Impact of Lean Management Implementation Practices on Operational Performance: An Empirical Study of the Pharmaceutical Industry in Sri Lanka

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Abstract. The purpose of this paper is to investigate and explore lean management implementation practices for operational performance in the pharmaceutical industry in Sri Lanka. The study investigates the impact of lean management implementation practices with the lean bundle on the operational performance of each business unit of the pharmaceutical industry. The methodology study has been conducted with 412 business unit managers of the pharmaceutical industry. SPSS has been used for descriptive statistics. The AMOS version has been used for structural equation modelling. SEM technique has been used to develop the measurement model. This study has investigated how lean management practices have an impact to gain operational performance in the pharmaceutical industry in Sri Lanka. Lean management practices have implemented the lean bundle TQM, HRM, JIT, and TPM to succuss the operational performance. This study has been limited only to the pharmaceutical industry in Sri Lanka and measured lean management with the lean bundle. Also, operational performance has been measured with seven dimensions. The findings of this study have given a high value to implementing lean management using the lean bundle. This lean bundle can be used to gain high operational performance in any industry.

Keywords: Operational Performance, Lean Management, Lean Bundle

Introduction

Lean management implementation has been commonly used by organizations for better operational performance. Today many organizations in the pharmaceutical industry face many challenges to operate businesses to gain performance. Therefore, these pharmaceutical organizations have used best practices to defeat their operational problems. These practices have reduced wastage and the operational expenses of the business. Pharmaceutical organizations have used these practices to control their inventory levels to minimize the wastage of the business. Organizations have faced problems like shipping errors and difficulties in imports. This has developed high operation costs in the running of businesses. Also, organizations face challenges with their practices to develop and maintain the improvement of the quality and efficiency of their operations (Wijenayake, 2017).

Currently, Sri Lanka operates over 175 pharmaceutical organizations (importers) that have been registered under National Medicines Regulatory Authority (NMRA). These importers are registered under the medicines category. Other than the medicine category there are medical devices and borderline product categories registered under NMRA. In the pharmaceutical category, there are over 800 manufacturers registered worldwide. These registered manufacturers are from 58 countries worldwide. All these manufacturers from different countries represent over 175 importers in Sri Lanka (NMRA, 2020). Lean has developed a business model in organizations that harvests better results for their ongoing customers and employees. Also, lean has specified superior performance to its shareholders and, to society at large (Bhasin, 2012). Lean manufacturing practices are commonly used in

the pharmaceutical industry. As per the investigations, there are high achievements in operational performance shown in the pharmaceutical industry with lean implementation practices. Lean is recommended for the pharmaceutical industry to improve operational performance and reduce waste (Ratnajeewa & Liyanaarachchi, 2016). This study investigates what type of lean management implementation is being applied by organizations for operational performance. This study has been conducted to explore lean management implementation in the pharmaceutical industry in Sri Lanka.

Literature Review and Hypothesis

As per the many studies has been presented, there is an association between lean practices implemented in organizations and the operational performance of their businesses (Womack & Jones, 2003). Also, some studies have investigated that implemented lean practices of organizations facilitated the associations. These are between the improvement of routines and the organizations' operational performance. Also, studies have shown organizations give high operational performance when they apply advanced lean implementation practices. But when organizations apply some of the lean practices, they have shown low operational performance (Knol et al., 2019). Also, lean implementation involves activities that have ensured an improvement in organizational performance. These activities have been employee development, employee training, and empowerment. These have resulted in improvements in organizational performance (Alagaraja, 2014).

Lean Management

Lean management has been started by Toyota Motor Corporation. Lean management has been observed in organizations to implement a winning competitive strategy. Lean management forms the benefits of reducing costs of organizations and has improved quality. Also, lean management has eliminated waste while satisfying its customers (Shah & Ward, 2007). As per Womack and Jones, lean management takes to the systems that organizations implement more things with less effort. This has been done by bringing exactly what the customers need. This is by putting low effort and equipment by spending the least time and space (Womack & Jones, 2003) Also, Shah and Ward (2003) have specified lean management as a multi-dimensional approach. This approach has covered a broad variety of management practices. This approach is defined as Just time, quality systems, and the work teams. Also, manufacturing and supplier management has been the other practice in that lean management works as an integrated system (Shah & Ward, 2003).

Lean management has led to reducing non-value-added activities like waste. Also, it has improved operational performance (Womack et al., 1991) Sunder clarifies that lean has been a "systematic approach to keep identifying and wipe out the waste through constant improvement. This has flowed the product at the pull and the customer in the following of perfection" (Sunder, 2015). Always, lean bundles must be attended by other lean bundles. Many different, methods of lean bundles guide to positive financial performance of organizations. Less implementing organizations of lean bundles have delivered results in bad financial performance. Many studies expose that lean bundles are essential to implement different roles to develop successful performance (Galeazzo & Furlan, 2018). Lean bundles have been classified as an operational approach path that leads to considerable progress in the organization's performance. Many studies combine a significant influence on decision-makers in the healthcare sector to improve their detection of Lean bundles (Al-Hyari et al., 2016). The results of the four lean bundles of the organizations gain operational performance for their efficiency, quality, and accessibility (Alkhaldi & Abdallah, 2019). Shah and Ward (2003) have completed four lean "bundles" of interconnected and internally consistent practices. They have been recommended lean bundle as just-in-time (JIT) and the total

quality management (TQM). Other factors are total productive maintenance (TPM), and the human resource management (HRM) (Shah & Ward, 2003).

