

Measurement of service quality: a systematic literature review

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Abstract: - Purpose - The purpose of this paper is to find the previous research in terms of how the field represented along a number of dimensions such as journal, year, country, university, author, research design, research methods etc.

Design/methodology/approach- A range of studies that have applied the service quality in this 12-year period are examined from the period of 2005 to 2016 in a non-exhaustive review of the literature searched containing the word “service quality in healthcare” in their title and in the phrases to provide a comprehensive listing of journal articles. Each of these articles was further reviewed and classified. These studies are selected from well-known database such as, “Emerald”, “Elsevier science direct”, “Taylor and Francis” and “Springer”.

Findings- The paper identifies and summarizes numerous theoretical and empirical criticisms of the service quality in healthcare. This paper finds the useful instrument in measuring service quality relates with methods employed in service quality in healthcare.

Originality/value- This paper provide useful source of information and examine 104 review article from 12 years of study and its application must relates to the theoretical and empirical research finding and adopted the five related existing reviews.

Key Words: — *Literature review, service quality, healthcare.*

I. INTRODUCTION

Understanding service quality is indispensable for service providers aspiring to attract and retain customers. Crosby (1979) defined quality as zero defects, Juran (1980), measured it as conformance to requirement and others measured quality by counting internal and external failures (Garvin, 1983). However these definitions tend to be better interpreted in manufacturing sectors. Quality of goods, measured objectively by indicators such as durability, defects, reliability, etc. is difficult to replicate in service environments (Parasuraman et al., 1988). In the service industry, quality definitions tend to focus on meeting customer requirements and how well service providers meet their expectations (Lewis and Booms, 1983), usually by an encounter between customer and service contact person. Service quality is defined as “a global judgment or attitude relating to the overall excellence or superiority of the service” (Parasuraman et al., 1988).

One common way is to conceptualize service quality as a customer’s overall service quality evaluation is by applying a disconfirmation model – the gap between service expectations and performance (Cronin and Taylor, 1992; Parasuraman et al., 1991b; Potter et al., 1994).

The objective of this paper is to examine the service quality research in terms of how the field is represented along a number of dimensions including journal, year, country, university, publishing house, authors, research design, research methods, and data analysis techniques. A range of online databases between 2005 to till 2016 were searched containing the word “service quality in healthcare” in their title and in the phrases of the articles to provide a comprehensive listing of journal articles on service quality in healthcare. Control over quality was achieved by limiting the search to peer-reviewed publications only. Full bibliographic details of the 104 articles selected for analysis are shown in the Appendix in order to make present research processes transparent, and allow independent assessment of classification and analysis. These articles were structured first as per the research methodology and then databases of article were developed for further analysis. The present research is focused to analyze the main characteristics of service quality literature in order to the research carried out in terms of what, how, where and by whom. The answers to these questions will

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allow us to do the deep and extensive literature. This will also help to determine what still needs to be investigated and what to be offer to those who wants to begins the research on service quality in healthcare. This paper is organized as follows: Section 2 describes earlier reviews of literature on service quality in healthcare Section 3 describes the scheme and methodology of review. Section 4 presents the summary of review and discussion. Section 5 is the last section dedicated to conclusion includes three subsections presenting the gaps identified in the research, significant findings of the report and future directions of the research.

II. LITERATURE REVIEW

It was found out during the current research that five literature reviews on Service Quality in Healthcare have been done in the past. The different reviews in chronological order are as follows:

White, L. G. L. (2009). A critical review of patient satisfaction. *Leadership in Health Services*, 22(1), 8-19.

Humphries, N., Morgan, K., Catherine Conry, M., McGowan, Y., Montgomery, A., & McGee, H. (2014). Quality of care and health professional burnout: narrative literature review. *International journal of health care quality assurance*, 27(4), 293-307.

Komashie, A., Mousavi, A., & Gore, J. (2007). Quality management in healthcare and industry: A comparative review and emerging themes. *Journal of Management History*, 13(4), 359-370.

P. Pai, Y., & T. Chary, S. (2013). Dimensions of hospital service quality: A critical review: Perspective of patients from global studies. *International journal of health care quality assurance*, 26(4), 308-340.

Gamal Aboelmagd, M. (2010). Six Sigma quality: a structured review and implications for future research. *International Journal of Quality & Reliability Management*, 27(3), 268-317.

