Statistical Approach to the Link between Internal Service Quality and Employee Job Satisfaction: A Case Study

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Abstract The study investigated the association between internal service quality (ISQ) and employee job satisfaction (EJS) in Federal Neuro-Psychiatric Hospital, Benin City (FNPH). The specific purpose comprised the evaluation of the hospital's ISQ using SERVPERF model, assess the level of EJS, determine whether ISQ influences EJS, identify which dimensions of ISQ contribute significantly to overall EJS and two hypotheses were raised to guide this study. The survey method was adopted for data collection. A sample of 277 was drawn out of staff population of 900. The reliability of the instrument used for the survey was tested using Cronbach Alpha which yielded an index of (0.937). The data were analyzed using Boxplot, Mean, Standard deviation, Exploratory Factor Analysis and Regression Analysis. The results of analysis revealed ISQ dimensions of Assurance ranked high are the most important among FNPH staff, 65% of them were satisfied with their job and ISQ dimensions contributes 39.6% of the total EJS. The study recommends upgrade of ISQ components, empowerment of the SERVICOM Unit to monitor and ensure service quality compliance not only to external customers (Patience) but also to monitor and enforce ISQ compliance among the Hospital's internal customers (Employees).

Keywords: Internal service quality, Employee Job Satisfaction, SERVPERF, Exploratory Factor Analysis

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1. Introduction

SERVICOM, an acronym for Service Compact with all Nigerians, is Federal Government of Nigeria initiatives for MDAs (Ministries, Departments and Agencies) whose charter among others were to provide quality services designed around the requirements of customers and served by trained staff that are sensitive to the need of their clients. The Federal Neuro-Psychiatric Hospital, Benin keyed into the SERVICOM charter by the establishment of a SERVICOM unit. The SERVICOM unit has been making useful and valuable patients-centered suggestion that has helped to a reasonable degree in improvement of services to patients. However, the employee-centered quality improvement is yet to receive the level of attention it deserves. Employee-centered quality (internal service quality) improvement may enhance the level of employee job satisfaction and ultimately service efficiency. [11] opine that low job satisfaction can lead to increased job mobility and more frequent absenteeism, which may reduce the efficiency of health care services. Previous studies reported that unsatisfied health care employees negatively affect the quality of care which may adversely affects patient satisfaction and loyalty to a hospital [5,10]. Healthcare administrators and managers in a variety of health related industries will benefit by understanding how internal service quality contribute to job satisfaction (or job dissatisfaction). The outcome of this work will provide valuable insight that may lead to increase retention of valuable employees, increased competitiveness and efficient service delivery. This work therefore, aims to examine the relationships between internal service quality and job satisfaction among Federal Neuro-Psychiatric Hospital employees Benin City, Nigeria.

2. Literature Review

2.1. Internal Service Quality and Employee Job Satisfaction

Two approaches have been employed in evaluating the service quality of organizations in the extant literature, namely: Outside-In-Approach (OIA) and Inside-Out-Approach (IOA). While both approaches focus on customers as the data source for the evaluation of service quality, OIA focuses on external customers of the organization (external service quality) and IOA concentrates on internal customers or employees within the organization-internal service quality [2]. The perception of internal service implies the idea that the whole organization must serve those who serve emerged as one

of the most important principle of the service management approach [12]. [23] posits internal service as services provided by distinctive organizational units or people working in these departments to other units or to the employees within an organization. McCarter (1992) as cited in [6] defines Internal Service quality (ISQ) as meeting the expectations and requirements for success of those people inside the company so they can delight customers in the marketplace. But [24], 'put it' differently; internal service quality is characterized by the attitude that people have towards one another and the way people serve each other inside the organization and it is necessary to superior external service quality. Yet, [22] regards ISQ as meeting or exceeding the quality expectations and requirements of employees to enable them provide superior services to the delight of external customers. The SERVPERF (SERVice PERFormance) model suggested by [9] have been recommended by researchers as a measure of dimension of service quality, which emphasizes performance-only service quality scale.

Satisfaction is a feeling of gratification after using goods or receiving services and customer satisfaction is the reaction or response of customer after using a good or availing a service. It is one of the fundamental corporate goals handled by the top management of any organization to enhance the quality of services or goods offered to customers. Further, customer satisfaction has become imperative issue as a result of increased competition and believed to be an indispensable aspect for service sector competitiveness [4]. Job satisfaction has been conceptualized and operationalized as both a global and a multidimensional construct. On a global level, job satisfaction is considered in terms of an employee's overall satisfaction with his or her job. As a multidimensional construct, job satisfaction concerns satisfaction with pay, supervision, company policy and the nature of the work, it is the gratification or prosperity that the employees get from their job deemed as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences . Employee job satisfaction (EJS) consists of an extrinsic and intrinsic component. Intrinsic job satisfaction is how people feel about the nature of the job tasks themselves, while extrinsic job satisfaction is how people feel about aspects of the work situation that are external to the job tasks [16,21].

