

Effects of Quality of Service on Service Recovery and Customer's Repurchase Intention in Medicine Industry

Chiu Tao-Sheng¹, Nieh Fang-Pei², Pong Chin-Yung³ and Lo, Chun-Hsien^{4*}

¹*Department of Tourism and Leisure Management, Taiwan Hospitality and Tourism College, Hualien, Taiwan, R.O.C No.268, Zhongxing St., Shoufeng Township, Hualien County 974, Taiwan R.O.C.* ²*Department of Hotel Management, Vanung University, Taiwan, R.O.C, No. 1 Van-Nung Rd., Chung-Lin Tao-Yuan (32061), Taiwan, R.O.C* ^{3,4}*Department of Food and Beverage Management Taipei College of Maritime Technology No. 212, Sec. 9, Yenping N. Rd. Shihlin, Taipei, Taiwan (11174), R.O.C*
E-mail: ¹<dawson555442@gmail.com>, ²<pei5675@mail.vnu.edu.tw>, ³<pong@mail.tcmt.edu.tw>, ⁴<masonlo1975@yahoo.com.tw>

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ABSTRACT Quality of Service is an index for customers evaluating and enterprise and the recovery measures in the service process are considered as a key factor in Customer Loyalty. Most of past research on Customer's Repurchase Intention focused on the viewpoint of Quality of Service. However, regarding the inspection of Service Recovery, the correlations between Quality of Service and Customer's Repurchase Intention in medicine industry seem not to be studied. For this reason, this study tends to discuss the correlations between Quality of Service, Service Recovery, and Customer's Repurchase Intention. The customers in the TTY Biopharm are investigated in this study. Total 300 copies of questionnaires were distributed, and 241 valid ones were retrieved. With Structural Equation Modeling to verify the research hypotheses, the empirical result shows the positive correlations between Quality of Service and Service Recovery, Customer's Repurchase Intention, and Service Recovery appears mediating effects. The research result can be the reference of the medicine industry in Taipei areas for practical management, and the suggestions for future research are proposed at the end.

INTRODUCTION

Medicine industry is a high value-added industry and is commonly emphasized globally. The rapid development of economy in Asia Pacific areas has enhanced the development of pharmaceuticals, and China, Singapore, Korea, and Taiwan are regarded as the most potential markets for multinational pharmaceutical enterprises with higher returns on investment. Medicine industry is closely related to national health and presents high value-added that it is commonly emphasized globally. The intention to invest in medicine industry is quite high in Taiwan. With Asia Pacific Biotech Pharmaceutical Production Center planned by the government, domestic pharmaceutical manufacturers have invested in the

research and development of biotechnology, active pharmaceutical ingredients, and relevant pharmaceuticals. The manufacturers have so expanded the investment scales that the popularity of bio-medicine industry is expected.

With the economic development in Taiwan, the promotion of national education and the rapid ageing of population have the citizens concerned about the quality of life and the health of life. The demands for pharmaceutical services are increasing so that the ecology of medicine industry is changing after the practice of national health insurance. Improper utilization of pharmaceutical resources has the operation of pharmaceutical enterprises face great impact and challenges. The adjustment and reduction of medical-care benefits has also changed the ecology of medicine industry. Under the environmental changes in medicine industry, pharmaceutical enterprises in Taiwan are facing a bottleneck. The practice of national health insurance leaves the shadow of "being poor because of illness" for the public that the enhancement of medical quality allows consumers purchasing not only pharmaceuticals, but also quality health.

Address for correspondence:

Dr. Lo Chun-Hsien
Department of Food and Beverage
Management Taipei College of Maritime
Technology, Taiwan, R.O.C No.212, Sec.9,
Yenping N. Rd. Shihlin, Taipei,
Taiwan (11174), R.O.C
E-mail: masonlo1975@yahoo.com.tw

Pharmaceutical service quality briefly covers the professional capability of pharmaceutical service providers and the service quality. In such a customer-oriented era, price is no longer the major factor in a consumer's selection; instead, service quality and convenience are the key factors. However, the public can hardly acquire pharmaceutical information that obvious information asymmetry appears between consumers and service providers. Under such information asymmetry, the public reveals higher requirements on pharmaceutical quality and decreasing trust on medicine industry. What is more, the emergence of medicine disputes has led to the enhancement of pharmaceutical service quality since it is necessary for satisfying the consumers' demands. It is also a concerned issue for managers in medicine industry.