Lean Bundle -TQM

TQM has been a highly important beginning for organizations to develop their performance (Sahoo, 2021). As most studies have explained, the TQM bundle impacts quality performance positively in organizations (Alkhaldi & Abdallah, 2019). Also, the TQM bundle has been implemented lean practices like kaizen and customer involvement. TQM has included practices as visual management, 5S, and statistical process control (Shah & Ward, 2003). The TQM bundle has been operationally outlined as hard implementation practices. These practices struggle to incessantly control and increase operations, management processes, and continuous progress activities (Alkhaldi & Abdallah, 2019).

Lean Bundle - HRM

Principal Lean bundles human resource management, JIT, and total quality management are related to the progress of the operational performance of the organizations (Al-Hyari, 2016). The HRM bundle has been given a positive result of all operational factors (Alkhaldi & Abdallah, 2019). There is massive importance in concerning HR practices for lean implemented organizations. This has been suggested practical recommendation for managing HR systems in the organization. Lean-implementing managers have considered HR practices as essential to the lean process. Also, this might usefully respect them as practices set aside for improved management control. This has been successful in additive improvements to lean implementation (Zirar et al., 2021). HRM involves practices like a multiskilled workforce and employee involvement. Lean leadership has consisted of an HRM practice (Sahoo & Yadav, 2018).

Lean Bundle - JIT

JIT has been developing a higher level of significance for waste minimization in the organization's operations. Therefore, JIT has been highly significant for the operational performance of most companies. They show a higher level of value on operational performance in waste management of the organizations (Rahman et al., 2010). Studies have been presented that the JIT bundle positively impacts on efficiency and approachability of organizational performances (Alkhaldi & Abdallah, 2019). The JIT bundle holds practices such as pull, Kanban, and small lots of production. Also, JIT lets for continuous flow production, and cellular layouts (Galeazzo & Furlan, 2018). Lean JIT has defined as a method employed to improve the service system by purchasing the required materials when they are required. This can be done by reducing inventories and involving their suppliers to deliver needed materials continuously and timely basis (Jarrett, 2006).

Lean Bundle - TPM

Many studies have been founded the core integration of total productive management and total quality management can achieve a high value of performance (Sahoo & Yadav, 2018). TPM bundle has been a positive impact on the quality and accessibility of the operational performances of the organizations. (Alkhaldi & Abdallah, 2019). The TPM bundle contains practices associated with proactive and self-sufficient maintenance (Shah & Ward, 2003). The TPM bundle has discussed the activities implemented to reject equipment failure and keep the workplace in a strategic condition. This has been to have minus waste and a simple employed environment. Therefore, the contribution of organization employees is in daily maintenance actions (Haddad & Jaaron, 2012; Ahmed et al., 2010).

Studies have evidenced the occurrence of ungradable opposition between JIT and TQM. This has been acting as the empowering role of HRM in this complementarity. Lean bundle experts can make the best out of lean creativities in their organizations (Furlan et al., 2011). This study investigates the effects of the four lean bundles on the 'pharmaceutical business units' operational performance. This lean bundle with TQM, and HRM, takes its practices. Also, JIT and TPM, implement each bundle practice. As per the studies, this model has been extended by including two additional bundles. These are namely, supplier relationship management and other fact is customer relationship management (Shah & Ward, 2007).

Operational Performance

The operational performance of an organization involves time to spread its higher position. Operational performance has been indirectly connected to organizational financial performance (Zhang & Xia, 2013). The performance of an organization has been recognized in four dimensions. Those have been known as a quality, cost, delivery, and flexibility (Chavez et al., 2013). The core determination of operations in an organization is to make a saving of costs and rise efficiency in daily operations. Also, operational performance displays how effectively large quantities of raw materials have been converted into innovations and quality complete products with a minimum of wastage (Prajogo et al., 2012). Operational performance has been positively obstructed to decrease many factors. These are defects, energy, and waste by growing productivity (Petkova & Dam, 2014). In an organization, Operational performance rises, when there are Value-added events that follow each other incessantly (Shah & Ward, 2003). Studies have created that lean implementation and further advanced practices were required for the high operational performance of organizations. This has not ensued when in cases with only lean practice implementation done (Knol et al., 2019). Also, operational performance has depended on dropping the cost of manufacturing operations of the organizations. Also, this has increased their innovation ability (Khan, 2003). Organizations have been exposed to better operational performance by advancing in the lean practices they utilize and operational intellectual capital. Organizations aspect at investing in operational intellectual capital to rise the outcome of capitalizing in lean practices. This has been increased their operational performance and allowed for a competitive advantage (Onofrei et al., 2019). In some studies operational performance has been founded to be positively related to lean implementation. These are with some of small and medium-sized enterprises (Yadav et al., 2018).

