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Patient satisfaction in ECHS polyclinics using SERVQUAL
An individual patient Data Meta - analysis

by

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PG/23/025

Under the guidance of

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PGDM (Hospital & Health Management)

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International Institute of Health Management Research, New Delhi

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I wish her all success in all her future endeavors.

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This is to certify that **Dr Chahat**, a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled "**Patient Satisfaction in ECHS polyclinics using SERVQUAL- An individual Participant Data Meta - analysis" at "INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI** " in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management)**.

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Objective:
The Ex-Servicemen Contributory Health Scheme (ECHS) was launched by the Ministry of Defence, Government of India, to provide quality healthcare to ex-servicemen and their dependents. Given the increasing emphasis on patient-centered care, this study aimed to evaluate the level of patient satisfaction in ECHS polyclinics using the SERVQUAL model, which assesses five key service quality dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy.

Methodology:
An Individual Participant Data Meta-Analysis (IPD-MA) approach was adopted. Data was collected through a systematic review of literature from databases including PubMed, Web of Science, and grey literature comprising senior dissertations. The inclusion criteria involved Indian studies published from 2013 onwards, using English language, and incorporating patient satisfaction tools. Out of 46 initially screened articles, 7 studies were included in the final analysis (2 from PubMed and 5 from dissertations). Each questionnaire item was categorized into the respective SERVQUAL domain for uniform comparison and aggregated analysis.

Results:
The analysis found that Responsiveness and Assurance recorded the highest satisfaction percentages (both around 74%), indicating that patients were particularly pleased with staff courtesy, prompt attention, and confidence instilled by the service providers.
Empathy and Tangibles also received moderately high satisfaction levels. However, Reliability scored the lowest in satisfaction percentage, reflecting concerns over consistent service delivery and dependability. Interestingly, due to the higher number of questions classified under Reliability, it still contributed the most to the total satisfied responses. This finding reveals an important mismatch between satisfaction scores and domain weight, suggesting the need for targeted improvement in consistent care practices.

Conclusion:
The overall patient satisfaction in ECHS polyclinics was moderate, with significant scope for improvement in the Reliability domain. The study provides evidence that enhancing service consistency, reducing delays, and reinforcing follow-up systems could lead to a measurable improvement in patient perception of care. The study was limited by its reliance on secondary data and regional concentration of included studies. Future research should focus on region-wise satisfaction comparisons, the inclusion of longitudinal data, and integration of qualitative interviews to obtain deeper patient insights. Strengthening internal feedback systems and capacity building within ECHS services will be critical in addressing existing service gaps.

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With warm regards

Dr Chahat

ABBREVIATIONS	
ACP	Assisstant commissioner of police
APS	Army postal services
CDA	Controller of Defence Accounts
COSC	Chiefs of Staff Committee
DA	Dearness Allowance
DoESW	Department of Ex-Servicemen Welfare
DGR	Directorate General Resettlement
DGMS	Director General Medical Services
DSC	Defence Security Corps
ECHS	Ex- Servicemen Contributory Health Scheme
ECO	Emergency Commissioned Officers
ESM	Ex- Servicemen
ICG	Indian Coast Guard
IPD-MA	Individual Participant Data Meta-Analysis
KSB	Kendriya Sainik Board
MD	Managing Director
MI Rooms	Medical Inspection Rooms
MoD	Ministry of Defence
MNS	Military Nursing Services
NCC	National Cadet Corps
OIC	Officer- In- Charge
PCC	Population- Concept- Context
PPO	Pension Payment Order
PWD	Persons With Disabilities
SERVQUAL	Service Quality
SFF	Special Frontier Force
SOP	Standard Operating Procedures
SSGOs	Short Service Commissioned Officers

1. Introduction

In the evolving landscape of healthcare delivery, where there is shift of focus from the dominant provider model to the receiver model to provide the qualtiy care services. In order to achieve this goal, evaluating the quality of services has become a crucial component of healthcare management. Particularly in public health systems, where accessibility and equity are primary goals to achieve, it is essential to ensure that service quality meets beneficiaries' expectations. In India, several government- supported healthcare schemes have been introduced to improve access to healthcare, especially for specific population groups. One such initiative is the Ex-Servicemen Contributory Health Scheme (ECHS), launched by the Ministry of Defence in 2003. This scheme provides comprehensive medical services to retired armed forces personnel and their dependents across India. With the increasing number of beneficiaries and the growing scale of services, measuring and improving patient satisfaction under ECHS has become a significant concern for administrators and policymakers.

Patient satisfaction is a multidimensional aspect that reflects patients' perceptions of the care they receive. It is often used as an indirect indicator of the quality of services provided and is influenced by factors such as provider behaviour, waiting time, infrastructure, availability of medicines and services as promised and the efficiency of administrative processes. In contrast, dissatisfaction can lead to increased patient complaints, lower service utilization, and poor reputation of the facility.

In the context of ECHS, where services are delivered through a combination of ECHS polyclinics and the empaneled hospitals, assessing satisfaction levels can help in identifying the specific areas requiring quality improvements. Ex-servicemen and their families often depend only on ECHS for their healthcare needs, which makes it even more important to ensure that these services meet their expectations. Studies conducted across various ECHS facilities have highlighted operational bottlenecks, including long waiting times, non-availability of drugs , services and challenges in claim processing (1- 5).

To evaluate service quality in healthcare, several models have been developed, out of which the SERVQUAL model is one of the most widely recognized model. Proposed by Parasuraman, Zeithaml, and Berry in 1988, the SERVQUAL model outlines the five key dimensions of service quality:, Reliability (ability to perform as promised), Assurance (ability to instill confidence), Tangibles (physical facilities , equipments and environment), Empathy (free from anxiety and emotional support) and Responsiveness (willingness to help) commonly known as the RATER model. By comparing the gap between patient expectations and their perceptions of actual services, the SERVQUAL model enables organizations to pinpoint shortcomings and develop strategies for improvement (6-7).

In the ECHS context, the SERVQUAL framework is particularly useful because of the scheme's unique organisation and the service delivery mechanism. This scheme serves to the defined beneficiary population, operates under a funding model which is managed by centre , and is delivered through standardized procedures. By applying the SERVQUAL model to ECHS polyclinics, this study seeks to identify the service dimension that significantly impact patient satisfaction and provide insights into targeted interventions that can improve patient experience and their satisfaction.

2. ECHS organisation profile

2.1 The Ex-Servicemen Contributory Health Scheme (ECHS) is a comprehensive healthcare program which is designed specifically for ex-servicemen and their eligible dependents. Authorized by the Government of India under Ministry of Defence directive No. 22(i) 01/ US/D(Res) dated 30th December 2002, the scheme officially commenced on 1st April 2003. ECHS is financially sustained by contributions from the Government of India along with one-time subscriptions from personnel retiring from the Indian Armed Forces (8)

During active service, military personnel and their families typically receive healthcare services from command hospitals, base hospitals, military hospitals, and Medical Inspection (MI) rooms, which are strategically located in peace areas and military stations. These facilities are organized based on patient load, service requirements, and resources. However, following their retirements , ex-servicemen and their dependants often relocate to civilian regions lacking military healthcare facilities, leaving them dependent on private or government healthcare facilities near their residences. Despite authorization for healthcare post-retirement, ex-servicemen personnel encountered significant logistical challenges, including difficulties in accessing the distant military hospitals, increased travel-related expenses, and financial burdens from private healthcare utilization. This highlighted the necessity for a dedicated healthcare system accessible in civilian areas, resulting in the establishment of ECHS (8).

2.2 **Concept and Objectives of ECHS:**

(a) The foundational concept behind ECHS is the efficient utilization of the existing healthcare infrastructure of the Armed Forces, thereby minimising administrative expenses and financial outlays. Existing facilities such as military hospitals, MI rooms, command structures, and procurement organizations for medical and non-medical equipments and resources form the operational backbone of ECHS. Utilizing these pre- existing infrastructures ensures cost-effective delivery and management of medical care to beneficiaries (8).

(b) ECHS aims to ensure comprehensive and continuous healthcare services to ex-servicemen and their dependents, especially in civilian or non-military areas. To maintain high standards of care, the following strategic objectives were established (8):

- (i) **Establishment of New Polyclinics:** Introducing new ECHS polyclinics in civilian regions to fill the agp faced by beneficiaries residing away from military stations.
- (ii) **Expansion and Strengthening of Existing Facilities:** Establishing additional ECHS facilities and polyclinics within military stations experiencing higher patient loads to enhance service efficiency and reduce waiting times.
- (iii) **Empanelment of Civil Healthcare Providers:** Partnership with the reputable civilian hospitals and diagnostic centers, thereby providing services to advanced medical care within their vicinity to the eligibles.
- (iv) **Ensuring Adequate Financial Support:** Adequately allocating and managing financial resources to sustain high-quality healthcare service delivery and infrastructure development.