Literature Review

(1) Quality of Service

Lehtien and Lehtien (1982) regarded Quality of Service being generated from the interaction between customers and the service organization. Based on the dimensions of Actual Quality (equipment or building of the company), Interactive Quality (interaction between service personnel and customers and among customers), and Corporate Quality (image or characteristics of a company), the differences between the actual service provided by the company and the expectation of the customers were compared. Parasuraman et al. (1985) (hereinafter referred to as PZB) indicated that the perception of quality of service was the comparison between customer expectation and actual service performance; and, the evaluation of quality was not simply based on the service results, but contained the process of service delivery. When measuring quality of service, both the perceived service standard of a customer and the customer's expectation before receiving services were measured to evaluate the customer perception of quality of service with the difference between expectation and actual perception. Parasuraman et al. (1988) proposed SERVQUAL scale, which established the measurement basis of quality of service. Regarding RSQS (Retail Service Quality Scale), Dabholkar et al. (1996) considered entity image, reliability, personal interaction, problem-solving, and shop policy as the key factors in quality of service.

(2) Service Recovery

Service Recovery is the action to reduce or recover the damage caused in the service deliver process (Hart et al. 1990). Such actions are the recovery measures taken after the service failure, and service recovery requires the enterprise actively identify the service failure, take active measures for recovery, and make corresponding compensation for the customers (Gronroos 1988). Service recovery could be regarded as the tactic of an enterprise intending to eliminate the negative perception of the customers resulted from the failure. With favorable service recovery, the negative responses of the customers could be reduced or even completely eliminated. Boshoff (1999) concerned the recovery attitudes and communication skills of the staff that the staff being empowered to instantaneously feedback the recovery schedule and information compensation, briefly explain the reason of failure, and present external tangible standards was the key factor in service recovery.

(3) Customer's Repurchase Intention

Repurchase Intention refers to a series of expected cognition of customers that they would repurchase and intend to purchase from a specific company or are willing to recommend specific suppliers to others (Daugherty et al. 1998). Davidow (2003) pointed out repurchase intention as the possible tendency of a customer remaining the consumption frequency and continuously using certain products. Keaveney (1995) discovered that an enterprise with favorable and complete services would enhance customer satisfaction and establish favorable relationship with the customers, who would be willing to continuously transact with the enterprise. Parasuraman et al. (1985) also regarded customer loyalty as repurchase intention and the behaviors of recommending to others and giving positive word-of-mouth. Loyalty generally considers 1. the traditional point of view of a consumer repeatedly purchasing the products of the same brand or selecting the same brand and 2. the attitude of consumers' preference, commitment, and purchase intention to a brand (Lee et al. 2001). A lot of researchers proposed to study Customer Loyalty by measuring Customer's Repurchase Intention (for example, Tsai and Huang 2007; Lee et al. 2011).

DEDUCTION OF RESEARCH HYPOTHESIS

(1) Correlations between Quality of Service and Service Recovery

Kelley and Davis (1994) indicated that the perceived quality of service of a customer would affect the expectation of service recovery. Lehtien and Lehtien (1982) regarded quality of service being formed by the quality of a customer perceiving the service process and result. Parasuraman et al. (1985) regarded PZB's quality of service as the comparison between the expectation before services and the cognition after receiving services. Smith et al. (1999) indicated that a customer would expect effective service recovery when there was service failure, as service recovery was the key in promoting quality of service and remaining customer relationship. Accordingly, the first hypothesis is established in this study.

H1: Quality of Service Presents Positive Effects on Service Recovery

(2) Correlations between Service Recovery and Customer's Repurchase Intention

Parasuraman et al. (1994) discovered that loyal customers were likely to promote negative word-of-mouth once they experienced unfavorable service recovery. Keaveney (1995) pointed out service failure as the key factor in customers changing brands. Hart et al. (1990) considered that service recovery could reinforce the connection between customers and an enterprise, but could also enhance the discontent because of bad service recovery. Zeithaml and Bitner (2002) revealed that no service recovery or inefficient recovery strategies would result in negative effects. Passive management could cause the leave of loyal customers, who further spread negative messages. The past empirical research showed that service recovery would positively affect customer's repurchase intention. For this reason,

the path of service recovery influencing customer's repurchase intention is included in the empirical structure in this study. The second hypothesis therefore is established.

