



The Nexus of Cancer Patient Experiential Satisfaction on the Intention to Recommend

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Abstract

This research aims to test and analyze the relationship of antecedents of patient experience measured by the CPEQ (The Cancer Patient Experience Questionnaire) instrument, which consists of service by ward nurse, service by specialist, service by ward doctor, information, and hospital staff coordination. Further, its impact on the intention to recommend the respective private hospital. This research was accomplished with a quantitative survey and a cross-sectional approach. Respondents were those treated at a private special cancer hospital in Jakarta and were taken by purposive sampling. A total of 192 respondents met the requirements and were analyzed using PLS-SEM. The results showed that the six antecedents have a significant and positive relationship with cancer patient's experiential satisfaction and encouraging patient intention to recommend the hospital. The most relevant relation was in the service by specialist doctors followed by hospital standards, service by nurse wards, and information. The findings in this study establish the positive relation between cancer experiential satisfaction and the intention to recommend the hospital.

Introduction

Health services are one of the vital factors of sustainable development in emerging countries, according to WHO (World Health Organization, 2020). The intended health services should be accessed by every citizen and follow the quality of health services for every disease, including cancer. These health services must also be able to reduce mortality rates and improve cancer patients' quality of life. Cancer is a main burden of disease worldwide. Each year, tens of millions of people are diagnosed with cancer worldwide, and more than half of these patients die (Bray *et al.*, 2018; Berlin *et al.*, 2021). In many countries, cancer is the second leading cause of death after cardiovascular disease, as the elderly are the most vulnerable group to cancer and population aging continues in many countries, cancer will remain a main

health problem worldwide (Ma, 2006; van de Haar *et al.*, 2020). According to data from The Global Cancer Observatory (GCO) in 2020, the increase in new cases in Indonesia was 141.1 per 100,000 population, with 85.1 deaths per 100,000 population.

There have been many discoveries in the field of diagnosis and therapy in cancer patients, as well as the development of palliative science to assist cancer patients since the diagnosis. A care was intended so that the quality of life of cancer patients is still maintained. Higher patient satisfaction with service quality is associated with favorable survival outcomes in various cancers (Gupta *et al.*, 2013; Pinder *et al.*, 2016). The opening of new horizons in the field of cancer treatment goes along with the development of the hospital industry. Many private hospitals have

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begun to prepare strategies to expand their scope to serve cancer patients. The existence of a comprehensive cancer hospital that has adequate facilities and medical staffs plays an important role in improving the quality of care for cancer patients (Berlin *et al.*, 2021; Pinder *et al.*, 2016). Factors that influence services in cancer specialty hospitals are not only medical personnel and facilities but also work culture, hospital environment, and systems that support services (Tremblay *et al.*, 2015; van de Haar *et al.*, 2020). Apart from government hospitals, private cancer hospitals face the challenge of growing through the quality of their services. The hospital management has the responsibility to utilize the resources owned to provide a good experience for patients and their families as well (Prakash & Srivastava, 2019). Excellent quality of health services is well known as the outcome of the process of various factors, especially human factors and resource governance (Donabedian, 2002).

The implementation of the health policy in Indonesia involves the private sector in health services and consequently increases the number of hospitals managed by the private sector. Unfortunately, the number of private hospitals specializing in treating and serving cancer patients is still very limited in Indonesia. It is related to limited financial resources and the scarcity of human resources such as cancer specialists or oncologists. Currently, in Indonesia, only four specialized cancer hospitals have adequate facilities to treat cancer cases (Indonesian Ministry of Health, 2021). Siloam Cancer Hospital, also known as (MRCCC) Mochtar Riady Comprehensive Cancer Centre in Jakarta, is one of the four cancer specialty hospitals operated by the private party.

Apart from accepting private patients at their own expense or private insurance, the Siloam Cancer Special Hospital also accepts referral patients from the Social Security Organizing Agency (JKN: Jaminan Kesehatan Nasional). As an accredited private hospital, this hospital has been developing and becoming a preference. However, managing cancer patients is not easy. Treatment of cancer disease is complex, and in many cases, the survival rate is low (Gupta *et al.*, 2015). Cancer patients usually put their hope in a total cure that is difficult to

be fulfilled. Besides, most cancer patients suffer from the side effects of chemotherapy (van de Haar *et al.*, 2020). In that regard, measuring the quality of care delivered by the hospital from the patient's perspective remains challenging. Further study is needed to gain feedback to improve the quality of care, especially in cancer hospitals. That kind of study is also crucial for hospital performance since patients who have a satisfying experience tend to provide positive recommendations to their relatives or friends, resulting in an increase in new patients and a more positive hospital reputation.

The increasing number of patients is a determining factor for hospitals to survive in the fierce competition (Arici & Gucer, 2018). From previous research, hospital performance is closely related to patient experience (Rapport, 2019, Wolf, 2015; 2021), and it is also applied to cancer patients (Gualandi *et al.*, 2021). Patients who perceive a service experience that matches their expectations tend to recommend the hospital to others as potential prospective patients (Sadeh, 2017; Wu *et al.*, 2011). It is also shown in a study by Park *et al.* (2022), and further Kasena and Antonio (2023), where the cancer patient's level of satisfaction with the services he or she receives affects the desire to recommend the hospital. This study aims to analyze the nexus of the element of cancer patient experience with the hospital outcome. To that end, this study focuses on the intention of the patient to recommend the hospital based on his subjective assessment of the overall interaction he received while being treated at the hospital. Thus, the intention to recommend variable was deployed as the dependent variable in this research.