2.3 **Command & Control Structure:**

The administrative and financial responsibilities of ECHS have been entrusted to the existing command and control framework of the Army, Navy, and Air Force. Station Commanders have been granted authority to oversee operational control directly over ECHS polyclinics within their area. Regional Centres, ECHS, and dedicated ECHS cells situated at Station Headquarters serves to resolve any operational difficulties and issues. Command Headquarters or Area Headquarters directly supervise Regional Centres, ensuring smooth and effective functioning of services. Additionally, Central Organization ECHS functions under the Adjutant General's Branch at the Army Headquarters, establishing robust oversight and administrative management (8).

2.4 **Organizational Framework of ECHS:**

The central organizational headquarters of ECHS is strategically located in Delhi. The Chief of Staff Committee (COSC) provides leadership, and the organization operates under the administrative guidance of the Adjutant General & Director General of Medical Services (DGMS). The Central Organization is headed by a Managing Director, a serving Major General. At present ECHS has 30 Regional Centres and 433 polyclinics in india, showing its commitment to provide the healthcare services to the retired army personnel and their dependants.

ECHS polyclinics are categorized into five distinct types—'A', 'B', 'C', 'D', and 'E'—each equipped differently to meet specific healthcare demands effectively (8)

Polyclinic Type	Population Served (Approx.)
Type A	More than 20,000
Type B	15,001 – 20,000
Type C	10,001 – 15,000
Type D	5,001 – 10,000
Type E	1500- 5000

2.5 **Organisation of ECHS:**

Level	**Position/Designation**
Central Level	Managing Director (MD), ECHS (Maj Gen) Deputy Managing Director, ECHS Director (Operations & Coordination) Director (Procurement & Fund Control) Director (Complaints & Legal) Director (Medical) Director (Statistics & Automation)
Regional Level	Director, Regional Centre Joint Director (Hospital Services) Joint Director (Accounts & Asset Management) Joint Director (Establishment)
Area/Sub Area Headquarters	Officer-in-Charge (OIC), ECHS Station Headquarters
Polyclinic Level	Officer-in-Charge (OIC), Polyclinic Medical Officer (MO) Medical Specialists Gynaecologist Dental Officer Support Staff (Contractual based on polyclinic type A, B, C, D, E) Mobile Clinic Facility (for Type E polyclinic)
Coordination and Oversight	Staff Officer, ECHS (Air Force/Naval HQ & Army Commands) Central Organization, ECHS Regional Centres, ECHS (Total: 30) ECHS Polyclinics (Total: 433)

2.6 **Organogram of ECHS**

Top Level	**Raksha Mantri**
Second Level	Raksha Rajya Mantri (Minister of State for Defence)
Executive Level	Secretary, Department of Ex-Servicemen Welfare (DESW)
Management Level	Managing Director (MD), ECHS (Maj Gen)
Support Structure	• Deputy MD • Director (Ops & Coordination) • Director (Legal & Grievance) • Director (Healthcare) • Director (Data Management)
Regional Oversight	30 Regional Centres: • Regional Director • Joint Director (Clinical Services) • Joint Director (Finance & Assets) • Joint Director (HR)
Local Implementation	433 ECHS Polyclinics: • Officer-in-Charge • MO • Medical Specialists • Gynaecologist • Dental Officer • Contractual Staff as per type (A–E) • Type E includes Mobile Clinics

2.7 **Command-wise Distribution of ECHS Polyclinics**

S. No.	Command	Number of Polyclinics
1	Western Command	105
2	Central Command	87
3	Southern Command	89
4	Eastern Command	59
5	Northern Command	51
6	South Western Command	24
7	Air Force & Naval Commands	18

2.8 **Policy and Operations of ECHS**

2.8.1 The Ex-Servicemen Contributory Health Scheme (ECHS) was officially sanctioned by the Government of India on 30th December 2002 and became operational from 1st April 2003. This centrally sponsored initiative under the Ministry of Defence was established to offer structured and affordable medical services to retired defence personnel and their dependents (8).

ECHS functions by delivering outpatient and inpatient care through a wide network of 433 polyclinics spread across India (as per the latest available data), and by leveraging both Military Hospitals and empanelled private sector hospitals and diagnostic centres for comprehensive treatment services. Medical care in Service Hospitals is subject to the availability of infrastructure, specialist services, and medical personnel (8). This model ensures access to quality and cashless treatment to ex-servicemen, which is a significant step toward equitable and inclusive healthcare delivery (8).

2.8.2 **Eligibility for ECHS Services**

The scheme extends healthcare benefits to a wide range of individuals associated with the Indian defence forces. Eligible categories under ECHS include:

- Individuals who had worked in the indian army.
- Retired personnel from the Military Nursing Service (MNS).
- Commissioned full-time officers of the National Cadet Corps (NCC).
- Retired members of the Special Frontier Force (SFF).
- Former servicemen from the Defence Security Corps (DSC).
- Pensioners from the Indian Coast Guard (ICG).

- Eligible retirees from the Army Postal Service (APS).
- Retired personnel of the Assam Rifles.
- Some Special Subgroups such as World War II veterans, Emergency Commissioned Officers (ECOs), and Short Service Commissioned Officers (SSCOs). (8).

2.8.3 **Salient Features of ECHS**

The salient features of ECHS are as followed described below:

- Age and medical condition is not a bar to access the services provided through the polyclinics.
- To make the contribution as to gain the eligibility to access the ECHS services through polyclinics as per the rank and order in the army.
- There is no linit that only upto this expense you can access the services. There is as such no cap to avail the healthcare services through the polyclinics.
- The scheme includes coverage for both outpatient and inpatient services, such as consultations, diagnostic tests, and medications.
- A pan-India network of ECHS Polyclinics ensures wide geographic reach and ease of access for beneficiaries, even in remote regions.
- The scheme extends coverage to the spouse and all other eligible dependents, promoting family welfare.
- The familiar setting of military-operated services creates a sense of comfort, trust, and belongingness among the beneficiaries, especially for those from a defence background (8).

2.8.5 **Family Members Covered in the Scheme**

The ECHS offers coverage not only to the ex-servicemen (ESM) themselves but also to an extensive list of dependent family members, subject to conditions

S. No.	Relationship	Eligibility Criteria
1	Spouse	- Legally wedded wife (even more than one, if permissible under service rules). - Spouse living separately is covered if the ESM pensioner is financially responsible. - If the spouse remarries, she/he is not entitled. - In case of plural marriage, both wives must be recorded in service documents and PPO. - War widows who remarry are covered along with their children; husband is not covered.

2	Family Pensioner	- Spouse of deceased armed forces personnel who receives family pension. - Also includes children receiving family pension on death of a pensioner. - Parents of a deceased bachelor soldier receiving family pension are also eligible.
3	Unemployed, Unmarried Daughters	- Must be recorded in the service record of the pensioner. - Covered until she starts earning or gets married (whichever is earlier). - Divorced/widowed daughters with income below ₹9,000/month (excluding DA) are entitled.
4	Unemployed, Unmarried Sons	- Must be in the service record. - Covered until he starts earning, gets married, or turns 25 years (whichever is earlier). - Sons with critical disabilities (PWD Act, 2016) are eligible for White Card beyond age limits.
5	Adopted and Step Children	- Includes legally adopted and stepchildren. - Also includes wards under Guardians and Wards Act, 1890, if declared by a special will.
6	Dependent Parents	- Biological parents, if they reside with the ESM and income is below ₹9,000/month (excluding DA). - Parents of unmarried deceased soldiers are also covered if receiving liberalized family pension. - Only one wife of an adoptive father is allowed. - For female employees, either parents or in-laws may be covered. - Female family pensioners cannot include in-laws.

7	Dependant Sisters	- Unmarried, divorced, or widowed sisters financially dependent on the ESM. - No age limit.
8	Dependent Brothers	- Minor brothers up to 18 years of age. - Brothers with permanent disabilities (mental/ physical) are covered without age limit, provided they are unmarried and financially dependent.
9	Minor Children of Widowed/Separated Daughters	- Covered up to 18 years if financially dependent on the ECHS beneficiary and living with him

2.9 **Ward Entitlement Structure – ECHS**

The following table outlines the restructured contribution amounts and corresponding ward entitlement categories under the ECHS scheme, applicable from 29 December 2019, as per the Ministry of Defence directives.

