

## **Outpatient Satisfaction based on the Quality of Radiology Services: (Case Study in Central Java Hospital)**

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**Abstract.** Radiology services as an integrated part of health services as a whole are part of the mandate of the 1945 Constitution. The efforts of the hospital always aim to provide the maximum possible service with the hope that the patient will get satisfaction so that it will take advantage of the same hospital services when needed. Method of this study is observational with a cross-sectional approach. The population is outpatients who carry out radiological examinations in all public hospitals in Central Java. There are 18 hospitals in Purwokerto and 20 patients in each hospital for a total of 380 patients. The data is obtained using a questionnaire, which is then obtained using a Cartesian diagram. The results of this study indicate that in type A hospital, things that must be considered and improved are: Cleanliness, tidiness, and comfort of radiology equipment, radiology officers can respond quickly to patient complaints, radiology officers prioritize patient safety, while in type B hospital: officers Radiology is alert in service, officers serve quickly and precisely, officers are punctual in treating patients while in type C hospitals are: Radiology officers give confidence to patients, radiology officers understand patient needs. While the level of patient satisfaction in type A hospital is 4, 16, type B, 4, 18 which means satisfied and Type C 4, 36 which is in the very satisfied category.

### **1. Introduction**

The quality of health services is important in health service organizations, increasing public awareness of health and health services encourages every health service organization to be aware of the quality in providing services to service users of health service organizations (Herlambang, 2016). If consumers are not satisfied with the quality of services provided, patients will not return or seek other services, even though these services are available, easy to get and easy to reach (Herlambang, 2016). Quality is the true value of a certain service unit, both from technical aspects (science, skills and medical or health technology) and interpersonal (doctor-patient relationship system: communication, empathy and patient satisfaction) (Widajat, 2009).

Patient satisfaction is a level of patient feelings that arise as a result of the performance of health services obtained after the patient has compared it with what he expected (Pohan, 2006). In the Central Java, there is an increasing number of health installations, from health installations such as basic community health center to hospitals, which provide diagnostic radiology health service facilities. The number of hospitals in Central Java-based on data from the Provincial Health Office in 2015 is 268 hospital hospitals, while the state hospitals have 44 hospitals with various types of hospitals. Prodi D-III Radiodiagnostic Engineering and Radiotherapy Purwokerto uses almost all state hospitals in Central Java with types A to D.

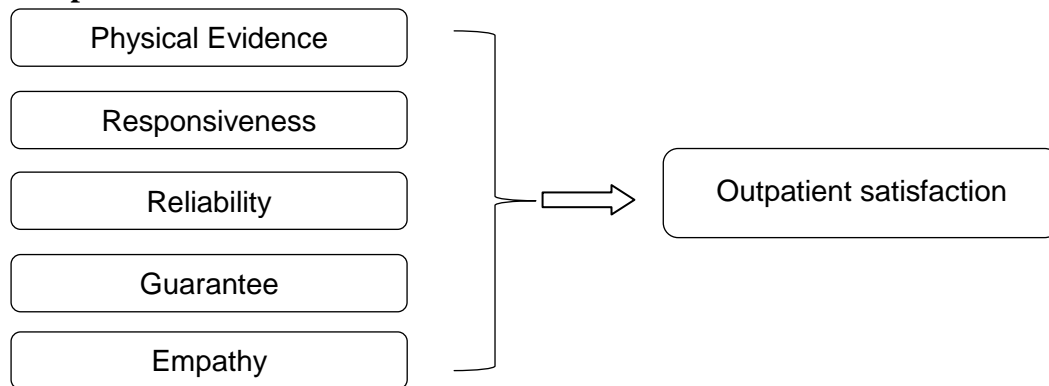
The hospital's efforts are always aimed at providing the maximum possible service in the hope that patients will get satisfaction so that they will take advantage of the same hospital services if needed. This has resulted in increasingly intense competition between health installations in providing the best and most trusted health services to the public. The radiology installation is one of the installations that provide services to patients to be in line with the hospital's objectives, namely to provide the maximum possible service so that patients get satisfaction with the services provided. Currently, not all radiology installations have evaluated the services provided, even though they have done so, no follow-up efforts have been made to the evaluation so that the results of the evaluation have not been maximally utilized for efforts to improve the quality of service at the radiology installation. The

radiology installation is one of the installations that provide services to patients to be in line with the hospital's objectives, namely to provide the maximum possible service so that patients get satisfaction with the services provided. Currently, not all radiology installations have evaluated the services provided, even though they have done so, no follow-up efforts have been made to the evaluation so that the results of the evaluation have not been maximally utilized for efforts to improve the quality of service at the radiology installation. The radiology installation is one of the installations that provides services to patients with the aim of being in line with the hospital's objectives, namely to provide the maximum possible service so that patients get satisfaction with the services provided. Currently, not all radiology installations have evaluated the services provided, even though they have done so, no follow-up efforts have been made to the evaluation so that the results of the evaluation have not been maximally utilized for efforts to improve the quality of service at the radiology installation.