To address the scarcity of research on cancer patient experience in private hospitals in Indonesia, this research proposes a modified model where the Intention to Recommend the private hospital is the dependent variable. In this research model, seven directional hypotheses were tested, as depicted in Figure 1. Cancer Patient Experiential Satisfaction serves as an intervening variable, measured by the patient's overall satisfaction with the experience. The six independent variables obtained from the CPEQ instrument developed by Iversen *et al.* (2012) act as antecedents. Namely, Service

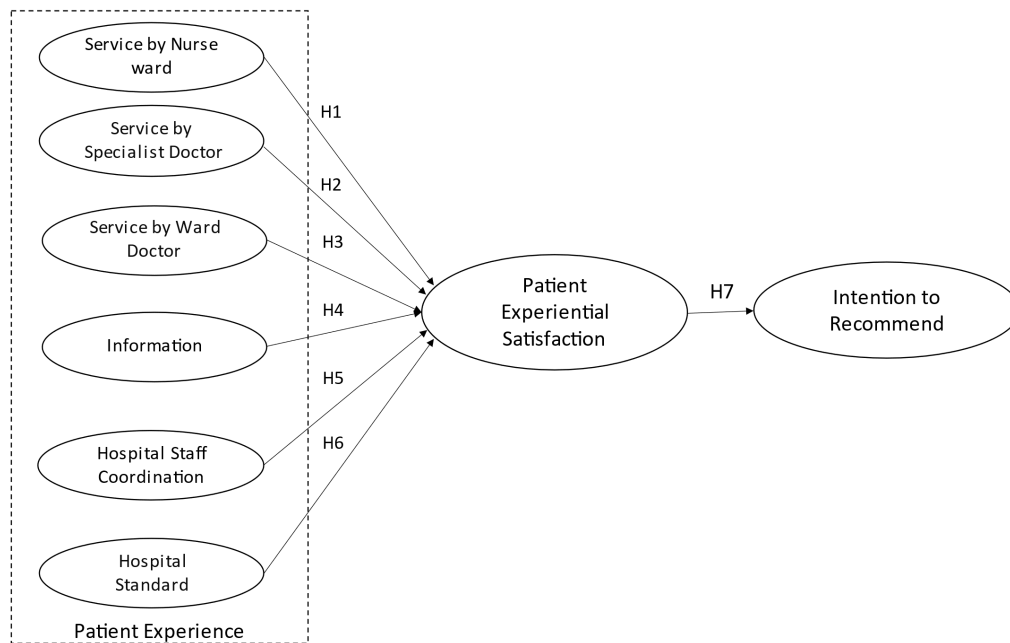


Figure 1. Conceptual Framework

by Nurse Ward, Service by Specialist Doctor, Service by Ward Doctor, Information, Hospital Staff Coordination, and Hospital Standard. This research model will be tested empirically on cancer hospitalized patients who have received services at Siloam Cancer Specialty Hospital in 2023 with cancer staging from 1 to 4.

METHOD

This research underpinned the Donabedian theory of systems, processes, and outcomes (SPO) integrated with the theory of customer satisfaction and loyalty (Oliver, 2014). This theoretical background was also extended through the customer experiential concept (Schmitt, 1999). From the customer experience perspective, customers assess the services they receive and the interactions that occur with service providers through cognitive and emotional approaches. This approach is more comprehensive than the concept of customer satisfaction which mainly uses a cognitive approach. The customer experience concept is adopted into the patient experience concept which is defined as the total sum of all interactions felt by the patient in response to the services received (Wolf, 2014; 2021). This study uses patient experience to explain and predict patient intentions and behavior after

receiving services from Siloam Cancer Hospital in Central Jakarta.

It is a quantitative study with cross-sectional data obtained with a questionnaire instrument in the form of online and printouts. The data in this study were taken by purposive sampling with certain criteria. Data collection was carried out from May to June 2023. In PLS-SEM studies, the minimum sample was calculated by power analysis according to recommendations (Hair *et al.*, 2022; Sarstedt *et al.*, 2022a). The calculation uses G*Power 3.1 software, where f^2 was determined to be 0.15, alpha 0.05, power was 90 percent, and 7 predictors, resulting in a minimum sample size of 153. Respondents who filled out the questionnaire were cancer patients treated at the Siloam Semanggi Cancer Specialty Hospital inpatient room. From the distribution of questionnaires, 192 respondents met the specified criteria. Data were analyzed using the Partial Least Square - Structural Equation Modeling (PLS-SEM) approach due to the complexity of the research model and explanatory orientation. The sample size in PLS-SEM was calculated according to recommendations (Hair *et al.*, 2022; Sarstedt *et al.*, 2022b). Priorly, informed consent was collected from patients following the

research ethics protocol. This study underwent assessment by the ethics committee and received approval from Siloam Cancer Hospitals (2183/SS/Dir/X/2022).