The outcome of available literature review related to service quality in healthcare are discussed in table I. Further, a comparison among above available literature review articles is made using certain attributes (see Table II). The attributes considered for comparisons are as follows:

- This refers to a brief coverage of the publications in terms of the content and the applicability;
- Number and type of publications covered: the number of publications listed in journal papers; and
- Review methodology: this looks at the way in which the literature has been reviewed and classified.

Table.1. Outcomes of earlier literature review of the articles

S. No	Title of paper	Outcome
1	A critical review of patient satisfaction	This paper review the patient satisfaction literature, specifically meta analyses, which critically analyses its theory and use; then to present evidence for perceived service quality as a separate and more advanced construct. Papers that judiciously review the development and application of patient satisfaction were identified; along with studies addressing the conceptual and methodological deficiencies associated with the concept; and the current perceived service quality theory.
2	Quality of care and health professional burnout: narrative literature review	This paper is a narrative literature review of quality of care and health professional burnout in hospital settings published in peer-reviewed journals between January 2000 and March 2013. Papers were identified via a search of PsychInfo, PubMed, Embase and CINNAHL electronic databases. In total, 30 papers which measured and/or discussed both quality of care and health professional burnout were identified.
3	Quality management in healthcare and industry A comparative review and emerging themes	This paper is to review the historical development of quality assessment methods in manufacturing industry and healthcare. It examines the gap between methods across the two sectors, as well as the extent to which industrial techniques have been successfully adopted in healthcare. Finally, a proposal for a new approach is presented
4	Dimensions of hospital service quality: a critical review Perspective of patients from global studies	Service quality has been extensively studied with considerable efforts taken to develop survey instruments for measuring purposes. The number of dimensional structure varies across the studies. Self administered questionnaire dominates in terms of mode of administration adopted in the studies, with respondents ranging from 18 to 85 years.
5	Six Sigma quality: a structured review and implications for future research	This paper aims to clarify emerging aspects and trends of Six Sigma literature over 17 years, from 1992 to 2008. The literature on Six Sigma from 417 referred journal articles in business and management disciplines, information systems and computer science, engineering; healthcare, etc. were systematically analyzed based on a scheme that consists of four distinct dimensions: publication year and journal, major themes, research type, and application sector (i.e. manufacturing vs service).

