

Study Of TQM Performance Among Pharmaceuticals Manufacturers Of Himachal Pradesh, India

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Abstract: The present study tries to identify the major areas of TQM performance and its impact on overall organizational performance. It suggests the ways and means for the growth of pharmaceutical industry to improve corporate competitiveness. The data available from the drugs controller of Himachal Pradesh reveals there are 537 pharmaceutical units and according to their investment criteria 231 units were selected for the study using stratified random sampling. These units were further divided into large, medium and small and from each unit three respondents were selected for the survey like production manager, quality manager and supervisor. Study was carried out using 3 factors comprising of 44 variables. Data was gathered using structured questionnaire, factor analysis was applied and found 11 new factors containing different variables which were assigned new name. Results reveal that the impact of TQM adoption plays significant role in performance. It shows that highest eigen value, variance and factor loading signifies importance of that factor. Job satisfaction came out to be the major factor followed by others. Employee empowerment and their involvement play significant role in TQM performance. Further customer's satisfaction and goals were found to be key factors towards organizational success. It was also illustrated that organizations need to take care of monetary returns to yield fruitful results. The results showed that work efficiency can be increased by teamwork cooperation and decreased rate of recall, costs and rejection. Findings of the study signified that TQM performance can be enhanced by right and timely communication between different departments and engagements of employees in organizations process and planning.

Keywords: customer satisfaction, employees engagement, job satisfaction, monetary returns and TQM performance.

I. INTRODUCTION

Total quality management can be defined as a macro-management philosophy that aims at continuous improvement in all functions of the organizations to produce and deliver goods or services in line with the needs of customers and their requirements in a better, less expensive, faster, safer, and easier way compared to its competitors along with the participation of all employees under the leadership of top management. Total Quality Management can also be defined as the promise of all employees to continuous improvement of business processes to meet the needs and necessities of customer's Lee and Chang (2006). Oakes and Westcott (2001) described total quality management as a management style on improving the process and addressing the needs of customers as well as rich analysis using the methods of quantitative and

qualitative to carry on quality development in all its dimensions. Total quality management is a holistic quality improvement approach to firms for the purpose of improving performance in terms of quality business and overall organization performance for the last two decades. Organizations which used TQM generate many benefits such as higher quality products, more satisfied customers, reduced costs, improved financial status, quality and innovation performance and in addition to these improved employee satisfaction. Moreover if TQM is implemented successfully it provides a competitive advantage. Numerous studies have shown a positive relationship between organizational outcomes and TQM. Total quality management practices are the key enablers for the successful implementation of TQM program in any organization whether it is from manufacturing or from service industry. This approach is broadly

acknowledged and adapted by managers and practitioners of almost all areas. Quality can be considered a key strategic factor in achieving business success and is more than ever necessary for competing successfully in today's global market place, Dean and Evans (1994). It has become the key slogan as organizations struggle for a competitive advantage in markets characterized by liberalization, globalization and knowledgeable customers Sureshchandar *et al.*, (2002). The past decades had shown a distinguished increase in the use of total quality management practices in both manufacturing and non-manufacturing firms. Manufacturing managers and practitioners are continuously making their full efforts to adopt TQM in their organizations and achieve maximum benefits and competitive advantage to sustain in global market. Salaheldin (2009) and Millar's (1987) said that there will be two kinds of companies in future companies which have implemented total quality and companies which are out of business. Companies worldwide large and small both in the manufacturing and service sectors have adopted quality strategies and made TQM a well accepted part for almost every manager Dow, Swanson, and Ford (1999). Forceful competition in the marketplace has caused manufacturing firms to look for a competitive edge in their manufacturing operations and processes. It has been recommended that the use of TQM practices has a synergistic impact on organizational performance Schonberger (1986), Cobb (1993). Some recent studies have found that the use of TQM practices lowers manufacturing process like discrepancy, eliminates reworks, scraps, and improves quality performance Daniel and Reitsperger (1991). In addition there is important unpredictable evidence on the degree to which TQM initiatives enhance the potential for firms to improve their performance. Recently empirical evidence suggests that there are direct and indirect relationships between the adoption of TQM practices and firms' performance levels Hendricks and Singhal (2001) Kaynak (2003). TQM practices are management techniques linking the measurement of actual manufacturing performance against precise quality standards. The key ideas of TQM practices include seeking opportunities to increase customer satisfaction, striving for continuous improvement and doing things right the first time Schonberger (1986), Gunn (1987) and Harrington (1987). Moreover some studies have found that TQM firms do not outperform non-TQM firms, Mathews (1992), Fuchsberg (1993) in spite of this some researchers claim that the disappointing results of TQM practices may be credited to insufficient resources, carelessness in making complimentary investments in organizational structure, human resources and too little appreciation of system dynamics Powell (1995). Some studies declare that the poor performances of many new TQM initiatives are due to the constant dependence on management accounting systems that fail to provide relevant information. Kaplan (1983) examines the factors that either support or reduce accounting lag following the implementation of TQM practices. Particularly they found that industry sectors, management commitment, organizational structure, participation, and financial performance have an impact on accounting lag. Banker *et al.*, (1998) noted that if increased competition is the main basis for the renewed focus on quality today it is important to understand how the quality

