

MANAGING THE SUPPORT NEEDS OF COVID-19 INFECTED INDIVIDUALS AT QUARANTINE AND LOW-RISK TREATMENT CENTRE IN MALAYSIA

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Abstract: The novel coronavirus rapidly demonstrated its ability to transmit efficiently among humans, causing severe respiratory illness and, in many cases, leading to death. The management of treatment centres often faces challenges related to inadequate funding, staff shortages, and inefficiencies in service delivery. These issues can result in limited access to care, prolonged waiting times, and compromised treatment quality for patients. This research investigates the impact of tangibility, responsiveness, and reliability on patient satisfaction at COVID-19 quarantine centres. The questionnaire survey was conducted on 100 infected individuals who had been quarantined at Low-Risk Treatment Centre across Malaysia. The data analysis of SEM-PLS demonstrated that the dimensions of support need to influence patient satisfaction at the quarantine centre. While most dimensions had a positive impact, responsiveness showed a negative relationship with patient satisfaction. This research underscores the necessity of comprehensive quality control measures in healthcare settings, particularly in quarantine centres, to manage public health crises effectively and improve patient experiences.

Keywords: Quality control management, Public health care, Covid-19, Quarantine centres

1. Introduction

The outbreak of the coronavirus in 2019, originating from China, quickly spread to numerous countries, including Japan, Italy, the United Kingdom, and Malaysia. The virus, which was first described by Tyrrell and Bynoe in 1966 after being discovered in a patient with a common cold, evolved into a novel strain that caused significant global concern. On 31st December 2019, the Wuhan Municipal Health Commission in China reported a cluster of pneumonia cases in Wuhan, Hubei province. This cluster was eventually attributed to a novel coronavirus, later identified as SARS-CoV-2, the virus responsible for COVID-19. The situation escalated when the first cases outside of China were confirmed in Thailand on 13th January 2020, marking the virus's international spread (World Health Organization [WHO], 2021). The outbreak in Wuhan was initially linked to a seafood market, suggesting zoonotic transmission,

though the exact origin at that time remained under investigation. As the virus spread, scientists worked rapidly to understand its genetic structure and transmission mechanisms. The WHO declared the outbreak a Public Health Emergency of International Concern on 30th January 2020 and later a pandemic on 11th March 2020.

Early efforts to contain the virus included lockdowns, travel restrictions, and widespread testing and contact tracing. By early 2021, global COVID-19 cases had exceeded 90 million, continuing to rise in subsequent months. The countries with the highest case counts were the United States, India, Brazil, Russia, and the United Kingdom. Among 188 affected countries, only six managed to report no new cases for four consecutive weeks, highlighting a significant disparity in the pandemic's impact (European Centre for Disease Prevention and Control [ECDC], 2021). These statistics underscored the challenges in controlling the virus and the varying effectiveness of public health measures across different regions. The severe impact on countries such as the United States, India, Brazil, Russia, and the United Kingdom can be attributed to various factors, including population density, healthcare infrastructure, and the timing and stringency of public health interventions. Countries that managed to report no new cases for extended periods typically implemented rigorous lockdowns, extensive testing, and effective quarantine measures early on. The pandemic also exposed inequalities in healthcare access and socioeconomic disparities, affecting the ability of some populations to adhere to public health guidelines.

The concept of 'quarantine,' originating from the Italian word for forty days, has historically been an effective method to contain contagious diseases such as the plague and influenza (Newman, 2012). In response to the COVID-19 pandemic, Malaysia established the COVID-19 Quarantine and Low-Risk Treatment Centre at the Malaysia Agro Exposition Park Serdang (MAEPS) on 16th April 2020. The MAEPS quarantine centre reduced operations on 15 July 2020 but resumed full capacity on 9 December 2020 following a surge in cases (Berita Nasional Malaysia [BERNAMA], 2021). Remarkably, the quarantine centre was set up within three days due to the urgent circumstances. The upgraded facility was expected to be fully operational by 24th January 2021 to treat category three, four, and five COVID-19 patients, stabilizing them before transferring them to intensive care units in hospitals.

The rapid establishment of the MAEPS quarantine centre demonstrated Malaysia's proactive approach to managing the pandemic. The facility provided an essential buffer, allowing hospitals to focus on critically ill patients while managing less severe cases in a separate environment. The reactivation of the centre in December 2020 highlighted the dynamic nature of the pandemic, with fluctuating case numbers requiring flexible healthcare responses. The MAEPS centre was equipped with medical facilities, isolation wards, and support services to handle the influx of patients, emphasizing the importance of preparedness and rapid response in public health emergencies. According to the National Disaster Management Agency Malaysia [NADMA] (2020), the establishment of quarantine stations is mandated under section 14 of the Prevention and Control of Infectious Disease Act 1988 (Act 342). These stations are used for the isolation or observation of individuals infected or suspected of being infected, ensuring they are detained until they can be safely discharged without posing a public health risk. Quarantine stations can include hospitals or other facilities designated and gazetted by the Minister of Health.