Review paper	Title	Authors	Published in	Focus and objectives	Number of publications covered	Types of publications covered	Methodology
1	A critical review of patient satisfaction	White (2009)	<i>Leadership in Health Services</i>	This paper aims to review the patient satisfaction literature, specifically meta-analyses, which critically analyses its theory and use; then to present evidence for perceived service quality as a separate and more advanced construct. Patient satisfaction has been extensively studied and considerable effort has gone into developing survey instruments to measure it. However, most reviews have been critical of its use, since there is rarely any theoretical or conceptual development of the patient satisfaction concept.	32	Paper	Papers that judiciously review the development and application of patient satisfaction were identified; along with studies addressing the conceptual and methodological deficiencies associated with the concept; and the current perceived service quality theory. The construct has little standardisation, low reliability and uncertain validity. It continues to be used interchangeably with, and as a proxy for, perceived service quality, which is a conceptually different and superior construct.
2	Quality of care and health professional burnout: narrative literature review	Humphries et al. (2014)	<i>International Journal of Health Care Quality Assurance</i>	The purpose of this paper is to explore quality of care and health professional burnout in hospital settings. The paper provides insight into the key healthworkforce-planning issues, specifically staffing levels and workloads, which impact upon health professional burnout and quality of care. The evidence from the review literature suggests that health professionals face heavier and increasingly complex workloads, even when staffing levels and/or patient-staff ratios remain unchanged.	51	Paper	The paper is a narrative literature review of quality of care and health professional burnout in hospital settings published in peer-reviewed journals between January 2000 and March 2013. Papers were identified via a search of PsychInfo, PubMed, Embase and CINNAHL electronic databases. In total, 30 papers which measured and/or discussed both quality of care and health professional burnout were identified.
3	Quality management in healthcare and industry A comparative review and emerging themes	Komashie et al. (2007)	<i>Journal of Management History</i>	The purpose of this paper is to review the historical development of quality assessment methods in manufacturing industry and healthcare. It examines the gap between methods across the two sectors, as well as the extent to which industrial techniques have been successfully adopted in healthcare. Finally, a proposal for a new approach is presented.	49	Paper	Firstly, a review of the evolution of quality assessment was conducted, based on books written by prominent experts in the field. Secondly, a study of the current approaches in healthcare was undertaken. Publications from varied sources, including worldwide operations research and healthcare sources were selected according to criteria and reviewed
4	Dimensions of hospital service quality: a critical review Perspective of patients from global studies	Pai and Chary (2013)	<i>International Journal of Health Care Quality Assurance</i>	The purpose of this paper is to review the service quality dimensions established in various studies conducted across the world specifically applied to health care. Studies conducted on quality of care selected from literature databases – Ebsco, Emerald Insight, ABI/Inform – was subjected to a comprehensive in-depth content analysis. The literature offers dimensions used in assessing patient perceived service quality. The review reveals diversity and a plethora of dimensions and methodology to develop the construct discussed.	142	Paper	Service quality has been extensively studied with considerable efforts taken to develop survey instruments for measuring purposes. The number of dimensional structure varies across the studies. Self-administered questionnaire dominates in terms of mode of administration adopted in the studies, with respondents ranging from 18 to 85 years. Target sample size ranged from 84-2,000 respondents in self-administered questionnaires and for mail administration ranged from 300-2,600 respondents. Studies vary in terms of the scores used ranging from four to ten-point scale. A total of 27 of the studies have used EFA, 11 studies have used structural equation modelling and eight studies used gap scores. Cronbach's alpha is the most commonly used measure of scale reliability. There is variation in terms of measuring the content, criteria and construct validation among the studies.
5	Six Sigma quality: a structured review and implications for future research	Abolmaged (2010)	<i>International Journal of Quality & Reliability Management</i>	A number of key findings emerged: Six Sigma research is growing rapidly, covering various disciplines and domains with a great focus on Six Sigma tools and techniques; empirical research is dominant with more emphasis on case study approach; and the growing gap between manufacturing- and service-focused articles implies the return of Six Sigma to manufacturing as its initial base. Although a large volume of literature is available on Six Sigma, the topic is still under development and offers potential opportunities for further research and applications.	147	Paper	This paper aims to clarify emerging aspects and trends of Six Sigma literature over 17 years, from 1992 to 2008. The literature on Six Sigma from 417 referred journal articles in business and management disciplines, information systems and computer science, engineering, healthcare, etc. were systematically analyzed based on a scheme that consists of four distinct dimensions: publication year and journal, major themes, research type, and application sector (i.e. manufacturing vs service).

Table 3. Attributes used in the analysis

Attributes	Descriptions
Journal used	It is based on the journals which contains the articles related service quality in healthcare area
Year of article publication	It is based on the years in which the articles were published to know awareness among organizations and suppliers
Country of publication	It is based on the countries which are paying more attention towards environmental issues and aspects
University of publication	It is based on the universities interestingly working on the service quality in healthcare area
Publishing house	It is based on the renowned publishers involved to explore and published the peer research on service quality in healthcare
Authors	It is based on the active involvement of the researchers in the field of service quality in healthcare
Research design applied (1) Empirical quantitative (2) Empirical qualitative (3) Desk quantitative (4) Desk qualitative (5) Empirical triangulation	Survey research Case study and action research approaches Mathematical model, fuzzy logic, etc. Conceptual models, archival studies, developing propositions for future research, etc. Multi method approach i.e. when two or more methods were applied
Research methods (1) Questionnaire Survey (2) Interviews (3) Interviews + survey (4) Conceptual model (5) Case study	Direct or mail based survey Verbal or written, structured interview Both survey and interviews were conducted simultaneously Theoretical research Theoretical or empirical case study
Data analysis techniques	It is based on the summarizations of the large data. Major techniques used for data analysis such as factor analysis, correlation and regression analysis, analysis of variance (ANOVA), Structural equation modeling (SEM), cluster analysis, path analysis, data envelopment analysis (DEA), linear programming, etc.

Apart from these unique attributes, certain common parameters like, the name of publication, authors, year of publication, journal of publication are also used (shown in table II). The detailed information and discussion has been carried in table II and III.

This paper aims to review and understand the trends of the service quality in healthcare articles published between 2005 to 2016. Now it is very essential that attempt to this paper should be different from the earlier reviews and covers deep literature. Besides these, this paper is also covering the following objectives:

- Classification of research articles;
- Arranging all the published articles in orderly manner; and
- Gap identification, findings and future directions.

Keeping these observations in mind the authors decided to approach the review process in a different way, as illustrated in the next section of the paper.

