



Using QDAS for Sustainable Quality Management: A Systematic Review of TQM Practices In South Indian MSMEs

Asic Ali Saiboudin*¹and Rajeswari B².

¹ Department of Management Studies, Bharath Institute of Higher Education and Research. Chennai. 600073, Tamil Nadu, India.

²Department of Management Studies, School of Management. Pondicherry University. Puducherry. 605014. Puducherry (UT). India.
asicali.mba@bharathuniv.ac.in

Abstract. The prevalent studies highlighting the deployment of Total Quality Management (TQM) in the MSME sector of the Southern states of India are critically examined in this paper. Though many MSMEs lag in maintaining the quality to achieve a competitive edge over others, their involvement in nourishing the economy of South India is tremendously imperative. As it is evident that the research focusing on this niche seems to be dispersed, TQM extends its hand for the changeover. This article offers a combined view of academic works by streamlining imperative drivers of TQM, hindrances and adverse effects. The investigation showcases with evidence that adoption of TQM is on a surge, but remains ununiform due to financial shortfall unorganised platforms and lack of commitment from Top Management. On the other hand, sustainable practices are triggering the appropriate utilisation of TQM practices. We deployed empirical investigations, review papers, and segment-wise studies from 2015 to 2025 using QDAS software and a PRISMA-guided methodology. The results fulfil a major vacuum in the literature on regional MSME quality management by highlighting important actuators, gritty complications and prerequisites for further studies.

Keywords: Total Quality Management, MSMEs, South India, Systematic Literature Review, Quality Improvement, Sustainable Quality Management, Qualitative Data Analysis Software (QDAS), Organisational performance.

1 Introduction

In India, MSME sector comprises of a 95% of Indian business houses which play a decisive role in regional development, employment generation and economic prosperity [6]. MSMEs operating in Andhra Pradesh, Karnataka, Kerala, Puducherry and Tamil Nadu spanning over South Indian territory faces challenges in obtaining the pertinent resources, fierce rivalries and to ensure quality [1]. While primarily focusing on process refinement and quality enrichment, TQM is often promoted for enhancing

MSME competitiveness; yet, reliable application faces many context-specific difficulties.

2 Research Problem

It is a fact that research in recent times about TQM adoption, with a prime focus on South Indian MSMEs is increasing, but it remains scattered, making it an impediment to pinpointing barriers, enablers and sustainability-related outcomes [2]. Policymakers and practitioners need expertise for identifying the ways to capitalise on sustainable quality-related practices in the region, as there is a lag seen in a complete and organised investigation [3].

This exhibits:

- No systematic review exists on TQM practices in South Indian MSMEs
- Limited use of QDAS for analysing quality management literature [7].
- Insufficient emphasis on how TQM promotes sustainability in MSMEs.

2.1 Objectives

- To study peer-reviewed research on TQM in South Indian MSMEs.
- To classify high-quality studies using inclusion and exclusion criteria [13].
- To create a transparent study selection process in accordance with PRISMA guidelines [12].
- To map the body of knowledge, identify research gaps, and propose a future agenda.

3 Methodology

A systematic strategy, defined by PRISMA principles, was employed to find, select, and analyse relevant studies using a Qualitative Data Analysis Software [4].

4 Search Strategy

The Literature published between 2015 and November 2025 was searched in Scopus, Emerald, ScienceDirect, and other top management databases using terms:

- “TQM”,
- “Total Quality Management”,
- “MSME”,
- “South India”,
- “Organisational Performance”,
- “Empirical” and

- “Quality Improvement”.

4.1 Inclusion Criteria

- Empirical quantitative or qualitative research, reviews, and case studies focusing on TQM in MSMEs [5].
- Studies based in at least one South Indian state: Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, and Puducherry.
- English-language publications, peer-reviewed [9].
- Publications from 2015 to November 2025.
- Selected publications were downloaded and segregated using Mendeley software.

4.2 Exclusion Criteria

- Studies outside India or in non-South Indian states[6].
- Papers focused solely on large organisations, non-TQM methodologies, or pre-2015.
- Non-empirical/editorial/opinion-format papers.
- Non-English or unavailable full texts.