Various types of instruments specifically measure patient experience in cancer patients such as SCAPE (The Swiss Cancer Patient Experiences) from Switzerland (Arditi *et al.*, 2022), SCPES (Scottish Cancer Patient Experience Survey) from Scotland (Cunningham & Wells, 2017), and The Cancer Patient Experiences Questionnaire (CPEQ) from Norway (Iversen *et al.*, 2012) and several other specialized instruments. These specialized instruments are important to identify issues specific to cancer patient care. It will be more useful than using a general instrument to measure cancer patients. The SCAPE instrument consists of 14 dimensions with 47 questions. Although this instrument has proven its validity, the relatively large number of questions make it difficult to implement in cancer patients. On the other side, the SCPES instrument only consists of 7 questions which narrows the ability to describe the complexity of the cancer patient's care. The CPEQ Instrument has 7 domains with 37 questions. Due to the complexity of cancer patient care and its relevance, this study chose the CPEQ instrument to measure customer experience. The Cancer Patient Experiences Questionnaire (CPEQ) instrument is a self-report instrument that covers various aspects of cancer patients' experience of hospitalization. This instrument has been tested through a national survey in Norway involving 7,212 patients and has proven its reliability and validity.

Patient experiential satisfaction measurement was adapted from Kao *et al.* (2007) and Wang *et al.* (2019) while intention to recommend adapted from Kim *et al.* (2017) and Li *et al.* (2021). This study deployed a structured questionnaire modified from previous studies, which translated the national language by an expert translator. Respondents were asked to rate their level of agreement with the items on a scale that ranged from 1 (strongly disagree) to 5 on a Likert scale that ranged from 1 to 5 (strongly agree). This scale is considered effective for measuring perception (Bougie & Sekaran, 2020). Priorly, all the

items in the questionnaire were through a face validity process done by a panel of academic experts. Some sentences in the questionnaire were corrected based on the feedback to ensure the questionnaire was easier to understand.

In the data analysis with a multivariate PLS-SEM method, the first stage is to assess the external model (measurement model). This study deploys SmartPLS® 3.2.9 as recommended by Memon *et al.* (2021). In the PLS-SEM stage, indicator reliability and construct reliability should be established before continuing to the next step in the inner model analysis (structural model). At the inner model, the quality of the model is assessed in predicting the dependent variable by calculating the Variance Inflation Factor (VIF), R-square, f-square, and Q-square. Hypotheses are assessed based on the coefficient and significance of the relationship between model variables (Hair *et al.*, 2022). In addition, IPMA analysis was conducted to provide managerial implications (Hair *et al.*, 2022) and PLS-POS to analyze data heterogeneity (Ringle *et al.*, 2022; Hair *et al.*, 2022).

RESULTS AND DISCUSSION

From the data collection process, 192 respondents fulfilled the requirements. From Table 1, most patients were above 50 years old (51.4 percent), followed by 41-50 at 29.69 percent. Most respondents are women, as many as 77.6 percent, with the majority having a bachelor's degree and are housewives. The type of cancer patients consists of female reproductive cancer which occupies 39.58 percent, followed by gastrointestinal cancer. Table 1. also shows that the minimum time between the discovery of cancer and the patient seeking treatment is above 5 years, which is considered to be five years of survival for cancer patients.

In the outer model analysis, Table 2 shows all outer loading values exceeded the specified threshold of 0.708, confirming the indicators in the model are reliable for measuring the construct (Hair *et al.*, 2019; Hair *et al.*, 2022). The construct reliability was established by Cronbach's alpha and composite reliability, which indicates all constructs were reliable. No

Table 1. Demographic Profile of Respondents (n=192)

Descriptions	Categories	Total	Percentage (%)
Age	21-30 Years	19	9.89
	31-40 Years	18	9.38
	41-50 Years	57	29.69
	Over 50 Years	98	51.04
Gender	Men	43	22.40
	Women	149	77.60
Last Education	Junior high school	52	27.08
	Senior high school	56	29.17
	Bachelor's degree	74	38.95
	Master's degree	10	5.21
Occupation	Teacher	2	1.04
	Housewife	98	51.04
	Private employee	35	18.23
	Retired	6	3.13
	Civil Servant	13	6.77
	Professional	8	4.17
	Self-employed	24	12.5
	Not Employed	6	3.13

composite reliability value was found 0.950 as the upper limit, so there was no redundancy among indicators (Hair *et al.*, 2022). Construct validity also called convergent validity in the reflective model assessed by Average Variance Extracted (AVE). Constructs or latent variables with an AVE value greater than 0.50 are considered valid (Hair *et al.*, 2019; Sarstedt *et al.*, 2022a). Table 2 shows all variables have an AVE value greater than 0.50. Thus, it can explain more than 50 percent of the variance. Based on those parameters, it can be concluded that the measurement model has proven valid.

