

## Analysis Of Dental Service Characteristics From A Dentist's View In The Clinics Of Primary Health Care Sector In Baghdad

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**Abstract.** Dentist rely on his arrangement for dental service characteristics, represented by tangibility, reliability, responsiveness, assurance, and empathy. A research attempts to measure a view of dentist for these characteristics and it determines their relative importance and it diagnose a gap of each characteristic to save his prevention performance. Research adopts checklists for dentists in the dental clinics of Primary Health Care Sector in Baghdad whose number reached to (74) dentists. The results were present in tables and analyzed using illustrative Pi and Pareto diagrams, it showed that dental service applied but with a varying and unequal level of attention. Dentist concerned with dental service characteristics, and he considers them essence of preventive dentistry.

**Keywords:** Dental Service, Tangibility Characteristics, Reliability Characteristics, Responsiveness Characteristics, Assurance Characteristics, Empathy Characteristics, Checklists, Pareto Chart, and Pie Chart.

### Introduction

Dental service has a wide attention from scholars and researchers in our current era, in which it constitute the largest part of health various sectors, the most prominent of which is dental services provided in hospitals and public and private medical clinics (Edmund B. and Mohammed D., 2021). Dentists always seek to improve the level of their prevention of dental services over time, so they need to possess knowledge. Dental service has also gained importance in health service; it focuses on patient satisfaction, when using a dental service, a patient connects more with service provider that is dentist (Abdulrahman G., 2022). Dental service depends largely on the correct understanding of patient's requirements in such interactions. It provides patients with the right dental service at the right time (Byrne M. and Tickle M., 2019). Each dental service must be design specifically for a patient. The additional objectives of dental service are: (Aristomenis S. et al., 2023)

- Patient service: patient service is important in any dental clinics; current challenge for health sector is to meet the needs of patients. In a dental service satisfying patients and knowing their implicit requirements is more difficult.
- Dental service design: it consists of formulating a plan to satisfy a specific need or dental problem. The dental services usually made to order, so it is important that the dental service designed according to the specific requirements of the patient.

- Dental service delivery: delivery is important in all sectors; the dental services consider it key criteria to success. So many clinics work and attempt to make delivery, so it is better for health business growth.

The new concept contained in a concept of dental service that they could achieve high dental performance and gain patient satisfaction at the same time. By improving an individual performance of dentists in clinics, the overall performance level of them is improved (Righolt AJ et al., 2018). A dental service can be define as the degree to which the dentist meets the expectations of the patient. Most researchers agree the characteristics for dental service are (Arlen C., 2023): tangibility, reliability, responsiveness, assurance, and empathy.

### **Tangibility characteristics**

Tangible means the degree to which the place of providing dental service affects the patient's expectations regarding nature of service that the dentist can provide to him, as it is not possible for the patient to test, see, or hear the therapeutic application in advance before receiving it from a dentist (Byrne M. et al., 2019). Thus, patient judges of the dental service based on the way of assets surrounding dentist, such as furniture, tools, clothes, assistants, cleaners (Obadan-Udoh et al. 2019). Dental service intangibility means that services unlike physical products cannot be see, tasted, felt, heard, or smelled before they bought. For example, people undergoing cosmetic surgery cannot see the result before the purchase. To reduce uncertainty, patients look for signals of dental service; the patients draw conclusions about dental service from the place, people, price, equipment, and communications that they can see (Premier, 2022). There is a lot of equipment that is required to run a successful dentist, some of the most common tangible assets that dental clinic have include x-ray machine dentist use to take patient dental x-rays. In addition, the software programs dentist use to manage all of his medical records, the instruments dentist use to perform preventative and acute care needs, and any additional diagnostic equipment dentist might have (Ali O., 2023). There are the probably plenty of other tangible assets that dentists have. However, the exact nature of these assets can vary depending on the types of procedures that its dentists perform. Patients valued having a supportive and caring dentist and a dedicated dental team who having a dedicated, supportive and caring (Persaud N. et al., 2019). Dentist helped patients to take control of their own oral health, who produced profound changes in not just the oral health care routines of patients, but in the way, patients thought about their own oral health and the role of dental professionals (Russ C., 2015). Therefore, the dental service provider's task is to make the tangible service in one or more ways and send the right signals about a dentist.