S. No.	**Rank Category**	**Lump-Sum Membership Fee**	**Entitled Ward Type**
1	Junior Personnel (e.g., Sepoys to Havildars or equivalent in Navy & Air Force)	₹30,000	General Ward
2	Mid-Level Ranks (e.g., Naib Subedar, Subedar Major, including honorary ranks and ACP equivalents)	₹67,000	Semi-Private Ward
3	Commissioned Officers (all categories)	₹1,20,000	Private Ward

2.10 **Recent Advancements in ECHS Scheme**

- **Digitization of Services**: Online claim processing and e-verification of beneficiaries have been introduced to reduce delays and ensure transparent service delivery.
- **Expansion of Empanelled Facilities**: The number of empanelled hospitals and diagnostic centres has increased, especially in rural and semi-urban regions, to enhance accessibility for ECHS beneficiaries.

- **Teleconsultation Services**: Remote consultation facilities were introduced, particularly during the COVID-19 pandemic, to maintain continuity of care without the need for physical visits .
- **Grievance Redressal Mechanisms**: An online complaint portal and monitoring dashboards have been implemented at the central and regional levels to track and resolve issues effectively.
- **Administrative Reforms**: Standard Operating Procedures (SOPs) for polyclinics have been streamlined to ensure consistent service delivery and better coordination.
- **Capacity Building**: Training programs for healthcare professionals have been initiated to improve clinical efficiency, staff responsiveness, and adherence to guidelines.
- Improved Fund Management: There is enhanced oversight on fund allocation and utilization through digital monitoring and reporting systems (8).

3. Literature review

To gain a deeper understanding of patient satisfaction within Indian healthcare settings, a systematic literature review was conducted using PubMed, Web of Science databases, and relevant grey literature sources. The full list of reviewed studies is provided in Supplementary Section 9.2 for detailed reference.

The selected studies primarily used the SERVQUAL framework—either in its original form or with modifications—to evaluate patient satisfaction across diverse healthcare

environments, including public sector hospitals, ECHS polyclinics, private tertiary hospitals, and specific clinical departments. The most frequently measured dimensions across these studies were Tangibles, Reliability, Responsiveness, Assurance, and Empathy.

The study conducted by Deswal et al. (2014) in a delhi campus clinic and accesses the patient satisfaction and their experiences usimg the SERVQUAL model and found out that the physical environment like the sitting space, drinking water and the ambience and the way they assures the patients about the treatment plan and solving their doubts by instilling the confidence is the key (9,12).

A study which was done by the Panda and Kondasani (2020) in the 5 private hospitals on the 475 respondents using the SERVQUAL framework also observed that the patient staff relationship like how much doctor listens to them carefully and attentively , their willingness to help and the physical facilities also affects the patient satisfaction and the relationship (10,12)

Himani bhatnagar (2019) found in her study which was a mixed method literature review which includes 23 participants(498 screened) that the empathy and the assurance has the greatest impact on the patient satisfaction . this study was conducted on the patients who were receiving TB care in india(11).

Suhail and Srinivasulu (2020) conducted study in ayurvedic centres in kerela and found the factors which dimension greatly and mostly affects the patient satisfaction using the

SERVQUAL framework, and found that the services being available which were promised and the interaction with the employess and patient is the biggest contributing factor(13)

The one study which was conducted by the Verma et al (2020) in the chandigarh and mohali hospitals for accessing the quality of the e- healthcare services and found out that how demographic characteristics are associated with the satisfaction factors. Like to one demographic criteria like old age female , for them the empathy is the biggest satisfying factor and fo rthe younger age group the reliabilty of services is the biggest factor playing the role in the patient satisfaction (14).

The study was conducted by the Malathi and Jasim (2022) on 387 respondents found that how the patient sensitivity, service quality and their experience with the medical applications are inter- related using the SERVQUAL framework and found that how empathy, assurance and relaibilty are playing the role in patient satisfaction (15).

Similarly a study which was done by Uddin et al (2022) during the COVID-19 era and developed a PAND- SERVQUAL scale and using this scale they conducted the study in various indian hospitals and foumnd that how different and each dimension like avavilabilty of services and equipments, medicines as promised, relationship and behaviour, ability to provide confidence and the willingness to help the patiemts is important to determine the patient satisfaction(16).

A study conducted by the Singh and Sandhu (2023) identified the major service quality gaps, particularly in the area of the responsiveness and empathy. This study has 202 participants.

4. Methodology

4.1 Research question

Are ECHS members satisfied with the services provided by ECHS?

4.2 Objectives

To analyze patient satisfaction among attendees of the Ex-Servicemen Contributory Health Scheme (ECHS) in indian OPDs using the SERVQUAL model.

4.3 Study design

The study has adopted an approach which is individual participant data (IPD) meta- analysis and it is a cobination of the systematic review and the meta analysis. Firstly the studies are selected through the inclusion and exclusion criterias, using the keywords and then after an individual participant data responses are extracted to give this study the final version.

Filters were applied to limit the studies to English language, conducted within India, and published from the year 2013 onward. This search strategy ensured a focused review of recent and relevant literature, aligning with the objective of evaluating service quality in Indian healthcare settings.

4.4 **Selection criteria**

To ensure relevance and alignment with the research objectives, the eligibility criteria for study selection were based on the PCC (Population–Concept–Context) framework as recommended for systematic reviews.

Key concepts		**Inclusion criteria**	**Exclusion criteria**
Population		Patients attending ECHS polyclinics	Studies focusing only on healthcare staff or general population
Concept	Reliability	Studies assessing consistency and dependability of services in ECHS	Studies not addressing reliability of services
	Assurance	Studies focusing on staff knowledge, competence, and trust-building	Studies with no reference to patient confidence or staff assurance
	Tangibles	Studies evaluating the physical environment, equipment, and appearance	Studies with no reference to patient confidence or staff assurance
	Empathy	Studies exploring individualized care and attention to patients	Studies that do not focus on the emotional or human aspect of care
	Responsiveness	Studies analyzing promptness and willingness to help patients	Studies that exclude responsiveness or timely service
Context	Location	Research conducted in Indian states and ECHS polyclinics	Studies conducted outside India or unrelated to ECHS
	Language	English-language publications	Non-English language
	Time range	Studies published from 2013 (onward) to present	publications
	Abstract	Publications with an accessible abstract	Studies published before 2013
			Publications without an accessible abstract

4.5 **Screening**

The screening of articles was conducted using Microsoft Excel. Titles and abstracts were carefully reviewed to eliminate irrelevant studies. During the abstract screening phase, studies were included if their abstracts reflected at least three or more dimensions of the SERVQUAL model; otherwise, they were excluded. The full-text articles of the initially selected studies were further evaluated based on predefined inclusion and exclusion criteria. Final study selection was carried out in consultation with subject matter experts to ensure both relevance and accuracy. The prisma flowchart is given in the supplementary section 9.1 and 9.3

4.6 **Data Extraction and Synthesis**

A structured Excel spreadsheet was developed for the purpose of data extraction. From each selected study, the survey instruments or patient satisfaction questionnaires were retrieved. Individual questions from these tools were extracted and categorized under the respective SERVQUAL dimensions — Tangibles, Reliability, Responsiveness, Assurance, and Empathy — based on the construct each question intended to measure. To ensure consistency and accuracy in classification, a two-expert validation process was conducted to align the questions appropriately with the SERVQUAL dimensions. The questions which are divided into different SERVQUAL dimensions are given in the supplementary section from 9.4 to 9.10.

Data related to sample size and patient responses for each SERVQUAL-related item were also recorded. For analysis, the top two ratings on the Likert scale (such as “Strongly Agree” and “Agree” or “Excellent” and “Good”) were grouped together and

considered as satisfied responses. After compiling the questions and corresponding satisfaction scores, a comprehensive summary was generated to determine the most commonly assessed SERVQUAL dimensions and the corresponding levels of patient satisfaction. The results were synthesized narratively and supported with tables and visual charts for better interpretation.

5. Results

The compiled data from selected studies yielded a total of 28,339 responses distributed across the five SERVQUAL dimensions: Reliability, Assurance, Tangibles, Empathy, and Responsiveness. Each individual question from the included studies was categorized under these dimensions, and responses marked in the top two Likert scale options were considered as “satisfied.” The final results table is given in the supplementary section 9.11.

From the results obtained the Assurance and the Empathy has the highest satisfaction % while reliabilty has the lowest satisfaction %.