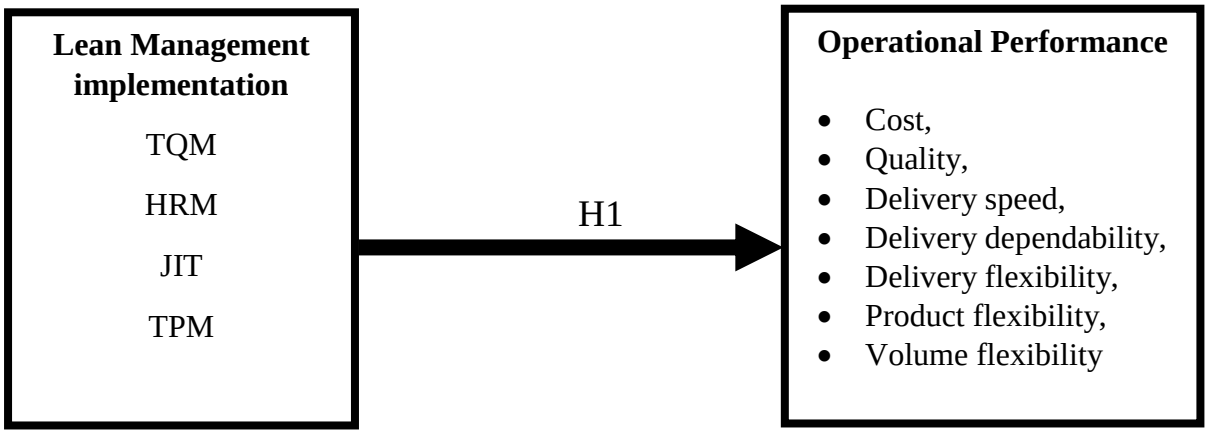


Figure 1. Conceptual framework

LM has been measured utilizing four bundles: total quality management (TQM), human resource management (HRM), just-in-time system (JIT), and total productive maintenance (TPM). The below item descriptions are given for the lean bundle as taken from recent studies (Alkhaldi & Abdallah, 2019). Studies have shown that lean bundle specialists make the best out of lean creativities in their organizations (Furlan et al., 2011).

TQM bundle

1. The pharmaceutical business unit struggles to improve frequently the quality of its processes rather than taking a standing approach
2. Feedback received from customers is used continuously to progress the job work
3. Many of the given services in the pharmaceutical business unit have been upgraded in the recent past
4. Pharmaceutical business unit methods are being supervised using statistical process control
5. Charts are applied to determine whether pharmaceutical business unit service systems are in control

HRM bundle

1. Pharmaceutical business unit management distributes appropriate resources with funds and time to complete goals and manage the work
2. Pharmaceutical business unit management forms a work environment that supports staff competences
3. The pharmaceutical business unit has an all-inclusive training plan steady with the needs of employees in rising their working skills.
4. Employees are empowered and demanded in making conclusions to improve pharmaceutical business unit services.
5. Pharmaceutical business unit employees are rewarded and recognized with financially and differently for improving progressions in the pharmaceutical business unit.

JIT bundle

1. The pharmaceutical business unit uses advanced methods for handling its inventory.
2. Materials for the Pharmaceutical business unit are promptly available as and when wanted and without overstocking
3. Pharmaceutical business unit is regularly in close touch with suppliers
4. Suppliers regularly distribute materials to the pharmaceutical business unit on a constant and timely basis.

TPM bundle

1. The pharmaceutical business unit maintenance system is essential.
2. The maintenance team frequently checks equipment and provides to make sure they meet the operating necessities.
3. Employees are trained to achieve daily maintenance and required correction for the equipment in their worksite
4. The pharmaceutical business unit directly replaces imperfect parts of equipment (Alkhaldi & Abdallah, 2019).

The operational performance has been measured by applying seven frequently applied indicators in this research. As afforded below these measurements have been engaged by many studies.

Table 1: Measurements of Operational Performance

	Measurements of Operational Performance	Factors
1	Cost	How is your organization's operation on cost, compared to the operating competitors?
2	Quality	How is the quality of your organization's performance?
3	Delivery speed	What is the delivery speed of your organization?
4	Delivery dependability	How is the delivery dependability of your organization?
5	Delivery flexibility	What is the overall delivery flexibility of your organization?
6	Product flexibility	How is your organization's operation on product flexibility, equated to its competitors?
7	Volume flexibility	What is the overall volume flexibility of your organization?

Source: Knol et al., 2019; Slack et al., 2010; Dal Pont et al., 2008; McKone et al., 2001

Many authors have employed these indicators in many categories of research to measure the operational performance of their operating organization (Knol et al., 2019; Slack et al., 2010; Dal Pont et al., 2008; McKone et al., 2001). Single questions have been used for the measuring of each of these above-given indicators to measure operational performance. Therefore, the study has committed single questions per given item. Also, a Likert scale has been used for every seven questions. This action has been taken to get over the measurement error of the study. It has ranged starting from very bad performance to end with very good performance (Finstad, 2010).