improvement decision of a firm is linked to its competitors. In this research paper attempt was made to understand dimensions under which TQM performance in pharmaceutical companies can be observed.

II. QUALITY

Quality is a matter of customer satisfaction and the benefits of producing quality cover all members of the organization and society as a whole. Total quality management is an integrative management philosophy aimed at continuously improving the quality of products and processes to achieve customer's satisfaction. According to Kaynak (2003) the indicators of quality which are relevant to TQM practices and help to promote quality performance are product/service quality, productivity, cost of scrap and rework, delivery lead-time of purchased materials, and delivery lead-time of finished products to customers. According to Wilkinson (1992) quality is important for customers and suggests that in terms of TQM the conception of quality should meet customer requirements. So quality is the major determinant of success in today's competitive business environment firms must focus on improving quality and innovativeness and it can be achieved by adopting and implementing TQM.

III. BUSINESS

Business refers to the competitive position of the company to compete in national and international markets. According to Christos B Fotopoulos and Evangelos L Posmas (2009) firms that focus on improving the quality of their products and processes leads to improve revenues, market share, total sales, net profits, cost reduction, return on assets, and overall profitability. Solis *et al.*, (1998) found that quality management significantly leads to business performance like increased revenues, increased sales, and market shares which reduces the production cost of the company. Similarly Brah *et al.*, (2002) identified that there is a positive association between TQM implementation and business performance of the organization. Kaplan and Norton (1996) underlined that conventionally business performance is measured by monetary pointers such as market share, total sales, and net profits etc. Therefore Business performance identified as a competitive advantage indicator which reflects the firm's profitability and impact on the market.

IV. OVERALL ORGANIZATIONAL PERFORMANCE

Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals. Performance measurement is very important for the effective management in organization. According to Deming (1986) without measuring something it is impossible to improve it. Corporate performance is not often described in detail by academics. The traditional approach to performance measurement using only financial performance measure is

faulty. A number of prior studies have measured organizational performance using both financial and non financial measures. Porter (1985) said that competitive advantage is the extent to which an organization is able to create a defensible position over its competitors it comprises capabilities that allow an organization to differentiate itself from its competitors and is an outcome of critical management decisions. Thus organizational performance means the comparative positional dominance in the marketplace that leads a firm to outperform its rivals on the basis of quality, financial and non financial measures.

V. LITERATURE REVIEW

This research focuses on theoretical framework of total quality performance among pharmaceutical manufacturers of Himachal Pradesh. Generally speaking performance is defined as the degree to which an operation fulfills the performance objectives. According to Steingrad and Fitzgibbons (1993) TQM performance can be defined as a set of techniques and procedures used to reduce or eliminate variation from a production process or service-delivery system in order to improve efficiency, reliability, and quality. Performance measurement is a critical factor for effective management because without measuring something it is difficult to improve it therefore improving the organizational performance requires identifying and measuring the impact of TQM practices on performance. According to Demirbag *et al.*, (2006) several empirical studies have been conducted to establish the link between TQM practices and organizational performance the results of these studies indicated that there are various measures like organizational performance, corporate performance, business performance, operational performance and financial performance. Koh *et al.*, (2007) measured performance in two dimensions operational performance and organizational performance, operational performance reflects the performance of internal operation of the company in terms of cost and waste reduction, improving the quality of products, improving flexibility, improving delivery performance and productivity improvement they are considered as primary measures because they follow directly from the actions taken during the implementation of TQM while organizational performance was measured by financial measures such as revenue growth, net profits, profit to revenue and return on assets. The nonfinancial measures was like investment in R&D, capacity to develop a competitive profile, new products development, market development and market orientation. These were the secondary measures because they are the result of TQM implementations. Prajogo and Sohal (2003) investigated the relationship between TQM and organizational performance by exploring six TQM practices proposed by Samson and Terziovski (2000) these practices are divided into two groups' mechanistic elements and organic elements, mechanistic elements include customer focus, process management, strategic planning, information analysis, while the organic elements were leadership and people management. This categorization was based on Kruger's (1998, 2001) proposition that TQM should include a combination of both people (soft element) and technical systems (hard element).