This legislative framework provided the necessary authority and guidelines for the swift and effective implementation of quarantine measures during the pandemic. The legal framework under Act 342 ensured that Malaysia could enforce quarantine measures effectively, providing a clear mandate for the isolation and treatment of infected individuals. This legislation was crucial in managing the spread of COVID-19, allowing health authorities to detain individuals who posed a risk to public health. The act also facilitated the rapid conversion of various facilities into quarantine centres, ensuring that adequate infrastructure was in place to handle the evolving pandemic situation.

Research has shown varying degrees of psychological impact on different groups, including healthcare providers, patients, and potential contacts during quarantine. Data from previous studies indicated a high rate of psychological disorders among the quarantined population (Brooks et al., 2020). However, there remains a gap in studies focusing on the management and support needs of individuals at quarantine centres in Malaysia. Addressing these needs is crucial for improving the overall well-being of quarantined individuals and ensuring their mental health is adequately supported during such stressful times. Future research should aim to explore the specific psychological and logistical challenges faced by individuals in quarantine and develop targeted interventions to support them.

The psychological impact of quarantine can include anxiety, depression, and post-traumatic stress symptoms due to isolation, fear of infection, and uncertainty about the future. Healthcare providers working in quarantine centres face additional stressors, including high workloads, risk of infection, and emotional strain from caring for severely ill patients. Effective management of quarantine centres should include mental health support, counselling services, and regular communication to address these challenges. Understanding and addressing the psychological and support needs of quarantined individuals is essential for ensuring compliance with public health measures and promoting overall well-being during the pandemic.

2. Research Problem

Given the rising cases involving COVID-19, Malaysia has built a quarantine centre to fight the cases, and to separate the infected and uninfected patients of Covid-19. However, it was reported in Malaysia that 147 individuals who tested negative for COVID-19 escaped from the quarantine centre. As they tested negative, they were at high risk of contracting the virus from those who tested positive and shared the same facility. Not only that but there are also other cases whereby parents of a toddler from China tried to run away from the quarantine centre after their child was suspected to have been infected with Covid-19. It was discovered that there is no issue with the standard operating procedures (SOP) at the quarantine centre in light of those running away. The government was also looking into the steps that should be taken to identify why these cases occurred and take to prevention (The Star, 2020).

The cost incurred by the hotels in Malaysia would be in distress if the government decided to convert some of the hotels into quarantine centres for Malaysians returning from overseas. As part of the quarantine centre requirement, the hotels have to be gazetted and it might be difficult for the industry if most of them are already open for domestic tourism. Once gazetted, the hotels are not allowed for normal business operations. Again, the founder of Malaysian Health Coalition, Dr Khor Swee Kheng highlighted that better quarantine policy enforcement was required to have a balance in public health safety, comfort, costs and rights (Farah Solhi, 2020). It is very important to have proper and systematic management of the quarantine centre in Malaysia as long as they do not follow the cases in Melbourne. The second wave faced by the country also contributed to the mismanagement of quarantine centre at the hotels. About 90% of cases in the state since May originated from Rydges on Swaston and the remaining is from the Stamford Plaza. Both hotels served as the quarantine centre for the people arriving in Melbourne from overseas. One of the problems with the spreading of the infection in hotel quarantine is due to the improper training and practices of PPE. Second, it was found that there is a lack of social distancing and poor infection control taken by the staff at the hotels. As the staff will be going back home, there is a high risk of infecting others outside (Alcorn, 2020).

Since the number of cases in Malaysia increased, many quarantine centres were established in different regions to accommodate the infected COVID-19 patients. The treatment places are used for the low-risk infected person while the hospitals are being used for the medium and high-risk patients. Thus, proper management is needed to secure healthy and proper services to the staff and infected patients in Malaysia.

3. Literature Review

The literature review explores critical dimensions influencing service quality in healthcare: tangibles, reliability, responsiveness, and patient satisfaction. Each dimension provides a framework for understanding patient perceptions and expectations, supported by existing studies and theories. By examining these components, the review highlights their interconnections and significance in shaping overall healthcare experiences.

3.1 Tangibles

Tangibles refer to physical existence such as physical facilities, tools or equipment used to provide services and staff appearance. According to Aman and Abbas (2016) and Javed et al. (2018), tangibles involve a hospital's physical infrastructure, beds, toilets, dispensaries, equipment, machines, cleanliness, and appearance of staff and physicians. Recent studies prove that this factor is a critical service quality dimension to improve quality performance in the service industry. Additionally, this factor is primarily associated with service verities to meet customer expectations (Fatima et al., 2018; Meesala & Paul (2018).