The detailed breakdown is as follows:

Dimension	Total Responses	Total Satisfied Responses	Satisfaction %
Reliability	9299	6524	**70.16**
Assurance	4840	3676	**75.95**
Tangibles	3590	2544	**70.86**
Empathy	5582	4181	**74.90**
Responsiveness	5028	3764	**74.86**

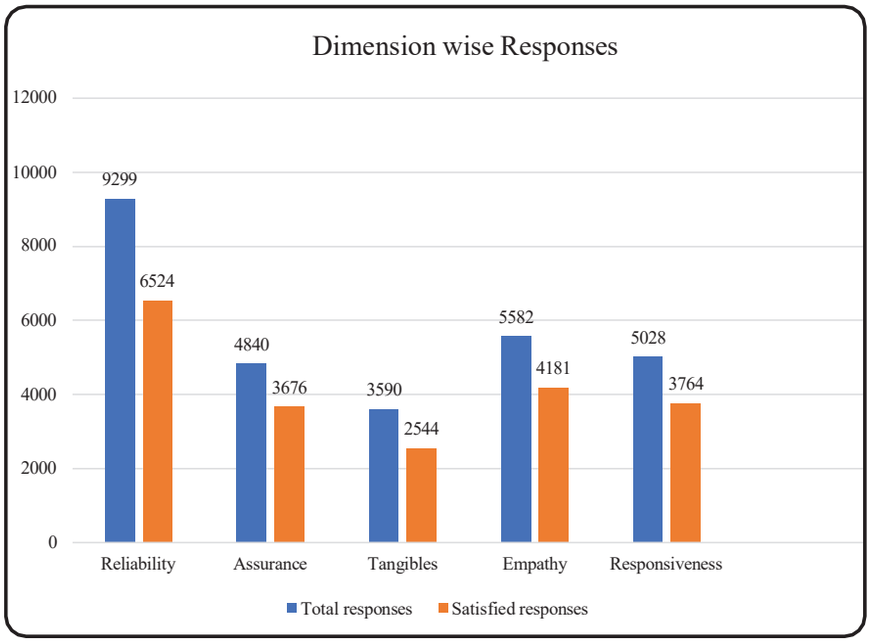


Fig: 5.1 (Dimension wise responses)

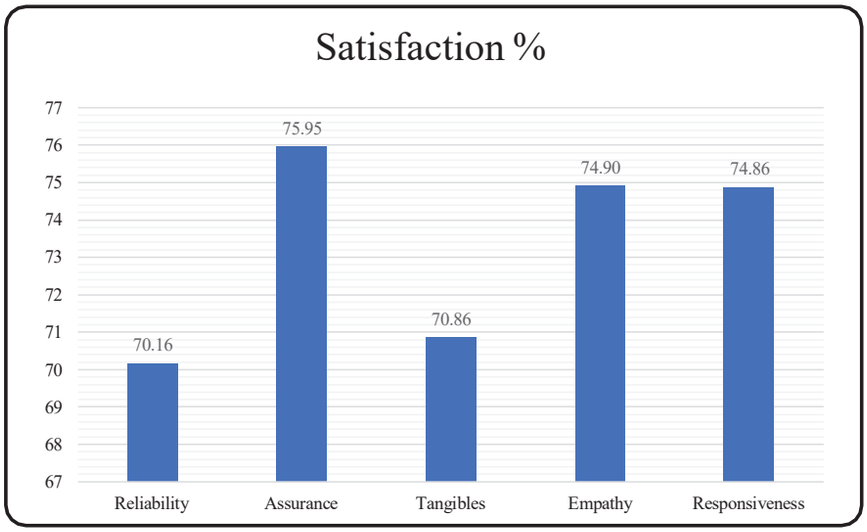
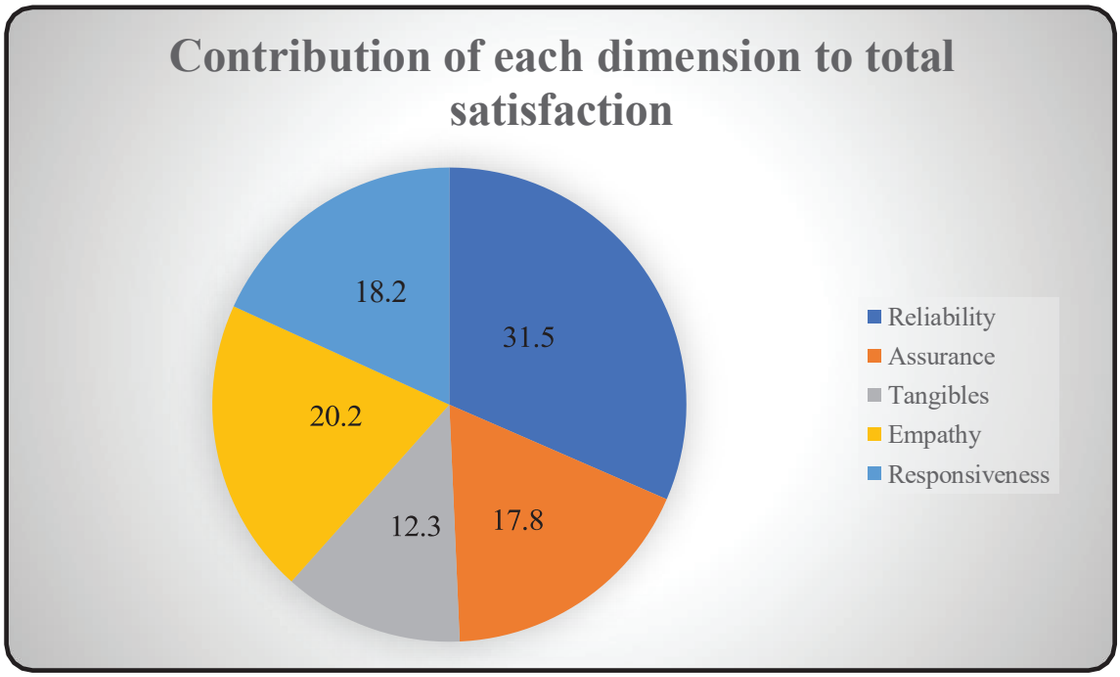


Fig: 5.2 (Satisfaction % of each SERVQUAL dimension)



5.3 (Contribution of each dimension to total satisfaction)

6. Discussion

As the study has been done to identify patient satisfaction usimg the SERVQUAL framewok, and identify which dimension has the biggest contribution in determining which factor is closely aligned with to shape the patient expectations and the experiences.

As the study conducted by the various authors which were given in the detail in the literature review section also determines how the patient satisfcation is linked to different SERVQUAL dimension.

The assurance and the empathy has the highest percentage in the satisfaction of patient means data which was collected from different studies nad the participants hinted that the ability to instill confidence and the interpersonal relationships, how behave with each other are two important dimession in determining the patient satisfaction.

But still by looking at the results when we look at the relaibilty factor, it has the biggest contribution in the questuions so it determines that the patient also gives more importance to this factor means the availabiltiy of the services as promised .

So we can say that by using the SERVQUAL model we identified the dimension which has the greatest impact and assurance and empathy comes as first.

7. Limitations

While this study provides valuable insights into patient satisfaction at ECHS polyclinics using the SERVQUAL framework, several limitations must be acknowledged.

Firstly, the meta-analysis was restricted to studies conducted in India, published in English, and available in open-access formats. This may have led to exclusion of relevant studies published in other languages or behind paywalls, potentially introducing publication bias.

Secondly, the heterogeneity in study settings and sample sizes may affect the comparability of results. The included studies varied in their healthcare contexts — ranging from district hospitals to tertiary care centers — and catered to different patient populations. As a result, generalizing the findings specifically to ECHS polyclinics should be done cautiously.

Third, the questionnaire tools used in the included studies were not always standardized. Although the SERVQUAL dimensions were commonly applied, the framing of questions and interpretation of Likert scale responses differed across studies. This could have influenced the aggregation of results, despite efforts to harmonize data during the extraction process.

Another limitation is the reliance on secondary data. The study did not involve primary data collection, which limited the ability to validate or cross-check patient responses directly.

8. Conclusion

In conclusion, the study contributes to the broader discourse on public healthcare quality evaluation in India and reinforces the importance of patient-centered care models. The outcomes serve as a basis for policy refinement and further research, especially toward standardizing service quality measurement across diverse healthcare facilities under government schemes.

These insights can guide administrative reforms and capacity-building efforts within the ECHS framework to enhance the quality of services and ensure greater trust among the ex-servicemen community.

