

The survey questionnaires were distributed to 500 patients, including armies, armies' family members, and staff from the Ministry of Defense Malaysia. This sampling technique was chosen because the management had not provided the researchers with a complete list of names and detailed patient information. This constraint did not allow the researchers to choose participants using a random technique. Of the number, only 212 (42.4%) usable questionnaires were returned to the researchers. Participants answered the survey questionnaires voluntarily, without coercion and feedback was kept confidential.

3.3 Instruments

The survey questionnaire was developed early in the data collection process based on considerable interactional quality studies. Following that, the reverse translation procedure was utilised to ensure the quality of the research instrument for the survey questionnaire in English and Malay languages (Brislin, 1970). The questionnaire for this study has three sections: The first section measures the three elements of interactional quality, which are responsiveness (RESP), assurance (ASRE) and empathy (EMPY). RESP has four items, ASRE has five items, and EMPY has five items adapted from the interactional quality literature (Li et al., 2015). The dimensions used to measure RESP are the speed of service, service guidance and solutions to problems faced by consumers. The dimensions used to measure ASRE are the comfort of dealing with hospital staff and the level of knowledge of hospital staff. The dimensions used to measure EMPY are attention to the user, operating time, the hospital staff's concern and the staff's understanding of the user's needs.

The second section comprises patient satisfaction (PASF), assessed using the five items adapted from the literature (Murale et al., 2015; Sadeh, 2017). The dimensions used to measure patient satisfaction are physical facilities, technical services, emotional support and trauma management. The third section comprises patient loyalty (PALY), measured using the four items adapted from user loyalty literature (Sadeh, 2017). The dimensions of loyalty are positive user comments and the desire to use the service again. All the items were measured using a Likert scale with seven answer options starting from Strongly Disagree (1) to Strongly Agree (7). Demographic characteristics of the respondents were used as control variables since this study focused on patient perceptions.

3.4 Procedure

The SPSS program was first used to filter the survey questionnaires from contamination by missing values, straight-lining answers, extreme values, and Skewness and Kurtosis values

lower than +/-2.0 (Hair et al., 2017). Most of the participants are male (67.5%), between the ages of 21-30 years old (49.1%), single (74.1%), army patients (93.4%), outpatients (91.5%), and irregular patients (79.7%). Following that, the adequacy of the study sample is evaluated using the rule of thumb (Hair et al., 2017), which mentioned that the maximum number of formative items in the structural model should be at least 10 times, and the outer loadings for all items in the measurement models should be greater than 0.70. In the survey questionnaire, the most formative indicators are represented by interactional quality (14 items). As suggested by the rule of thumb, the number of study participants is larger than the minimum sample (140 participants). Further, the degree of response bias in the sample is examined according to Harman's single-factor test (Podsakoff et al., 2003). This test result shows that a single factor for all items has a variance percentage of 45.812, which is lower than 50 per cent of the variance, disclosing that the study sample does not have response bias. Hence, this study sample has met the criteria for using SmartPLS to test the research model.

The SmartPLS was used to analyze the survey questionnaires based on Hair et al. (2017) procedure. This program was chosen because it can explore and predict research models with non-normal, categorical and/or ordinal data and small sample sizes (Hair et al., 2017). The data analysis procedure is exhibited in Figure 2. It shows that the measurement model evaluation is first conducted using the PLS Algorithm to ensure the validity and reliability of the instrument. After that, the structural model was further tested using Bootstrapping, Blindfolding, PLS prediction, and Importance-Performance Map Analysis (IPMA) (Hair et al., 2017).

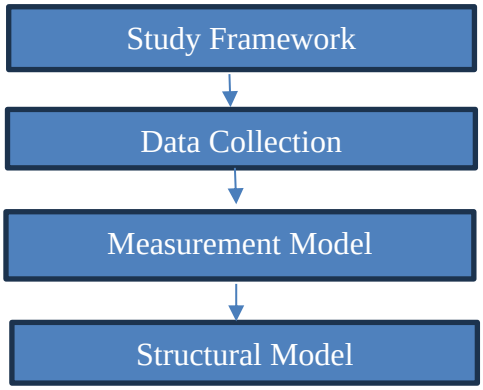

Figure 2: Data analysis procedure

4.0 ANALYSIS AND DISCUSSION

4.1 Measurement Model

The PLS Algorithm is used to evaluate the reliability and validity of research instruments. All the study constructs had outer loadings more than 0.70 (Henseler et al., 2009) and AVE values greater than 0.5 (Hair et al., 2017), indicating that they met the convergent validity requirement.