3.2 Reliability

Reliability involves service consistency and dependability (Javed et al., 2018). Reliability refers to the ability to deliver the service dependably and accurately that customers desire (Aman & Abbas, 2016; Javed et al., 2018). For example, providers deliver the service at

the right time and honour their promises, especially by billing accurately, keeping records correctly and delivering the service to the customer at the designated time (Rama Koteswara Rao Kondasani & Rajeev Kumar Panda, 2015). Recent studies advocate if service providers keep their promises, then customer satisfaction increases and their confidence in the service provider increases because the provider's performance gradually improves and consistently meets customer expectations (Javed et al., 2018).

3.3 Responsiveness

Responsiveness focuses on concerns service provider's willingness or readiness to offer a prompt service (Agyapong, Afi & Kwateng, 2017). It deals with timeliness, such as providing quick services to the customer, setting up appointments as soon as possible, immediately sending the transaction slip to the customer so that she or he does not form the wrong impression, and calling the customer quickly (Calisir et al., 2014). Many studies have proven that when healthcare care centre increase their response to customers, then it is likely to have a positive effect on patient satisfaction (Agyapong, Afi & Kwateng, 2017).

3.4 Patient Satisfaction

Patient satisfaction is the result of a patient's perception of the services that they are receiving from healthcare e.g. well-timed, well-organised, and patient-centred delivery of quality healthcare (Fatima et al., 2018). According to Hamdan, Musa, Selamat and Rashid (2019), patient satisfaction is defined as the appraisal, by an individual, of the extent to which the care provided has met that individual's expectations and preferences. Many studies have proven that when individuals have achieved satisfaction, will lead to their loyalty (Bhawna Singh & Rushina Singhi, 2018; Meesala & Paul, 2018). Based on a recent study that proves that patient satisfaction is an important effect on relationships that exist in service quality (Fatima et al., 2018; Nguyen & Nagase, 2019).

3.5 SERVQUAL Theory

The SERVQUAL model, developed by Parasuraman, Zeithaml, and Berry in 1988, is a widely recognized framework for assessing service quality across industries, including healthcare. This model measures service quality through five core dimensions: tangibility, reliability, responsiveness, assurance, and empathy. These dimensions provide a structured approach for evaluating the gap between customer expectations and their actual service experiences (Parasuraman et al., 1988). SERVQUAL operates by identifying gaps between customer expectations and their actual experiences with these dimensions. The model's focus on expectation-performance gaps provides insights that can guide improvements to enhance customer satisfaction (Ladhari, 2009). It has been applied extensively to assess and improve service quality in various sectors, including banking, hospitality, and healthcare, showing its versatility and relevance (Buttle, 1996).

In the healthcare sector, SERVQUAL has proven especially valuable. It allows healthcare providers to pinpoint areas where patient expectations are not being met, whether in terms of responsiveness to needs, reliability of medical care, or the tangibility of facilities. Research indicates that healthcare facilities that align more closely with patient

expectations experience higher levels of patient satisfaction, which can lead to better patient outcomes, improved compliance, and positive word-of-mouth (Arasli et al., 2008; Dagger et al., 2007).

4. Conceptual Framework

The conceptual framework serves as a foundation for understanding the relationship between key dimensions of healthcare service quality—tangibles, reliability, responsiveness, and patient satisfaction. Tangibles reflect the physical and environmental aspects of service delivery, reliability represents consistency and dependability, and responsiveness denotes timely and attentive care. Together, these dimensions influence patient satisfaction, a critical indicator of healthcare quality and effectiveness. The framework integrates these components to illustrate their interdependence and their collective impact on enhancing patient experiences. The following figure visualizes these relationships, providing a clear and systematic representation of the framework.

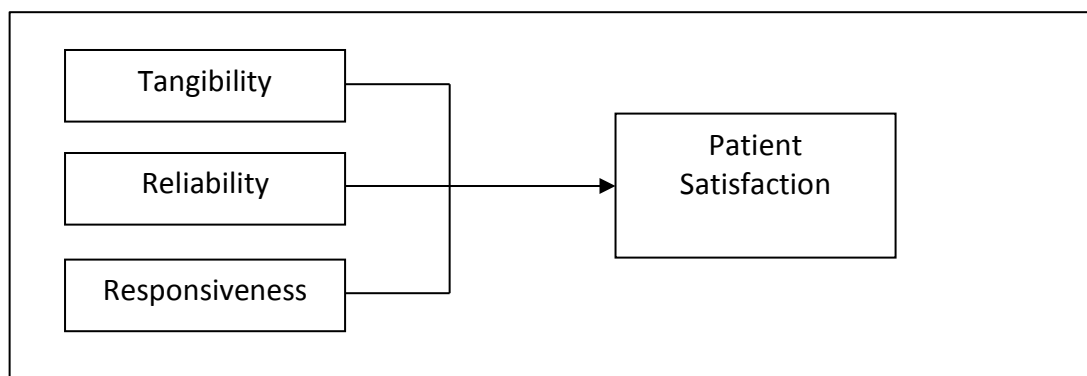


Figure 1. Conceptual Framework of Healthcare Service Quality

Several extant studies have specifically utilised a direct effect model to discover service quality of health care activities based on different samples such as perceptions of 448 outpatients at Al-Bashir Hospital, 450 patients at Bangladeshi (Ahmed et al., 2017), 611 patients at Hospital of Islamabad in Pakistan (Fatima et al., 2018), 178 patients selected from 35 health facilities in Ashanti Region of Ghana (Agyapong, Afi & Kwateng, 2017), patients at private and public health care facilities of Pakistan (Javed et al., 2018) and 320 patients at West Bank, Palestinian (Zaid et al., 2020). The results of these studies reported that the success of health care centre providing quality services on the tangibility, reliability and responsiveness to patients had increased their satisfaction in the respective health care center (Ahmed et al., 2017; Fatima et al., 2018; Zaid et al., 2020).