## 2. Method

The type of research that researchers use is observational research. This study used a cross-sectional approach, that is, this study did not require periodic time to collect data. The location of data collection in this study is in the Public Hospital in Central Java which is routinely used as a field for Field Work Practice 1,2,3,4 for Diploma of Radiodiagnostic and Radiotherapy Technique Purwokerto, namely as many as 20 state hospitals in Central Java. held from June to October 2018

### Conceptual framework



The population of this study were all outpatients who underwent radiological examinations at public hospitals in Central Java. While the sample was outpatient, namely 18 public hospitals in Central Java, each hospital was taken 20 patients except Margono Hospital for 20 patients, so the total sample was 380.

## 3. Research result

### 3.1 Average and Gap Analysis

**Table 1. Average gap analysis in Central Java Hospital**

RS type	Average Score of Expectations	Average Score of Satisfaction	Gap	Category
A	4.40	4.16	-0.24	well
B	4.38	4.18	-0.20	well
C	4.57	4.36	-0.21	Very good

Based on the data in table 1. shows that in the Radiology Installation Type A Hospital in Central Java, the total mean score for radiology services expected by patients was 4.40 and for patient satisfaction was 4.16. The patient satisfaction rate of 4.16 categorized as good quality radiology services.

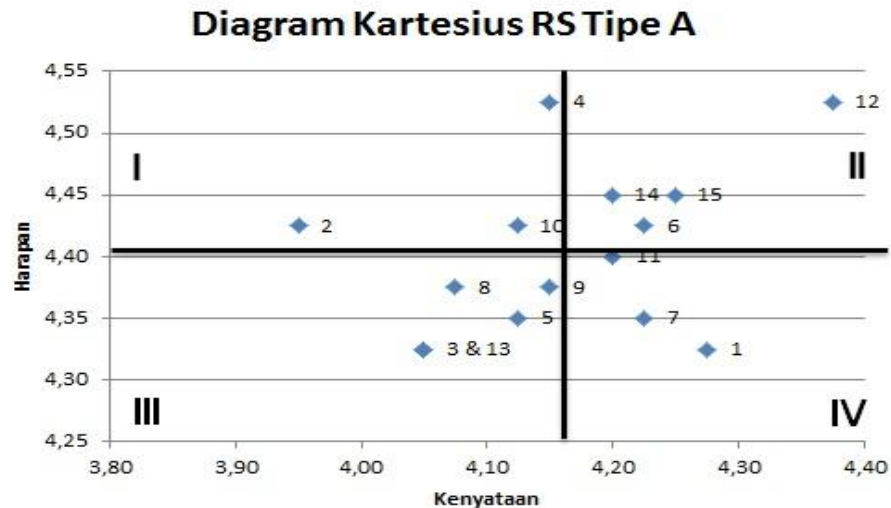
Apart from that in Radiology Installation Type B Hospital in Central Java, the total mean score for radiology services expected by patients was 4.38 and for patient satisfaction

was 4.18. The patient satisfaction rate of 4.18 is categorized as a good quality radiology service.

While in the Radiology installation type C Hospital in Central Java, the total mean score for radiology services expected by patients was 4.57 and for patient satisfaction was 4.36. The patient satisfaction rate of 4.21 is categorized as a good quality radiology service.