H2: Service Recovery Shows Remarkable Positive Effects on Customer's Repurchase Intention.

(3) Correlations between Quality of Service and Customer's Repurchase Intention

Parasuraman et al. (1991) indicated that the perceived quality of service of a customer would affect the intention to recommend the company to others. From the literature review on the correlations between quality of service and customer behavior, Zeithaml et al. (1996) agreed with the mutual correlations between quality of service and behavior intention to determine the final behaviors of the customer that excellent quality of service would lead to positive behavioral intention. The past empirical results pointed out the positive effects of quality of service on customer's repurchase intention (Buzzell and Gale 1987; Cronin and Taylor 1994; Boulding et al. 1993; Jone and Sasser 1995). The path of quality of service affecting customer's repurchase intention therefore is included in the empirical structure in this study. The third hypothesis is further established.

H3: Quality of Service Reveals Significant Positive Effects on Customer's Repurchase Intention

METHODOLOGY

(1) Research Framework

According to the above hypotheses, quality of service would affect customers' repurchase intention through service recovery. The theoretical framework for this study is shown in Figure 1.

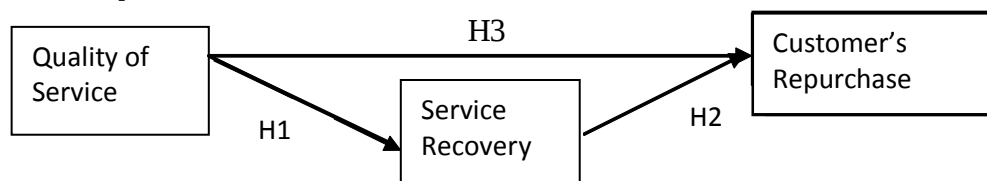


Fig. 1. Research framework

(2) Sampling Design and Measuring Tool

1. Sampling Design

TTY Biopharm devotes to the development of pharmaceuticals and international marketing. On one hand, it constantly enhances the capability connecting with the world, such as internationalized documentary (CMC, CTD) capability, international clinical testing capability, and the production capability conforming to EMEA and FDA. On the other hand, it continuously selects new pharmaceutical development cooperators and the optimal partners in targeted markets strictly. In addition to continuously operating the core distribution in Taiwan (medical centers, regional hospitals, and local hospitals with development potential), TTY Biopharm Co. Ltd. intends to enter the international market by developing high-barrier but therapeutic effect-proven new pharmaceuticals and biomedicine. The self-developed pharmaceuticals have been successfully promoted to various countries in European Union, Asia Pacific areas, Middle East, Africa, and South America currently and become the best partner of pharmaceutical marketing companies in the regions.

Taking TTY Biopharm Co. Ltd. as the research sample, 300 copies of questionnaires are distributed and 241 valid ones are retrieved, with the retrieval rate 80%. The researcher assists the participants in the questionnaire problems and questions and confirms the careful answers not being lost or misunderstood so as to reduce invalid copies of questionnaires resulted from sampling errors.

(2) Analysis of Covariance

To avoid problems in covariant, the arrangement of the questionnaire is pre-designed, such as hiding the meaning of questions, and Harman's one-factor test, which was regarded as a post hoc remedy, is utilized for post hoc prevention (quoted from Peng et al. 2006). Harman's one-factor test precedes Exploratory Factor Analysis of all questions, and three factors are extracted. The explanation of the first factor shows 30.92%, not achieving 50% that there is no covariant problem in the sampled data in this study.

RESULTS

(1) Reliability and Validity Analysis

The measurement of various dimensions in this study presented favorable goodness-of-fit,

$\chi^2/df=2.574$, Goodness-of-Fit Index (GFI)=0.911, Adjusted Goodness-of-Fit Index (AGFI)=0.88, Comparative Fit Index (CFI)=0.916, and Root Mean Square Error of Approximation (RMSEA)=0.068. In the measuring model, the factor loading of the questions was larger than 0.5, except the reaction 2 lower than 0.5, revealing the reliability of the questions (Hair Jr. et al. 2010); the SMC of the questions appeared between 0.230 and 0.690, conforming to the suggested standard of SMC > 0.2 (Bentler and Wu 1993; Jöreskog and Sörbom 1993); and, the component reliability of the dimensions was higher than 0.7, which was higher than 0.824 in spite that quality of service did not reach the standard of 0.5 in the average variance extracted (AVE). According to the previous research, the measuring model of such variables still presented convergent validity (Fornell and Larcker 1981).