The next step in analyzing the measurement model is to evaluate discriminant validity using the Heterotrait-Monotrait (HTMT) Ratio (Henseler *et al.*, 2015). According to Hair *et al.* (2019; 2020), this approach has a high accuracy value that stipulates each indicator is different. The acceptable HTMT ratio value is lower than 0.9. Table 3 shows that all HTMT values are below 0.9, which means that all indicators used in this research model have sufficient differences to measure respective variables. To evaluate the model fit, the Standardized Root Mean Square

(SRMR) was assessed. The result obtained was found 0.07, less than 0.8 as the threshold, which means avoided model misfit (Sarstedt *et al.*, 2022b).

Multicollinearity issues and common method bias were investigated using the inner Variance Inflation Factor (VIF). Based on the results, each construct has a VIF score below 3, as recommended. (Hair *et al.*, 2019) confirming that the model does not have multicollinearity problems. The model's predictive ability was evaluated by using cross-validated Q^2 and the coefficient of determination or R^2 . As shown in Figure 2, Patient Experiential Satisfaction (PES) has strong explanatory power with an R^2 value of 0.787 and Q^2 found above 0.5 (Hair *et al.*, 2019). The PLS-SEM feature is used to apply out-of-sample redundancy values as developed by Shmueli *et al.* (2019). In this model, PES has $Q^2_{\text{predict}} = 0.587$, classified as a large relevance (>0.5), and ITR has a Q^2_{predict} of 0.351, which is sufficient in terms of cross-validated relevance. The R^2 for Intention to Recommend (ITR) was 0.484. However, his model could be said, capable of estimating the dependent variable with an effect size or f^2 value

TABLE 2. Construct Reliability and Validity

Variables	Indicators	Outer Loading			AVE
Service by Nurse Ward (SNW)	I received information from the inpatient nurse about the treatment I was undergoing	0.732	0.872	0.914	0.727
	The inpatient nurse asked about my complaint	0.905			
	The inpatient nurse cared and was quick to treat me	0.860			
	I saw that the inpatient nurse looked skilled	0.902			
Service by Specialist (SSD)	I received clear information from the Specialist Doctor about the treatment I was undergoing	0.749	0.785	0.858	0.602
	The Specialist Doctor took time to answer my questions	0.807			
	The specialist asked about my complaint	0.804			
	I saw a specialist doctor who looked skilled	0.741			
Service by Ward Doctor (SWD)	I received clear information from the doctor on duty about the treatment I was undergoing	0.808	0.856	0.913	0.779
	The doctor on duty asked about my complaint	0.932			
	The doctor on duty gave me time to answer my questions	0.903			
Information (INF)	I got clear information about my disease	0.907	0.847	0.928	0.865
	I received clear information about the side effects of treating my disease	0.952			
Hospital Staff Coordination (HSC)	I feel that the coordination between the registration staff and the ward nurses is going well	0.935	0.845	0.909	0.770
	I feel that the coordination between the support staff and the ward nurses is going well	0.940			
	I feel that the coordination between the cashier staff and the ward nurses is going well	0.743			
Hospital Standard (HS)	I think the ward is comfortable for resting	0.842	0.828	0.897	0.743
	I think hospital food really supports my treatment	0.861			
	In my opinion, the examination support facilities (laboratory / radiology / nuclear medicine / radiotherapy / blood bank) really support my treatment	0.883			

AVE: Average Variance Extracted

of 0.938, higher than 0,35 as the threshold.

In the inner model analysis, Table 4 shows the seven hypotheses have p-values < 0.05, indicating that each hypothesis is significant. All the hypotheses have positive coefficient valence, as expected. Hence, all the hypotheses are supported and confirm the positive relation between the variables in the structural model. The standardized coefficient of SSD for estimating PES was higher than the others at $\beta=0.264$. It was followed by HS ($\beta =$

0.221), while INF ($\beta = 0.190$) and SNW ($\beta = 0.190$) have equally strong correlations with PES. Based on the hypothesis result, PES was strongly related to ITR ($\beta = 0.696$). All four elements of cancer patients (SSD, HS, INF, and SNW) were meaningful in shape PES. With the increase in PES, the ITR will also increase. Furthermore, the result shows evidence of the intervening function of PES from the four elements of experience. Thus, PES has a beneficial mediating effect in the model.

TABLE 3. Discriminant Validity (HTMT Ratio)

Var	PES	HSC	HS	INF	ITR	SNW	SSD
PES							
HSC	0.693						
C		I					
HS	0.863	0.474					
INF	0.826	0.530	0.677				
C		I	CI(0,590;				
			0.756)				
ITR	0.817	0.860	0.760	0.657			
SNW	0.850	0.672	0.598	0.731	0.668		
CI(0.789;							
0.910)							
SSD	0.902	0.475	0.831	0.696	0.688	0.734	
SWD	0.777	0.469	0.743	0.618	0.657	0.640	0.758

HS: Hospital Standard; HSC: Hospital Staff Coordination; INF: Information; ITR: Intention to Recommend the Hospital; PES: Cancer Patient Experiential Satisfaction; SNW: Service by Nurse Ward; SSD: Service by Specialist; SWD: Service by Ward Doctor