The mechanistic elements customer focus, process management could be considered the hard aspect and the organic elements that is leadership and people management represent the soft aspect Kruger (1998) emphasized the human aspect of TQM because only the humanistic orientation of TQM towards organizational performance will be successful in actual practice. Vinod Kumar, Franck Choisine and Uma Kumar (2009) investigated the impact of total quality management (TQM) implementation on different dimensions of company performance and found different dimensions evaluated for company performance which were employee relations (improved employee participation and morale), operating procedures (improved products and services quality process and productivity, reduced errors/defects, customer satisfaction (reduced number of customer complaints), and financial results (increased profitability). The study provides useful insights into the performance improvement it suggest how different dimensions of performance are affected by TQM it also gives insights into how long does it take to obtain these benefits. Saifulla Qureshi and Sidra Sharif (2012) examined the association between total quality management (TQM) practices and performance i:e quality, business, and organizational performance. They concluded that TQM practices positively impact the performance of organization they identified TQM tools and techniques like incentive and recognition system, process monitoring control, continuous improvement, behavioral factors like fact based management, top management commitment to quality, employee involvement and customer focus which collectively contribute to successful implementation of TQM. The main suggestion of the findings for managers was TQM practices in manufacturing organizations were more likely to achieve better performance in customer satisfaction, employee relations, quality and business performance than without TQM practices. Beshkol sajad and Rahimi Fateme (2012) identified organizations need for operation improvement and this has to be taken care by the managers as it is the fundamental responsibility of managers to improve the operation they believe that the performance management systems are a cornerstone of human resource management practices and also were the basis for developing a systems approach to organization management systems of controlling and evaluating the operation that provide mechanism for arranging companies strategies and activities implementation. It was considered that both quantitative and qualitative criteria's can guaranty the success in measuring organizational performance. It can be understood from the research studies earlier conducted by different authors that TQM had definite impact on the performance of any organization. Looking into the present market trend which is forcing the industry to strive for the excellence and to survive in the competition adoption of such techniques is must. The above literature reveals that quality business and overall organization performance measures are the important parameters by which one can check the overall organizational performance. By reviewing the above literature this study focuses on three TQM performance measures/practices.

VI. RESEARCH METHODOLOGY

The infrastructure facilities and tax benefits provided by the Himachal Pradesh Government for industrial development during last three decades had attracted many industrial houses for establishing industrial units in the state. The pollution free atmosphere of the state attracted large number of pharmaceutical companies to establish their units in the state. At present 537 number of pharmaceutical units are working in the state spread over in Solan, Kangra, Sirmour, Una, Shimla, Mandi and Bilaspur district.

NEED AND SCOPE

The pharmaceutical industry is heavily regulated and the reasons are obvious mistakes in product design or production can have severe even fatal consequences for patients which sometimes lead to recall of the drug from the market which resultant the wastage of money for companies, government and individual consumers. Therefore, the maintenance of quality with continuous improvement is very important in pharmaceutical industries. An effective quality assurance policy with defined mission and objectives is the most important goal of pharmaceutical industry. Thus quality is critically important ingredient to organizational success which can be achieved by total quality management it requires environment and support of all the employees irrespective of cadre. Therefore the present study tries to study the role of TQM on the performance in production and operation of pharmaceutical industry.