### **Reliability characteristics**

Each individual within a dental office plays a big role in the success of the office, so it is important that each person completes what expected of them, and communicates thoroughly about any questions or concerns. There are four ways to ensure that dentist is reliable in the dental office, these are manage dentist commitments, show up on time, communicate constantly, the dentist must be honest about mistakes (Chris L., 2020). Reliability means the degree to which the patient relies on the dentist to find the appropriate treatment for his disease, and this known after the patient receives the treatment and actually experiences it, giving him the ability to judge the performance of the dentist who provided him with treatment. Reliability measured as how much an individual can be counted on to complete what is expected of them (Dhahi AY. Et al., 2023). This is extremely important within a dental clinic, because each action of every individual allows the clinic to run smoothly and efficiently (Sfeatcu R. et al., 2023). If one team member does not complete a task they supposed to or does not follow through with their responsibilities, it can affect the other team members as well (Priya N. et al., 2023). It is important to undertake further studies of different types of reliability in order to collect more information about the properties of the dentist and extend or usefulness into the future (Camilo M. et al., 2023). The reliability of the dentist built based on his completion of his work without errors and with professionalism that allows the patient to feel that the dental service provided by the dentist is of a positive level (Iain A. and Gerardo M., 2024). This can even affect the success of the dentists as a whole if that task or responsibility that not completed largely relied on by other employees on a daily basis.

### **Responsiveness characteristics**

Responsiveness means the degree of speed with which the dentist detects the disease and treats it in a way that achieves patient satisfaction. As time considered a decisive factor in achieving high service in the medical therapeutic areas, and this depends on the dentist's skills and the extent of his experience in the logical and precise sequence of tasks that comprise the therapeutic process. (Dopeykar N. et al., 2018). Dental staff may be at high risk of infected, as the practice of dentistry involves the use of rotary and surgical instruments (e.g., handpieces or ultrasonic scalers) and air-water syringes (Stangvaltaite-Mouhat L. et al, 2020). These instruments create a visible spray that contains droplets of water, saliva, blood, microorganisms and other debris. Dental staff may become potential carriers of the virus and, if adequate precautions not taken, the dental clinic can potentially serve as a cross-infection location

(Akbar FH. Et al., 2023). The microvascular extrinsic approach is the most complex to be translate to dental materials applications; a nature of the technique itself precludes its use in direct restorative materials, which significantly limits the clinical scope.

Incompatibility with existing manufacturing methods, complexity, and lack of scalability in dentistry, this technique has been limited to engineering microfluidic devices to study on-site cellular behavior. However, given the substantial growth and progressive expansion of digital dentistry, printing prostheses and indirect restorations in dental clinic is now feasible. This may represent a driving force for the expansion of the microvascular approach in a scenario in which ceramic or composite restorations designed and printed with the microchannel network (Nicole R. et al., 2019). Often, the most significant factor affecting operational capability is not dental per se but the time lost and transport burden in transferring the individual to a location where appropriate treatment can be deliver. To mitigate time lost and limit the risk in service patient travelling to access dental care, military dental teams may move forward to support the population at risk. Where peripatetic military dental clinics visited forward operating bases, saving substantial operational time and reducing risk to life (Ana P. and Carmem S., 2022). At sea, dental care provided by afloat dental teams consisting of a uniformed dental officer, nurse and hygienist, deployed on board. Here, emergency and routine dental care can be deliver to the population at risk while avoiding disruption to the vessel's operational commitments (Sarah A. and Mark D., 2021). While the primary clinical role is the delivery of dental care to the deployed force, military dental teams also undertake medical leadership roles while on operations.

### **Assurance characteristics**

Dental practices expected to have a services assurance in place to monitor dentists and improve them, if necessary, assurance means the degree of the dentist's ability to compensate for lost services or correct the wrong services he provided to the patient (Chris H., 2022). As some emergency circumstances occur, several times that cause a dentist to make an error in diagnosing the disease or delay in carrying out his duty to provide treatment at a specific date (Joel Berg, 2018). Services assurance covers all areas of dental practice, and is a requirement of the NHS General Dental Services contracts in USA. As well as the different regulatory bodies in England, Scotland, Wales and Northern Ireland (Ma H., 2014). A dentist shall ensure that in respect of its practice-based services assurance it has nominated to be responsible for ensure fallowing: (Cassandra P. and Jakobus K., 2023)

- Effective measures of infection control are used.
- All legal requirements relating to health and safety in the workplace are satisfied.
- All legal requirements relating to radiological protection are satisfied.
- Any requirements of the General Dental Council in respect of the continuing professional development of dental practitioners are satisfied.
- The requirement to display in a prominent position the written statement relating to the services assurance.

Assurance characteristics aims to provide dental care of a consistent service for all patients, the dentists will have prevention systems to help them and which define each practice member's responsibilities when looking after patients (Danto L., 2022). Dental service assurance should not be measure in financial terms, but by accepting responsibility for dental continuous improvement.