### 3.2 Cartesian diagram

**Figure 1. Cartesian diagram of Type A Hospital in Central Java**

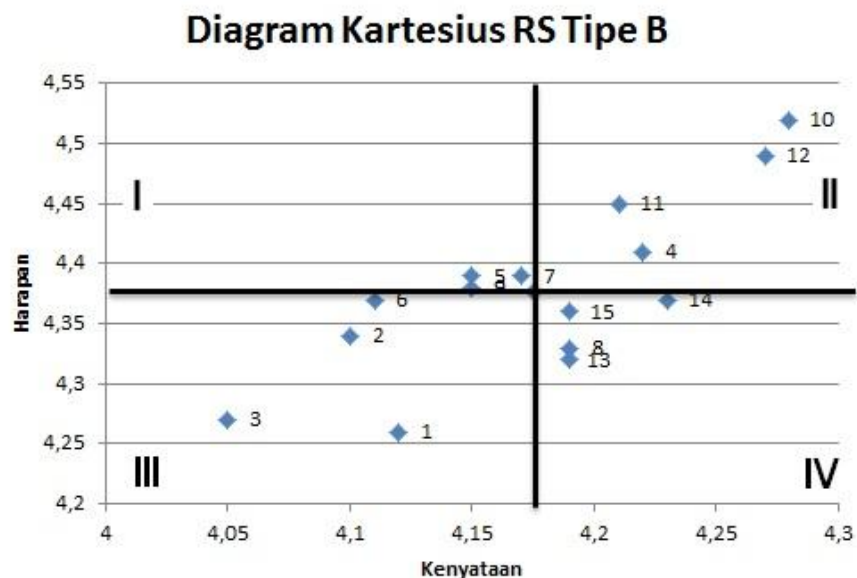


#### 3.2.1 Quadrant I

The quality is lower than the customer wants so that the radiology installation must improve the quality to be more optimal. The factors in this quadrant are:

- a) Cleanliness, tidiness and comfort of radiology equipment
- b) Radiology officers can respond quickly in handling every patient complaint
- c) Radiology officers prioritize patient safety

**Figure 2. Cartesian diagram of Type B Hospital in Central Java**



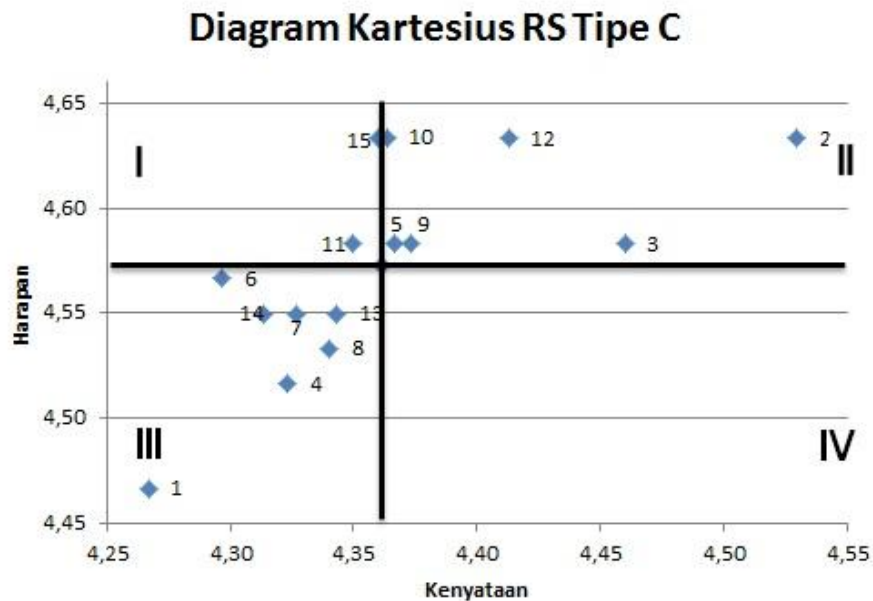
#### 3.2.2 Quadrant I

The quality is lower than the customer wants so that the radiology installation must improve the quality to be more optimal. The factors in this quadrant are:

- a) Radiology officers are alert in service

- b) Radiology officers serve patients quickly and precisely
- c) The radiology staff is punctual in treating patients

**Figure 3. Cartesian diagram of Type C Hospital in Central Java**



### 3.2.3 Quadrant I

The quality is lower than the customer wants so that the radiology installation must improve the quality to be more optimal. The factors in this quadrant are:

- a) The radiology officer puts confidence in the patient
- b) The radiologist understands the patient's needs

## 4. Discussion

Level of Gap (Gap) Between Outpatient Satisfaction with Quality of Hospital Radiology Services in Central Java. The value resulting from the difference between the services expected by patients and services received by patients at the Hospital Radiology Installation in Central Java is negative. A negative value indicates that the patient's expectations have not been met. The greater the negative value of a gap generated, the greater the priority for improvement in the service of an element.

According to Herlambang (2016), health services to customers are sometimes not as expected, one of which is due to the difference between the services experienced and the services expected. Kotler (2008) also mentions the gap between perceived service and expected service is due to a gap between perceived service and expected service.