2.2. Relationship between Internal Service Quality and Employee Job Satisfaction

Several publications linked ISQ to employee job satisfaction, among such are; [25], [7] and [26] in their respective works argued that ISQs were significant factor affecting employee job satisfaction (EJS). [15] believed ISQ to be particularly essential to meeting internal service requirements resulting in enhanced service-delivering proficiency and EJS, which ultimately influence the quality of external services. [18] developed a profound "Service-Profit Chain" model. The feedback model claims the existence of a causal relationship between ISQ and EJS (as shown by the demarcation in Figure 1). The feedback loop continues with employee loyalty, external service quality, customer satisfaction, customer loyalty, revenue and profit growth and back to internal service quality.

3. Research Methodology

3.1. Objectives and Hypotheses Formulation

The study objectives are:
- To evaluate the ISQ of Federal neuropsychiatric hospital using SERVPERF model.
- To assess the level of job satisfaction of the Federal neuropsychiatric hospital employees.
- To determine whether ISQ influences EJS.
- To identify which dimensions of ISQ contribute significantly to measuring overall satisfaction in the context of Federal neuropsychiatric hospital employees.
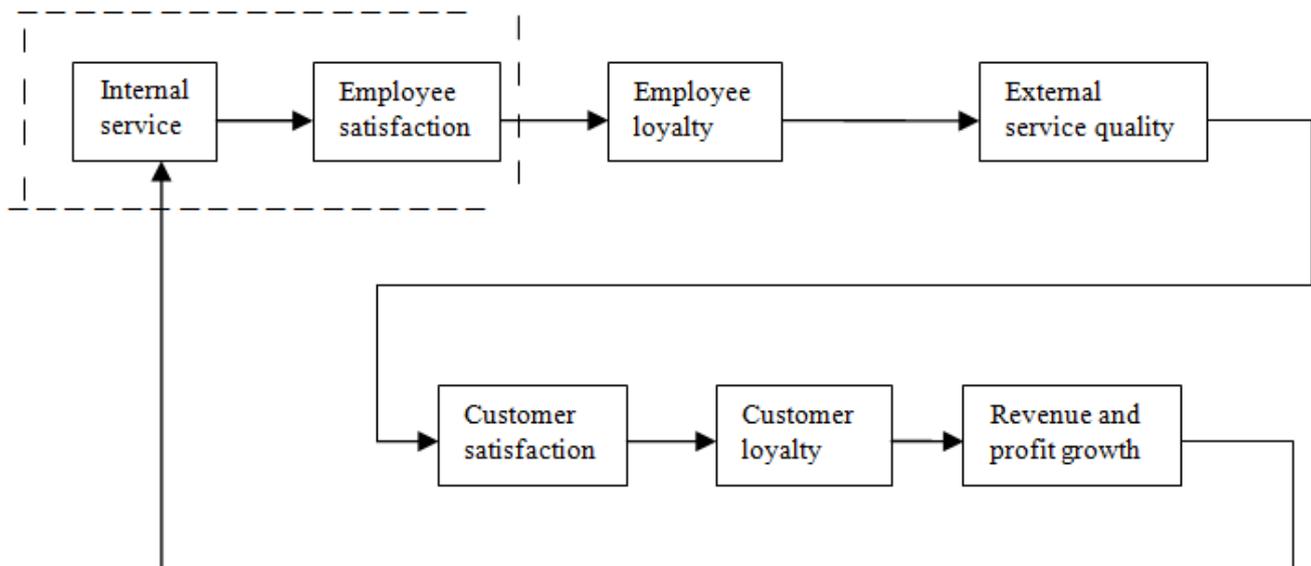
Source: Retzer, J. (2007), Examining the Customer-Employee Satisfaction Feedback Loop (P.1).
http://www.maritzresearch.de/pdf/Examining-the-Customer-Employee-Satisfaction-Loop.pdf.

Figure 1. The Service-Profit Chain

Based on the objectives the following were formulated for the hypotheses:

- H1: There are no significant differences in the perceptions of FNPH Benin staff in terms of tangibles, reliability, assurance, responsiveness, and empathy as dimensions of service quality.
- H2: ISQ has no positive significant impact on FNPH Benin Staff employee satisfaction.