5. Methodology

Data for the present study was collected by conducting the survey questionnaire that was adopted from the SERVQUAL model (Parasuraman et al., 1988) which is mostly used in measuring customer satisfaction. The variables that were used to measure satisfaction comprising tangibles, reliability, and responsiveness on the service rendered in Low Risk Treatment Centre (LRTC). The items from the SERVQUAL have been validated by experts from academia and industry with knowledge of the scope of the study. Section A consists of six

questions to measure patient satisfaction levels at LRTC. Section B consists of ten questions to measure tangibility which are TAG1 to TAG10, nine questions to measure reliability which are REL1 to REL9, and six questions to measure responsiveness which are RSP1 to RSP6. Section C consists of the demographic profile of the patient who receives treatment at LRTC such as gender, age, race, and location of the quarantine centre. The questions are listed in Table 1.

Table 1. Questionnaire Items

Items	Questions to measure satisfaction level
SAT1	I am satisfied with the results of my recovery. <i>Saya berpuas hati dengan kesembuhan saya.</i>
SAT2	I am satisfied with the healthcare services at the quarantine centre. <i>Saya berpuas hati dengan perkhidmatan kesihatan di pusat kuarantin.</i>
SAT3	I am satisfied with medical treatment of the quarantine centre. <i>Saya berpuas hati dengan rawatan perubatan pusat kuarantin.</i>
SAT4	I am satisfied with the quarantine centre facilities. <i>Saya berpuas hati dengan kemudahan di pusat kuarantin.</i>
SAT5	I am satisfied with the quarantine centre management. <i>Saya berpuas hati dengan pengurusan di pusat kuarantin.</i>
SAT6	The quality of service I received meet my expectations. <i>Kualiti perkhidmatan yang diterima memenuhi jangkaan saya.</i>
Items	<u>Tangibility measurement</u>
TAG1	The services were available round-the-clock. <i>Perkhidmatan disediakan sepanjang masa.</i>
TAG2	The staff at quarantine centre were friendly. <i>Kakitangan di pusat kuarantin ramah.</i>
TAG3	The staff were knowledgeable while answering my questions. <i>Kakitangan berpengetahuan semasa menjawab soalan saya.</i>
TAG4	The environment of quarantine centre was comfortable. <i>Persekitaran pusat kuarantin selesa.</i>
TAG5	The employees were well dressed and neatly presented. <i>Pekerja berpakaian rapi dan kemas.</i>
TAG6	The quarantine centre toilets were clean. <i>Tandas di pusat kuarantin bersih.</i>
TAG7	The location of the quarantine centre was convenient. <i>Lokasi pusat kuarantin adalah mudah didatangi.</i>
TAG8	The quarantine centre designed for ease of access and comfort. <i>Pusat kuarantin yang dibina mempunyai kemudahan akses dan selesa.</i>
TAG9	The staff at quarantine centre were professional. <i>Kakitangan di pusat kuarantin profesional.</i>
TAG10	The written information posted were easy to read. <i>Maklumat bertulis yang ditampal senang dibaca.</i>

<u>Items</u>	<u>Reliability measurement</u>
RLB1	The admission process was fast and straightforward. <i>Proses kemasukan ke pusat kuarantin adalah pantas dan mudah.</i>
RLB2	The staff at quarantine centre respond immediately when called. <i>Kakitangan di pusat kuarantin bertindak segera apabila dipanggil.</i>
RLB3	The staff at quarantine centre show genuine interest in attending my problems. <i>Kakitangan di pusat kuarantin menunjukkan minat untuk menangani masalah saya.</i>
RLB4	The staff at quarantine centre were reliable in handling my problems. <i>Kakitangan di pusat kuarantin boleh dipercayai dalam menangani masalah saya.</i>
RLB5	The treatment was spotless. <i>Rawatan yang disediakan sangat memuaskan.</i>
RLB6	The level of service is same at all times (24/7). <i>Tahap perkhidmatan yang disediakan adalah sama setiap masa (24/7).</i>
RLB7	I had been informed about the time the services would be performed. <i>Saya telah diberitahu mengenai masa perkhidmatan sebelum dilaksanakan.</i>
RLB8	Both medical and non-medical services were provided promptly. <i>Perkhidmatan perubatan dan bukan perubatan diberikan dengan segera.</i>
RLB9	The staff explain the discharge process to the patient. <i>Kakitangan menerangkan proses discaj kepada pesakit.</i>
<u>Items</u>	<u>Responsiveness measurement</u>
RSP1	There is a good feedback mechanism at the quarantine centre. <i>Terdapat mekanisma maklum balas yang baik disediakan di pusat kuarantin.</i>
RSP2	The staff respond promptly to my requests. <i>Kakitangan segera menjawab permintaan saya.</i>
RSP3	The information provided was adequate regarding my health condition. <i>Maklumat yang diberikan mencukupi mengenai keadaan kesihatan saya.</i>
RSP4	The prescribed medicines were affordable. <i>Ubat-ubatan yang ditetapkan adalah berpatutan.</i>
RSP5	The staff responds to emergency cases promptly. <i>Kakitangan bertindak balas terhadap kes kecemasan dengan segera.</i>
RSP6	Patients are informed when quarantine times are due. <i>Pesakit diberitahu bila waktu kuarantin ditamatkan.</i>