### **Empathy characteristics**

Empathy means "passion or state of emotion", it is about the capacity to enter into the patient's world and vicariously have a sense of what he is feeling element (Daniela F., 2022). Empathy characteristics means a degree of human influence that the dentist has, which gives a positive impression to the patients about the dental services (Alun R., 2019). Such as the dentist's smiling face, the details of his athletic body, or the calm voice and speaking confidently while exchanging words with the patient, who should feel calm and comfortable before and after treatment (Alan B. and Amrik S., 2003). Empathy characteristics as ability of dental healthcare professionals to accurately patients, emotionally and mentally, as though they were in the patient's shoes, but without losing their status. It may to be taught and practiced in dentistry but this is complex because it is a distillation of many different skills, which include: (Raj R., 2022)

- Active listening, focus on what is say without interruption, repeat what has been said to confirm accuracy and understanding.
- Self-awareness, that mean how dentist perceived himself and how others perceived him.
- Understanding body language and facial expressions.
- Ability to park dentist views and not be influenced by patients, and receiving feedback.
- Drama, literature provides a rich seam of material, reading fiction where the characters challenge the reader to see the world through a unique character lens is believe to strengthen dentist empathic responsiveness.

Empathy characteristics are a vital service that any individual can have, as this refers to their ability to put themselves in another person's shoes that empathy is all the more important in the dental world (Sushi K., 2015). Some people, especially younger children, are quite hesitant to get some dental work out of fear of pain and sharp objects. As a result, they take their oral health for granted (Jobber B., 2021). However, with the right empathy, it will make a big difference in how dentist take care of the patients in his dental practice.

### Framework

This research attempts to determine the relative importance of the dental service characteristics from a dentist's view in the clinics, which are tangibility, reliability, responsiveness, assurance, and empathy. By means of a case checklist which an analysis of the actual application for dental service characteristics and by field experience and direct meetings. The research samples which represented by 74 dentists affiliated with the clinics of Primary Health Care Sector in Baghdad. The research tries to determine the percentage for the extent of actual application that should be direct the dentists to develop its view of diagnosis and interest in coming future when they do them dental prevention. A figure 1 illustrates dental service characteristics and considers it variables that this research seeks to address with analysis and study.

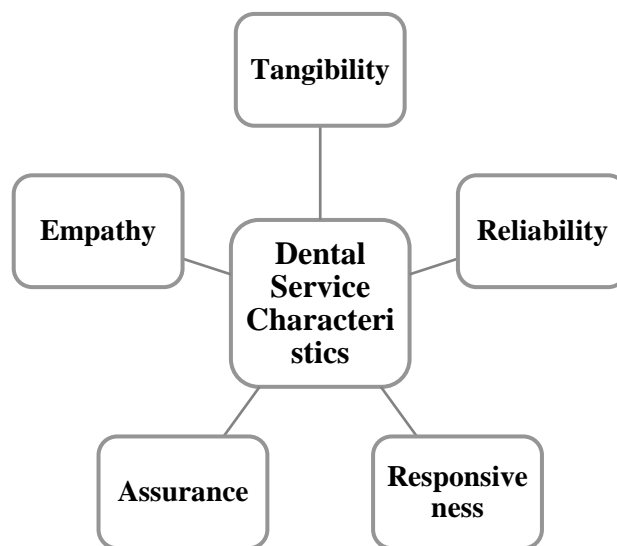


Figure (1) Procedural chart of a research

## Methodology

Research based on the case study approach, which determines the degree of existence of the variables investigated, which are dental service characteristics in a practical application. The research extracts the gap between the required and actual applications and then proposes possible solutions to bridge that gap in a way that enhances the dentist's abilities and it empowered him in a prevention aspect while working in the dental clinics. The checklists presented to a group of experts in specialty of preventive dentistry for purpose of judging them and determining the apparent validity of the scale, as in table (1).

**Table (1)** Results of validity testing for the checklists

Researched variables	Number of paragraphs at the checklists	Number of paragraphs on which the arbitrators agreed	Scale's validity rate
Tangibility	10	9	90%
Reliability	10	10	100%
Responsiveness	10	8	80%
Assurance	10	9	90%
Empathy	10	8	80%
Dental service characteristics	50	44	88%

Table (1) shows that the checklists are suitable for measuring the investigated variables, as the arbitrators agree on the validity of the checklist items by (88%), which is a very good percentage that indicates the validity of the scale adopted in the research. This research depends on the checklists form that was prepared for measuring the reality of the variables discussed from view of seventy four dentists (n=74) at the clinics of Primary Health Care Sector in Baghdad during the year 2024. This was diagnose and the results of the checklists form appeared as in table 1.