SAMPLE SIZE

This study is exploratory in nature and Himachal Pradesh is purposively selected for the study since 70% of pharmaceutical units of India are in Himachal Pradesh. At present there are 537 pharmaceutical companies are operating at different locations of the state as per the data available from the drug controller of Himachal Pradesh. Further companies were divided into large medium and small according to their investment criteria. Sample size for the present study was 231 which were selected using stratified random sampling. Respondent for this study were quality managers, production managers and supervisors from each unit.

COLLECTION OF DATA

Primary data has been used for the current study and data collection has been done by well structured questionnaire based on 5 point likert scale 1 indicating very low and 5 indicating very high. The questionnaire was pre tested through pilot survey comprising 3 factors with 55 indicators after refining the questionnaire the same three factors and 44 indicators was considered to be useful for the study. The alpha value of each factor was above 0.70 and the reliability and validity of the questionnaire was tested by using SPSS version 20.0.

DATA ANALYSIS

For the purpose of analysis, factor analysis was run on SPSS version 20.0 utilized to gain the appropriate information from data.

Factor analysis was used as a reduction test in the present study. Since, the present study variables are multi-dimensional concepts there was a need to examine the dimensionality of each main variable and to define the number of dimensions that constitute each variable.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.906
Bartlett's Test of Sphericity	Approx. Chi-Square	7195.807
	Df	946
	Sig.	0.000

Table 1

It is clear from the above tables that Bartlett test of sphericity was significant as it is used to test the appropriateness of data (Bartlett, 1950) and measures the overall significance of all correlations within a correlations matrix and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was higher than 0.5, which confirm appropriateness of preliminary research instrument appropriate for factor analysis.

Total Variance Explained						
Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.197	20.903	20.903	9.197	20.903	20.903
2	2.704	6.146	27.048	2.704	6.146	27.048
3	1.916	4.356	31.404	1.916	4.356	31.404
4	1.513	3.440	34.843	1.513	3.440	34.843
5	1.466	3.331	38.175	1.466	3.331	38.175
6	1.285	2.921	41.096	1.285	2.921	41.096
7	1.162	2.641	43.737	1.162	2.641	43.737
8	1.096	2.490	46.227	1.096	2.490	46.227
9	1.064	2.418	48.645	1.064	2.418	48.645
10	1.024	2.327	50.972	1.024	2.327	50.972
11	1.009	2.294	53.266	1.009	2.294	53.266

Table 2

Rotated Component Matrix*											
	Component										
	1	2	3	4	5	6	7	8	9	10	11
Empowerment	.754			.123							
Satisfaction employees	.691	.146									
Employee morale	.641	.101						.222	.149		
Employee pride	.572	.199			.311	.138	.383	.115			
Employee attitude	.430	.157			.362	.192	.374				
Innovative capabilities	.383	.154		.267	.357	.156			.135	.139	.201
Worker efficiency	.301	.149	.235		.236	.243		.161		.190	.185
Improvement product performance	.126	.644			.248						
Satisfied customers	.227	.618	.168				.151	.146	.125		
Delighted customer	-.129	.589	.203		.126	.141	.248	.109		.120	

Customer loyalty	.420	.582	-.159			.135	-.108	.140	.101			-.105	
Customer relations		.503		.136	.216	.134	.346						
Overall profitability		.123	.705			.200		-.165					
Total sales		.163	.669	.136		.145	.170						
Employee turnover		.114	.487	.115	.353			-.180	.165				
Market shares	.234	.148	.475	.357	.133	.126				.276		-.191	
Product quality			.436	.178	.174	.108		.127	.379				
Cycle times			-.193	.675	.142			-.216					
Return on assets	.121	.141		.560		.192	.274	-.116	.104			.194	
Net profit	.186		.211	.476	.131	.166		.174				.302	
Revenue	.301		.322	.415		.107	.105	.185	.178			.300	
Placement processing	.241	.219	.157	.399	.253		.170		.221	.188		.123	
Product quality improvement		.235			.698	.156							
Process improvement	.286			.117	.518		.110	-.108	.139	.215		.167	
Teamwork cooperation	.131	.150	.145	.181	.514		.234		.160		.131		
Manufacturing times	.348	.147	.102	.323	.354		.144						.202
Recall of product	-.106	-.132	-.150	-.144		-.729			-.188				
Product contamination		-.166	-.136	-.128	-.101	-.677			-.244				
Cost of failure	.112		.167	-.104	-.564				-.116				.294
Flow of information	.122	.202	.174	.159			.653						
One department another department	.158	.247		.110	-.113	.127	.472			.341		.147	
Communication departments	.127		.149	.176	.200		.437	.108	.250			-.124	
Quality suppliers	-.102	-.298	.332	-.209		-.100	.374		.330			-.112	
Skill levels	.262		-.214		.234	.239	.303	-.173		.174			
Cost reduction	-.173	.115	.101					.696		.111			
Production costs		.102		-.208				.692		.197			
Cost per product	-.138							.625	.113	.173		.425	
Rejection rates						-.219			-.706				
Defects rates	-.126	-.134	.124	-.101	-.132		.113	-.558		.220			
Wastage	-.240			-.340		-.272	.142		.497				
Absenteeism rate		.110					.166		.196		.640		
Successful development	.417		.259		.192				.118		.419		
Competitive profile	.201	.317		.299	.128	.333		.132			.354		
Rework cost		-.136				-.109						.816	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 19 iterations.