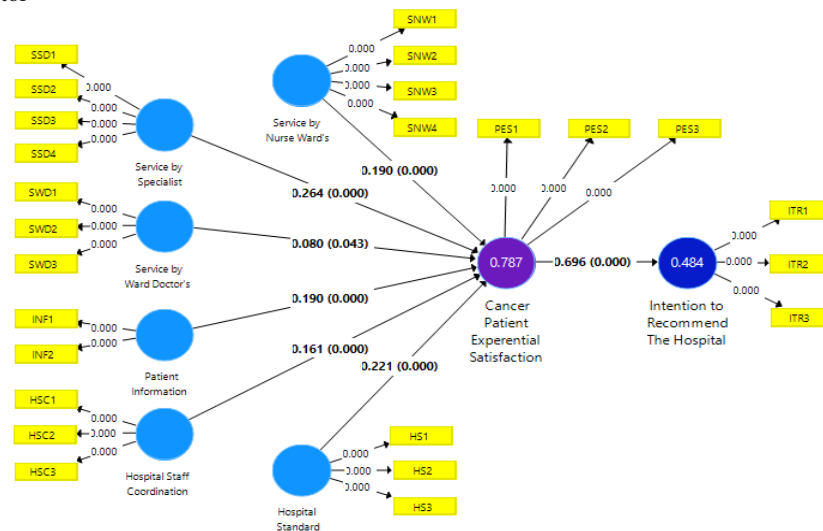


FIGURE 2. Inner Model Results

Hypothesis test results as in Table 4 above show that the CPEQ instrument with its four elements is reliable and valid for measuring cancer patient experience in privately managed cancer hospitals in Indonesia. Therefore, this instrument is recommended based on the evidence for measuring the quality of service based on the patient's perspective. The results of this hypothesis test also show that these four elements need attention because cancer patients' perceptions of these service elements may influence their overall satisfaction with their experience of being treated in the hospital.

Patient satisfaction is necessary because it will also be related to patient outcomes. This study aims to analyze the influence of patient experience on cancer patient experiential satisfaction and its impact on the intention to recommend a hospital. The respondents were cancer patients who had been treated at Siloam Cancer Hospital. The proposed research model has empirically tested the seven hypotheses that were found to be supported. The research findings show that the four independent variables from the domain of the CPEQ can positively influence Cancer Patient Experiential

TABLE 4. Hypothesis Test Result

Hypotheses		Standardized Coefficient		Confidence Interval			Result
H1	SNW -> PES	0.190	0.000**	0.114	0.266	0.070	Hypothesis Supported
H2	SSD -> PES	0.264	0.000**	0.181	0.353	0.126	Hypothesis Supported
H3	SWD -> PES	0.080	0.043*	0.001	0.154	0.015	Hypothesis Supported
H4	INF -> PES	0.190	0.000**	0.111	0.269	0.083	Hypothesis Supported
H5	HSC -> PES	0.161	0.000**	0.094	0.222	0.078	Hypothesis Supported
H6	HS -> PES	0.221	0.000**	0.128	0.305	0.099	Hypothesis Supported
H7	PES -> ITR	0.696	0.000**	0.637	0.742	0.938	Hypothesis Supported

*Significant at <0,05, **Significant < 0,001 HS: Hospital Standard; HSC: Hospital Staff Coordination; INF: Information; ITR: Intention to Recommend the Hospital; PES: Cancer Patient Experiential Satisfaction; SNW: Service by Nurse Ward; SSD: Service by Specialist; SWD: Service by Ward Doctor

Satisfaction. The most relevant influence was found in services by specialist doctors, followed by standard hospitals, while the weakest was inward doctor services. The result of this study provides evidence that the Experiential Satisfaction of Cancer Patients has a significant and positive influence on the Intention to Recommend the hospital. The more satisfied the patient is with hospital services, the more the patient will intend to recommend the hospital. These findings confirm the SPO theory (Donabedian, 2002) that with proper structures and processes in health care, patient outcomes and hospital outcomes will improve. This research supports what Berry (2019) stated in health services, namely the existence of highly emotional factors in services that are perceived subjectively by each patient.

The results of this research provide several new contributions, namely by using the CPEQ instrument specifically for cancer patients (Iversen *et al.*, 2012). The results of this research show the reliability and validity of the CPEQ instrument when implemented in Indonesia. This finding is relevant so that management can choose relevant instruments to measure satisfaction with patient experience and not use ones that are too general because treatment for cancer patients has different characteristics. The four CPEQ elements tested patient satisfaction. The most relevant influence was found in services by specialist doctors, followed by standard hospitals, while the weakest was inward doctor services. This finding aligns with the previous research (Arditi

et al., 2022), which shows that the relationship between specialists and patients was the most important factor in patient satisfaction. This finding is not surprising because of the central role of specialist doctors as doctors responsible for patients. This specialist determines the therapy and procedures needed.