**Table (2)** Checklists for the dental service characteristics from a dentist's view in the clinics of Primary Health Care Sector in Baghdad

<b>Dental Service Characteristics</b>		
<b>Tangibility characteristics (Endrou DP. Et al., 2015)</b>		<b>Checkout</b>
	<b>The emphases of dental clinic are providing appropriate seats for waiting patients.</b>	√
	<b>Identification signs are available in a dental clinic.</b>	√
	<b>The procedures of dental clinic for admitting patients are smooth and easy.</b>	√
	<b>A dental clinic keen that dentists and their assistants wear protective clothing while working.</b>	√
	<b>A dental clinic has the cleaned bathrooms.</b>	√
	<b>A dental clinic location characterized by easy access.</b>	×
	<b>The buildings of dental clinic cooling and ventilation methods are modern.</b>	√
	<b>There are electric elevators in the dental clinics building.</b>	√
	<b>The equipment's of dental clinic is complete and technologically advanced.</b>	×
	<b>A geographical location of dental clinic is locating in well known in a city.</b>	√
<b>Percentage of actual application for tangibility characteristics</b>		<b>80%</b>
<b>Reliability characteristics (Ruxandra S. et al., 2023)</b>		<b>Checkout</b>
	<b>A dental clinic has highly qualified medical staff.</b>	√
	<b>The tools that the dentist needs to perform his task are available at a dental clinic.</b>	√
	<b>The physician assistants of dental clinic are provides with a sufficient number.</b>	×
	<b>A dental clinic emphasizes periodic training of dentists.</b>	√
	<b>A dental clinic encourages dentists to conduct experiments that improve medical treatment methods.</b>	√
	<b>The dentists of clinic want to share their information and knowledge with their colleagues at work.</b>	√



A dental clinic allows the dentists to withdraw voluntarily and apologize for performing the task that they cannot complete.	×
A dental clinic is keen to ensure that its medical staff integrated in terms of the scientific specializations necessary to provide dental service.	√
The clinic dentists have the physical capabilities that qualify them to perform their duties.	×
A dental clinic provides dental services in an integrated and comprehensive manner.	√
<b>Percentage of actual application for reliability characteristics</b>	<b>70%</b>
<b>Responsiveness characteristics (Sharka R. et al., 2024)</b>	<b>Checkout</b>
Dentist immediately diagnoses the type of service the patient needs.	√
Staff of dental clinic are healthy and energetic, which allows them to move quickly during work.	×
Dentists cooperate to provide service to the patient immediately.	√
The tools used by dentists sterilized before starting official work at a dental clinic.	√
The corridors and movement paths organized within a dental clinic.	√
Dentists adhere to official working hours within a dental clinic.	√
Dentists have helpful assistants to achieve patient satisfaction.	×
Dental clinic is interested in reducing the full treatment time as much as possible.	√
Dental clinic is keen to receive feedback from patients after receiving treatment to improve the dentists' services.	×
Completion time is one of the factors in evaluating the performance of dentists in a clinic.	×
<b>Percentage of actual application for responsiveness characteristics</b>	<b>60%</b>
<b>Assurance characteristics (Lisa H., 2019)</b>	<b>Checkout</b>
The dentists of clinic can diagnose the condition with certainty.	√
A dental clinic is keen to achieve patient satisfaction.	√
A dental clinic emphasizes that dentists write reports on patient treatment.	√

The dentists are cooperate in completing work within a clinic.	√
The dentists of a clinic anticipate in advance the pathological conditions that they will treat later.	×
Each dentist group has a direct supervisor within a dental clinic.	√
The supervisors of dentists in a clinic have advanced scientific skills and knowledge in the classification.	√
A dental clinic seeks to fulfill all promises made to patients regarding treatment timings.	√
A dental clinic allows the implementation of graduation projects for students of the College of Dentistry.	√
The multiple alternatives of dental clinic treatments are available.	√
<b>Percentage of actual application for assurance characteristics</b>	<b>90%</b>
<b>Empathy characteristics (Kalyan SV. et al., 2017)</b>	<b>Checkout</b>
The dentists are optimistic about acceptable appearances when they receive patients in a dental clinic.	√
The dentists speak to patients in a calm and smooth manner.	√
A dental clinic keen for dentists to understand patients' moods.	√
The dentists relies on their assistants to make the patient aware with a risk of his infection at a dental clinic.	×
The dentists try to accommodate a patient by telling some meaningful social stories.	×
A dental clinic has special play areas for the children of patients whom the dentist will treat in clinic.	×
The dentists sometimes exchange funny anecdotes with some patients in order to get closer to them psychologically.	√
The dentists ask the patient about some personal details, including profession, level of qualification, and marital status.	×
A gender balance has achieved among dentists in a clinic, as the number of female dentists is equal to the number of male dentists.	×
A cooperation between dentist and patient in a clinic is a widespread state.	√
<b>Percentage of actual application for empathy characteristics</b>	<b>50%</b>