The composite reliability ratings for all the study constructs are more than 0.8 (Hair et al., 2017), indicating strong internal consistency.

Table 1: Convergent validity and composite reliability

Construct	Outer Loading	AVE	Composite Reliability
RESP	0.804-0.878	0.709	0.907
ASRE	0.867-0.904	0.775	0.945
EMPY	0.791-0.887	0.702	0.922
PASF	0.851-0.881	0.764	0.939
PALY	0.804-0.909	0.739	0.919

Table 2 presents that all the study constructs have a Heterotrait-Monotrait Ratio of Correlations number that is smaller than 0.85, and the confidence interval values in parentheses smaller than 1.0 (Hair et al., 2017; Henseler et al., 2009), indicating that they have satisfied the discriminant validity criteria.

Table 2: Discriminant validity

Constructs	RESP	ASRE	EMPY	PASF	PALY
RESP	-	-	-	-	
ASRE	0.779	-	-	-	
EMPY	0.532	0.536	-	-	
PASF	0.497	0.596	0.796	-	
	(0.187, 0.140)	(0.077, 0.404)	(0.451, 0.725)		
PALY	0.609	0.511	0.616	0.654	-
	(0.11, 0.512)	(0.136, 0.246)	(0.214, 0.524)		

Table 3 shows the means for the research constructs between 4.7842 and 6.1616, indicating that participants' views of RESP, ASRE, EMPY, PASF, and PALY range from high (4) to highest (7). While the variance inflation factor values for the connection between the research constructs are less than 5.0, collinearity concerns have not harmed the data (Hair et al., 2017).

Table 3: Variance inflation factor and descriptive statistics

Construct	Mean	Standard Deviation	Variance Inflation Factor	
			PASF	PAYL
1. RESP	5.1238	1.01339	2.049	2.049
2. ASRE	6.1616	1.52336	2.098	2.098
3. EMPY	4.8991	1.07527	1.377	1.377
4. PASF	4.8104	1.16817		
5. PALY	4.7842	1.15927		

5.0 STRUCTURAL MODEL

The results of the structural model test showed three important findings: First, the standardized root mean square residual value is 0.085, which is smaller than 0.10 (Hair et al., 2017), indicating a good fit model. Second, the effect size test shows that the relationship between RESP and PASF (f^2 value=0.272) is higher than 0.15 and less than 0.35 (Hair et al., 2017), showing that the effect of RESP on PASF is medium. The relationship between ASRE and PASF (f^2 value=0.466) is higher than 0.35 (Hair et al., 2017), displaying that the effect of ASRE on PASF is large. The relationships between EMPY and PASF (f^2 value=1.122) are higher than 0.02 and less than 0.15 (Hair et al., 2017), showing that EMPY weakly affects PASF. The relationship between RESP and PALY (f^2 value=0.427) is higher than 0.35 (Hair et al., 2017), signifying that RESP has a large effect on PALY. The relationship between ASRE and PALY (f^2 value=0.477) is higher than 0.35 (Hair et al., 2017), showing that ASRE has a large effect on PALY. The relationship between EMPHY and PALY (f^2 value=0.553) is higher than 0.35 (Hair et al., 2017), indicating that EMPY greatly affects PALY. Lastly, the blindfolding test shows that STS (Q^2 value=0.400) and PALY (Q^2 value=0.295) are bigger than zero, signifying that the study variables have predictive relevance (Hair et al., 2017).

Table 4 shows that the Q2-predict values are greater than zero for all items in the PLS-SEM (0.192 to 0.460) and LM RMSE (0.223 to 0.517), indicating that the prediction errors are symmetrically distributed. PLS-SEM values (F1=-0.018 & F9=-0.014) had fewer prediction errors than LM RMSE values (F2=-0.131, F6=-0.057, G1=-0.039, G3=-0.089 & G4=-0.009), demonstrating that this model has predictive potential (Shmueli et al., 2019).

