
Extended Abstract

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Relationship between the Employees' Attitudes and the Quality of Drug Manufacturing Process with Special Reference to State Ayurveda Drug Manufacturing Institutions in Sri Lanka

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Abstract

The concept of the naturopathy is highly recognized all over the world, therefore, the Ayurveda and traditional medicines are getting increasing demand during the past few years. However, the industry has faced a big challenge to maintain its quality and standard to produce the drugs and other medicine to cater for the increasing demand. Therefore, the main objective of the study is to investigate the relationship between the employees' attitudes and the quality of the using the relationship of job satisfaction, organizational commitment and job involvement (independent variables) with the process quality of Ayurveda drug manufacturing (dependent variable). Six government Ayurveda drug manufacturing centers were selected for the study and case studies were carried out in five of those institutions. Approximately, 171 employees occupied in those six institutions and 115 questionnaires were distributed among the employees who worked in departments related to powder manufacturing process. Data analyzing was done by using the Minitab software. The model was tested using correlation and regression analysis. The results revealed that there is a positive and significant relationship between job satisfaction and job involvement with the process quality as well as a slight and negative relationship with organizational commitment and process quality. The research findings of the study can be applied to improve the process quality of the Ayurveda drug manufacturing and employees' attitudes about their institutions.

Ayurvedic drug manufacturing process. The conceptual model was formulate

Keywords: Employee Attitudes; Job Involvement; Job Satisfaction; Organizational Commitment; Process Quality.

1. Introduction and research problem

In Japan, it is generally believed that 40% of quality problems are caused by poor product design, 30% of quality problems are caused by wrong or defective materials being purchased from suppliers and the remaining 30% are due to errors made during the manufacturing process (United Nations Industrial Development Organization, 2006).

Process management could be viewed as a dependant quality management practice which is influenced by the quality levels of supplier focus, team work, and learning. The organizational results also endorse the linkage between process management, continuous improvement and employee fulfillment (Franks, 2009). If even a small percentage of the variation in organizational performance can be explained by employee attitudes, then managers are likely to take considerable interest in the factors that influence employee attitudes (Patterson et al., 1997).

In the Sri Lankan context, it has been identified that both the doctors and the patients complain about the quality of the Ayurvedic drugs; especially, foreign matters, consistency and uniformity of the drugs (taste, smell, texture, colour etc.) and the cause may be raw materials, machinery and technology, manufacturing process or human factors. There were very few studies done in the Ayurvedic sector to improve the quality of Ayurveda drugs in Sri Lanka. The pilot survey reviewed that there were no significant steps made to identify or overcome the shortcomings in the drug manufacturing process in Government institutions in Sri Lanka.

Quality control for the efficacy and safety of herbal products is essential. The quality control of phytopharmaceuticals may be defined as the status of a drug, which is determined either by identity, purity, content, and other chemical, physical or biological properties, or by the manufacturing process (Bandaranayake, 2006). Process management could be viewed as a dependant quality management practice which is influenced by the quality levels of supplier focus, team work, and learning.

In the present context it is difficult to make sure to give quality assurance for Ayurvedic drugs because of the complexity of the drug manufacturing process in mass production, and **utilize all the industrial, commercial and the human factors are challengeable** (United Nations Industrial Development Organization, 2006). However, there were no research evidences prove the relationship between the workers attitudes and the quality of Ayurveda drugs manufacturing process. Therefore, the research problem was defined as:

How does the employees' attitude influence the quality of the Ayurvedic drug manufacturing process? Therefore, the objective of this study is to investigate the relationship between the employees' attitudes and the quality of the Ayurvedic drug manufacturing process.

2. Methodology

The study was conducted using both qualitative and quantitative data collection techniques, mainly a questionnaire. The conceptual framework of the study is developed based on the pilot survey and the literature. Employees' attitudes; job satisfaction, job involvement and organizational commitment were taken as independent variables, and process quality of Ayurveda drugs manufacturing was taken as dependent variable.

The study sites consists of two institutions under the Provincial Ayurveda Departments' drug manufacturing centers such as Central and Southern Province, the pharmacy which belonged to the Teaching Hospital Borella,

two municipal councils which belonged to the Departments of Local Government such as Kandy and Colombo and Sri Lanka Ayurveda Drug Corporation, Navinna. The study population was the employees who occupied in the departments related to powder manufacturing process. There were 171 employees in all the institutions, and 115 employees were selected as the sample through convenience sampling method.

Both primary and secondary data were used in this research. The primary data were collected using questionnaire survey; in addition, five case studies were conducted to investigate the problem more comprehensively utilizing interviews, discussions and observations. The secondary data were collected as necessary from the institutions, which had statistics, attendance, records etc.

The descriptive statistics, correlation and regression analyses were employed to derive the research findings.

3. Results and findings

3.1 Relationship among the Process Quality and the Employees' Attitudes

3.1.1 Correlation Analysis

A correlation analysis was conducted to identify the relationship between the dependent (process quality) and independent variables (employees' attitudes i.e., job satisfaction, job involvement and organizational commitment) of the model. According to the correlation coefficient there is a positive correlation among the Process Quality with the Job Satisfaction same as the Job Involvement, but a slight correlation exists between the Organizational Commitment and the Process Quality.