Table 3

Lastly the Varimax Rotated Component Matrix shows us the factor loadings for each variable. Based on these factor loadings following factors comes out:

EXPLANATION OF THE FACTORS EXTRACTED

F1: Job Satisfaction: Out of the 11 factors extracted the first factor named as job satisfaction have the maximum eigen value of 9.197 and accounted for 20.903% of the total variance. The indicator empowerment has the highest factor loading of .754. This suggest that job satisfaction factor explained most of the variance and was the most important factor in determining the overall TQM performance in the study area. There were 7 indicators associated with job satisfaction. Among these indicators the indicator empowerment was highly correlated with job satisfaction followed by satisfaction employees, employee morale, employee pride, employee attitude, innovative capabilities, and worker efficiency.

F2: Customer Satisfaction: Customer satisfaction came out to be the second important factor in the analysis. This factor comprises of 5 indicators. They together exhibit 6.146% of the variance and have eigen value of 2.704. The indicator improvement product performance has the highest factor loading of .644 followed by satisfied customers, delighted customers, customer loyalty and customers relations respectively.

F3: Goals: The factor goals explained 4.356% of the variance with eigen value of 1.916. The indicator overall profitability was found to be highly correlated with this factor having highest factor loading of .705 followed by total sales .669 employee turnover .487 market shares .475 and product quality .436.

F4: Monetary Returns: Five indicators viz cycle times, return on assets, net profit, revenue and placement processing were found to be associated with the factor name Monetary Returns. This factor explained 3.440% variance with eigen value of 1.513. The indicator cycle times had the highest factor loading of .675 as compared to other indicators.

F5: Work Efficiency: This is the fifth factor obtained from the analysis and exhibited 3.331% of variance with eigen value of 1.466. The indicator having the highest factor loading of .698 was product quality improvement followed by process improvement, teamwork cooperation, and manufacturing times.

F6: Recall: The factor recall comprised of three indicators namely recall of product, product contamination, and cost of failure. This extracted factor explained 2.921% of the total variance with eigen value of 1.285 and highest factor loading of .729 respectively.

F7: Communications: The factor communications explained 2.641% of the variance with eigen value of 1.162. The indicator flow of information was found to be highly correlated with this factor with the highest factor loading of .653 followed by one department another department .472, communication departments .437, quality suppliers .374, and skill levels .303 respectively.

F8: Cost: Cost came out to be the eighth important factor in the analysis. This factor comprises of 3 indicators. They together exhibit 2.490% of the variance and have eigen value of 1.096. The indicator cost reduction had the highest factor loading of .696 followed by production cost .692 and cost per product .625.

F9: Rejection: The factor rejection explained 2.418% of the variance with eigen value of 1.064. The indicator rejection rates was found to be highly correlated with this factor having the highest factor loading of .706 followed by defect rates .558 and wastage .497 respectively.

F10: Employee Engagement: The factor employee engagement comprised of 3 indicators namely absenteeism rate, successful development and competitive profile. This extracted factor explained 2.327% of the variance with eigen value of 1.024 and factor loading of .640, .419 and .354.