8.1 Future Scope of Study

Future research can focus on the following aspects:

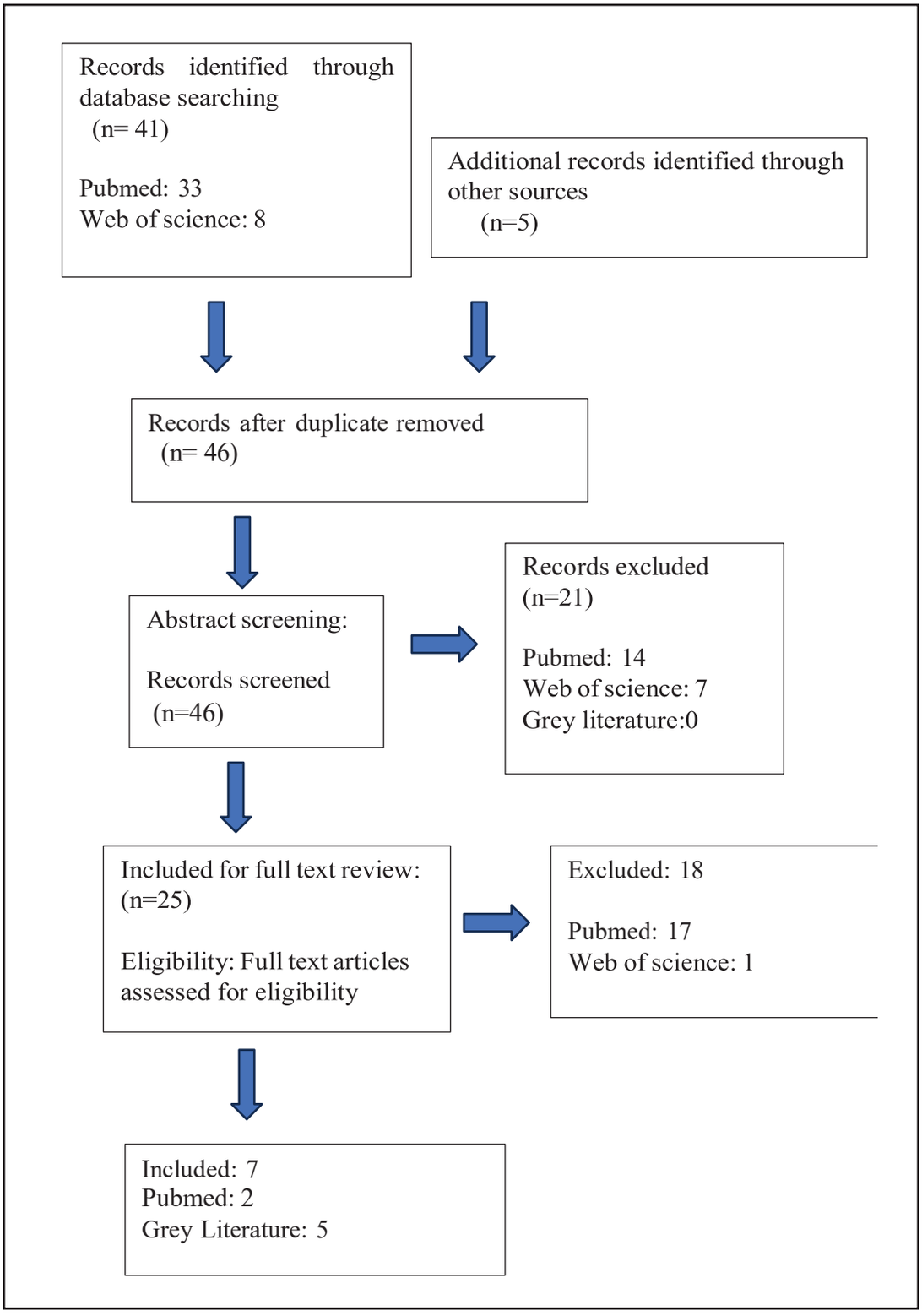
- **Primary data collection at polyclinic level**: This study was based on secondary analysis; future studies can include field-based surveys at multiple ECHS polyclinics to capture more nuanced and real-time beneficiary feedback.
- **Comparative analysis across states or zones**: Comparing service quality across different regions or states may reveal location-specific challenges and best practices.
- **Inclusion of qualitative insights**: In-depth interviews and focus group discussions with beneficiaries and service providers can help understand the reasons behind dissatisfaction in specific SERVQUAL dimensions like empathy or responsiveness.
- **Integration of digital service feedback systems**: Future studies can evaluate how digital interventions—such as mobile apps or SMS-based feedback tools— can improve patient satisfaction tracking and response.

These directions would not only enrich academic understanding but also assist policymakers in designing more targeted, evidence-based improvements in the ECHS delivery model.

9. Supplementary

9.1 PRISMA FLOWCHART (Identification of Studies)

Table 9.1



9.2 **Literature review (table 1)**

S.No.	Author	Year	Sample size	Questions are used?	Include	Reason
1	Himani Bhatnagar	2019	498 screened, 23 included	Not mentioned	Yes	Explores at least three or more SERVQUAL dimensions and other criterias are also met
2	Paramveer Singh, Amarjit S sidhu	2023	202	Yes	Yes	All SERVQUAL dimensions are includes and other criterias are also met
3	Udita tanjeja	2020	Not applicable (conceptua l paper)	No	No	Excluded because it lacks enough SERVQUAL dimensions or does not use a valid questionnaire framework
4	Malathi A., Jasim KM	2022	387	Yes	Yes	All SERVQUAL dimensions are included and other criterias are also met
5	P Suhail, Y srinivasulu	2020	404	Yes	Yes	All SERVQUAL dimensions are included and other criterias are also met
6	Marzo RR, Bhattachar ya S, et al.	221	407	Yes	No	Not conducted in india (conducted in Malaysia)
7	Uddin SMF, Sabir LB, Khan MN, Athar M	2022	206	Yes	Yes	Explores at least three or more SERVQUAL dimensions and other criterias are also met
8	Deshwal P., Ranjan V., Mittal G.	2014	445	Yes	Yes	All SERVQUAL dimensions are includes and other criterias are also met
9	Verma P, Kumar S, Sharma S K	2020	Not mentioned in abstract	Yes	Yes	All SERVQUAL dimensions are covering and other criterias are also met

Table 1 contd…

9	Verma P, Kumar S, Sharma S K	2020	Not mentioned in abstract	Yes	Yes	All SERVQUAL dimensions are covering and other criterias are also met
10	Kondasani RKR, Panda RK	2015	475	Yes	Yes	Explores at least three or more SERVQUAL
11	Anuradha Agarwal, Maithili R P Singh	2016	80	Yes	Yes	Explores at least three or more SERVQUAL
12	Aditi Naidu	2010	Not applicable (review)	None	No	No india based study. Review based on international journals
13	Shawnn Coutinho, Ch V V S N V Prasad, Rohit Prabhudesai	2020	Not applicable	None	No	It is not clear that it is india based study or not and no SERVQUAL based dimension is covered.
14	Yogesh P Pai, Satyanarayana T Chary	2016	Not applicable	None	No	It is a conceptual study only and no SERVQUAL based dimension is covered.
15	Nandakumar Mekoth, Vidya Dalvi	2015	Not mentioned in abstract	Yes	Yes	All SERVQUAL dimensions are covering through 7 factors of service quality and other criterias are also met
16	Sandip Anand, R K Sinha	2002	Not applicable(secondary data)	None	No	survey from 2002-2003

Table 1 contd…

17	Nandakumar Mekoth, Babu P George, et al.	2012	Not mentioned in abstract	Not directly mentioned	No	conducted in 2012 , ie not meeting the criteia of studies from 2013 or onwards.
18	D Mehrotra, S Bhartiya	2020	Not mentioned in abstract	Yes	Yes	All SERVQUAL dimensions are covering and other criterias are also met
19	Reena Titoria, Madhu Upadhyay, Sanjay Chaturvedi	2020	279	Yes	Yes	Explores at least three or more SERVQUAL dimensions and other criterias are also met
20	Debajani Sahoo, Tathagata Ghosh	2016	Not mentioned in abstract	Yes	Yes	Explores at least three or more SERVQUAL dimensions and other criterias are also met
21	Mukta Sharma et al.	2007	226	Yes	No	Focus on adherence more than satisfaction or SERVQUAL
22	P Arathi et al.	2024	400	No	Yes	Explores at least three or more SERVQUAL dimensions.
23	Nahima Akthar et al.	2021	227	Yes	No	Not enough SERVQUAL based dimensions are met.
24	Gyan Prakash	2016	70	Yes	No	(Mostly policy and regulation focused)
25	Ritu Narang, Pia Polsa, Alabi Soneye, Wei Fuxiang	2015	Not mentioned in abstract	Yes	Yes	Explores at least three or more SERVQUAL dimensions and other criterias are also met