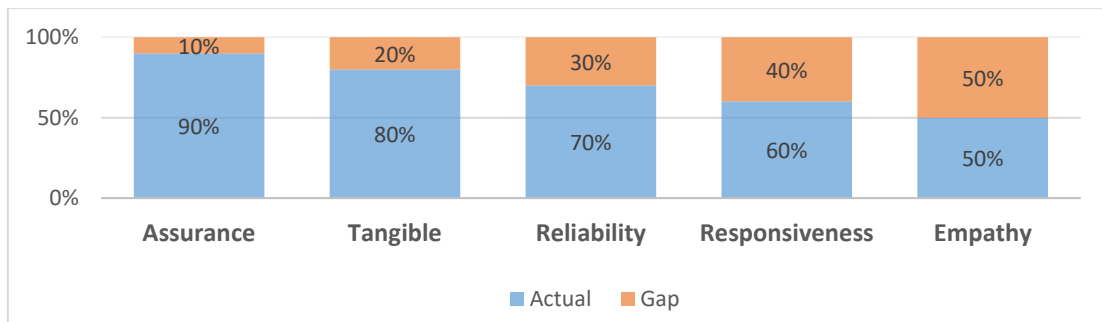
**Results**

Depending on the results of the checklists at a table 2 that prepared to show the percentages of an actual application for dental service characteristics from a dentist’s view, relative importance of each and its sequence can found by table 3.

**Table (3)** Relative importance and sequences for dental service characteristics from a dentist’s view

Dental service characteristics	Actual applications	Gaps	Relative importance	Sequences
Tangibility	80%	20%	23%	2
Reliability	70%	30%	20%	3
Responsiveness	60%	40%	17%	4
Assurance	90%	10%	26%	1
Empathy	50%	50%	14%	5

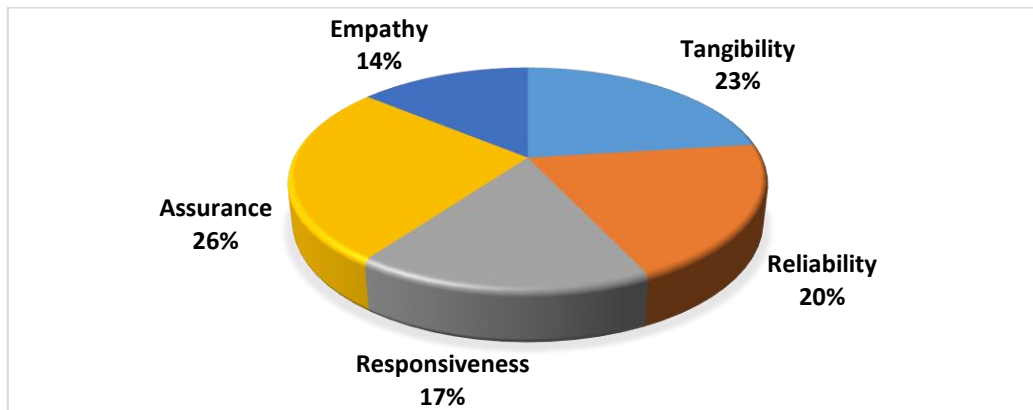
It noted at table 3 that the dentist emphasizes in varying proportions each of the characteristics of the dental service and does not focus on them equally, as there are gaps in each characteristic, regardless of the type of characteristics, and that each characteristic has a different sequence in the mind of the dentist. This can be clearly explain through Pareto Chart that depict the results as shown at figure 2.



**Figure (2)** Actual application and gaps for dental service characteristics from a dentist’s view

It can to see at figure 2 that a dentist is making his effort and trying to apply the characteristics of the dental service as much as possible, and that he has succeeded in doing so, as the levels of application shown at figure 2 are higher than the gaps, which are small. The dentist may overemphasize the application of some characteristics at the expense of his neglect in the application of other characteristics. The extent of the dentist’s focus on each of these

characteristics can clarified using a Pie Chart that calculates and plots the results as in figure 3.