3.2. Development of Instrument

We adopted a modified version of the SERVPERF (SERVice PERFormance) measuring instrument developed by [9]. The 22 items, 5-point likert scale with range from 1 strongly disagree to 5 strongly agree was use to measure the level of agreement to statements raised under list of SERVPERF five dimensions of: (i) tangibles (five items), (ii) reliability (five items), (iii) responsiveness (four items), (iv) assurance (four items), and (v) empathy (four items), while employee job satisfaction was measured with a six item 5-point likert scale with range from 1 strongly disagree to 5 strongly agree suggested by [19], [17], and [8] and adopted by [1].

3.3. Sampling Plan

The study population includes total staff strength of Federal Neuro-psychiatric Hospital. The hospital is made up of seven departments namely; Accounts, Administration, Audit, Clinical service, Nursing service, pharmacy and School of psychiatric nursing. We employed Yamane's formula [27] to calculate the sample size which will be used to further determine the representative proportion from each department of the hospital.

$$n = \frac{N}{\left[1 + N\left(e^2 \right) \right]}$$

where n = sample size, N = population, e = error tolerance.

3.4. Data Collection

Questionnaire was used to collect data. It comprised of three sections. Section A contains staff demographics.

Section B contains questions that relates to the five quality dimensions of SERVPERF model, while Section C contains Employee Satisfaction scale questions. Data was extracted from collected and completely filled questionnaire using SPSS version 23. Federal Neuro-Psychiatric Hospital, Benin City, Nigeria (FNPH) has population of 900 staff spread across seven departments of: Accounts, Administration, Audit, Clinical Service, Nursing Service, Pharmacy and School of Psychiatric Nursing. Purposive sampling was adopted in administration of questionnaires to specific number of staff in each department based on the proportion of the calculated sample size. 277 questionnaires representing the calculated sample size was personally administered proportionate to the number of staff in each department, and corresponding to 30.8% of the entire population.

3.5. Data Handling

The motive for data preparation (also known as data cleaning or scrubbing) was to detect, correct errors and inconsistencies in the dataset. The data was cleaned before the final analysis. Outliers were detected and isolated using box plots with the help of SPSS version 23. Figure 2 shows the box plot graph indicating various measures as the median, inter-quartile range, outliers, maximum, and minimum of the five dimensions of ISQ and EJS.

4. Analysis, Results and Discussion

4.1. Results

The demographic profile of the respondents is as follows. Of a total sample size of 277 participants, the majority (178) was male (64.3 %) while (99) were female (35.7 %). A total of 115 (41.5 %) belong to the (1 – 5 years) years of service range, 64 (23.1 %) belong to the (6 – 10 years) years of service range while 98 (35.4 %) have served for over ten years (11 years and above). Respondents' distribution by department were 13 (4.7%), 87 (31.4%), 9 (3.2%), 50 (18.1%), 96 (34.7%), 12 (4.3%), 10 (3.6%) in department of Accounts, Administration, Audit, Clinical Service, Nursing Service, Pharmacy and School of Psychiatric Nursing, respectively.
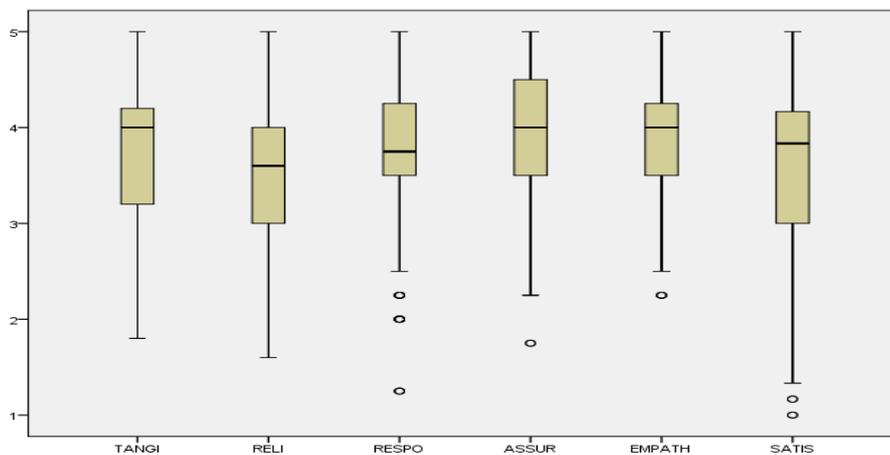
Note:　TANGI　=　tangibles,　RELIA　=　reliability,　RESPO　=　responsibility,　ASSUR　=　assurance
EMPATH　=　empathy,　SATIS　=　satisfaction**.** *Source*: Author's calculations

Figure 2. Results of Box Plot

4.2. Dimensional Analysis

We suppose FNPH employees are able to distinguish between the five dimensions of ISQ importance by mean ranking. This is shown in Table 1.