In the Radiology Installation of Type A Hospital in Central Java, the highest gap value occurs at Cleanliness, tidiness and comfort of radiology equipment which is equal to -0.48, while the lowest gap value occurs in the elements of the statement of cleanliness, tidiness and readiness of the radiology officer, which is -0.05. In the Radiology Installation of Type B Hospital in Central Java, The highest gap value occurs in the statement element Radiology officers are fast in handling transactions, which is -0.31, while the lowest gap value occurs in the elements of the statement of cleanliness, neatness and readiness of the radiology officer and the element of the statement that the radiology officer is easy to communicate with patients, which is equal to -0.17. In the Radiology Installation of Type C Central Java Hospital, The highest gap value occurs in the statement element The radiology officer gave confidence to the patient, which was -0.45, while the lowest gap value occurred in the elements of the statement of cleanliness, neatness and comfort of the radiology equipment and the element of the statement that the radiology officer was easy to communicate with the patient, which was -0.13.

Based on the description above, the gap between expectations and patient satisfaction is negative. This shows that the patient's expectations for radiology services have not been fulfilled by Radiology Installation in Central Java Hospital.

#### 4.1 Quality of Services in the Radiology Installation Central Java Hospital

Quality of radiology services Hospitals in Central Java can be seen from the following Cartesian quadrant diagram:

##### 4.1.1 Type A Hospital in Central Java

###### Quadrant I

The quality is lower than the customer wants so that the radiology installation must improve the quality to be more optimal. The factors in this quadrant are:

- a) Cleanliness, tidiness and comfort of radiology equipment
- b) Radiology officers can respond quickly in handling every patient complaint
- c) Radiology officers prioritize patient safety

Efforts that can be done by a radiology installation are:

- a) Radiology officers pay attention to cleanliness, tidiness, and comfort of the equipment in the radiology installation, that is:
  - Radiology equipment (tapes, examination tables, x-rays, bucky stands) are cleaned every day to make them look clean and comfortable to use.
  - Radiology equipment is placed in an orderly manner to make it look neat and comfortable to use.
- b) Radiology officers improve their ability to handle patient complaints, that is:
  - Every time there is a complaint from a patient, the radiology officer can find a solution so that the patient feels cared for.
- c) The radiology officer is always kind to every patient, that is:
  - Radiology officers are always alert and monitor the patient's condition when examining to foster a patient's sense of trust in the radiology officer, and the patient feels safe during the examination process.

##### 4.1.2 Type B Hospital in Central Java

###### Quadrant I

The quality is lower than the customer wants so that the radiology installation must improve the quality to be more optimal. The factors in this quadrant are:

- a) Radiology officers are alert in service
- b) Radiology officers serve patients quickly and precisely
- c) The radiology staff is punctual in treating patients

Efforts that can be done are:

- a) Radiology officers make the available time more efficient so that patients do not wait too long, that is:
  - There is always a radiology officer in the registration and examination room sections
  - Patients who come immediately are registered so that they can be treated immediately and not wait long.

##### 4.1.3 Type C Hospital in Central Java

###### Quadrant I

The quality is lower than the customer wants so that the radiology installation must improve the quality to be more optimal. The factors in this quadrant are:

- a) The radiology officer puts confidence in the patient
- b) The radiologist understands the patient's needs.

Efforts that can be made are:

- a) Radiology staff are friendly and communicate well from the start of the examination to the end so that they understand the patient's needs

Based on the results of the gap analysis and the Cartesian diagram quadrant analysis, it shows that the gap rank of each element does not determine the location of an element in the Cartesian quadrant. The location of an element in the Cartesian quadrant is determined by the point of intersection of the x (reality) and y (expectation) axes which is obtained from the mean of the patient's total expectations with the average of the total facts the patient receives. If the patient's expectation from an element is higher than the average total patient expectation while the reality that the patient receives from an element is lower than the average total reality received by the patient, then the element is in quadrant I. If the patient's expectations and the reality received by the patient from an element are higher than the

average total patient expectations and the total average of the patient's expectations, then the element is in quadrant II. If the patient's expectations and the reality received by the patient from an element are lower than the average total patient expectation and the average total reality received by the patient, the element is in quadrant III. If the patient's expectation from an element is lower than the average total patient expectation while the fact that the patient receives from an element is higher than the average total reality received by the patient, then the element is in quadrant IV. If the patient's expectations and the reality received by the patient from an element are lower than the average total patient expectation and the average total reality received by the patient, the element is in quadrant III. If the patient's expectation from an element is lower than the average total patient expectation while the fact that the patient receives from an element is higher than the average total reality received by the patient, then the element is in quadrant IV. If the patient's expectations and the reality received by the patient from an element are lower than the average total patient expectation and the average total reality received by the patient, the element is in quadrant III. If the patient's expectation from an element is lower than the average total patient expectation while the fact that the patient receives from an element is higher than the average total reality received by the patient, then the element is in quadrant IV.