As highlighted in table 3.1, the P value of the Job Satisfaction and the Job Involvement is less than the significant level, 5%. That is, we can conclude that process quality has a significant correlation with the Job Satisfaction and Job Involvement but it has no any significant relationship with the Organization Commitment.

Table 3.1: Correlation Analysis

Employees' Attitude	Correlation Coefficient	P-value	Significant Level
Job Satisfaction	0.520	0.000	<0.05
Organizational Commitment	0.0095	0.434	>0.05
Job Involvement	0.346	0.003	<0.05

Source: Survey Data Analysis

3.1.2 Regression Analysis

The main purpose of fitting a multiple regression model is to learn whether all independent variables (Xs) are jointly related to the dependent variable (Y). In this regard, a multiple regression analysis is performed between the dependent variable Y (process quality of Ayurvedic drug manufacturing) and the independent variables such as Job Satisfaction, Organizational Commitment and Job Involvement which affect the employee attitude. Table 3.2 displays the model summary of the analysis.

Model 1: Process Quality = 33.7 + 0.518* Job Satisfaction - 0.206* Organization Commitment +0.357* Job Involvement

Model 2: Process Quality = 33.9 + 0.502* Job Satisfaction + 0.256* Job Involvement

Table 3.2: Model Summary

Model	R ² (adj)	R ²	F-statistics	P-value	Significant level
1	29.2%	32.2%	10.47	0.000	<0.05
2	28.3%	30.4%	14.61	0.000	<0.05

Source: Survey Data Analysis, 2013

According to table 3.2, the P values of both models are adequate in 5% of significant level. Therefore, both models can be used for forecasting. The model says that there is a positive relationship between process quality and the factors that affect the employees' attitudes. There is a positive relationship between the process quality (dependent variables) and job satisfaction and job involvement (independent variables). However the result shows that there is negative relationship between the process quality and the organizational commitment. The differences between the above two models are that the second one has removed the uncorrelated variable (that is organizational commitment) obtained from the previous analysis.

3.2 Summary of the Case Studies

All the Ayurvedic drug manufacturing institutions had followed common processes and guidelines in Ayurveda Pharmacopeia. Several common errors were identified in relation to the Ayurvedic drug manufacturing process. According to the health and hazard preventing requirements the raw materials should be cleaned in the pre-preparation stage and then, it should be weighed as in the recipe but all the institutions first weighed the raw materials and then sent them to the pre-preparation unit. Dry raw materials should not be washed in second time; but all the drug manufacturing institutions did not follow that step. Guidelines for regulation of Traditional/herbal Medicines (2009) say that washing dried herbal raw materials with water is not appropriate. When the cleaning of raw material is necessary, air duster/air shower should be employed.

Most of the employees did not wear uniforms/overall and nobody was wearing safety instruments during the duty hours. It may affect the quality of the product as well as the health of the employees. The other observation was

contamination of the products while packing and less protection of the packing materials. If one low quality batch was found it was not documented and destroyed. Most of the times it was observed that raw materials were dried in the direct sun light in open areas; it may cause evaporated volatile products and mixed with foreign matters.

Concerning the attitudes of the employees, most of the employees were dissatisfied because of the low earning from the job, cut-down of the overtimes, less opportunity of the carrier development, less promotion opportunity etc. The job involvement is high because of the supervision and duty lists. In discussion, the researcher supposed that the employees were less committed to the organization, and they sometimes remained in the institution due to the pension scheme. The researcher observed that there was not at least one institution that has gained quality standards certificates.

All the observed drug manufacturing institutions had followed the same raw material and processing procedures; however, the procedures followed by those institutions were not recommended by WHO. In numerous occasions, the employees failed, or were confused to identify the raw materials correctly, and it could be concluded that employees who are occupied in Ayurveda drug manufacturing institutions had a poor identification ability of raw materials or the lack of knowledge related to the Ayurveda drug.

There were possibilities for cross contaminations because of the improper cleaning of the machines and the canvas bags. All the institutions followed the written procedures for drug manufacturing processes, but the rejected batches were not documented. Therefore, there was an opportunity to mix quality drug with low quality products.

The information was not followed properly within these organizations due to communication gap between the management and the employees. Usually, the management does not educate the employees about things that they should know, and were less concerned with the suggestions and complains from employees. Consequently, the researcher concluded employees were dissatisfied in the institutions.

There was a positive relationship between the process quality of Ayurvedic drug manufacturing with employee satisfaction and job involvement. It was also recognized that there was no relationship between organizational commitment and process quality.

The supervision of the Ayurvedic drug manufacturing was up to the acceptable level and standards; therefore, the job involvement was high, but it was very difficult to say that the employees were self-motivated and self-engaged in their jobs.

4. Conclusion

The quality of the Ayurveda drug manufacturing process highly influenced the quality of the Ayurvedic drugs. The quality of drugs also affects the satisfaction of the customers/patients/service receivers of the state Ayurvedic hospitals and other Ayurvedic institutions. On the other hand, the process quality was also influenced by the employee attitudes related to their job satisfaction, job involvement and organizational commitment. The Ayurvedic drug manufacturing process was mostly carried out by the untrained employees; therefore, it may have caused the reduction of the process quality of the Ayurvedic drug manufacturing process. Also, it was identified that many issues and problems were related to the employee recruitment, placement, training and development, performance evaluation and management etc.

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