Assurance appears to be the most important dimensions of ISQ in the context of FNPH staff, with mean scores of 3.94. Respondents perceive reliability as the least important, ranking it fifth with a mean score of 3.48. Therefore we reject null hypothesis (H1) and conclude that there is a significant difference in the perceptions of FNPH Benin staff in terms of tangibles, reliability, assurance, responsiveness, and empathy as dimensions of ISQ. Standard deviations range from 0.60 to 0.84, which shows that the data is compact and less scattered. However, statistics for Employee Job Satisfaction shows a mean of 3.55 with a high standard deviation of 0.99, indicating a wide range of Employee Job Satisfaction (EJS) level. Further more in the EJS scale, (23.2%) responded 'Not Satisfied', (11.9%) 'Undecided' and (65%) 'Satisfied'.

4.3. Exploratory Factor Analysis

In the ISQ scale analysis of 22 items, test for exploratory factor analysis was carried out in two steps iteration. Firstly, we check the reliability value of each ISQ dimensions and reject any item having 'Cronbach's alpha if item deleted' value higher than the group dimension/component Cronbach's alpha reliability statistics value. Also, dimension/component was rejected when reliability statistics was found to be less than 0.6 Cronbach's alpha value as proposed by [13]. Secondly, the suitability of the entire sample was tested for factor analysis, as recommended by Karatepe, Yavas, and Babakus (2005) as cited from [3]. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was above 0.500 and the Bartlett test of sphericity was significant at $p = 0.000$, next the principal component analysis along with the varimax rotation was performed to extract the components. Based on [3] suggestion, eigenvalues greater or equal to 1.0 determines the components and factors loadings of value equal or greater than 0.5 for items to be retained. Out of initial 22 items, 13 items loaded into three components, while nine items were dropped due to either poor loading or poor Reliability Cronbach's alpha coefficient. Table 2 shows outcome of the analysis.

The items were grouped into three components by the Principal Component Analysis with the Varimax –Kaiser Normalization Rotation Method: TAN-REL, ASS-RESP and EMP-REL-RESP corresponded to components 1, 2 and 3 respectively.

Table 1. Perception of ISQ Dimension

ISQ Dimension	Rank	Mean	Standard deviation
Tangibility	4	3.71	0.75
Reliability	5	3.48	0.84
Responsiveness	3	3.72	0.72
Assurance	1	3.94	0.66
Empathy	2	3.93	0.60

Source: Author's calculations.

Table 2. Factor Analysis of ISQ Dimension

S/N	VARIABLE IDENTIFIER	FACTOR LOADING	ISQ Dimension α
	TANGIBLE		**0.803**
1	TANGIBLE1	0.716	
2	TANGIBLE2	0.832	
3	TANGIBLE3	0.588	
4	TANGIBLE4	0.710	
5	TANGIBLE5	0.709	
	RELIABILITY		**0.847**
6	RELIABILITY1	0.593	
7	RELIABILITY2	0.614	
8	RELIABILITY3	0.574	
9	RELIABILITY4**	X_b	
10	RELIABILITY5**	X_b	
	RESPONSIVENESS		**0.691**
11	RESPONSIVENESS1	0.592	
12	RESPONSIVENESS2**	X_b	
13	RESPONSIVENESS3*	X_a	
14	RESPONSIVENESS4	0.732	
	ASSURANCE		**0.726**
15	ASSURANCE1	0.771	
16	ASSURANCE2	0.698	
17	ASSURANCE3	0.738	
18	ASSURANCE4*	X_b	
	EMPATHY		**0.631**
19	EMPATHY1	0.671	
20	EMPATHY2	0.723	
21	EMPATHY3***	X_a	
22	EMPATHY4***	X_a	
	First iteration KMO		0.874
	Second iteration KMO		0.879
	Third iteration KMO		0.843

Note: X_a = Item dropped in the first step, X_b = Item dropped in the second step, * = item deleted in first iteration, ** = item deleted in second iteration, *** = item deleted in third iteration α = Cronbach's alpha coefficient of ISQ dimension.
Source: Author's calculations.