The study applied Structural Equation Modelling (SEM) method which is a second-generation multivariate data analysis. It is often used by many social science researchers because it enables complex analysis of the relationship among multiple variables (Hair et al., 2017). In this study, Smart PLS 3 software was used in analysing complex multivariate analysis. The software provides detailed output, including the measurement model quality (e.g., reliability, validity), structural model paths, R-squared values, effect sizes, and predictive relevance (Q-squared), making it easier to evaluate model quality comprehensively. In Smart PLS 3, the evaluation of the SEM process consists of two assessment models which are the assessment of the reflective measurement model and the assessment of the structural model.

In the first model, the reflective measurement model was tested by performing validity and reliability tests.

6. Findings

6.1 Respondents Profile

Based on the demographic of 100 respondents who had been quarantined at the quarantine centre in Malaysia. In many healthcare settings, a sample size of 100 is considered sufficient to obtain a reliable snapshot of patient experiences and satisfaction levels. A sample of this size often provides enough diversity to generalize findings to the larger population of patients within a given facility or region. The demographic profile of respondents—primarily aged 31–50 (42.6%), followed by 16–30 (36.2%), and then 51 and older (14.9%), with a minority under 15—along with a majority being female, married, and Malaysian, provides meaningful insights into patient satisfaction within Malaysia's COVID-19 quarantine centres. These characteristics suggest varied expectations; for example, middle-aged adults may prioritize comfort and communication due to family and work obligations, while younger adults might value internet access and recreational facilities. The concentration of respondents in the Selangor quarantine centre points to unique location-specific factors that could affect satisfaction, such as resource availability and crowding. Understanding these demographics allows quarantine facilities to tailor their services to better meet age-specific needs, cultural expectations, and logistical demands, which can ultimately improve overall patient satisfaction during quarantine.

6.2 Confirmatory Factor Analysis

Table 2 presents the confirmatory factor analysis (CFA) values for the variables.

Table 2. Confirmatory Factor Analysis

Construct	Item	Loadings >0.70	Composite Reliability >0.70	AVE >0.50
Reliability (RLB)	RLB02	0.76	0.92	0.56
	RLB03	0.80		
	RLB04	0.86		
	RLB05	0.78		
	RLB06	0.79		
	RLB07	0.73		
	RLB08	0.78		
	RLB09	0.70		
	Responsiveness (RSP)	RSP1		
RSP2		0.90		
RSP3		0.91		
RSP4		0.70		
RSP5		0.70		
Satisfaction (SAT)	SAT2	0.78	0.89	0.57
	SAT3	0.76		
	SAT4	0.81		
	SAT5	0.79		
	SAT6	0.80		

Tangibility (TAG)	TAG1	0.72	0.89	0.51
	TAG2	0.75		
	TAG3	0.73		
	TAG4	0.71		
	TAG8	0.78		
	TAG9	0.79		

The factor loadings for each item have to be more than 0.70, to ensure the validity and reliability analyses determined, and all the constructs of reliability (0.70-0.86), responsiveness (0.7-0.91), satisfaction (0.76-0.81), and tangibility (0.71-0.79). Next, the composite reliability of more than 0.7 indicates the measurement has high internal consistency, and the analysis of this study shows high reliability for reliability (0.92), responsiveness (0.89), satisfaction (0.89), and tangibility (0.89). The AVE value of more than 0.5 indicates the ability to explain the average change of the items, and this study analyses a good value of AVE (Hair et al., 2017).

For the hypotheses testing, the figure exhibits the relationship between the independent variables of responsiveness, tangibility, and reliability, towards satisfaction. The relationship showed that the variables of tangibility and reliability have a positive relationship with satisfaction, with the values of 0.612 and 0.367. However, responsiveness has a negative relationship with satisfaction, with a value of -0.374.