Table 4: Predictive performance

Items	**PLS SEM**	**LM RMSE**	**PLS SEM - LM RMSE**	**LM RMSE – PLS SEM**
F4	0.909	0.909	0.000	0.000
F1	0.951	0.969	-0.018	0.018
F6	1.144	1.087	0.057	-0.057
F2	1.063	0.932	0.131	-0.131
F9	1.101	1.115	-0.014	0.014
G1	1.113	1.074	0.039	-0.039
G3	1.278	1.189	0.089	-0.089
G4	1.041	1.032	0.009	-0.009
G7	1.163	1.181	-0.018	0.018

Table 5 shows that RESP explains 21 per cent of the variance of PASF. This result is higher than 0.13 and lower than 0.26 (Cohen, 1988), showing the model has a moderate effect. RESP explains thirty per cent of the variance of PALY. This result is higher than 0.26 (Cohen, 1988), showing that the model has a large effect. Fifty-six per cent of the variance of PASF and 48 per cent of the variance of PALY are explained by ASRE. This result is bigger than 0.26 (Cohen, 1988), showing that the model has a large effect. EMPY explains 53 per cent of the variance of PASF and 31 per cent of the variance of PALY. This result is higher than 0.26 (Cohen, 1988), showing that the model has a large effect. Hence, the results of hypothesis testing display two essential findings: First, H1 (B=0.463; t=7.267), H2 (B=0.564; t=10.106) and H3 (B=0.727; t=15.674.) are supported. This finding indicates that RESP, ASRE and EMPY are significant predictors of PASF. Second, H4 (B=0.547; t=10.943), H5 (B=0.477; t=7.567) and H6 (B=0.553; t=9.602) are supported. This finding displays that RESP, ASRE and EMPY are important determinants of PALY.

Table 5: Results of testing hypothesis simultaneously for the direct effects model

Hypothesis	Beta	T-Statistics	R^2	Decision
H1: RESP → PASF	0.463	7.267	0.214	Moderate Effect
H2: ASRE → PASF	0.564	10.106	0.564	Large Effect
H3: EMPY → PASF	0.727	15.674	0.529	Large Effect
H4: RESP → PALY	0.547	10.943	0.299	Large Effect
H5: ASRE → PALY	0.477	7.567	0.477	Large Effect
H6: EMPY → PALY	0.553	9.602	0.306	Large Effect

Note. Significant value at * t > 1.97

Finally, the IPMA test exhibits that interactional quality is the highest performance (66.409), followed by PASF (63.666) and PALY (63.089). This test result recognizes that PALY is a crucial management problem practitioners should solve.

6.0 DISCUSSION

The findings of this study display that interactional quality is an essential antecedent of users' satisfaction and loyalty. In this study context, senior management has played active roles in planning, maintaining, and monitoring the implementation of interactional quality by employees in delivering health services to users. Implementing this quality system is crucial to stimulate employees to accomplish their stakeholders' vision and missions. Most participants believe the levels of responsiveness, assurance, empathy, patient satisfaction, and loyalty are high. It describes that the capability of employees to properly implement such quality features will strongly invoke users' satisfaction and loyalty in the studied organization.

This study has three key implications: theoretical, research methodology robustness, and practical contribution. In terms of theoretical contribution, this study's findings indicated that responsiveness, assurance, and empathy improved the user's satisfaction and loyalty. This finding is consistent with the humanistic-based SERVEQUAL Model (Parasuraman et al., 1985, 1988), which reveals that the ability of service providers to properly use human skills, namely responsiveness (e.g., help and give fast service), assurance (e.g., politeness, use knowledge, and build patients' confidence and trust), and empathy (e.g., show loving and give personal attention) in performing daily services may upgrade and strengthen positive patient attitudes.

The essence of these theories has received strong backup by prior army healthcare management, which discloses that the ability of employees to consistently and continuously practice feedback (e.g., employees provide help and give fast service to patients), assurance (e.g., employees practice politeness, use knowledge, and build patients' confidence and trust to health services), and care (e.g., employees show loving and give personal attention to patients) in delivering daily health services may induce positive patient attitudes, by increasing their satisfaction (Amara et al., 2023; Ibu & Mhlongo, 2023; Khan et al., 2022; Marshall-Aiyelawo et al., 2023), and loyalty (Ismail & Mohd Yunan, 2016; Sutrisno et al., 2023; Yaghoubi et al, 2017; Yudhawati, 2019).