The hypotheses have been gained from the past literature and according to the conceptual model of this research. The purpose of Lean Management has been to improve the performance of business units of organizations. There are two procedures for lean management. That has been the elimination of all the forms of waste that are presented in the recent processes. Also, the placement of people in the middle of the existing method (Antunes et al., 2013). As per the below hypothesis (H1) successfully implementing lean practices has been driving to increase in organizational results and operational performances (Hwang et al., 2014). The generic types of the basic lean principles are the eliminating of waste and adding value improvement. Also, customer satisfaction builds them to utilize in small, medium, and large organizations (Hu et al., 2015).

- ***H1: Lean management implementation practices have an impact on operational performance.***

Constantly, lean management implementations of firms have been driven organizational performance as it practices the right methods. (Womack et al., 1991). As per the above hypothesis (H1), it is better to test in this study because some organizations have been negatively connected with lean implementation practices. (Tortorella et al., 2018). Many determinations of the studies have been applied as a benchmark for the healthcare industry to search for the acceptance of lean techniques. Also, it delves into how to process betterment from lean constructs could find out the overall operational performance of the organizations (Ilangakoon et al., 2022).

Methodology

This study has used a quantitative technique. The quantitative survey has been conducted with business managers of the pharmaceutical industry of Sri Lanka (Klenke, 2016). The data has been collected by using a structured survey questionnaire (Shrafat & Ismail, 2019). The deductive approach clarifies the creation of a theory based on existing

literature and tests through by inductive approach (Saunders et al., 2012). This current study has employed a deductive approach. The unit of analysis of this research is pharmaceutical business units in Sri Lanka. As per the NMRA, there are different business units in each local importer (NMRA, 2020). Also, each business unit can specify a different leader. Research has been conducted among 412 different levels of Business managers in the pharmaceutical industry of Sri Lanka. Business managers have been selected from each business unit from different pharmaceutical organizations.

To do the measures of Lean management practices and Operational performance an index has been used in this study. The operational performance of the organizations' index was drawn from previous literature. Seven questions were developed to measure operational performance as per those previous studies (Knol et al., 2019). Eighteen question items have been used to measure the lean bundle. These questions have been developed with the previous studies has been measured the lean bundle (Alkhaldi & Abdallah, 2019).

Analysis and Findings

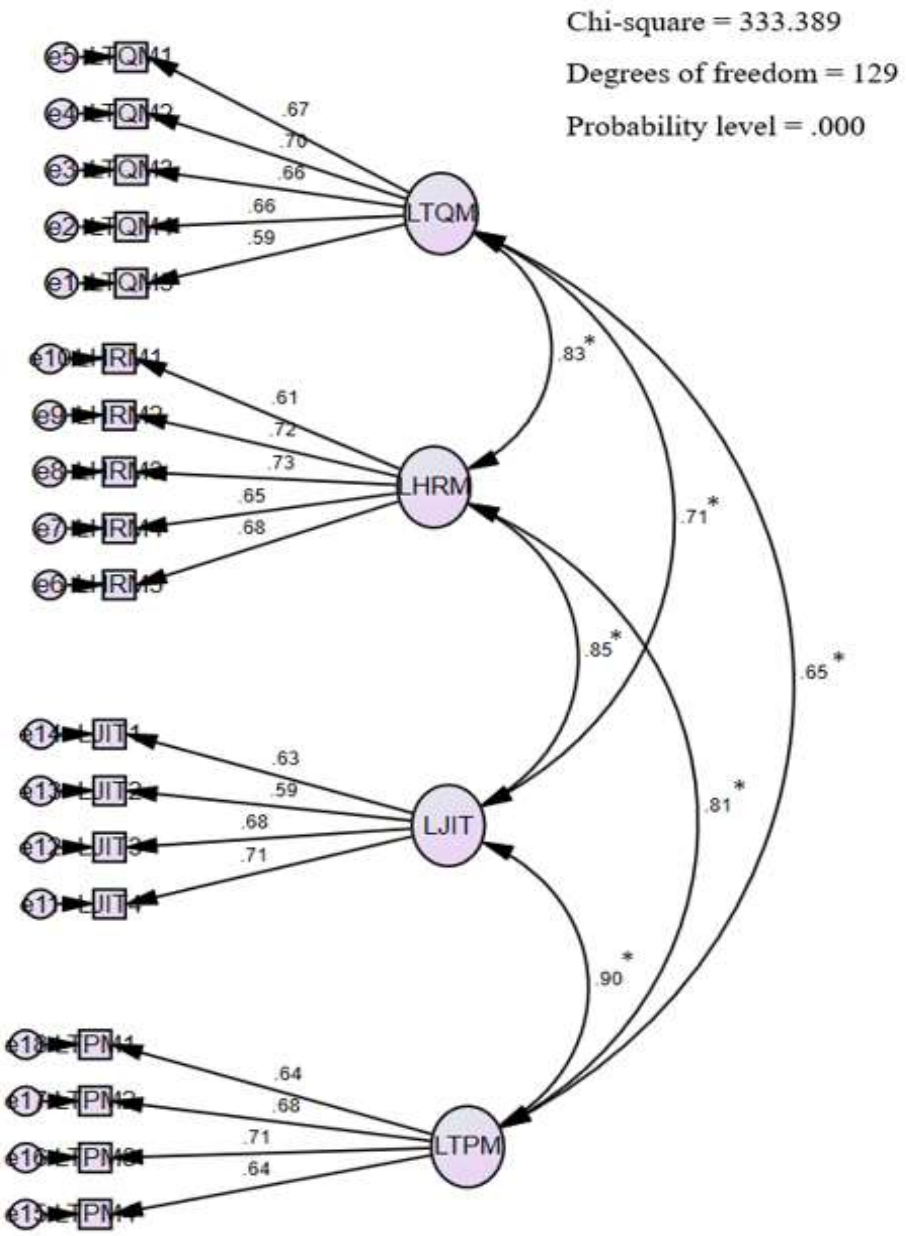
The data analysis of this study has presented descriptive statistics. Also, presents structural equation modelling (SEM). The chapter has used the SPSS software package for descriptive statistics. The AMOS version has been used for structural equation modelling. Essentially, the SEM technique has been applied to develop the measurement model.