Table 1 contd…

26	M A Koenig, G H Foo, K Joshi	2000	Not applicable (review study)	No (review-based study)	No	Older study than 2013 and more focus on family planning than service quality
27	Panchapakesan Padma, Prakash Sai Lokachari, Rajendran Chandrasekharan	2014	408	Yes	Yes	Relevant to Indian hospital setting and evaluates service quality dimensions through perception analysis)
28	G Ajai Krishnan, Admaja K Nair, Bindu V Bhaska	2024	231	Yes	Yes	Although not purely SERVQUAL, multiple dimensions overlap and it's focused on Indian dental service quality)
29	Ishita Sarkar, Rahul Biswas,	2025	430	Yes	No	Direct measurement of satisfaction across sensitive populations
30	Nahima Akthar, Smitha Nayak, Yogesh Pai	2024	242	Yes	Yes	Trust and satisfaction as mediators, with many SERVQUAL overlaps and behavioral insight)
31	Mohammad Azam, Zillur Rahman, Faisal Talib, K J Singh	2013	Not applicable (conceptual paper)	No	No	No real-world patient data; useful for background theory only
32	Deoraj Prajapati, Gaurav Suman	2020	Not mentioned in abstract	Yes	Yes	Explores three SERVQUAL dimensions
33	Irfan Ali, Ashish Singla, Ritu Gupta	2017	249	Yes	No	Not patient- centered; focused on internal psychometric traits of dental practitioners

Table 1 contd…

34	Rehman, Mustufa, Yusuf	2023	Not mentioned in abstract	No	No	No SERVQUAL, no questionnaire, no clear sample size.
35	Ali, Zarei, Rafat	2019	400	Yes	No	As study was conducted in iran, not in india. Which is our one of the inclusion criteria.
36	Editta burrura, Cartier, Margara	2024	Not applicable (discussio n)	No	No	Not a research study
37	Srivastava, Ambey kumar, Gupt, Rajan	2023	326	Yes	Yes	Relevant Indian study on quality of PHC services and OPD preferences using surveys. Although SERVQUAL is not used, it includes quality- related factors like distance, equipment, and staff.
38	Khalid, Babar, Ahmad, Ayyub	2022	7 hospitals (no patient data) facility level audit	Yes	No	The study is aimed at hospital departments and records, not patients.
39	Sharma , Meenakshi, Gupta, Pramod	2014	170	Yes	No	Study is about doctors' job satisfaction, not patient satisfaction or service quality
40	Sinha, Deepankar, Shuvo Roy Chowdhur y	2022	Not applicable	Not applicable	No	It is about port system performance, not related to patient satisfaction or healthcare.

Table 1 contd…

41	Ganesan, Prabhu, Mnjini, Kumari	2022	Not mentioned in abstract	No	No	It's a clinical trial, not a satisfaction study. No SERVQUAL or patient
42	Col. Ashish Yadav	2023	400	Yes	Yes	Covers SERVQUAL model and evaluates service quality at ECHS polyclinics.

9.3 **Final screening of articles (Table 2)**

S.No.	Authors	Primary Study	Questionnaire Available	Full Text Access	Final Status	Remarks
1	Himani Bhatnagar	No	No	Yes	Excluded	Review article, no primary data or questionnaire
2	Paramveer Singh, Amarjit S Sidhu	Yes	No	No	Excluded	Questionnaire not available; full text paywalled
3	Malathi A., Jasim KM	Yes	No (Full questionnaire not visible in abstract or free access)	No	Excluded	Questionnaire not available; full text paywalled
4	P Suhail, Y Srinivasulu	Yes	Yes	Yes	Excluded	Although the study used a relevant SERVQUAL-based questionnaire and met the geographic and time criteria, it did not report item-wise response distributions analysis as per the inclusion criteria in the proposal.

Table 2 contd…

5	Uddin SMF, Sabir LB	Yes	No	No	Excluded	Questionnaire not available
6	Deshwal P., Ranjan V., Mittal G.	Yes	Yes	No	Excluded	Questionnaire not available; full text paywalled
7	Verma P, Kumar S, Sharma S K	Yes	No	No	Excluded	Full text and questionnaire unavailable; sample size unconfirmed.
8	Kondasani RKR, Panda RK	Yes	No	Yes	Excluded	Questionnaire dimensions are explained, but the actual survey questions are not provided.
9	Anuradha Agarwal, Maithili R P Singh	Yes	Yes	No	Excluded	Questionnaire not available; full text paywalled
10	Nandakum ar Mekoth, Vidya Dalvi	Yes	No	No	Excluded	Questionnaire not available; full text paywalled
11	D Mehrotra, S Bhartiya	Yes	No	No	Excluded	Questionnaire not available; full text paywalled
12	Reena Titoria, Madhu Upadhyay, Sanjay Chaturvedi	Yes	Yes	Yes	Included	Complete information available
13	Debajani Sahoo, Tathagata Ghosh	Yes	No	No	Excluded	Questionnaire not available; full text paywalled

Table 2 contd…

14	P Arathi et al.	Yes	No	No	Excluded	Questionnaire not available; full text paywalled
15	Ritu Narang, Pia Polsa, Alabi Soneye, Wei Fuxiang	Yes	No (Full questionnaire not visible in abstract or free access	No	Excluded	Questionnaire not available; full text paywalled
16	Panchapakesan Padma, Prakash Sai Lokachari, Rajendran Chandrasekharan	Yes	No	Yes	Excluded	Questionnaire dimensions are explained, but the actual survey questions are not provided.
17	G Ajai Krishnan, Admaja K Nair, Bindu V Bhaska	Yes	Yes	Yes	Included	Complete information available
18	Nahima Akthar, Smitha Nayak, Yogesh Pai	Yes	Yes	Yes	Excluded	Although the study used a relevant SERVQUAL-based questionnaire and met the geographic and time criteria, it did not report item-wise response distributions
19	Deoraj Prajapati, Gaurav Suman	Yes	No	Yes	Excluded	Questionnaire not available
20	Srivastava, Ambey kumar, Gupt, Rajan	Yes	No	Yes	Excluded	Questionnaire is not available.

Table 2 contd…

21	Col Manoj	Yes	Yes	Yes	Included	Complete information available
22	Col. Ashish Yadav	Yes	Yes	Yes	Included	Complete information available
23	Col Jitendeer Mann	Yes	Yes	Yes	Included	Complete information available
24	Col. D Malik	Yes	Yes	Yes	Included	Complete information available
25	Aditya chopra	Yes	Yes	Yes	Included	Complete information available

9.4 **Table 3 (Comprehensive Analysis of Factors Influencing Patients' Preferences and Attitudes toward Dental Treatment Choices)**

Authors: G Ajai Krishnan, Admaja K Nair, Bindu V Bhaska

Study wise distribution of questionarrie and their responses:

Dimension	**Question**	**Total responses**	**Satisfied (Strongly agree+agree)**	**% Satisfied**
Assurance	Doctor explained about investigations and reports	231	220	95
	Doctor explained diagnosis and treatment	231	222	96
	Doctor explained how to take medicines	231	221	96
	Doctor gave clear instructions for medication	231	224	97
	Doctor provided information about health problem	231	222	96
	Total for Assurance	**1155**	**1109**	**96**

Table 3 contd…

Empathy	Doctor courteous and helpful	231	222	96
	Doctor gave adequate consultation time	232	213	92
	Doctor gave emotional support	231	219	95
	Doctor listened carefully to your problem	231	217	94
	Reception staff courteous and helpful	231	212	92
	Security staff behavior was good	231	213	92
	Total for Empathy	**1387**	**1296**	**93.5**

Reliability	Investigation services available	231	203	88
	OPD timings were convenient	231	224	97
	Overall experience was satisfactory	231	224	97
	Prescribed medicines available	231	208	90
	Total for Reliablity	**924**	**859**	**93**

Responsi-veness	Waiting time for consultation was reasonable	231	182	79
	Waiting time for tests was acceptable	231	192	83
	Total for Responsiveness	**693**	**571**	**82.33**

Table 3 contd…

Tangibles	Hospital environment was clean	231	197	85
	Hospital signage was helpful	231	208	90
	Toilets were clean and functional	231	201	87
	Total for tangibles	**693**	**606**	**87.33**

9.5 Table 4 (Quality of routine immunization service: Perception of clients)

Authors: Reena Titoria, Madhu Upadhyay, Sanjay Chaturvedi

Study wise distribution of questionarrie and their responses:

Dimension	**Question**	**Total responses**	**Satisfied (Strongly agree+agree)**	**% Satisfied**
	Doctor listened carefully to what you had to say	279	238	85.30
	Hospital workers talked politely	279	269	96.42
	Hospital workers were helpful to you	279	270	96.77
	The Doctor gave you adequate time	279	235	84.23
	You were given enough time to tell doctor everything	**279**	**242**	**86.74**
	Total for Empathy	**1674**	**1491**	**89.07**

Reliability	Health centre has the vaccine(s) needed by the child	279	267	95.70
	The doctor immunized your child properly	279	249	89.25
	You were able to get the vaccine(s) easily	279	263	94.27
	Total for Reliablity	**837**	**779**	**93.07**

Table 4 contd…

Responsi-veness	Waiting time was not long	279	239	85.66
	Total for Responsiveness	**279**	**239**	**85.66**