Base on the principle of discriminant validity, the square root of AVE of the dimensions in Correlation Matrix Analysis, (Table 1), was larger than the correlation coefficient between dimensions, showing that this study was suitable for further Structural Equation Analysis.

(2) Structural Model Analysis

The model goodness-of-fit appeared $\chi^2/df=2.574$, GFI=0.910, AGFI=0.880, NFI=0.930, CFI=0.950, IFI=0.950, and RMSEA=0.069 in this study. Hu and Bentler (1999) indicated that GFI and AGFI higher than 0.8 were acceptable, presenting the favorable goodness-of-fit between the structural model and the observed data.

The standardized path coefficients of the hypotheses are shown in Table 2, where γ stood for the path relationship between exogenous variables and endogenous variables and β stood for the path relationship between endogenous variables. Quality of service showed directly positive effects on service recovery ($\gamma_{11}=0.373$, $p<0.001$); service recovery revealed directly positive effects on customer's repurchase intention ($\gamma_{11}=0.200$, $p<0.01$); and, quality of service appeared directly positive effects on customer's repurchase intention ($\gamma_{11}=0.3120$, $p<0.001$). In the analyses of direct and indirect effects on customer's repurchase intention, the direct effect of Quality of Service→Customer's Repurchase Intention appeared 0.312, and the indirect effect of Quality of Service→Service Recovery→Customer's Repurchase Intention showed $0.373 \times 0.2 = 0.0744$.

Table 1: Correlation matrix analysis

<i>Demension</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Quality of service</i>	<i>Service recovery</i>	<i>Repurahase inteneration</i>
Quality of service	6.280	0.577	0.612		
Service recovery	5.536	1.037	0.321	0.710	
Repurchase intention	5.824	0.888	0.320	0.261	0.750

Table 2: Analysis of hypothesis test result

<i>Path</i>				<i>Path coefficient</i>	<i>Hypothesis</i>	<i>Test result</i>
γ_{11}	Quality of service	→	Service recovery	0.373***	H1	Supported
γ_{12}	Service recovery	→	Repurchase intention	0.200**	H2	Supported
γ_{21}	Quality of service	→	Repurchase intention	0.312***	H3	Supported

From the research results, all research hypotheses in this study were supported, and Service Recovery played a critical role in maintaining Customer's Repurchase Intention.

(3) Mediating Effect Test of Service Recovery

According to the mediation test suggested in the mediating effects test procedure (Baron and (Kenny 1986), quality of service presented significant mediating effects on customer's repurchase intention, but the coefficient was slightly reduced when both quality of service and service recovery were included in the equation (Table 3). Summing up the above mediating effects test conditions, Service recovery appeared partially mediating effects on the correlations between quality of service and customer's repurchase intention.

For more deliberate test of mediating effects, Sobel (1982) Test was proceeded, where the unstandardized coefficient of Quality of Service→Customer's Repurchase Intention appeared 0.492 and the standard error 0.079, the unstandardized coefficient of Quality of Service→Service Recovery showed 0.596 and the standard error 0.096, and the unstandardized coefficient of Quality of Service and Service

Recovery→Customer's Repurchase Intention revealed 0.405 and 0.146 and the standard error 0.083 and 0.044, respectively. With Sobel Test to test z being $2.750 > 1.96$, it presented the mediating effects. Furthermore, Bootstrapping Analysis was utilized for testing the mediating effects, and the results presented the direct effect 0.802 of service recovery, the mean 0.0838, the standard error 0.0303, 95% confidence interval (0.0366, 0.1589) calculated with Percentile Method, and 95% confidence interval (0.0296, 0.1475) calculated with Bias Corrected. The confidence intervals calculated with the two methods were larger than 0, conforming to the mediating effects test in Bootstrapping Analysis (Mooney et al. 1993). The retest with such two methods proved the mediating effects of service recovery on the correlations between quality of service and customer's repurchase intention.