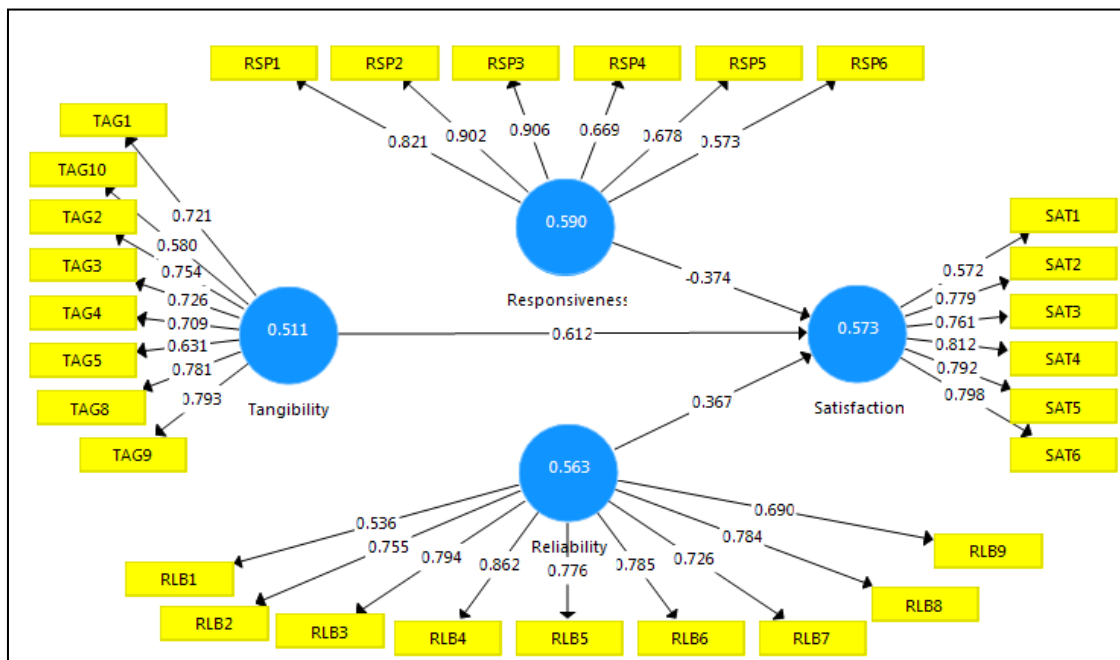


Figure 2. Model Summary

Based on the results analysed, the independent variables of tangibility and reliability had a positive relationship with the patient’s satisfaction at the quarantine centre. Meanwhile, the responsibility had a negative relationship with the patient’s satisfaction. For the tangibility, the facilities and equipment provided meet the standard of satisfaction among the patients. As shared via Twitter by one of the patients who had been quarantined at Malaysia Agro Exposition Park Serdang (MAEPS), explained that the actual situation at the

centre was vastly different from the widespread allegations, as he described the facilities provided as very satisfactory. Plus, the centre was comfortable and clean. There are no issues with the basic facilities as six toilets are placed in the hall, which is adequate for the patients and so far, there has never been anyone queuing or waiting to go to the toilet.

In addition, regarding the food, the patients were given food three times per day which satisfied their appetite (Saadiah Ismail, 2021). Another piece of evidence shared by the patient at the quarantine centre also admitted that they are pleased with the facility provided. Some of the quarantine centre provided a hotel room complete with air conditioning, a desk, a television and a balcony for the patients to comfort themselves during the quarantine process. Each patient was given a room as well as a box containing food, snacks, clothes, mineral water, hospital clothing, toiletries and Wi-Fi facilities (Suzalina Halid, 2020). Other than that, one of the patients at the quarantine centre at MAEPS stated that although the bathrooms and toilets were shared, they were cleaned regularly (Farid Wahab, 2021).

Clear communication between doctors and nurses with the patients at the quarantine centre contributes to treatment compliance at the centre. However, if a patient feels not feeling well at the quarantine centre, they might experience longer durations of treatment and less satisfaction with the system as there are a large number of patients at the quarantine centre. Furthermore, long waiting times and a lack of immediate attention may hinder the patients' satisfaction. Some of the respondents claimed that there will be a schedule for the doctors' appointments at the quarantine centre for the not-too-serious cases. The scheduling might be affected by the insufficient medical staff available at the centre.

In quarantine settings, patients often experience heightened levels of anxiety and uncertainty, making them especially sensitive to timely responses from healthcare staff. If patients feel responses are delayed, limited, or impersonal, their expectations for responsiveness may not be met, leading to dissatisfaction. Even when staff members are responsive, if the response lacks empathy or depth, patients may perceive the interaction as inadequate, contributing to a negative relationship with satisfaction. However, in a quarantine setting, logistical challenges such as limited staff and high demand for attention may create a gap between what patients expect and what healthcare staff can realistically provide. When patients perceive responsiveness as mechanical or superficial rather than compassionate or individualised, their satisfaction may decline, as they feel their needs aren't genuinely addressed.