Regarding research methodology robustness, the survey questionnaire utilized in the study has fulfilled the validity and reliability standards. As a result, it can aid in generating dependable and accurate results. The IPMA results demonstrate that patient loyalty is a critical

management issue that senior management should resolve in terms of practical contributions. To support this aim, top management should consider the following aspects: First, quality of service delivery training should be offered to different categories of medical staff, namely medical doctors, nurses, managers and supporting staff, to improve their competencies in dealing with diverse patient backgrounds. For example, medical staff who are adequately equipped with technical skills (e.g., the ability to operate sophisticated medical equipment and avoid the negative effects of using treatment techniques), and human skills (e.g., listening, compassion, honesty, caring, and decreasing bureaucracy red tapes) may strongly invoke patients to loyal with the healthcare delivery services (Hannan et al., 2019).

Second, patients' engagement in their treatments can be increased by encouraging them to ask questions regarding their diseases and treatment alternatives, and developing treatment regimens are effective methods used by many hospitals to improve patients' commitment to their healthcare services. Third, personalised treatment contributes to patient satisfaction and loyalty to healthcare providers. To accomplish this, healthcare providers must take the time to properly understand each patient's circumstances, values, and preferences. Healthcare providers can modify treatment approaches that correspond with needs by conducting assessments and incorporating patients in care planning procedures (Barska et al., 2022).

Fourth, another part of offering exceptional healthcare experiences is consistency in service delivery. Consistency is essential in providing patient services to foster confidence and loyalty (Shie et al., 2022). Healthcare practitioners should provide consistent care, ensuring patients always receive high-quality service. This can be accomplished by adopting protocols that regularly monitor the quality of care and swiftly address any issues or anomalies.

Fifth, embrace technological solutions. Integrating technology can improve interaction quality and patient satisfaction (Frigerio et al., 2022). Incorporating health data, for example, might promote smooth information sharing among healthcare professionals, increase communication, and eliminate documentation errors.

Finally, encourage collaboration. Collaboration among healthcare providers has been shown to improve the quality of interactions with patients (Eastwood et al., 2022). Healthcare professionals may ensure that patients receive coordinated treatment by establishing a culture of teamwork and collaboration. Interdisciplinary team meetings, open communication lines, and incorporating patients in decision-making processes might help achieve this.

7.0 CONCLUSION

The framework of this study was developed based on the interactional quality literature. The measurement model has met the validity and reliability standards. The structural equation modelling confirms that responsiveness, assurance and empathy have been significant determinants of patients' satisfaction and loyalty. This finding is consistent with and has extended prior studies circulated in most Western and Asian countries. This study further suggests that the cooperation between leaders and employees to properly plan and implement interactional quality in performing daily health services will strongly induce subsequent positive patient attitudes (e.g., perceived value and behavioural intention). This attitude may help to maintain and upgrade the service performance of military health organizations.

The conclusion of this study should alert to certain methodological and conceptual constraints. First, the study participants are only used as control variables. Second, cross-sectional data may only describe general participants' attitudes toward the correlation between the study variables. Third, the study framework is only tested in one army hospital under the administration of the Ministry of Defence Malaysia. Fourth, this study has not evaluated the correlation between specific features of the study variables. Fifth, mediating variables are not included in the study framework. Lastly, the purposive sampling plan may not provide data that represents the whole population. These constraints may decrease the generalizability of study findings to other health service organizations.

Some important suggestions should be paid attention to improve future research. First, certain participants' features, such as gender, age, marital status and army rank, should be used in future research to discover the similarities and differences in their perceptions of the study variables. Second, a longitudinal study method may be used in future research to identify long-term changes in the relationship between the study variables at different times. Third, public, private and army hospitals should be included in future research to assess the effectiveness of the study framework. Fourth, other elements of interactional quality, such as competence, helpfulness, sociability, and ethical standards, should be considered because they are associated with patient attitudes. Fifth, other features of patient attitudes, like words of mouth and perceived value, should be given attention because prior studies frequently discuss these elements in the context of service quality systems. Lastly, several mediating variables like perceived value, trust, and corporate image should be considered because they are important links between interactional quality and patient attitudes. These suggestions should be explored further to improve future research.

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