Tangibles	Sitting facility at the time of vaccination was comfortable	279	204	73.12
	The cleanliness of the health centre was adequate	279	213	76.34
	This health centre had all the requisite amenities	279	254	91.04
	Total for tangibles	**837**	**671**	**80.17**

Assurance	Doctor gave you complete information about adverse events	279	210	75.27
	Doctor gave you complete information about immunization	279	230	82.44
	Doctor gave you information about the no of doses/schedule	279	237	84.95
	Total for assurance	**837**	**677**	**80.88**

9.6 **Table 5 (Assessment of Service Quality at ECHS Polyclinic, Dundahera)**

Author: Col Ashish Yadav

Study wise distribution of questionarrie and their responses:

Dimension	**Question**	**Total responses**	**Satisfied (Strongly agree+agree)**	**% Satisfied**
Empathy	Behavior of staff in Polyclinic	400	219	54.75

Table 5 contd…

	Privacy during consultation	400	201	50.25
	Total for Empathy	**800**	**420**	**52.5**

Reliability	Physiotherapy Service	400	281	70.25
	Emergency Services (Ambulance, Oxygen)	400	256	64
	Lab/Diagnostic test services	400	284	71
	Adequate Expiry dates of medicines	400	334	83.5
	Availability of general medicines	400	158	39.5
	Settlement of claims / documentation	400	389	97.25
	Quality of consultation	400	303	75.75
	Total for Reliablity	2800	2005	71.61

Responsi-veness	Ease of taking appointment	400	395	98.75
	Ease of getting referral whenever required	400	373	93.25
	Waiting time for medicines	400	285	71.25
	Waiting time to see the doctor	400	209	52.25
	Total for Responsiveness	**1600**	**1262**	**78.88**

Tangibles	Experience at the Reception desk	400	333	83.25
	Cleanliness and hygiene at the waiting area	400	189	47.25
	Total for tangibles	**800**	**522**	**65.25**

Assurance	Attention given by Doctor	400	326	81.5
	Timing and dosage explained properly	400	313	78.25
	Total for Assurance	**800**	**639**	**79.88**

9.7 **Table 6 (Assessment of Service Quality at ECHS Polyclinic, Dundahera)**

Author: Col Manoj

Study wise distribution of questionarrie and their responses:

Dimension	Question	Total responses	Satisfied (Strongly agree+agree)	% Satisfied
Empathy	Behavior of staff in Polyclinic	400	219	54.75
	Privacy during consultation	400	201	50.25
	Total for Empathy	**800**	**420**	**52.5**
Reliability	Physiotherapy Service	400	276	69
	Emergency Services (Ambulance, Oxygen)	400	227	56.75
	Availabilty of Lab/ Diagnostic test services	400	284	71
	Adequate Expiry dates of medicines	400	334	83.5
	Availability of general medicines	400	158	39.5
	Settlement of claims / documentation	400	389	97.25
	Quality of consultation	400	267	66.75
	Total for Reliablity	**2800**	**1935**	**69.11**
Responsi-veness	Ease of taking appointment	400	385	96.25
	Ease of getting referral whenever required	400	373	93.25
	Waiting time for medicines	400	285	71.25
	Waiting time to see the doctor	400	209	52.25
	Total for responsiveness	**1600**	**1252**	**78.25**

Table 6 contd…

Tangibles	Experience at the Reception desk	400	219	54.75
	Cleanliness and hygiene at the waiting area	400	190	47.5
	Total for tangibles	**800**	**409**	**51.13**

Assurance	Attention given by Doctor	400	324	81
	Timing and dosage explained properly	400	313	78.25
	Total for Assurance	**800**	**637**	**79.63**

9.8 **Table 7 (Quality assessment- Services/ Facilities at ECHS Polyclinic ,Base hospital, Delhi cantt)**

Author: Col D. Malik

Study wise distribution of questionarrie and their responses

Dimension	**Question**	**Total responses**	**Satisfied (Strongly agree+agree)**	**% Satisfied**
Empathy	Behaviour of Polyclinic Staff	80	63	78.75
	Total for Empathy	**80**	**63**	**78.75**

Reliability	Quality of consultation	80	43	53.75
	Infection control measures	80	53	66.25
	Availabilty of Lab/ Diagnostic test services	80	44	55.00
	Total for Reliability	**240**	**97**	

Responsi-veness	Ease of Taking Appointment	80	49	61.25
	Waiting Time to See Doctor	80	70	87.50

Table 7 contd…

	Ease of getting referral whenever required	80	49	61.25
	Total for responsiveness	**240**	**168**	**70.00**

Tangibles	Experience at the Reception desk	80	54	67.50
	Cleanliness and hygiene at the waiting area	80	50	62.50
	Total for tangibles	**160**	**104**	**65.00**

9.9 **Table 8 (A Study on patient satisfaction in ECHS clinic, Base hospital, Delhi cantt)**

Author: Col Jitender Mann

Study wise distribution of questionarrie and their responses:

Dimension	**Question**	**Total responses**	**Satisfied (Strongly agree+agree)**	**% Satisfied**
Empathy	Courtesy of Staff	150	99	66.00
	Overall Experience with the Consulting Physician	150	86	57.33
	Total for Empathy	**300**	**185**	**61.67**

Reliability	Availability of Adequate Medicines in the Pharmacy	150	101	67.33
	Availability of Critical Medicines in the Pharmacy	150	29	19.33
	Availability of Emergency Services	150	32	21.33
	Availability of Diagnostic Services at the Base Hospital	150	124	82.67
	Availability of Health-Related Information	150	96	64.00
	Total for Reliablity	**750**	**382**	**50.93**

Table 8 contd…

Responsi-veness	Ease of Getting a Referral	150	103	68.67
	Ease of Getting an Online Referral	150	31	20.67
	Total for responsiveness	**300**	**134**	**44.67**

Tangibles	Experience during Registration	150	109	72.67
	Cleaniness and hygiene at waiting area	150	123	82.00
	Total for tangibles	**300**	**232**	**77.33**

Assurance	Professionalism of the Staff	150	96	64.00
	Professionalism of the Consultant	150	92	61.33
	Total for Assurance	**300**	**188**	**62.67**

9.10 Table 9 (Patient Satisfaction at ECHS poyclinic, Timarpur, Delhi)

Author: Aditya Chopra

Study wise distribution of questionarrie and their responses:

Dimension	**Question**	**Total responses**	**Satisfied (Strongly agree+agree)**	**% Satisfied**
Empathy	My doctors treat me in a very friendly and courteous manner	158	81	51.27
	Those who provide my medical care sometimes hurry too much when they treat me	158	78	49.37
	Doctors sometimes ignore what I tell them	158	74	46.84
	Doctors act too businesslike and impersonal towards me	158	73	46.20
	Total for Empathy	**632**	**306**	**48.42**

Table 9 contd…

Reliability	I think that my doctor's clinic has everything needed to provide me medical care	158	60	37.97
	The medical care I have been receiving is just about perfect	158	64	40.51
	When I go for medical care, they are careful to check everything when treating and examining me	158	55	34.81
	I have easy access to the medical specialists I need	158	63	39.87
	Where I get medical care, people have to wait too long for emergency treatment	158	65	41.14
	I sometimes have to spend own money to buy medicines and get other diagnostic tests done at my cost	158	117	74.05
	Total for Reliablity	**948**	**424**	**44.73**

Responsi-veness	I find it hard to get an appointment for the medical care right away	158	49	31.01
	I am able to get medical care whenever I need it	158	89	56.33
	Total for responsiveness	**316**	**138**	**43.67**

Assurance	Doctors are good about explaining the reasons for the medical tests	158	83	52.53
	I feel confident that I can get the medical care I need without being set back financially	158	97	61.39

Table 9 contd…

	I have some doubts about the ability of the doctors who treat me	158	50	31.65
	Doctors usually spend plenty of time with me	158	28	17.72
	Sometimes doctors make me wonder if their diagnosis is correct	158	80	50.63
	Total for Assurance	**948**	**426**	**44.94**

9.11 **Table 10 (Final study results)**

Dimension	**Study Name**	**No. of Questions**	**Sample Size**	**Total Responsess (Sample Size x No. of Questions)**	**Satisfied Responsess**	**Satisfaction (%)**
Reliabilty	Quality of routine immunization service: Perception of clients	3	279	837	779	93.07
	Comprehensive Analysis of Factors Influencing Patients' Preferences and Attitudes toward Dental Treatment Choices	4	231	924	859	92.97
	Assessment of Service Quality at ECHS Polyclinic, Dundahera (Col manoj	7	400	2800	1935	69.11