7. Conclusion

The research aimed to investigate the impact of three independent variables—tangibility, responsiveness, and reliability—on the dependent variable, patient satisfaction, at a COVID-19 quarantine centre. The findings provide valuable insights into how these dimensions of healthcare quality influence patient satisfaction in a quarantine setting. The physical aspects of the quarantine centre, including cleanliness, facilities, and the availability of necessary medical equipment, were found to significantly affect patient satisfaction. High-quality tangible elements create a positive environment that can alleviate the stress and discomfort of quarantine, thereby enhancing overall patient satisfaction.

The ability of healthcare providers to promptly address patient needs and concerns is crucial in a quarantine setting. This research indicates that responsiveness is a critical determinant of patient satisfaction. Quick response times, effective communication, and the willingness to assist patients contribute significantly to how patients perceive their care and overall experience at the quarantine centre. The consistency and dependability of healthcare services were also shown to be vital for patient satisfaction. Reliable care, characterised by accurate diagnosis, timely treatments, and consistent follow-ups, reassures patients and builds trust in the healthcare system. This reliability is especially important in a quarantine setting where patients may feel vulnerable and anxious.

The study highlights that all three independent variables—tangibility, responsiveness, and reliability—play integral roles in shaping patient satisfaction at the COVID-19 quarantine centre. Improving these aspects can lead to higher patient satisfaction, which is essential for ensuring compliance with quarantine measures, promoting positive health outcomes, and enhancing the overall experience of patients during their stay. Healthcare administrators and policymakers should prioritise investments in the physical infrastructure of quarantine centres, ensuring that facilities are clean, well-maintained, and equipped with necessary medical tools.

Training programmes for healthcare staff should emphasise the importance of responsiveness and reliability, focusing on improving communication skills and ensuring consistent delivery of care. Further studies could explore additional variables that may influence patient satisfaction, such as empathy, assurance, and patient empowerment. Longitudinal studies could provide deeper insights into how patient satisfaction evolves in response to improvements in tangibility, responsiveness, and reliability. Enhancing patient satisfaction in quarantine centres is crucial for managing public health crises like the COVID-19 pandemic. By focusing on the key areas of tangibility, responsiveness, and reliability, healthcare providers can significantly improve patient experiences, leading to better compliance with health measures and overall patient well-being. The findings of this research underscore the importance of comprehensive quality control measures in healthcare settings, particularly in the challenging environment of a quarantine centre.

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References

- Agyapong, A., Afi, J. D., Kwateng, K., O. (2017), Examining the effect of perceived service quality of health care delivery in Ghana on behavioural intentions of patients: The mediating role of customer satisfaction, *International Journal of Healthcare Management* Volume 11, 2018 - Issue 4 <https://doi.org/10.1080/20479700.2017.1326703>
- Alcorn, G. (2020, August 21). *Appalling and inconsistent: How Melbourne's hotel quarantine unleashed a second wave*. The Guardian. <https://www.theguardian.com/world/2020/aug/22/appalling-and-inconsistent-how-melbournes-hotel-quarantine-unleashed-a-second-wave>.

- Ahmed, S., Tarique K. M., & Arif, I. (2017). Service quality, patient satisfaction and loyalty in the Bangladesh healthcare sector. *International Journal of Health Care Quality Assurance*, 30(5), 477-488. <https://doi.org/10.1108/IJHCQA-01-2017-0004>
- Aman, B., & Abbas, F. (2016). Patient's perceptions about the service quality of public hospitals located at District Kohat. *JPMA J Pak Med Assoc*, 66(1), 72-75.
- Arasli, H., Ekiz, E. H., & Katircioglu, S. T. (2008). Gearing service quality into public and private hospitals in small islands: Empirical evidence from Cyprus. *International Journal of Health Care Quality Assurance*, 21(1), 8-23. <https://doi.org/10.1108/09526860810841129>
- Bhawna Singh, & Rushina Singhi. (2018). SERVQUAL impact on overall satisfaction and brand loyalty: An empirical study in Delhi-NCR hospitals. *International Journal of Healthcare Technology and Management*, 17(1), 49-60. <https://doi.org/10.1504/IJHTM.2018.091825>
- Brooks, S., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., & Greenberg, N. (2020). The psychological impact of quarantine and how to reduce it: A rapid review of the evidence. *Lancet*, 395(10227), 912-920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Buttle, F. (1996). SERVQUAL: Review, critique, research agenda. *European Journal of Marketing*, 30(1), 8-32. <https://doi.org/10.1108/03090569610105762>
- Calisir, F., Bayraktaroglu, A. E., Gumussoy, C. A. & Kaya, B. (2014). Effects of service quality dimensions including usability on perceived overall quality, customer satisfaction, and return intention in different hospital types. *International Journal of Advanced Operations Management*, 6(4), 309-323. <https://doi.org/10.1504/IJAOM.2014.066829>
- Dagger, T. S., Sweeney, J. C., & Johnson, L. W. (2007). A hierarchical model of health service quality: Scale development and investigation of an integrated model. *Journal of Service Research*, 10(2), 123-142. <https://doi.org/10.1177/1094670507309>
- European Centre for Disease Prevention and Control. (2021). *Covid-19 pandemic*. <https://www.ecdc.europa.eu/en/covid-19-pandemic>
- Farah Solhi. (2020). *Hotels will suffer if turned into quarantine centres again*. New Straits Times. <https://www.nst.com.my/news/nation/2020/07/610306/hotels-will-suffer-if-turned-quarantine-centres-again>
- Javed, S. A., Liu, S., Mahmoudi, A., & Nawaz, M. (2018). Patients' satisfaction and public and private sectors' health care service quality in Pakistan: Application of grey decision analysis approaches. *The International Journal of Health Planning and Management*, 34(1), e168-e182. <https://doi.org/10.1002/hpm.2629>
- Fatima, T., Malik, S. A., & Shabbir, A. (2018). Hospital healthcare service quality, patient satisfaction and loyalty: An investigation in the context of private healthcare systems. *International Journal of Quality & Reliability Management*, 35(6), 1195-1214. <https://doi.org/10.1108/IJQRM-02-2017-0031>
- Farid Wahab. (2021, January 27). *Good and bad in quarantine*. The Star. <https://www.thestar.com.my/metro/metro-news/2021/01/27/good-and-bad-in-quarantine>
- Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2017). *A primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed). SAGE Publication.