III. SCHEME AND METHODOLOGY OF REVIEW

A. Prelude to literature review

Literature review may be considered as the primary method of synthesizing previous research on service quality in healthcare. Structured literature review considers the service quality research that can be applied both in qualitative and a quantitative way. The structured review represents an effective tool for analyzing a sample of research document in a systematic and rule-governed way. Over the past three years, the authors had several opportunities to collect and study the literature concerning to service quality. There were two main reasons:

- Interactions with the organizations with focus on service quality; and
- One of the authors is pursuing doctoral in the field service quality implementation.

B. Scheme of literature review

As per the agenda of present research it was decided to classify and analyses the literature in detail. The course of action included the following steps:

- The collection of the data for literature has been reviewed from 2005 to 2016 ensuring that database is as current as possible.
- For extensive literature, the data from Scopus were specifically used to find current and pertaining literature on service quality. Electronic search in World Wide Web were made to ensure the collection

of complete database of service quality. It has been tried to include most of the articles in best possible way; however, the present research do not claim that the database is complete or exhaustive in nature. The research has been carried out in English language and employed the following electronic databases:

- Elsevier science direct – www.sciencedirect.com/;
- Emerald insight – www.emeraldinsight.com/;
- Taylor and Francis – www.tandfonline.com/;
- Springer link – www.springer.com/; and
- The literature review is based on a search for the “service quality in healthcare” in the title and in the phrases of the above mentioned online databases.
- Developing a classification scheme is the next step. First a bibliographical list of all publications was developed and a file was created in M. S. Excel spread sheet.

C. Review methodology

These journals are from above listed well-reputed publishers. These articles were divided into categories namely journal wise publication, year of articles publication, country of publication, worldwide university of publication, publisher wise, authors actively involved in the publication, research design used, according to the research methodology used, data analysis techniques in service equality in healthcare.

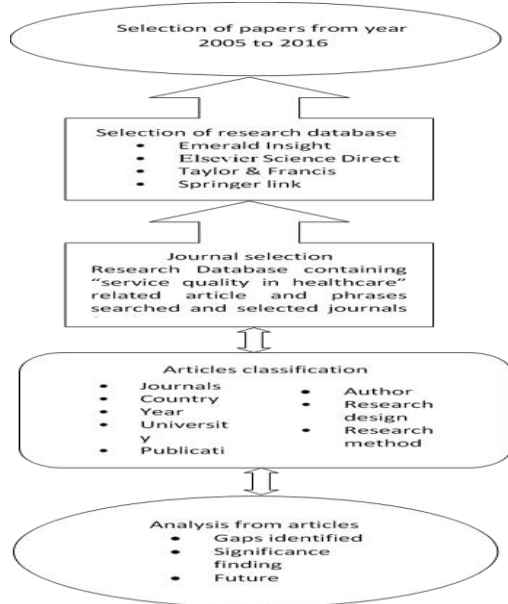


Fig.1. General Methodology for review of literature

IV. SUMMARY OF REVIEW AND DISCUSSION

This section contains the summary of review as per the scheme and methodology of review. The complete details are discussed as follows.

A. Service Quality in Healthcare According To Journals

A total of 104 papers are published of service quality containing the word “service quality in healthcare” in the title and in the phrases from publishing outlets as shown in the Table IV. The Table IV suggests that International Journal of Healthcare Quality Assurance appeared the highest numbers i.e. 27, containing the word service quality in healthcare in their title and in the phrases. The least number of articles published is one in many journals. There were other journals that have published significant amount of articles on service quality in healthcare includes International Journal of Pharmaceutical and Healthcare Marketing (8), International Journal of Quality and Service Sciences(6), Managing Service Quality an International Journal, Expert Systems with Applications published five articles each and three journals namely Benchmarking: An International journal, International Journal of Quality & Reliability Management and Journal of Health Organization and Management published four articles each. However there are more journals which contain articles related to service quality in healthcare supporting the topic areas (see Table IV). This highlights and upholds the cross-disciplinary nature of service quality in healthcare research and also helps the researchers and practitioners to know about the various journals in which service quality in healthcare research has been published.