**Figure (3)** Relative importance for dental service characteristics from a dentist's view

It noted at figure 3 that there is a clear difference among relative importance's for the dental service characteristics from a dentist's view. As the relative importance ranged between (14% -26%), while it is assumed that it will balance and fall within the normal ratio (20%). The research found that the empathy does not receive enough attention with a dentist and that it is dentist places his greatest preventive emphasis on getting the work done and treating the patient more than talking to the patient and exchanging words, as the relative importance of the empathy reached (14%), which is the lowest percentage. And the research also concluded that assurance is clearly receive the dentist's attention and pour its efforts into the clinic dentist is evaluated on the basis of his preventive success in providing complete and correct treatment to the patient from the first time, as the relative importance of assurance was 26%, which is the highest. As for the other researched variables, their relative importance ranged in descending order, as follows:

- Dentist emphasizes showing its tangibility characteristics in a striking way that exceeds the average rate may be to the dentist pays attention to his external appearance, so he appears elegant, beautiful and uses preventive tools, which convinces the patient of the dental services that will be provide to him before he receives treatment. As the relative importance of tangible reached (23%), which is higher than the required percentage of (20%).
- Dentist emphasizes reliability characteristics in a fair and just manner, and there is no negligence in this aspect, perhaps the reason for this is due to the wise dental supervisor. That chooses skilled and professional dentists as supervisors of dentists in within a clinic in order to ensure the dentist's ability to carry out his mission. As the relative importance of reliability reached (20%), which is equal the required percentage of (20%).

- Dentist can respond to patients' requests and treat them quickly and appropriately for each disease case. However, dentist may sometimes face so many disease cases that the work pressure increases, so each dentist has a large number of patients that he must treat during a specific unit of time. As relative importance of responsiveness reached (17%) and it is less of the required percentage of (20%).

## **Discussion**

*Tangibility characteristics* are relate on the place where the dentist provides the service to patients, such as cleaning the clinic, painting the walls, using sterilizing materials and devices for medical instruments like mirror, probe, tweezer, spoon excavator, ash, condenser, amalgam carrier. Dentist must wear protective glasses, protective gloves, and disinfectant materials for floors like alcohol and infection solution. Dentist must prepare a chair for patient and sterilize him well after the end of each patient's treatment; he should also make sure that patient wears a towel that protects the patient's clothes from damage during treatment.

*Reliability characteristics* are relate on the dentist's ability to carry out his task. As there are some medical tasks like difficult cases of extraction that require the muscular abilities of the dentist. These tasks are often more appropriate for male dentists than for female dentists. Dentist does not face a problem in achieving these characteristics due to the high levels of qualification in dentistry, as most of them hold doctoral, masters, and higher diploma degrees.

*Responsiveness characteristics* are relate on the time in which dentist completes his task, the speed of his provision of service, and his diagnosis of the disease and treatment. This depends on the modernity of the medical equipment's available in clinic, competence of the dentist's assistants, and the patient's cooperation. Dentists often face difficulty in meeting this requirement due to the unavailability of assistants and crowding of patients in the clinic.

*Assurance characteristics* are relate on dentist providing service to patient completely and correctly, from the first time, in addition to the dentist correcting the error, if any, in the treatment he provided to the patient. These characteristics considered one of basics of work in preventive dentistry, so dentist do not face any problem in application.

*Empathy characteristics* are relate on the dentist's personal features that create a certain impression on the patient. Dentists faces difficulty with these characteristics because of its close connection to the dentist's personality rather than to his educational level. Dentist carries certain values and beliefs from his family and brings them with him to work, including the formal appearance when exchanging opinions with strangers. That is, dentist is reserve in his

dealings with the patient and interacts with him technically more than humanely, and this is what makes a large part of his service weak because raising the patient's morale contributes greatly to facilitating task of dentist. On the other hand, some female patients are conservative in the way they deal with male dentists because of their social traditions and vice versa.

## **Conclusions**

Preventive dentistry undertakes many tasks, the beginning of which is the issue of dental service characteristics that must dentist take it right. The dentists prepares in a way that enables them to master their technical tasks in a proactive manner that allows them too accurately, accomplish and treat the various pathological conditions that they encounter while working inside a dental clinics. The dental service characteristics includes five these are: tangibility, reliability, responsiveness, assurance, and empathy. These characteristics should receive balanced attention from a dentist's view in the clinics. Dentist must be aware and understand each of these characteristics so that he can fulfill his medical mission fully and reach the highest levels of dental prevention and performance. Dentist should emphasize in a balanced manner each of the five characteristics for dental service, all together at the same time in order to ensure correct preventive. Dentist should also has training programs on dental service characteristics, as it is the pillar of preventive dentistry work.