The below table describes the demographic summary of sales growth of the business unit of the sample respondents. Most of the business units have a negative growth or a below 6 % growth the business. Zero growth explains that the business has been discontinued or totally stopped. Businesses of 39.3% achieved over 10% business growth as per the below table presents.

Table 2: Demographic profile of sales growth of sample

		No of business units	Percent
Business Growth – Annual sales	Negative growth	77	18.7
	Zero growth	7	1.7
	1-6% growth	80	19.4
	6-10% growth	85	20.7
	Over 10% growth	163	39.5
	Total	412	100.0

The lean management construct lies in four latent variables (i.e. Lean total quality management, Lean human resources management, Lean just in time, and lean total productive maintenance). In the GOF guides of the model, the bulk has reached satisfactory levels, as confirmed in the below table Absolute GOF indices are, however, relatively lower than the incremental indices. This may be due to the slightly higher correlation between LTQM, LHRH, LJIT, and LTPM, but the model has been still significant, at a 5 percent level. Furthermore, the RMSEA is below 0.08, satisfying the absolute model fit. Thus, the model in Figure can be recognized based on the Chi-square value.



*Significant at 0.05 level

Figure 2: Model for Lean management

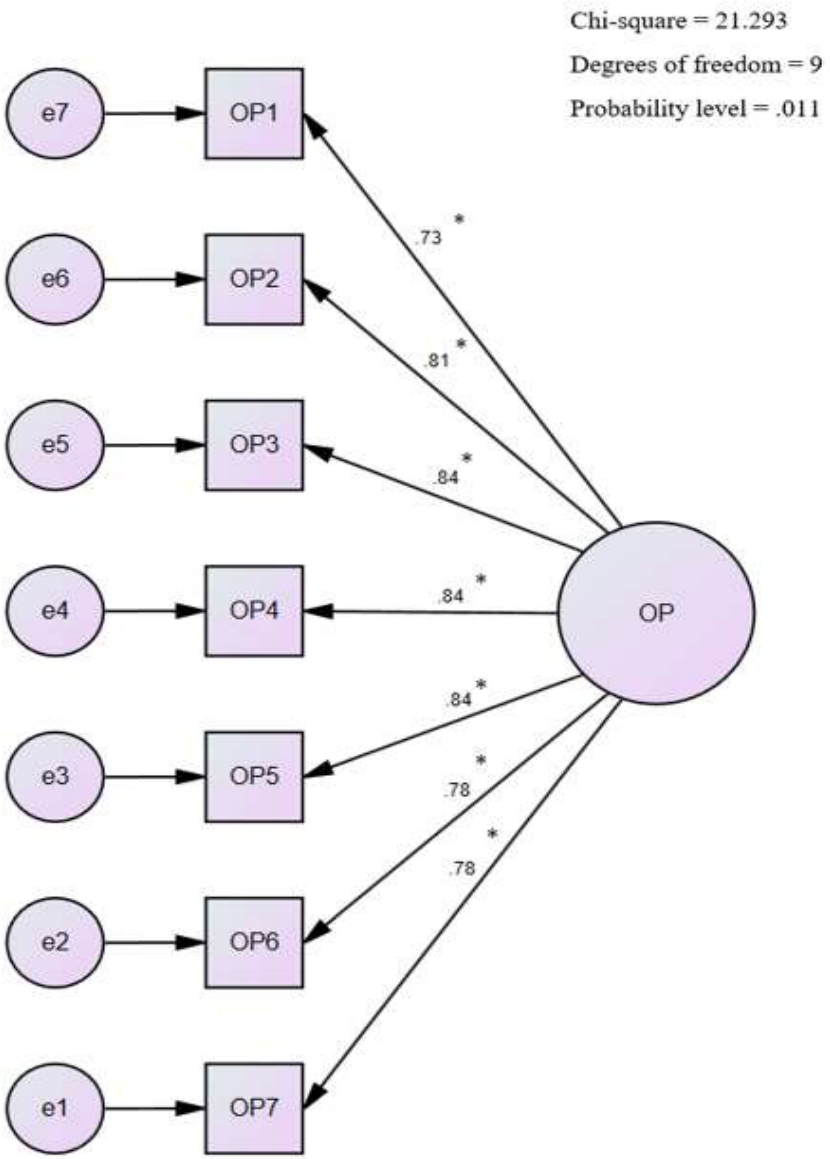
Table 3: GOF measures of Lean management