Table.4. Journal wise papers

Name of journals	No. of papers	%
International Journal of HealthCare Quality Assurance	27	25.96
International Journal of Pharmaceutical and Healthcare Marketing	8	7.69
International Journal of Quality and Service Sciences	6	5.76
Managing Service Quality an International Journal	5	4.80
Expert Systems with Applications	5	4.80
Benchmarking: An International journal	4	3.84
International Journal of Quality & Reliability Management	4	3.84
Journal of Health Organization and Management	4	3.84
Technological Forecasting and Social Change	3	2.88
The TQM Journal	2	1.92
Leadership in Health Services	2	1.92
International Journal of Service Industry Management	2	1.92
International Journal of Productivity and Performance Management	2	1.92
The Service Industries Journal	2	1.92
Applied Soft Computing	1	0.96
International Journal of Healthcare Management	1	0.96
Asian Journal on Quality	1	0.96
Built Environment Project and Asset Management journal	1	0.96
Clinical Orthopaedics and Related Research	1	0.96

Journal of Facilities Management	1	0.96
Computers in Industry an International Journal	1	0.96
International Journal of Public Sector Management	1	0.96
Hospital Topics	1	0.96
International Emergency Nursing	1	0.96
European Management Journal	1	0.96
EuroMed Journal of Business	1	0.96
Decision Support Systems	1	0.96
Operation Management Research	1	0.96
International Journal of Quality Innovation	1	0.96
Journal of Communication in Healthcare	1	0.96
Journal of Service Management	1	0.96
Reference Services Review	1	0.96
TQM Magazine	1	0.96
VINE	1	0.96
Journal of Substance Use	1	0.96
Service Business Journal	1	0.96
Telecommunications Policy journal	1	0.96
Clinical Governance: An International Journal	1	0.96
The journal of information management	1	0.96
Journal of Management History	1	0.96
Total	104	100

B. Service Quality in Healthcare According To Year of Articles Publication

A longitudinal literature survey published within the field of Service Quality is being predicted in the Table V, which indicates that the number of articles published on Service Quality in Healthcare has potentially increased. Based on the citation of the article, 19 articles were appeared in the year 2016, eventually followed by 2015 with a total 10 articles with 4 articles in 2014 and 2013 counts a total of 13 articles, Likewise the numbers of articles published are 8 in 2012 and 4 articles in 2011, eventually followed by 2010 with a total of 12 articles and 14 articles in 2009, appearing in selected journals during some years at all. However there are more journals year wise which contain articles related to service quality in healthcare supporting the topic areas (see Table V). While it may be argued that increasing number of articles suggest the increased level of interest towards research activities in the subject area. The point especially applicable to the earlier years considers the lack of articles prior to this time may be because of a number of reasons, such as not all journals were being published in each year in the present research. A large number of organizational environmental based initiatives may have included a service quality strategy due the rapid increase of articles from the year 2005 onwards, as it was a period of global internet boom and because of environmental awareness among organizations and suppliers globally.

Table.5. Year wise list of papers

Year	No. of papers
2016	19
2015	10
2014	4
2013	13
2012	8
2011	4
2010	12
2009	14
2008	7
2007	8
2006	3
2005	2
Total	104

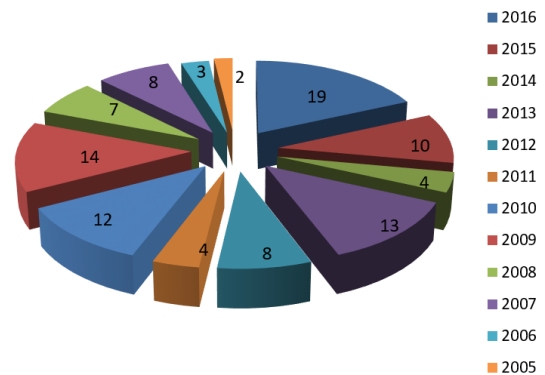


Fig.2. Year wise papers

C. Service Quality in Healthcare Studies According To the Country

The purpose of analysis of service quality studies according to the country is to create awareness among researchers and practitioners as well as society about which countries are paying more attention towards service quality research and also to create awareness in the society about the environmental issues, aspects and challenges. The finding on service quality in healthcare research across the 104 publications has covered 31 major countries around the world as shown in the Table VI. Out of 104 articles India contributed most number of articles. Apart from India many other countries like as USA, UK, Italy, Spain, Malaysia, Korea, Australia, Thailand, Turkey, Sweden, Iran, Ghana, etc., as shown in the Table VI are also the major countries responsible for a substantial number of publications (see Table VI).