Table 10 contd…

	Assessment of Service Quality at ECHS Polyclinic, Dundahera(Col ashish yadav)	7	400	2800	2005	71.61
	A Study on patient satisfaction in ECHS clinic, Base hospital, Delhi cantt	5	150	750	382	50.93
	Quality assessment-Services/ Facilities at ECHS Polyclinic, Base hospital, Delhi cantt	3	80	240	140	58.33
	Patient Satisfaction at ECHS poyclinic, Timarpur, Delhi	6	158	948	424	44.73
	Total score for Reliablity			**9299**	**6524**	**70.16**
Assurance	Quality of routine immunization service: Perception of clients	3	279	837	677	80.88
	Comprehensive Analysis of Factors Influencing Patients' Preferences and Attitudes toward Dental Treatment Choices	5	231	1155	1109	96.02

Table 10 contd…

	Assessment of Service Quality at ECHS Polyclinic, Dundahera(Col manoj	2	400	800	637	79.63
	Assessment of Service Quality at ECHS Polyclinic, Dundahera(Col ashish yadav)	2	400	800	639	79.88
	A Study on patient satisfaction in ECHS clinic, Base hospital, Delhi cantt	2	150	300	188	62.67
	Quality assessment-Services/ Facilities at ECHS Polyclinic ,Base hospital, Delhi cantt	0	80	0	0	0.00
	Patient Satisfaction at ECHS poyclinic, Timarpur, Delhi	6	158	948	426	44.94
	Total score for Assurance			**4840**	**3676**	**75.95**
Tangible	Quality of routine immunization service: Perception of clients	3	279	837	671	80.17

Table 10 contd…

	Comprehensive Analysis of Factors Influencing Patients' Preferences and Attitudes toward Dental Treatment Choices	3	231	693	606	87.45
	Assessment of Service Quality at ECHS Polyclinic, Dundahera(Col manoj	2	400	800	409	51.13
	Assessment of Service Quality at ECHS Polyclinic, Dundahera(Col ashish yadav)	2	400	800	522	65.25
	A Study on patient satisfaction in ECHS clinic, Base hospital, Delhi cantt	2	150	300	232	77.33
	Quality assessment-Services/ Facilities at ECHS Polyclinic, Base hospital, Delhi cantt	2	80	160	104	65.00

Table 10 contd…

	Patient Satisfaction at ECHS poyclinic, Timarpur, Delhi	0	158	0	0	0.00
	Total score for Tangibles			**3590**	**2544**	**70.86**

Empathy	Quality of routine immunization service: Perception of clients	6	279	1674	1491	89.07
	Comprehensive Analysis of Factors Influencing Patients' Preferences and Attitudes toward Dental Treatment Choices	6	231	1296	1296	100.00
	Assessment of Service Quality at ECHS Polyclinic, Dundaher-a(Col manoj	2	400	800	420	52.50
	Assessment of Service Quality at ECHS Polyclinic, Dundaher-a(Col ashish yadav)	2	400	800	420	52.50
	A Study on patient satisfaction in ECHS clinic, Base hospital, Delhi cantt	2	150	300	185	61.67

Table 10 contd…

	Quality assessment- Services/ Facilities at ECHS Polyclinic ,Base hospital, Delhi cantt	1	80	80	63	78.75
	Patient Satisfaction at ECHS poyclinic, Timarpur, Delhi	4	158	632	306	48.42
	Total score for Empathy			**5582**	**4181**	**74.90**

Responsibility	Quality of routine immunization service: Perception of clients	1	279	279	239	85.66
	Comprehensive Analysis of Factors Influencing Patients' Preferences and Attitudes toward Dental Treatment Choices	3	231	693	571	82.40
	Assessment of Service Quality at ECHS Polyclinic, Dundahera (Col manoj	4	400	1600	1252	78.25

Table 10 contd…

	Assessment of Service Quality at ECHS Polyclinic, Dundahera(Col ashish yadav)	4	400	1600	1262	78.88
	A Study on patient satisfaction in ECHS clinic, Base hospital, Delhi cantt	2	150	300	134	44.67
	Quality assessment- Services/ Facilities at ECHS Polyclinic ,Base hospital, Delhi cantt	**3**	**80**	**240**	**168**	**70.00**
	Patient Satisfaction at ECHS poyclinic, Timarpur, Delhi	**2**	**158**	**316**	**138**	**43.67**
	Total score for Responsiveness			**5028**	**3764**	**74.86**

9.12 **Bibliography**

Malik D. *A study to assess patient satisfaction in selected ECHS Polyclinics in India* [dissertation]. New Delhi: IIHMR Delhi; 2023

Manoj C. Assessment of patient satisfaction in ECHS healthcare facilities: a cross- sectional study. [dissertation]. New Delhi: IIHMR Delhi; 2022

Yadav A. A study on service quality assessment using SERVQUAL model in ECHS Polyclinics in Delhi. [dissertation]. New Delhi: IIHMR Delhi; 2023.

Mann J. Evaluation of healthcare service quality and patient satisfaction in ECHS Polyclinics. [dissertation]. New Delhi: IIHMR Delhi; 2023.

Chopra A. A study to assess the satisfaction level among beneficiaries attending selected ECHS Polyclinics in Delhi. [dissertation]. New Delhi: IIHMR Delhi; 2022.

Parasuraman A, Zeithaml VA, Berry LL.
A conceptual model of service quality and its implications for future research. *J Mark*. 1985;49(4):41–50.
doi:10.1177/002224298504900403
Available from: https://doi.org/10.1177/002224298504900403

Parasuraman A, Zeithaml VA, Berry LL.
SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *J Retail*. 1988;64(1):12–40.
Available from: https://www.researchgate.net/publication/225083802_SERVQUAL_A_multiple- item_scale_for_measuring_consumer_perceptions_of_service_quality

Ministry of Defence (India). Ex-Servicemen Contributory Health Scheme (ECHS) [Internet]. Department of Ex-Servicemen Welfare; 2023 [cited 2025 Jun 25].
Available from: https://www.desw.gov.in/ex-servicemen-contributory-health- scheme

Deshwal P, Ranjan V, Mittal G. College clinic service quality and patient satisfaction. *Int J Health Care Qual Assur.* 2014;27(6):519–30. doi:10.1108/IJHCQA-06-2013-0070.
Available from: https://pubmed.ncbi.nlm.nih.gov/25115054/

Kondasani RKR, Panda RK. Customer perceived service quality, satisfaction and loyalty in Indian private healthcare. *Int J Health Care Qual Assur*. 2015;28(5):452–67. doi:10.1108/IJHCQA-01-2015-0008. Available from: https://pubmed.ncbi.nlm.nih.gov/26020428/

Bhatnagar H. User-experience and patient satisfaction with quality of tuberculosis care in India: A mixed-methods literature review. *J Clin Tuberc Other Mycobact* Dis. 2019 Oct;17:100127. doi:10.1016/j.jctube.2019.100127. Available from: https://pubmed.ncbi.nlm.nih.gov/31788569/

Suhail P, Srinivasulu Y. Perception of service quality, satisfaction, and behavioral intentions in Ayurveda healthcare. *J Ayurveda Integr Med.* 2021 Jan–Mar;12(1):93–101. doi:10.1016/j.jaim.2020.10.011. Epub 2020 Dec 11. Available from: https://pubmed.ncbi.nlm.nih.gov/33309436/

Verma P, Kumar S, Sharma SK. e-Healthcare service quality: consumer satisfaction and its association with demographic characteristics. *Int J Health Care Qual Assur.* 2020 Jul 16;[ahead-of-print]. doi:10.1108/IJHCQA-02-2020-0030. Available from: https://pubmed.ncbi.nlm.nih.gov/32678536/

Malathi A, Jasim KM. Validating the relationship between service quality, patient sensitivity and experience towards medical applications using SERVQUAL. I*nt J Med Inform*. 2022 Dec;168:104883. doi:10.1016/j.ijmedinf.2022.104883. Epub 2022 Oct 5. Available from: https://pubmed.ncbi.nlm.nih.gov/36209699

Uddin SMF, Sabir LB, Khan MN, Athar M. Developing a scale measuring patient expectations and service quality of hospitals in India during COVID-19. *Hosp Top.* 2022 Oct–Dec;100(4):159–165. doi:10.1080/00185868.2021.1939827. Epub 2021 Jun 16. Available from: https://pubmed.ncbi.nlm.nih.gov/34132627/

Singh P, Sidhu AS. Measuring patient's expectations and realisations using SERVQUAL: a review of oncology services in Punjab, India. *Asian Pac J Cancer Prev.* 2023 Oct 1;24(10):3327–3334. doi:10.31557/APJCP.2023.24.10.3327. Available from: https://pubmed.ncbi.nlm.nih.gov/37898835

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