Absolute				Incremental				
CIMN/DF	GFI	AGFI	RMSEA	NFI	RFI	IFI	TLI	CFI
2.584	0.916	0.889	0.062	0.888	0.868	0.928	0.914	0.928

Operational Performance

Operational Performance (OP) has been a latent variable involving seven items, and the outcomes of first-order CFA analysis for OP have been shown in Figure. The model is significant at 5per cent level (p=0.011). All seven-factor loadings are significant and are

reported to be above 0.8. Thus, a 7-item model for OP capability construct has been assured a convergent validity and remains as default. In the next, GOF indices indicate that the data accept a good fit for the model.



*Significant at 0.05 level

Figure 3: Model for Operational Performance

Table 4: GOF Measures of Operational Performance

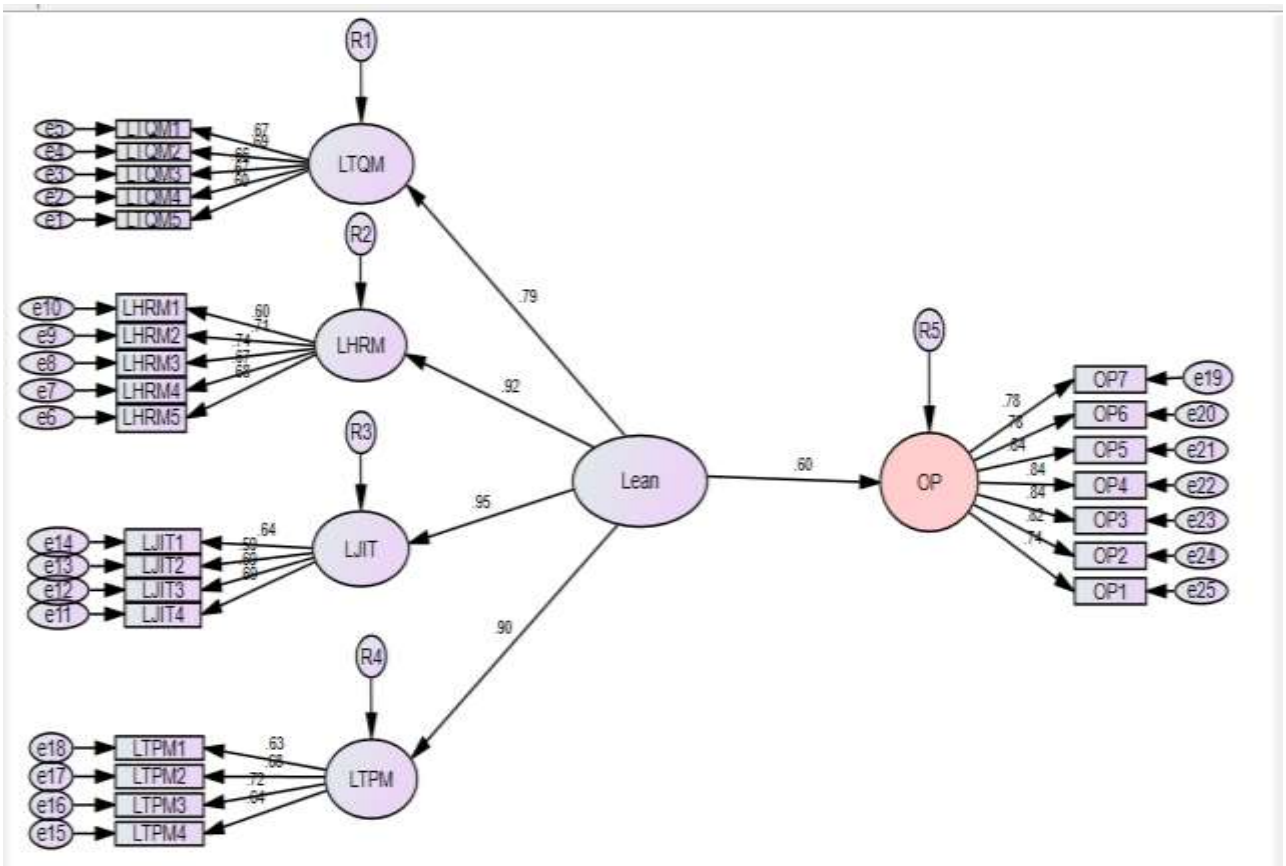
Absolute				Incremental				
CIMN/DF	GFI	AGFI	RMSEA	NFI	RFI	IFI	TLI	CFI
2.3	0.986	0.955	0.058	0.99	0.976	0.994	0.986	0.994

The whole measurement model has been developed based on the first-order confirmatory factor analysis results for each construct. The above figure demonstrates the first-order measurement model for all unobserved constructs. This is for both exogenous and endogenous variables of the study.