5 Study Selection Flow

A total of 363 records were found, with 78 duplicates deleted, 257 titles/abstracts checked, and 89 full-texts evaluated for eligibility using Mendeley [7].

Finally, 45 articles that satisfied all the criteria were included in the review. The process has been explained in Table 1 along with a Fig.1 PRISMA flowchart followed.

Table 1. Phase-wise PRISMA Framework

Step	Description
Identification	363 articles identified (database search), 78 duplicates removed
Screening	257 titles/abstracts screened, 168 excluded (irrelevant/fails criteria)

Eligibility	89 full-texts reviewed, 44 excluded (reasons: scope, design, incomplete)
Included	45 studies included in analysis

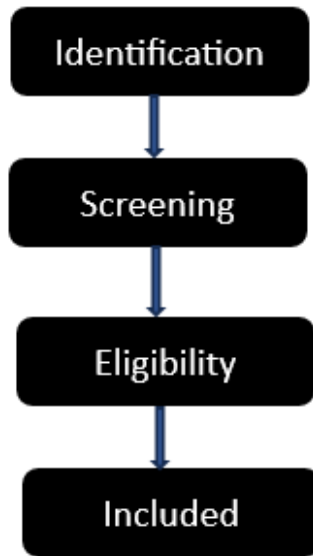


Fig. 1. Study Selection Flowchart (PRISMA)

6 Results

6.1 Thematic Synthesis.

TQM Enablers for South Indian MSMEs

- **Leadership ommitment:** Strong top management involvement across studies(Singh et al., 2018).
- **Employee involvement and quality culture:** Training, participative decision-making enhances TQM success(Kaur et al., 2021).
- **Adoption of quality tools:** PDCA cycles, root cause analysis, and benchmarking popular in operational units(Khalaf & Salem, 2018).
- **Regulatory and government support:** Access to subsidies and quality certification programs beneficial(Sahoo, 2018).

Key Barriers

- **Financial and resource constraints:** Limited funds for sustained TQM training and integration(Sinha et al., 2016).
- **Skill and knowledge gaps:** Technical and managerial capacity deficits cited repeatedly(Iqbal et al., 2018).
- **Change resistance:** Organizational inertia, lack of incentives, and documentation fatigue persistent issues(Meshram et al., 2017).

Impact on Organizational Performance

- Quantitative studies report significant improvements in product/service quality, process efficiency, and customer satisfaction post-TQM adoption(Ahmad et al., 2017).
- Statistical analyses show a moderate-to-high positive correlation between TQM intensity and MSME competitive performance(Sharma, 2015).

Regional Variations and Research Gaps

- Adoption is highest in sectors with strong industry associations and local support mechanisms(Anil & K.P, 2019).
- Service MSMEs are under-represented; focus remains on manufacturing(Sinha & Dhall, 2020).
- Few longitudinal or comparative state-level studies(Jeyalakshmi & Thamarai Selvi, 2018).

7 Bibliometric coupling of Keywords using VOS viewer.

Furthermore, using the Visualisation of Similarities viewer (VOS viewer), the graphic below depicts the link strengths of keywords using bibliometric coupling [11]. It demonstrates the link strength among the articles examined for the analysis (Guan et al., 2025). The stronger the correlation in Fig.2 below, the higher the co-citation/co-occurrence of the terms TQM and Organisational Performance, as well as the keywords used in the study. The lighter the link, the less definite the connection is between them [8].

Fig.3 depicts the link strengths between the terms, with a primary focus on organisational performance. This explains why the terms TQM and Organisational Performance in MSMEs are used in the same papers for the study [10].

8 Discussion

TQM implementation in South Indian MSMEs is driven by leadership vision, training, and practical tool adoption, but is hampered by resource constraints and talent shortfalls. Crucially, firm-level outcomes demonstrate TQM's positive impact, but successful scaling-up is patchy. The lack of context-tailored models and the digital transformation lacuna are key gaps that require additional exploration.