DISCUSSION

(1) Conclusion and Management Inference

This study aims to understand the effects of consumers on quality of service, service recovery, and repurchase intention of medicine industry and construct the correlation model for the

Table 3: Mediating effect analysis of service recovery

<i>Mediator factor</i>	<i>Equation</i>	<i>Independent variable</i>	<i>Dependent variable</i>	<i>Path coefficient</i>	<i>t</i>	<i>p</i>
<i>Service</i>	1	Quality of service	Service recovery	0.596	6.231	0.000
	2	Quality of Service	Repurchase intention	0.492	6.211	0.000
	3	Quality of Service	Repurchase intention	0.405	4.911	0.000
		Service recovery		0.146	3.298	0.001

practical and theoretical verification. Summing up the research objectives and the research results, the following conclusions are summarized.

1. Consumers' Cognition of Quality of Service, Service Recovery, and Customer's Repurchase Intention of the Enterprises

The consumers' cognition of the enterprises' quality of service, service recovery, and customer's repurchase intention approaches positive. Based on the total score 7, the average scores of the three are above 5, revealing up to 80% satisfaction of the customers with the enterprises' quality of service, relationship quality, and loyalty performance. This study shows the customers' cognition of quality of service, service recovery, and customer's repurchase intention being positive identified in customers' repurchase intention.

2. Correlations among Quality of Service, Service Recovery, and Customer's Repurchase Intention

The research result shows the positive effects of quality of service on repurchase intention, further presenting positive effects on quality of service. Besides, service recovery also appears positive effects on customer's repurchase intention. According to the integrative model of Relationship Marketing proposed by Hennig-Thurau et al. (2002), an effective service recovery measure resulted from service failure during an enterprise providing favorable quality of service is the key factor in consumers' repurchase, from the aspects of the concept of Relationship Benefits-Relationship Quality-Customer Loyalty and PZB theory. This study finding shows that quality of service and service recovery would directly affect customer's repurchase intention and indirectly influence the correlations with customer's repurchase intention. For this reason, the medicine industry is suggested to promote quality of service and service recovery when enhancing customer's repurchase intention so as to remain the advantage among the fiercely competitive medicine industry.

3. Mediating Effects of Service Recovery

The research result presents the mediating effects of service recovery on the correlations between quality of service and customers' re-

purchase intention. In other words, simply depending on quality of service is insufficient for mastering consumers' repurchase intention; quality of service would be restricted without recovery of service failure. Kotler (1999) indicated that the overall business of an enterprise should base on customer satisfaction and cut in from the customers' demands, rather than considered the benefits. Parasuraman et al. (1991) mentioned that cutting in the service process could more easily have the customers generate excellent quality of service. From the research analysis, customers mostly stress on immediately exchanging defected products or the equity matters about refund and exchange of other products and spiritual concerns, which also greatly affect quality of service and service recovery. Proposing strategies for customers' responses would be the primary problem for an enterprise.

4. Management Practice

Customers are changeable. It is realized from this study that an enterprise has to insist on the high-quality services and immediately recover the service failure to acquire the customers' trust and satisfaction so as to stabilize customer's repurchase intention. Customers are always the key factors in the sustainable management of an enterprise. The meaning of the correlations among quality of service, service recovery and customer's repurchase intention therefore could be further understood through the research results.

In short, it is believed that an enterprise would receive real feedback from practicing and experiencing the correlations among quality of service, service recovery, and customer's repurchase intention to cope with competitive medicine industry by mastering the customer demands, deepening the idea of quality of service to satisfy the customers' unique consumption characteristics, insisting on customer-oriented management, and remaining the focus on quality of service.

Overall speaking, this study proves the effects of quality of service and service recovery on customers' repurchase intention and the critical mediating role of service recovery.

(2) Suggestion

First of all, cross-sectional study is utilized in this study. The follow-up research could apply

longitudinal studies to permanently observing the dynamic changes of customer loyalty. It could assist in understanding the casual relationship in the structural model as well as developing an effective measuring tool for further analyses and empirical research. Second, merely the medicine industries in Taipei areas are investigated in this study, but the locations of consumers are not discriminated that the research conclusion is restricted. Variance analysis of consumers in various locations could be further studied. Third, self-report questionnaires are used for collecting the research data in this study. When the research population is not objectively referred, the deduction of the analysis data could be restricted. What is more, there are some other important variables not being taken in account in this study, such as relationship quality and life style. Besides, personal attributes of age, gender, and occupation are not included in the control analysis that the deduction of the research results could also be restricted.

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