- Ladhari, R. (2009). A review of twenty years of SERVQUAL research. *International Journal of Quality and Service Sciences*, 1(2), 172-198.
<https://doi.org/10.1108/17566690910971445>
- Meesala, A., & Paul, J. (2018). Service quality, consumer satisfaction and loyalty in hospitals: Thinking for the future. *Journal Retailing and Consumer Services*, 40, 261–269.
<https://doi.org/10.1016/j.jretconser.2016.10.011>
- National Disaster Management Agency. (2020). *Guidelines entry and quarantine process Person Under Surveillance (PUS) arriving from abroad effective 24 July 2020*.
<https://www.kln.gov.my/documents/34664/8968807/ENGLISH+-+Guidelines.pdf/0af009c7-2fd2-410d-8b5c-f1f7998ff3cc>
- Newman, K. L. S. (2012). Shutt up: Bubonic plague and quarantine in early modern England. *Journal of Social History*, 45(3), 809–834. <https://doi.org/10.1093/jsh/shr114>
- Nguyen, T. L. H., & Nagase, K. (2019). The influence of total quality management on customer satisfaction. *International Journal of Healthcare Management*, (12)4, 1–9.
<https://doi.org/10.1080/20479700.2019.1647378>
- Parasuraman, A. P., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.
- Pertubuhan Berita Nasional Malaysia. (2012, January 9). *Viral video of MAEPS Covid-19 quarantine centre is confusing, says Nadma*.
<https://www.thestar.com.my/news/nation/2021/01/09/viral-video-of-maeps-covid-19-quarantine-centre-is-confusing-says-nadma>
- Rama Koteswara Rao Kondasani, & Rajeev Kumar Panda. (2015). Customer perceived service quality, satisfaction and loyalty in Indian private healthcare. *International Journal of Health Care Quality Assurance*, 28(5), 452-467. <https://doi.org/10.1108/IJHCQA-01-2015-0008>
- Saadiah Ismail. (2021, January 9). *Mana ada menakutkan keadaan di MAEPS*. Berita Harian.
<https://www.bharian.com.my/berita/nasional/2021/01/774236/mana-ada-menakutkan-keadaan-di-maeps>.
- Suzalina Halid (2020, April 4). *Residents of quarantine centres pleased with facility, comfort, amenities*. The New Straits Times.
<https://www.nst.com.my/news/nation/2020/04/581331/residents-quarantine-centres-pleased-facility-comfort-amenities>.
- The Star. (2020, May 6). *Covid-19: 147 people ran away from quarantine centres*.
<https://www.thestar.com.my/news/nation/2020/05/06/covid-19-147-people-ran-away-from-quarantine-centres>.
- Tyrrell, D. A., & Bynoe, M. L. (1966). Cultivation of viruses from a high proportion of patients with colds. *Lancet*, 1(7428), 76–77. [https://doi.org/10.1016/s0140-6736\(66\)92364-6](https://doi.org/10.1016/s0140-6736(66)92364-6)
- World Health Organization. (2021). *WHO Timeline- Covid 19*. Retrieved from <https://www.who.int/news/item/27-04-2020-who-timeline---covid-19>.
- Zaid, A., Arqawi, S., Mwais, R., Al Shobaki, M., J. (2020), The impact of total quality management and perceived service quality on patient satisfaction and behaviour intention in Palestinian healthcare organizations, *Technology Reports of Kansai University*, 62 (3):221-232.