F11: Rework: This is the eleventh factor obtained from the analysis and exhibit 2.294% of the variance with eigen value of 1.009 and factor loading of .816 respectively.

VII. RESULTS AND DISCUSSION

The finding of the study relates to TQM performance among pharmaceuticals manufacturers of Himachal Pradesh. A total of three factors with forty four variables were considered in the questionnaire. Basis on the Factor Analysis the eleven new factors were identified. It is imperative that the new factors obtained after applying factor analysis can serve as important tool to understand performance of TQM among pharmaceutical units. First factor obtained was job satisfaction with indicators like empowerment, satisfaction employees, employee morale, employee pride, employee attitude, innovative capabilities, and worker efficiency. These indicators were strongly associated with first factor. Second factor obtained to be customer satisfaction and indicators involved were improvement product performance, satisfied customers, delighted customers, customer loyalty, and customer relations. These indicators were strongly associated with second factor. Third factor obtained was goals which comprises of the indicators like overall profitability, total sales, employee turnover, market shares and product quality. These indicators were strongly associated with third factor. Fourth factor obtained was monetary returns involved indicators like cycle times, return on assets, net profit, revenue and placement processing. These indicators have strong relationship with factor four. Fifth factor obtained was work efficiency having indicators like product quality improvement, process improvement, teamwork cooperation, manufacturing times. These indicators have strong relationship with factor 5. Sixth factor obtained was recall containing indicators like recall of product, product contamination and cost of failure. These indicators have close relationship with factor six. Seventh factor obtained was communications and contained indicators like flow of information, one department another department, communication department, quality suppliers and skill levels. These indicators are closely related with factor seven. Eighth factor obtained was cost involves indicators cost reduction, production costs and cost per product. Mentioned indicators have strong relationship with factor eight. Ninth factor obtained was rejection containing indicators like rejection rates, defect rates and wastage. These indicators were strongly associated with factor nine. Tenth factor obtained was employee engagement including indicators absenteeism rate, successful development and competitive profile. These have strong bonding with factor ten. Lastly factor obtained was

rework having only indicator rework cost showing close bonding with factor eleven.

VIII. CONCLUSION AND SUGGESTIONS

The present study focused on understanding the parameters which impacts TQM performance among pharmaceutical manufacturing units of Himachal Pradesh. The pharmaceutical manufacturing units were studied using 44 variables pertaining to TQM performance. The study has classified these 44 variables into 11 factors using factor analysis. The factors finally obtained were Job Satisfaction, Customer Satisfaction, Goals, monetary Returns, Work Efficiency, Recall, Communication, Cost, Rejection, Employee Engagement and Rework. It has been observed that the key area where the adoption of TQM impacts the performance are job satisfaction of the employees the highest eigen value maximum variance and highest factor loading explains the importance of factor their involvement in process, well being, and keeping them updated regarding quality and their empowerment is crucial element into TQM Performance. Therefore organizations aiming at TQM must involve employees at all levels and keep them positive towards achievement of quality. Followed by the factors like customer satisfaction and goals issues which were further identified important factors on the basis of eigen value, variance and factor loading which disclose that organizations need a solid strategy towards making their customers satisfied. Organizations need to focus on its goals to reap maximum benefits. Firms needs to look forward for monetary returns like cycle times, net profits and revenue which would yield them fruitful results and can lead them towards long term success. There is a need for work efficiency which can further enhance quality and cooperation among employees. It was identified that recall of product from the market can be reduced by taking care of the entire manufacturing process. Timely and effective communication or data sharing is needed for making the whole process effective as it is the communication between departments which plays crucial role during the entire operation. TQM performance depends on costs and rejection rates as it is directly related to financial gains of the organization and their customers maintaining lesser costs are beneficial for both the company and its stakeholders. It was also determined that employee engagement in TQM program positively supports TQM performance. Lastly it is important for organization to take care of rework cost as it would maximize its profits and could save the time for production process and also image of the company. The present study would be helpful in understanding important areas where the pharmaceutical manufacturing companies needs to focus on for TQM performance. On the basis of analysis like eigen value, variance and maximum factor loading the study has highlighted important variables under each parameter for the guidance of TQM practitioner. It can be concluded that an understanding of these focus areas can give way to efficiency and effectiveness towards quality performance improvement process.

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