## **Reference**

1. Abdulrahman, G., Arezoo, E., Violet, D., Kamini, K., & Helen, H. (2022). The impact of dental care programs on healthcare system and societal outcomes: A scoping review. *BMC Health Services Research*, 22(1574), 1-12.
2. Akbar, F. H., Awang, A. H., & Rivai, F. (2023). Effect of quality of dental health services to patient satisfaction in Indonesia 2019: Importance-performance analysis. *Pesquisa Brasileira Em Odontopediatria E Clínica Integrada*, 1(23). Retrieved from <https://revista.uepb.edu.br/PBOCI/article/view/1896>
3. Alan, B., & Amrik, S. (2003). Service quality factors and outcomes in dental care. *Managing Service Quality*, 13(3), 207-216.
4. Ali, O. (2023, March 29). Average EBITDA for a Dental Practice. DENTAL AND MEDICAL COUNSEL BLOG. Retrieved from <https://www.dmcounsel.com/blog/how-do-i-determine-the-value-of-my-dental-practice>
5. Alun, R. (2019, October 24). The role of empathy in dentistry. *Dentistry Magazine*. Retrieved from <https://dentistry.co.uk/2019/10/24/the-role-of-empathy-dentistry/>
6. Ana, P., & Carmem, S. (2022). Strategies to design extrinsic stimuli-responsive dental polymers capable of auto repairing. *JADA Foundational Science*, 1(2), 1-10.
7. Arlen, C. (2022). The 5 Service Dimensions All Customers Care About. *Service Performance INC*. Retrieved from <https://www.serviceperformance.com/the-5-service-dimensions-all-customers-care-about/>

8. Aristomenis, S., Maria, I. K., Michael, A. M., Michael, A. T., & Fotis, C. K. (2023). Health Service Quality Evaluation in Dental Care: Challenges and Future Research Directions. *Operational Research in the Era of Digital Transformation*, 117-122.
9. Byrne, M., Tickle, M., Glenny, A. M., Campbell, S., Goodwin, T., & Malley, L. (2019). A systematic review of quality measures used in primary care dentistry. *International Dental Journal*, 6(9), 252-264.
10. Byrne, M., & Tickle, M. (2019). Conceptualizing a framework for improving quality in primary dental care. *British Dental Journal*, 2(27), 865-868.
11. Camilo, M., Felipe, H., & Sergio, M. (2023). Structural validity and reliability of the Oral Health Assessment Tool applied by speech-language therapists in a population of older Chilean people. *BMC Oral Health*, 23(24), 1-12.
12. Cassandra, P., & Jakobus, K. (2023, March 16). QUALITY ASSURANCE POLICY. The Dental Centre Scorpio Digital. Retrieved from <https://tdc.dentist/policies/quality-assurance-policy/>
13. Chris, H. (2022, September 1). Dental Therapist Quality Assurance Requirements. British Columbia College of Oral Health Professionals (BCCOHP). Retrieved from <https://oralhealthbc.ca/practice-resources/quality-assurance/dental-therapist/>
14. Chris, L. (2020, August 3). Reliability in the Dental Office. Princess Dental Staffing. Retrieved from <https://www.princessdentalstaffing.com/blog/office-management/reliability-in-the-dental-office>
15. Dhahi, A. Y., Bede, S. Y., & Khachadourian, H. (2023). Reliability of the multipage transducer in measuring dental implant stability by using a resonance frequency analysis device: An observational clinical study. *Journal of Baghdad College of Dentistry*, 35(3), 58-66.
16. Danto, L. (2022, August 5). Quality assurance and patient safety. The DDU Magazine. Retrieved from <https://www.theddu.com/guidance-and-advice/guides/quality-assurance-and-patient-safety>
17. Daniela, F. (2022, November 1). Empathy and the anxious patient. *The Journal for A Career In Dental Nursing*. Retrieved from <https://www.dental-nursing.co.uk/features/empathy-and-the-anxious-patient>
18. Dopeykar, N., Bahadori, M., Mehdizadeh, P., Ravangard, R., & Salesi, M. (2018). Assessing the quality of dental services using SERVQUAL model. *Dental Research Journal*, 430-436.
19. Edmund, B., & Mohammed, D. (2021). Developing a Patient Safety Culture in Primary Dental Care. *Primary Dental Journal*, 10(1), 89-95.
20. Endrou, D. P., Sri, S., & Grace, V. G. (2015). Patient's opinion about tangible aspect of Universitas Padjadjaran Dental Hospital. *Padjadjaran Journal of Dentistry*, 27(2), 1-5.
21. Iain, A., & Gerardo, M. (2024). A Closer Look at Diagnosis in Clinical Dental Practice: Part 1. Reliability, Validity, Specificity and Sensitivity of Diagnostic Procedures. *J Can Dent Assoc*, 70(4), 251-255.
22. Joel, B. (2016, February 2). Quality Assurance. UW School of Dentistry. Retrieved from <https://dental.washington.edu/policies/clinic-policy-manual/quality-assurance/>
23. Jobber, B. (2021, April 11). The Importance of Empathy in the Dental World What to Know. Dental Talent Blog. Retrieved from <https://dentaltalent.co.uk/the-importance-of-empathy-in-the-dental-world-what-to-know/>
24. Kalyan, S. V., Manjula, S., Padma, T. M., Pratap, K. V., Vineela, P., & Varma, S. C. (2017). Assessment of empathy among clinical dental students in a teaching dental institution in Telangana State, India. *Journal of Indian Association of Public Health Dentistry*, 2(15), 162-165.