In the countries such as Germany, Ireland, Mauritius, Netherland, New York, New Zealand, Nigeria, Oman etc., are the locations of Service Quality in Healthcare research where numbers of publications were low (see Table VI). This indicates that there were ample opportunities in these countries to do research and further expand the Service Quality in Healthcare base.

Table.6. Papers country wise

Name of country	No. of paper	%
India	18	17.30
USA	14	13.46
UK	9	8.65
Italy	6	5.76
Spain	6	5.76
Malaysia	5	4.80
Korea	4	3.84
Australia	4	3.84
Thailand	4	3.84
Turkey	3	2.88
Sweden	3	2.88
Iran	3	2.88
Ghana	3	2.88
Canada	2	1.92
Finland	2	1.92
Greece	2	1.92
Indonesia	2	1.92
Germany	1	0.96
Ireland	1	0.96
Mauritius	1	0.96
Netherlands	1	0.96
New York	1	0.96
New Zealand	1	0.96
Nigeria	1	0.96
Oman	1	0.96
Pakistan	1	0.96
Qatar	1	0.96
Saudi Arabia	1	0.96
Singapore	1	0.96
Taiwan	1	0.96
UAE	1	0.96
Total	104	100

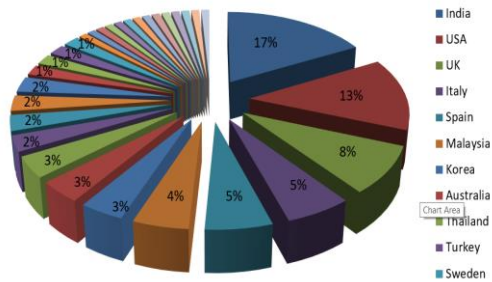


Fig.3. Country wise review paper

D. Service Quality in Healthcare Studies According To Universities

For publishing the 104 articles, a total of 98 institutions/universities have affiliated authors who analysed on the Service Quality in Healthcare study. The most active university appears in the Service Quality in Healthcare research is shown in the Table VII. The contributions from

each university varies from one to five articles overall in numbers. The Table VII clearly shows that A California State University, California, USA has got the highest number of publications with 5 publications. Hence it is the largest contributor in terms of number of articles publications according to this and therefore can be seen as a leading centre of research followed by University of Ghana Business School, Ghana with a three publication, and least of papers containing Telangana University, Telangana, India, Indian Institute of Technology Madras, India, Indonesian Institute of Sciences, Indonesia, Metropolitan University, London, UK, University of Malaysia, Malaysia, University of Stirling, Scotland, UK, University of Australia, Australia, National Institute of Technology, Rourkela, India with two articles publication each. There are various other numbers of universities are the source of a number of articles publications such as Indian Institute of Technology Delhi, India, Indian Institute of Management Raipur, India which is the world’s most reputed institution. There are many more universities which reference the current research is not listed in the table.

Table.7. University wise list of papers

Name of university	No. of papers
A California State University, California, USA	5
University of Ghana Business School, Ghana	3
Telangana University, Telangana, India	2
Indian Institute of Technology Madras, India	2
Indonesian Institute of Sciences, Indonesia	2
Metropolitan University, London, UK	2
University of Malaysia, Malaysia	2
University of Stirling, Scotland, UK	2
University of Australia, Australia	2
National Institute of Technology, Rourkela, India	2
Indian Institute of Technology Delhi, India	1
Indian Institute of Management Raipur, India	1

E. Service Quality in Healthcare Studies According To Publishing House

The finding on Service Quality in Healthcare research across the 104 publications has covered four publishers, namely, Emerald publication, Science Direct/Elsevier, Taylor and

Francis, Springer link and these publishers published the major research articles on Service Quality in Healthcare study. The Table VIII shows that Emerald published 71 articles on Service Quality in Healthcare research, followed by publication science Direct/Elsevier with 17 articles. There were more publishers published articles on Service Quality in Healthcare such as Taylor and Francis (8) articles, Springer link (8) articles. These are the renowned publishers which are actively participate to explore and published the peer research that has researched by the researchers and practitioners in the area of Service Quality in Healthcare (Figure 3).