Based on the results obtained, the quality of radiology services at hospitals in Central Java shows the number 4.22. According to Santoso (2016), the figure of 4.22 shows that the quality of radiology services is in the good category. Thus, the quality of hospital radiology services in Central Java is in the good category.

#### 4.2 Outpatient Satisfaction Levels on Quality of Hospital Radiology Services in Central Java

The average result obtained for the level of patient satisfaction at Type A Hospital in Central Java was 4.16. According to Santoso (2016), the figure of 4.16 shows the satisfaction level of radiology patients who are in the satisfied category. The average result obtained on the level of patient satisfaction at the Type B Hospital in Central Java was 4.18. According to Santoso (2016), the figure of 4.18 shows the satisfaction level of radiology patients who are in the satisfied category. The average result obtained for the level of patient satisfaction at Type C Hospital in Central Java was 4.36. According to Santoso (2016), the figure of 4.36 shows the satisfaction level of radiology patients who are in the very satisfied category.

From the results of the average satisfaction level of radiology patients at the Hospital Radiology Installation in Central Java, it was found that the average patient satisfaction level was 4.22. According to Santoso (2016), the figure of 4.22 shows the satisfaction level of radiology patients who are in the very satisfied category. Several things influence the difference in the level of satisfaction at different types of hospital. This is following what was conveyed by Pohan 2006, Patient satisfaction is a level of patient feeling that arises as a result of the performance of health services obtained after the patient compares it with what he expects. Customer expectations of the quality of service are formed by several factors, namely (Tjiptono and Candra, 2011): one of which is Enduring Service Intensives, which means that this factor is a factor that is stable and encourages customers to increase their sensitivity to services. Also Personal Needs (the need that a person feels is fundamental to his well-being also determines his expectations). As well as Transitory Service Intensives, which are individual factors that are temporary (short term) that increase customer sensitivity to services. These factors include: emergencies when customers need services and want the company to be able to help them, the last service consumed by the customer can also be a reference to determine the merits of the next service. When a person goes to the hospital with a sick condition, the hope that is in his mind will be handled immediately and healthy again. Apart from that, there is also a Perceived Service Alternatives factor in which this factor is the customer's perception of the level or degree of service of other similar companies. If consumers have several alternatives, their expectations for service will tend to be even greater.

## 5. Conclusion

Scan delay changes produce different image quality in liver, stomach, intestine, kidney and spleen organs with peak enhancement and highest HU value on 70 seconds and decrease in 80 seconds. There

are differences in the image quality and dose radiation of the overall abdominal image. The value of  $R^2 = 0.806$ , which means there is an increase in radiation dose with an increase in scan delay. The optimum scan delay is 70-75 seconds with the maximum dose of 24.54 mGy, as the best image of edge enhancement in tumors ( $HU = 4.38$ ), which confirm safety dose to reference dose medical radiographic as low with dose as the Bapeten's regulation.

## 6. References

1. Herlambang, Susatyo.2016. Manajemen Pelayanan Kesehatan Rumah Sakit. Jakarta: Gosyen Publishing
2. Keputusan Menteri Kesehatan RI No. 129/MENKES/SK/II/2008 Tentang Standar Pelayanan Minimal Rumah Sakit
3. Keputusan Menteri Kesehatan RI No. 1014/MENKES/SK/XI/2008 Tentang Standar Pelayanan Radiologi Diagnostik di Sarana Pelayanan Kesehatan
4. Kotler, Philip. 2008. Manajemen Pemasaran Edisi 12 Jilid 2. PT Macanan Jaya Cemerlang.
5. Pohan, Imbalo S.2006. Jaminan Mutu Layanan Kesehatan: Dasar-Dasar Pengertian dan Penerapan. Jakarta: EGC
6. Santoso, 2016. Statistika Hospitalitas. Yogyakarta: Penerbit Deepublish
7. Tjiptono, Fandy dan Candra, G.2011. Service, Quality and Satisfaction Edisi 3. Yogyakarta: Andi
8. Undang-Undang No. 44 tahun 2009 Tentang Rumah Sakit
9. Widajat, Rochmanadji.2009. Being a Great and Sustainable Hospital. Jakarta: PT Gramedia Pustaka Utama
10. Wirtz, Jochen.2016. Services Marketing Eight Edition. USA: World Scientific
11. Yusuf, A Muri.2013. Metode Penelitian Kuantitatif, Kualitatif & Penelitian Gabungan. Padang: Kencana Prenadamedia Group