This research model shows evidence that patient experience needs to be seen specifically through its elements. All of these elements of the patient experience are related to overall patient satisfaction. Furthermore, satisfaction with the experience will have an impact on patient outcomes and also on the hospital. It is relevant to the performance of private cancer hospitals, which must manage their resources effectively. This study underlined that patient experiential satisfaction is more assessed by the emotional aspect. This result aligns with the previous one, indicating hospitals must pay attention to the emotional aspects of their patient's care during the treatment (Kasena & Antonio, 2023; Park *et al.*, 2022). This study also aligns with the study stated that communication with a cancer patient is pivotal (Bakker *et al.*, 2001; Black *et al.*, 2021; Lumentut & Antonio, 2022). Cancer patients need clear information regarding their current disease progress. The results of this study are in line with previous research conducted in various countries and different types of hospitals (Ricca & Antonio, 2021; Liu *et al.*, 2021; Tan *et al.*, 2019; Fatima *et al.*, 2018), which found that a positive evaluation of patient satisfaction at a hospital become a marker of the level of delivery of care

and further will encourage their intention to recommend the hospital. This study contributes to understanding patient care specifically from the perspective of cancer patients.

From this empirical research, managerial implications can be drawn for cancer hospitals and other types of hospitals serving cancer patients. Namely continuously assessing and measuring patient satisfaction, especially from their experiences while receiving treatment. It can be used as a reference for developing service programs that are more effective and meet patient expectations. As is known, patient expectations for quality health services have also changed over time (Berry, 2019). This research has a different approach, emphasizing the aspect of satisfaction not only from the fulfillment of hopes or expectations but also from satisfaction with the experience of cancer patients when interacting and receiving inpatient service encounters. The finding of this study emphasizes that hospitals must pay attention to the hospital standards as stated in a previous study (Kasena & Antonio, 2023, MacAllister *et al.*, 2018). The result of the analysis revealed that Hospital standards, such as room facilities and cleanliness, affect cancer patient experience satisfaction. This finding is in line with previous research, which states that hospital standards have a significant and positive effect on patient satisfaction levels (Addo *et al.*, 2021; Park *et al.*, 2022; Shen *et al.*, 2023; Talantikite *et al.*, 2021)

Apart from the role of Service by Specialist doctors and hospital standards, this research also proves the significant influence of other independent variables Service by Nurse Ward, Service by Ward Doctor, Information, and Hospital Staff Coordination. This study's results follow previous research that notified those variables play a significant and positive role in patient satisfaction (Cunningham & Wells., 2017 Johnson & Russell, 2015; Lumentut & Antonio 2022; Park *et al.*, 2022; Shen *et al.*, 2023). Thus, to provide better service, the cancer hospital should also consider a holistic approach involving many people, ranging from doctors, nurses, and staff who have direct contact with patients. Cancer patient therapy is complex and therefore requires adequate care coordination between units or departments in

the cancer hospital (Iversen *et al.*, 2012).

The result of this study suggests hospital management to increase patient experiential satisfaction, which subsequently could increase patient willingness to recommend the hospital. This research shows that the experience of cancer patients is positively and significantly influenced by the services provided by specialist doctors and hospital standards. Additionally, this research can help hospitals identify and prioritize areas that need improvement. Hospital management must pay more attention to improving service point diagnostic and therapeutic processes as well as inpatient room facilities. This study also indicates it is important to maintain the quality of the information provided to patients and the quality of doctors (the ability, benevolence, and integrity) to create a positive patient experience. The results of this study add new insight that CPEQ can be useful as a tool for measuring patient satisfaction, so it can be beneficial to hospital management. Furthermore, management needs to periodically conduct patient experience surveys to improve their care delivery. Lastly, if the cancer patients have a good experience, the hospital will also have the advantage of these patients' willingness to recommend the hospital.

Several limitations can be identified in this research. First, the research model was only tested at one cancer hospital with a limited number of respondents. Therefore, there are limitations in generalizing the findings of this study to the other hospitals. It is recommended that future research include more cancer hospitals with more respondents. The second limitation was this study did not separate specific types and stages of cancer, which may affect the model estimate. Patients who are at different stages of cancer may have different perceptions. Therefore, further research respondents should be separated by the type of cancer and the stage and then conducting subgroup analysis. The next limitation is that this study did not include variables related to the patient's personality. The previous study revealed that the differences between patients with extroverted and introverted personalities are different in responding to the disease they suffer. In further research, we recommend

including patient personality and psychological status in the patient perception measurements.

CONCLUSION

This study concludes that the Cancer Patient Experiences Questionnaire (CPEQ) instrument, with its six elements, is reliable and valid for measuring cancer patient experience in privately managed cancer hospitals in Indonesia. Therefore, this instrument can be recommended based on the evidence for use in measuring the quality of care based on the patient's perspective. The most prominent elements are shown from Service by Specialists and followed by Hospital Standards that need to be deliberate in the hospital service plan. Furthermore, the study results demonstrated that the cancer patient experience is associated with their willingness to recommend the hospital. In that regard, the effort to provide experiential satisfaction must be well considered, especially by the private hospital management providing cancer treatment. Hospitals that receive more positive recommendations from their patients will gain long-term benefits. This study result supports the notion that cancer patient satisfaction is necessary since it's also related to patient outcomes such as quality of life. Therefore, patient experiential satisfaction needs to be studied further by listening to input from patients