Table.8. Publisher wise papers

Name of publisher	No. of papers	%
Emerald insight	71	68.26
Elsevier Science direct	17	16.34
Springer link	8	7.69
Taylor & Francis	8	7.69
Total	104	100

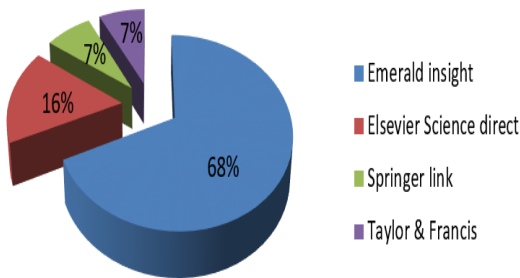


Fig.4. Publisher wise review of paper

F. Service Quality in Healthcare According To the Authors Involved In Research

Service Quality in Healthcare research is being studies by knowing the active involvement of the authors, who were participated in the publications of the articles. A total of 219 authors contributed to the 104 articles on Service Quality in Healthcare research. All the authors from 104 articles including main author and co-author are taken. Table IX shows the top 9 authors with a two articles each.

Table.9. Author wise distribution of paper

S. No.	Name of author	No. of papers
1	Yogesh P. Pai	2
2	Roger Bennett	2
3	Ramakrishna Naik	2
4	Mayuri Mahendran	2
5	M. Palani Natha Raja	2
6	Gülçin Büyüközkan	2
7	Franc,ois A	2
8	Aaron A	2

G. Research design

The methodology applied for research design in this paper is based on the empirical work or desk research. The articles have been categorized into four major sections such as empirical qualitative, empirical quantitative, desk qualitative, desk quantitative and empirical triangulation. The articles in each category of research design per year, the Table X will provide all the information. This shows that empirical quantitative (41) has got the highest number of articles published in peer-reviewed journals and they are mostly based on the survey. The empirical qualitative research is done in (25) articles indicating that case study; action research approaches were less popular. A multi method approach also called as empirical triangulation is also used in 6 articles in which more than two methods were used to formulate the required models. The desk quantitative (18) containing mathematical modeling, fuzzy logic, etc., is more popular than the desk qualitative (14) containing conceptual models, archival studies, future research propositions, etc., (Figures 4 and 5).

Table.10. Research design applied to service quality in healthcare

Research design	No. of papers	%
Empirical quantitative	41	39.42
Empirical qualitative	25	24.03
Desk quantitative	18	17.30
Desk qualitative	14	13.46
Empirical triangulation	6	5.76
Total	104	100

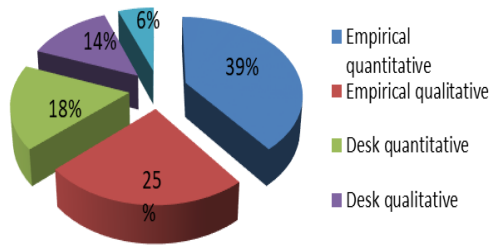


Fig.5. Research Design Wise Comparison of Paper

H. Research Methods

Each article of Service Quality in Healthcare research was observed, analysed and the research methods were noted down. The major research articles focus on the methods such as survey, interviews, mathematical modeling, simulation, case studies and conceptual models.

The methods like simulation, math modeling, and surveys are coming under all sewn up models. These models are dominated by the logistics and Service Quality in Healthcare discipline.

Information about all the research methods found is shown in the Table XI. The most common method used for Service Quality in Healthcare is Questionnaire Survey (21), followed by the articles on case study (17). The combination of survey and interview includes 10 articles.

Table.11. Research methods applied

Research methods	No. of papers	%
Questionnaire Survey	21	20.19
Interview survey	16	15.38
Questionnaire & interview survey	10	9.61
Conceptual model	9	8.65
Case study	17	16.34
Mathematical model	15	14.42
Case study& Mathematical model	12	11.53
Simulation	4	3.84
Total	104	100