Chi-square = 2002.592
Degrees of freedom = 1106
Probability level = .000

Measurement Model

The structural model used for the independent and dependent variables has been shown below figure. These are the basic relationships of the structural model. This model tests one hypothesis. Referring to the Figure, Lean management (LM), is an exogenous construct that impacts operational performance (OP), which is the endogenous construct. The results specify that the effects of LM, on the OP as positive and significant (P<0.05). Also, LM has the strongest effect on operational performance (β= 0. 60).



* Significant at 0.05 level

Figure 4: Basic Structural Model

The GOF values have been summarized in Table Only GFI has shown moderate model fit, but CIMIN//DF and other fit indices like RMSEA, and RMR indicate that the absolute model fit has been high. In addition to that, most of the incremental and parsimony indices support the appropriate level of model fit.

Table 5: GOF indices for Basic Structural Model

Absolute				Incremental			Parsimony
CIMN/DF	GFI	RMR	RMSEA	IFI	TLI	CFI	PRATIO
2.939	.864	.063	.068	.900	.888	.899	.90

Therefore, this model allows making conclusions on the hypothesized relationships. As noted above, the model tests the hypothesis (H1). The table summarizes the statistical finding related to the stated hypothesis.

Table 6: Regression Weights of the Basic Structural Model

			Estimate	S.E.	C.R.	P
LHRM	<---	**Lean**	1.439	0.157	9.185	***
LTQM	<---	**Lean**	1			
LJIT	<---	**Lean**	1.511	0.161	9.362	***
LTPM	<---	**Lean**	1.297	0.148	8.783	***
OP	<---	**Lean**	1.009	0.123	8.191	***
LTQM5	<---	**LTQM**	1			
LTQM4	<---	**LTQM**	1.149	0.112	10.298	***
LTQM3	<---	**LTQM**	1.18	0.116	10.197	***
LTQM2	<---	**LTQM**	1.156	0.11	10.485	***
LTQM1	<---	**LTQM**	1.237	0.12	10.3	***
LHRM5	<---	**LHRM**	1			
LHRM4	<---	**LHRM**	0.996	0.083	11.969	***
LHRM3	<---	**LHRM**	1.054	0.081	13.092	***
LHRM2	<---	**LHRM**	0.955	0.076	12.595	***
LHRM1	<---	**LHRM**	0.785	0.072	10.933	***
LJIT4	<---	**LJIT**	1			
LJIT3	<---	**LJIT**	0.95	0.076	12.48	***
LJIT2	<---	**LJIT**	0.857	0.08	10.745	***
LJIT1	<---	**LJIT**	0.836	0.072	11.653	***
LTPM4	<---	**LTPM**	1			
LTPM3	<---	**LTPM**	1.055	0.09	11.716	***
LTPM2	<---	**LTPM**	0.972	0.086	11.28	***
LTPM1	<---	**LTPM**	0.88	0.083	10.554	***
OP7	<---	**OP**	1			
OP6	<---	**OP**	1.139	0.067	17.105	***
OP5	<---	**OP**	1.173	0.063	18.593	***
OP4	<---	**OP**	1.197	0.064	18.581	***
OP3	<---	**OP**	1.316	0.071	18.651	***
OP2	<---	**OP**	1.26	0.07	18.021	***
OP1	<---	**OP**	1.067	0.067	15.922	***

First of all, the 'p-value' has been relevant in order to evaluate whether there is a significant relationship between the sub-factors of Lean and OP. As Kock (2016) states, this 'p-value' has to be less than 0.05. This is for the relationship to exist among sub factors and the main factors. In this case, all the sub-factors have a 'p-value' of 0.00. This concludes that

there is a significant relationship between OP and Lean. Therefore, the model has been proven to be effective, and each of the chosen factors has given a positive contribution to measuring the main construct of Lean and OP.

Table 7: Hypotheses testing results on direct Paths

	Hypotheses	B	S.E.	C.R.	P	Support
Lean ➡ OP	H1: Lean management implementation practices have an impact on operational performance.	0.597	.123	8.191	***	Yes

According to the above table, the basic direct relationship has been significant at 0.05 level. Thus, the practical data has supported the basic hypothetical relationship between lean management and operational performance. This has been associated with the previous literature. Also, they have been encouraged and supported in the Sri Lankan context. Further, this has presented the related analyses of the hypotheses.

Conclusions

The study has investigated to explore lean management implementation practices with the lean bundle in the pharmaceutical industry in Sri Lanka. Lean management implementation has been a main factor of the top practices functional in the pharmaceutical industry. But implementing lean management practices to keep high operational performance has been a trial task for the business units in the pharmaceutical industry. This has been influenced by exploring lean management implementation practices for extreme operational performance. As identified in the study many business units implement lean management for their operations. Therefore, the study recognized the strong association between lean management implementation practices and operational performance in the pharmaceutical industry. Accordingly, hypothesis one (H1) has been established.