25. Lisa, H. (2019). Quality and Safety Assurance in General Dental Services in Wales. Dental Quality and Safety Group, 1-10.
26. Ma, H. (2014, February 8). Quality assurance for dental radiography. The Journal for A Career In Dental Nursing. Retrieved from <https://www.dental-nursing.co.uk/features/quality-assurance-for-dental-radiography>
27. Nicole, R., Naile, D., Luana, S., Gabriel, B., & Heliana, D. (2019). Responsiveness of Oral Health-Related Quality of Life Questionnaires to Dental Caries Interventions: Systematic Review and Meta-Analysis. *Caries Research Journal*, 53(6), 585-598.
28. Obadan-Udoh, E. M., Calvo, J. M., Panwar, S., Simmons, K., & White, J. M. (2019). Unintended consequences and challenges of quality measurements in dentistry. *BMC Oral Health*, 1(7), 1-5.
29. Persaud, N., Steiner, L., Woods, H., Aratangy, T., Wanigaratne, S., Polsky, J., et al. (2019). Health outcomes related to the provision of free, tangible goods: A systematic review. *PLOS ONE*, 14(3), 1-29.
30. Premier. (2022, July 20). Why High-Quality Dental Care Matters. South Holston Dental Designs. Retrieved from <https://www.southholstondentaldesigns.com/why-high-quality-dental-care-matters>
31. Priya, N., Vivek, R., Nikhil, S., Noopur, K., & Tushar, P. (2023). Reliability of three pain assessment tools in children requiring dental treatment: A comparative clinical study. *J Indian Soc Pedod Prev Dent*, 41(2), 126-132.
32. Raj, R. (2022, July 11). Empathy and effort. Dental Protection Organization. Retrieved from <https://www.dentalprotection.org/uk/articles/empathy-and-effort-in-dentistry-uk>
33. Righolt, A. J., Sidorenkov, G., Faggion, C. M., Listl, S., & Duijster, D. (2019). Quality measures for dental care: A systematic review. *Community Dentistry and Oral Epidemiology*, 1(47), 12-23.
34. Russ, C. (2015, August 27). The Tangibles and Intangibles of a Successful Office Design. Burkhart Dental Supply. Retrieved from <https://burkhartdental.wordpress.com/2015/08/27/the-tangibles-and-intangibles-of-a-successful-office-design/>
35. Ruxandra, S., Beatrice, A. B., & Andreea, B. (2023). The Reliability and Validity of Dental Indifference Scale among Romanian Young Adults. *PMC Journal*, 11(6), 876.
36. Sarah, A., & Mark, D. (2021). Defence dentistry: an occupationally focused health service with worldwide deployable capability. *British Dental Journal*, 230(7), 417-423.
37. Sfeatcu, R., Balgiu, B. A., & Georgescu, C. E. (2023). The Reliability and Validity of Dental Indifference Scale among Romanian Young Adults. *Journal of Healthcare*, 11, 876.
38. Sharika, R., Sedayo, L., Morad, M., & Abuljadayel, J. (2024). Measuring the impact of dental service quality on revisit intention using an extended SERVQUAL model. *Journal of Frontiers in Oral Health*, 1(5), 1-10.
39. Stangvaltaite-Mouhat, L., Uhlen, M.-M., Skudutyte-Rysstad, R., Szyszko Hovden, E. A., Shabestari, M., & Ansteinsson, V. E. (2020). Dental Health Services Response to COVID-19 in Norway. *International Journal of Environmental Research and Public Health*, 17(16), 5843.
40. Sushi, K. (2015). Effective Communication and Empathy Skills in Dentistry for Better Dentist-Patient Relationships. *Journal of Dental Problems and Solutions*, 2(3), 58-59.