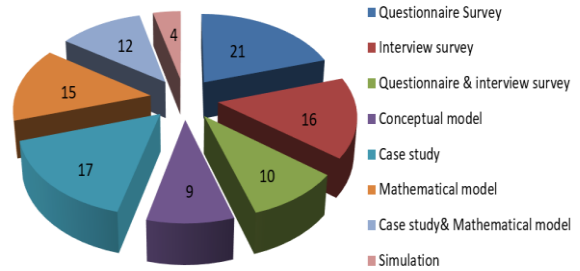


Figure 6. Research methods wise caparison of papers

I. Data Analysis Techniques

To summarize the large amount of data, the researcher will take the help of data analysis techniques. There are various ways of data analysis techniques to summarize the data such as questionnaire development, understanding the effect of number of variables on the final outcome, it helps the researcher in minimizing the spurious effects inherent in most questionnaire data, and it also enables the effects of alternative future scenario to asses to the researcher. There were many major techniques used for data analysis such as factor analysis, correlation and regression analysis, analysis of variance (ANOVA), set theory, game theory, Structural equation modelling (SEM), diffusion innovation theory, quantitative analysis, cluster analysis, path analysis, data envelopment analysis (DEA), linear programming, etc. Information about data analysis techniques used within the articles for data analysis has been shown in the Table XII. For more advanced data analysis techniques are needed for improving in persuasive findings of survey research as suggested by Mentzer and Kahn (1995), Such as path analysis, regression, ANOVA, etc. The extension of multiple regression analysis is the path analysis for examining the significance and the magnitude of causal connections between a set of variables. It is also the subset of a more elaborative technique called SEM.

The Table XII shows that out 104 articles, correlation analysis has been done in most articles (34), followed by factor analysis with 31 articles, while regression analysis has been done in 24 articles, ANOVA in 12 articles and in 11 articles sensitivity analysis has been done, followed by set theory with ten articles and game theory contains seven articles. SEM with five articles, path analysis with four articles, while cluster analysis and diffusion innovation theory includes three articles each. While linear programming have been done in two articles. Data analysis techniques such as DEA and Quantitative analysis contains one article each. Inspite of these techniques, 29 other articles were there which contains

other techniques such as case studies, literature review, etc., (Figures 8 and 9).

Table 12. Data analysis techniques

Data analysis technique	No. of papers	%
Correlation analysis	25	24.03
Factor analysis	15	14.42
Regression	24	23.07
ANOVA	11	10.57
Sensitivity analysis	4	3.84
Set theory	3	2.88
Game theory	2	1.92
SEM	5	3.57
Path analysis	2	1.92
Cluster analysis	2	1.92
Diffusion innovation theory	1	0.96
Linear programming	1	0.96
Quantitative analysis	1	0.96
Others	7	6.73
Total	104	100

V. CONCLUSION

This paper presents insights into the conceptualization and methodological research based on service quality in healthcare. The review enables us to understand the state-of-art practices in the area of service quality. This paper attempts to provide an overview of the body of the 104 articles covering 21 different peer-reviewed journals and having “service quality in healthcare” in the title and in the phrases. The present research investigates the series of dimensions including the journals most often publishing articles on service quality in healthcare research, authors most active in the subject area (in terms of articles published), unit of analysis, research design applied, techniques used for analysing the data’s, the theories and theoretical constructs utilized, and contexts examined. The empirical attest presented by authors in this research studies are often linked with the question and methodology used to conduct research. The motivation behind this investigation is to provide a comprehensive examination and useful insights into the significant findings, current research gaps and future research directions.

A. Significant Findings

From the earlier literature review only five articles were found. First article contain patient satisfaction literature and defining the service theory, second shows the peer reviewed journals between 2000 to 2013, third shows the industrial techniques use for two sectors, fourth represent the dimensions and questionnaire used and fifth article show state-of-art literature review on service quality in healthcare.

B. Gaps identified

Since this research focused on title service quality in healthcare which find out only healthcare related research which shows the lack of service quality research in other industries.

- Most of the articles are focused on the survey research. Simulation and mathematical models were used in very limited numbers of articles.
- Analytical research is done in fewer articles. In many articles the secondary data’s were not used in an innovative way.
- Despite of many studies conducted in the area of healthcare service quality, there was lack of mutual understanding of theoretical and methodological dimensions.
- There is no study focused to understand the similarities and dissimilarities of service quality practices of healthcare organizations.
- Although there are many articles are available on the service quality but lack the strategic planning to implement Healthcare service.

C. Future Research Directions

This paper has shown the current status of service quality in healthcare research from standpoint of research methods, data analysis techniques, data sources and level of analysis. It has been shown that present research is more accurate than the past research. The following points offer some direction for future research

- This article is limited in reviewing those articles which contains the word service quality in healthcare in the title and the phrases of the articles and we fully acknowledge that there may numerous studies, which lack the keyword in the title, but still focus upon service quality in healthcare in the main context.
- This research is limited to the journals from Emerald Publication, Science Direct/Elsevier, Taylor and Francis and Springer link. But there were more

journals which are well known and particularly devoted to service quality research can be used.

- Although this research covered the maximum number of articles comparative to the other review articles on service quality theme, but more comprehensive research can be done in future in order to provide a greater understanding of the subject area.

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