References

- Ayana, G., Moges, T., Samuel, A., Asefa, T., Eshetu, S., & Kebede, A., 2018. Dietary Zinc Intake and Its Determinants Among Ethiopian Children 6-35 Months of Age. *BMC Nutrition*, 4(1).
- Bacon, E.R., & Brinton, R.D., 2021. Epigenetics of the Developing and Aging Brain: Mechanisms that Regulate Onset and Outcomes of Brain Reorganization. *Neuroscience and Biobehavioral Reviews*, 125, pp.503.
- Bouthoorn, S.H., van Lenthe, F.J., Hokken-Koelega, A.C.S., Moll, H.A., Tiemeier, H., Hofman, A., Mackenbach, J.P., Jaddoe, V.W.V., & Raat, H., 2012. Head Circumference of Infants Born to Mothers with Different Educational Levels; The Generation r Study. *PLoS ONE*, 7(6).
- Dauncey, M.J., 2014. Nutrition, the Brain and Cognitive Decline: Insights from Epigenetics. *European Journal of Clinical Nutrition*, 68(11), pp.1179–1185.
- Dinkominfo Demakkab., 2022. *Angka Stunting di Demak Alami Penurunan, Kerja Keras Pimpinan Dan PD*.
- Dupont, C., Castellanos-Ryan, N., Séguin, J.R., Muckle, G., Simard, M., Shapiro, G.D., Herba, C.M., Fraser, W.D., & Lippé, S., 2018. The Predictive Value of Head Circumference Growth During the First Year of Life on Early Child Traits. *Scientific Reports*, 8(1).
- El-Farghali, O., El-Wahed, M.A., Hassan, N.E., Imam, S., & Alian, K., 2015. Early Zinc Supplementation and Enhanced Growth of the Low-Birth Weight Neonate. *Macedonian Journal of Medical Sciences*, 3(1), pp.63–68.
- Farias, P.M., Marcelino, G., Santana, L.F., de Almeida, E.B., Guimarães, R.C.A., Pott, A., Hiane, P.A., & Freitas, K.C., 2020. Minerals in Pregnancy and Their Impact on Child Growth and Development. *Molecules*, 2020.
- Jones, S.G., & Samanta, D., 2022. Macrocephaly. *Schwartz's Clinical Handbook of Pediatrics: Fifth Edition*. StatPearls Publishing, pp.546–550.
- Kemenkes RI., 2019. *Peraturan Kemenkes RI No. 28 tahun 2019 tentang Angka Kecukupan Gizi yang Dianjurkan untuk Masyarakat Indonesia*. Menteri Kesehatan Republik Indonesia. Indonesia.
- Kemenkes RI., 2021. *Buku Saku Hasil Studi Status Gizi Indonesia (SSGI) Tingkat Nasional, Provinsi, dan Kabupaten/Kota Tahun 2021*. *Angewandte Chemie International Edition*, 6(11), pp.951–952.
- Kirkegaard, H., Möller, S., Wu, C., Häggström, J., Olsen, S.F., Olsen, J., & Nohr, E.A., 2020. Associations of Birth Size, Infancy, and Childhood Growth with Intelligence Quotient at 5 Years of Age: A Danish Cohort Study. *American Journal of Clinical Nutrition*, 112(1), pp.96–105.
- Koshy, B., Srinivasan, M., Murugan, T.P., Bose, A., Christudoss, P., Mohan, V.R., John, S., Roshan, R., & Kang, G., 2021. Association between Head Circumference at Two Years and Second and Fifth Year Cognition. *BMC Pediatrics*, 21(1).
- Liu, E., Pimpin, L., Shulkin, M., Kranz, S., Duggan, C.P., Mozaffarian, D., & Fawzi, W.W., 2018. Effect of Zinc Supplementation on Growth Outcomes in Children Under 5 Years of Age. *Nutrients*, 2018, pp.1–20.
- Nugent, B., & McCarthy, M.M., 2015. Epigenetic Influences on the Developing Brain: Effects of Hormones and Nutrition. *Advances in*