The Hypothesis lean management implementation practices have an impact on operational performance. The hypothesis is accepted at a 5 percent significance level. The positive relationship between OP and LM is confirmed. Therefore, results specify that the outcomes of LM, towards the OP as positive and significant ($P<0.05$). Also, LM has the strongest impact on operational performance.

Many organizations implement lean practices but have not received better results. Lean practices are implemented in Sri Lankan healthcare for proper waste management and effective healthcare practices (Wijewardana & Rupasinghe, 2016). The lean approach has been developed as a key pathway of enhancement exclusively in pharmaceutical companies. Some studies have analyzed the impact of each of the Lean implementations on the operational performance of organizations that operate in a time of uncertainty (Thoumy et al., 2022). The study has investigated what type of lean management implementation is being applied by organizations for operational performance. This study has presented that organizations apply total productive maintenance and total quality management as two lean initiatives that are used by managers to improve operations capabilities. Many studies establish that the long-term results of lean bundles significantly improve business operational performance. It is higher than the implementation of standalone lean practices. Also, the significance of the duration of lean operation in accomplishing higher levels of organizational business performance (Sahoo & Yadav, 2018). The goal of lean organizations is to reduce waste in human effort and control inventory. Also, time to market becomes highly responsive to customer demand. Therefore, needs to produce quality products in the greatest efficient and economical manner (Singh et al., 2010).

At a very comprehensive level, the lean practices incorporate Just-In-Time (JIT), work mission, total productive maintenance (TPM), time reduction, Total Quality Management (TQM), and human resource management (Belekoukias et al., 2014). As in this study under TQM organization business units moves to improve frequently the quality of their operational processes. The organizations have not been continuing with their standing approach. Also, these business units use the important feedback received from their customers. This feedback has been created to continually improve the organization's work. Therefore, in the recent past, organizations have improved various services of their business units. Many organizations use advanced statistical processes in monitoring the business. They use the most expensive and new technologies in the statistical process. These statistics have been used as charts with the leaders of the business unit. Organizations make a clear vision of their correct path by visualizing numbers by different types of charts. Many business units monitor their statistics with charts. Therefore, these statistic charts have been determined for the ongoing business service processes in the control path.

Also, this study investigated human resources management (HRM) practices in organizations for better operational performance. Organizations' business unit management has been allocated applicable resources to gain operational performance. Business units have used enough funds in many steps to achieve the goals. Enough time has been taken to achieve their goals and manage the work in many cases to succeed in their performance. As per this study, all successful organizations' management has created a good work environment inside the business unit. This environment supports the staff's capabilities for better operational performance. Organizations have been maintaining successful operational performance by completing several training programs for their employees. The business units have completed a training strategy constantly for the needs of employees. These training plan has been developing their working skills for operational performance success. Also, organizations have empowered employees at different levels to involve them more in achieving the goals. Empowered employees have been involved in making decisions to enhance business unit services. As in this study, most successful organizations recognized their employees by giving promotions to the next level, financial increments, and rewards. Business units have rewarded their employees with an award ceromancy. These rewards and recognition of the employees have improved the processes for better operational performance.

The current study has presented JIT, that most business unit practices advanced techniques to manage their inventory. By using a new IT system, the organization has been monitoring its stocks to manage a suitable inventory. These business units are readily available stocks as and when needed. Also, by using advanced techniques organizations maintain the inventory without overstocking. Organizations have been keeping frequent close contact with their regular suppliers for the best operational performance for their business unit. Many business unit leaders contact their suppliers daily, weekly, and frequently to develop close contact to succeed in the business. These Suppliers frequently deliver stocks as needed to maintain the correct stock positions. This has been continuing to a different business unit on a constant and timely basis. According to the product categories, organizations request suppliers to deliver products weekly, monthly, or within a required period.

TPM, the current study has investigated organizations' practices for operational performance. Every business unit has been running a maintenance system. This has been more important to develop a good supporting staff to develop operational performance. Always, the supporting staff follow-up and supplies the business operations. This has been made so that they complete the operating requirements of the business process. Also, employees of the organization have been trained to operate daily work. This training has been

given for the correction in their daily work. Also, business unit operations immediately change the requirements for the business to increase operational performance.

Recommendations

The results of this study are important to guide the pharmaceutical industry in Sri Lanka. The industry can practice lean management implementation by using the lean bundle. This study has proved that organizations gain high operational performance. Also, the lean bundle indicators can implement in the successful operational performance of the pharmaceutical business units in the Sri Lankan context. The study findings can direct other industries in Sri Lanka to increase operational performance by using lean management implementation. This study outcome can make a new direction for the pharmaceutical industry to take a new step to grow the current businesses. The current pharmaceutical industry and other industries can make more specific strategies with lean implementation for better operational performance. Therefore, this study has important findings with lean management to gain high operational performance in many industries. These findings will recommend local and global industries to develop high operational performance by implementing the lean bundle.

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