9 Practical Implications

- Policymakers should prioritise region-specific TQM support programs.
- MSME associations could facilitate shared training and best practice exchanges.
- Researchers are called to extend longitudinal, multi-sector, and digital-era studies.

10 Conclusion

If contextual barriers are removed, systematic research shows that TQM is both practical and successful in South Indian MSMEs. Future research should concentrate on the dynamics of the service sector, long-term effects, and digitally enabled TQM. Cross-functional collaboration and active involvement of inter-state alliances are essential for evolving a high-quality MSME framework for further development.

Acknowledgments. I acknowledge the use of the PRISMA framework and open-access publications which include Scopus, Emerald and ABDC journals.

References

1. Ahmad, M.F., Chan Siew Yin, J., Shiau Wei, C., Abdul Rahman, N.A., Muhd Nor, N.H., Hassan, M.F., Hashim, F.A.: The relationship between TQM practices with TQM tools and techniques in small and medium enterprise (SMEs). In: 8th Int. Conf. on Mechanical and Manufacturing Engineering (ICME 2017), vol. 135, EDP Sciences, pp. (2017)
2. Anil, A.P., K.P., S.: TQM practices and its performance effects – an integrated model. In: Int. J. of Quality and Reliability Management, vol. 36, no. 8, pp. 1318–1344 (2019)
3. Guan, L., Laporte, G., Merigó, J.M., Nickel, S., Rahimi, I., Saldanha-da-Gama, F.: 50 years of Computers & Operations Research: A bibliometric analysis. In: Computers and Operations Research, vol. 175, pp. (2025)
4. Iqbal, T., Huq, F., Bhutta, M.K.S.: Agile manufacturing relationship building with TQM, JIT, and firm performance: An exploratory study in apparel export industry of Pakistan. In: Int. J. of Production Economics, vol. 203, pp. 24–37 (2018)

5. Jeyalakshmi, R., Thamarai Selvi, G.: Effect of TQM practices in large and small medium electronic companies in Tamil Nadu. In: *Int. J. of Mechanical Engineering and Technology*, vol. 9, no. 4, pp. 802–808 (2018)
6. Kaur, M., Singh, K., Singh, D.: Identification of barriers to synergistic implementation of TQM-SCM. In: *Int. J. of Quality and Reliability Management*, vol. 38, no. 1, pp. 363–388 (2021)
7. Khalaf, M.A., Salem, T.S.M.: The moderating effect of structural barriers on TQM-performance relationship in Egyptian service organizations. In: *Int. J. of Quality and Service Sciences*, vol. 10, no. 4, pp. 349–365 (2018)
8. Meshram, R.K., Lakhe, R.R., Shrivastava, R.L., Somaiya, J.: TQM perspective in SMEs. In: *Int. J. of Innovations in Engineering and Science*, vol. 2, no. 3, pp. (2017)
9. Sahoo, S.: An empirical exploration of TQM, TPM and their integration from Indian manufacturing industry. In: *J. of Manufacturing Technology Management*, vol. 29, no. 7, pp. 1188–1210 (2018)
10. Sharma, R.: Modelling enablers for implementing TQM in auto ancillary SMEs. In: *Int. J. of Productivity and Quality Management*, vol. 15, no. 4, pp. 448–468 (2015)
11. Singh, V., Kumar, A., Singh, T.: Impact of TQM on organisational performance: The case of Indian manufacturing and service industry. In: *Operations Research Perspectives*, vol. 5, pp. 199–217 (2018)
12. Sinha, N., Dhall, N.: TQM in Indian auto component SMEs: Role of contextual or institutional factors. In: *Int. J. of Entrepreneurship and Small Business*, vol. 40, no. 4, pp. 488–515 (2020)
13. Sinha, N., Garg, A.K., Dhingra, S., Dhall, N.: Mapping the linkage between organizational culture and TQM: The case of Indian auto component industry. In: *Benchmarking*, vol. 23, no. 1, pp. 208–235 (2016)

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