- Genomics and Genetics*, 5, pp.215-225.
- Menpan., 2022. *Presiden: Target Angka Prevalensi Stunting Di Bawah 14 Persen pada 2024 Harus Tercapai*.
- Miir, D.A.A., 2017. Effect of Zinc Supplementation on the Growth of Exclusively Breastfed Newborn Babies. *IOSR Journal of Nursing and Health Science*, 6(2), pp.5-8.
- National Institute of Health., 2022. Fluoride: Fact Sheet for Health Professionals. *Dietary Supplement Fact Sheets*.
- Nugent, B., & McCarthy, M.M., 2015. Epigenetic Influences on the Developing Brain: Effects of Hormones and Nutrition. *Advances in Genomics and Genetics*, 5, pp.215-225.
- Nicolaou, L., Bhutta, A.T., Bessong, Z.A., Kosek, P., M., Lima, A.A.M., Shrestha, S., Chandyo, R., Mduma, E.R., Murray-Kolb, L., Morgan, B., Grigsby, M.R., & Checkley, W., 2020. Factors Associated with Head Circumference and Indices of Cognitive Development in Early Childhood. *BMJ Global Health*, 5(10), pp.e003427-e003427.
- Permatasari, A.D., & Waluyanti, F.T., 2019. The Correlation between Infant and Toddler Feeding Practices by Working Mothers and the Nutritional Status. *Enfermeria Clinica*, 29, pp. 65-69.
- Pirozzi, F., Nelson, B., & Mirzaa, G., 2018. From Microcephaly to Megalencephaly: Determinants of Brain Size. *Dialogues in Clinical Neuroscience*, 20(4), pp.267-282.
- Priyantini, S., 2021. Delivery of Cesarean Section Tends to Reduce Umbilical Zinc Levels in Healthy Newborns. *International Journal of Human and Health Sciences*, 4(4), pp.298-304.
- Priyantini, S., Nurmalitasari, A., & AM, M., 2023. Zinc Intake Affects Toddler Stunting: A Cross-Sectional Study on Toddlers Aged 3 Years. *Amerta Nutrition*, 7(1).
- Qian, L., Gao, F., Yan, B., Yang, L., Wang, W., Bai, L., Ma, X., & Yang, J., 2021. Mendelian Randomization Suggests that Head Circumference, but not Birth Weight and Length, Associates with Intelligence. *Brain and Behavior*, 11(6).
- RepJogja., 2022. *Semarang Kembali Genjot Penanganan Stunting*.
- Scharf, R.J., Rogawski, E.T., Murray-Kolb, L.E., Maphula, A., Svensen, E., Tofail, F., Rasheed, M., Abreu, C., Vasquez, A.O., Shrestha, R., Pendergast, L., Mduma, E., Koshy, B., Conaway, M.R., Platts-Mills, J.A., Guerrant, R.L., & DeBoer, M.D., 2018. Early Childhood Growth and Cognitive Outcomes: Findings from the MAL-ED Study. *Maternal & Child Nutrition*, 14(3).
- Senbanjo, I.O., Owolabi, A.J., Oshikoya, K.A., Hageman, J.H.J., Adeniyi, Y., Samuel, F., Melse-Boonstra, A., & Schaafsma, A., 2022. Effect of a Fortified Dairy-Based Drink on Micronutrient Status, Growth, and Cognitive Development of Nigerian Toddlers- A Dose-Response Study. *Frontiers in Nutrition*, 9, pp.864856.
- Simbolon, D., Bathari, R.R., Rahmadewi., Riastuti, F., 2022. Family Planning and Mother's Practice In Children's Feeding In Bengkulu Province, Indonesia. *KEMAS: Jurnal Kesehatan Masyarakat*, 18(1), pp.41-48.
- Sindhu, K.N., Ramamurthy, P., Ramanujam, K., Henry, A., Bondu, J.D., John, S.M., Babji, S., Koshy, B., Bose, A., Kang, G., & Mohan, V.R., 2019. Low Head Circumference During Early Childhood and Its Predictors in a Semi-Urban Settlement of Vellore, Southern India. *BMC Pediatrics*, 19(1).
- Skinner, A.M., & Narchi, H., 2021. Preterm Nutrition and Neurodevelopmental Outcomes. *World Journal of Methodology*, 11(6), pp.278-293.
- Surkan, P.J., Shankar, M., Katz, J., Siegel, E.H., Leclercq, S.C., Khatry, S.K., Stoltzfus, R.J., & Tielsch, J.M., 2012. Beneficial Effects of Zinc Supplementation on Head Circumference of Nepalese Infants and Toddlers: A Randomized Controlled Trial. *European Journal of Clinical Nutrition*, 66(7), pp.836-842.
- Tiwari, K., Goyal, S., Malvia, S., Sanadhya, A., Suman, R.L., & Jain, R., 2017. Impact of Malnutrition on Head Size and Development Quotient. *International Journal of Research in Medical Sciences*, 5(7), pp.3003.
- Vandenplas, Y., Rakhecha, A., Edris, A., Shaaban, B., Tawfik, E., Bashiri, F.A., Aql, F.A., Alsabea, H., Haddad, J., Barbary, M.E., Salah, M., Abouelyazid, M., Kumar, M., & Alsaad, S., 2019. Physicians' Understanding of Nutritional Factors Determining Brain Development and Cognition in the Middle East and Africa. *Pediatric Gastroenterology, Hepatology and Nutrition*, 22(6), pp.536-544.
- Wati, E., Wahyurin, I.S., Sari, H.P., Zaki, I., & Dardjito, E., 2022. Stunting Incidence in Infant Related to Mother's History During Pregnancy. *KEMAS: Jurnal Kesehatan Masyarakat*, 17(4), pp.535-541.
- Zhou, Z., Zhou, Z., Yu2, D., Chen, G., Li, P., Wang, L., Yang, J., Rao, J., Lin, D., Fan, D., Wang, H., Gou, X., Guo, X., Suo, D., Huang, F., & Liu, Z., 2021. Fasting Plasma Glucose Mediates

the Prospective Effect of Maternal Metal Level on Birth Outcomes: A Retrospective and Longitudinal Population-Based Cohort Study. *Frontiers in Endocrinology*, 12, pp.763693.