Table 3. ISQ Component table

components					
1	(0.850*)	**2**	(0.779*)	**3**	(0.809*)
Tangible1		Assurance1		Empathy1	
Tangible2		Assurance2		Empathy2	
Tangible3		Assurance3		Reliability2	
Tangible4		Responsiveness4		Reliability3	
Tangible5				Responsiveness4	
Reliability1					

Note: * Cronbach's alpha reliability coefficient of components
Source: Author's calculations

Similarly, exploratory factor analysis was performed for the six itemed employee job satisfaction yielding a high reliability Cronbach's alpha coefficient (0.901) and loaded cleanly in a single iteration into one component with a KMO of 0.844 and the Bartlett's test was significant at p=0.000.

4.4. Employee Overall Attitude towards Job Satisfaction

From the exploratory factor analysis, the five dimensions of SERVPERF were reduced to two components. These components collectively determines the EJS of FNPH Staff, all two ISQ components were taken as independent variables while EJS component was taken as the dependent variable. In order to satisfy the required assumptions of performing regression analysis, Table 4a shows positive Pearson correlation between the criterion variable and the predictor variables, Table 4b value of Durbin-Watson statistics (1.841) is indicative of the absence of autocorrelation, Table 4c shows that the F-statistics (59.726) of regression is significant at p=0.000, Table 4d regression coefficient and Table 4e Regression Collinearity diagnostics, all satisfied the requirements of the Regression assumptions.

Table 4a. Correlation Matrix

		SATISFACTION	TANG-RELI	ASS-RESP	EMP-RELI-RESP
Correlation	SATISFACTION	1.000	.469	.327	.306
	TANG-RELI	.469	1.000	.000	.000
	ASS-RESP	.327	.000	1.000	.000
	EMP-RELI-RESP	.306	.000	.000	1.000
Sig. (1-tailed)	SATISFACTION		.000	.000	.000
	TANG-RELI	.000		.500	.500
	ASS-RESP	.000	.500		.500
	EMP-RELI-RESP	.000	.500	.500	

Table 4b: Regression Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.629[a]	.396	.390	.78126770	1.841

a. Predictors: (Constant), EMP-REL-RESP, ASS-RESP, TAN-REL
b. Dependent Variable: SATISFACTION.

Table 4c. Regression Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	109.366	3	36.455	59.726	.000[b]
	Residual	166.634	273	.610		
	Total	276.000	276			

a. Dependent Variable: SATISFACTION
b. Predictors: (Constant), EMP-REL-RESP, ASS-RESP, TAN-REL.

Table 4d. Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-8.022E-17	.047		.000	1.000		
	TAN-REL	.458	.047	.458	9.736	.000	1.000	1.000
	ASS-RESP	.328	.047	.328	6.975	.000	1.000	1.000
	EMP-REL-RESP	.281	.047	.281	5.978	.000	1.000	1.000

a. Dependent Variable: SATISFACTION.

Table 4e. Regression Collinearity Diagnostics

Collinearity Diagnostics[a]

| Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	TAN-REL	ASS-RESP	EMP-REL-RESP
1	1	1.000	1.000	.50	.05	.45	.00
	2	1.000	1.000	.00	.91	.09	.00
	3	1.000	1.000	.00	.00	.00	1.00
	4	1.000	1.000	.50	.05	.45	.00

a. Dependent Variable: SATISFACTION.

As Table 4d of coefficients indicates, VIF – variance inflation factor are very small and smaller than 10. It means that regression model accepts three components. Moreover, the value of R-square from Model summary of Table 4b is .396 implies that the independent variables account for 39.6% variation in the criterion variable. In other words, the three components of ISQ namely TAN-REL; ASS-RESP; and EMP-REL-RESP explain 39.6% of employee job satisfaction. This further implies that factors other than ISQ are responsible for 60.4% of the variation in Employee Job Satisfaction. Therefore we reject the null hypothesis (H2) and conclude that ISQ has a positive statistically significant impact on FNPH Benin staff EJS.

Of the three components, all have a significant impact on employee job satisfaction. In order of importance, these are:

Table 4f. Order of Weight of ISQ Component's Contribution to EJS

1	TAN-REL	$\beta = 0.458$
2	ASS-RESP	$\beta = 0.328$
3	EMP-REL-RESP	$\beta = 0.281$

The regression function is written as follows: EJS = 0.458 TAN-REL + 0.328 ASS-RESP + 0.281 EMP-REL-RESP.
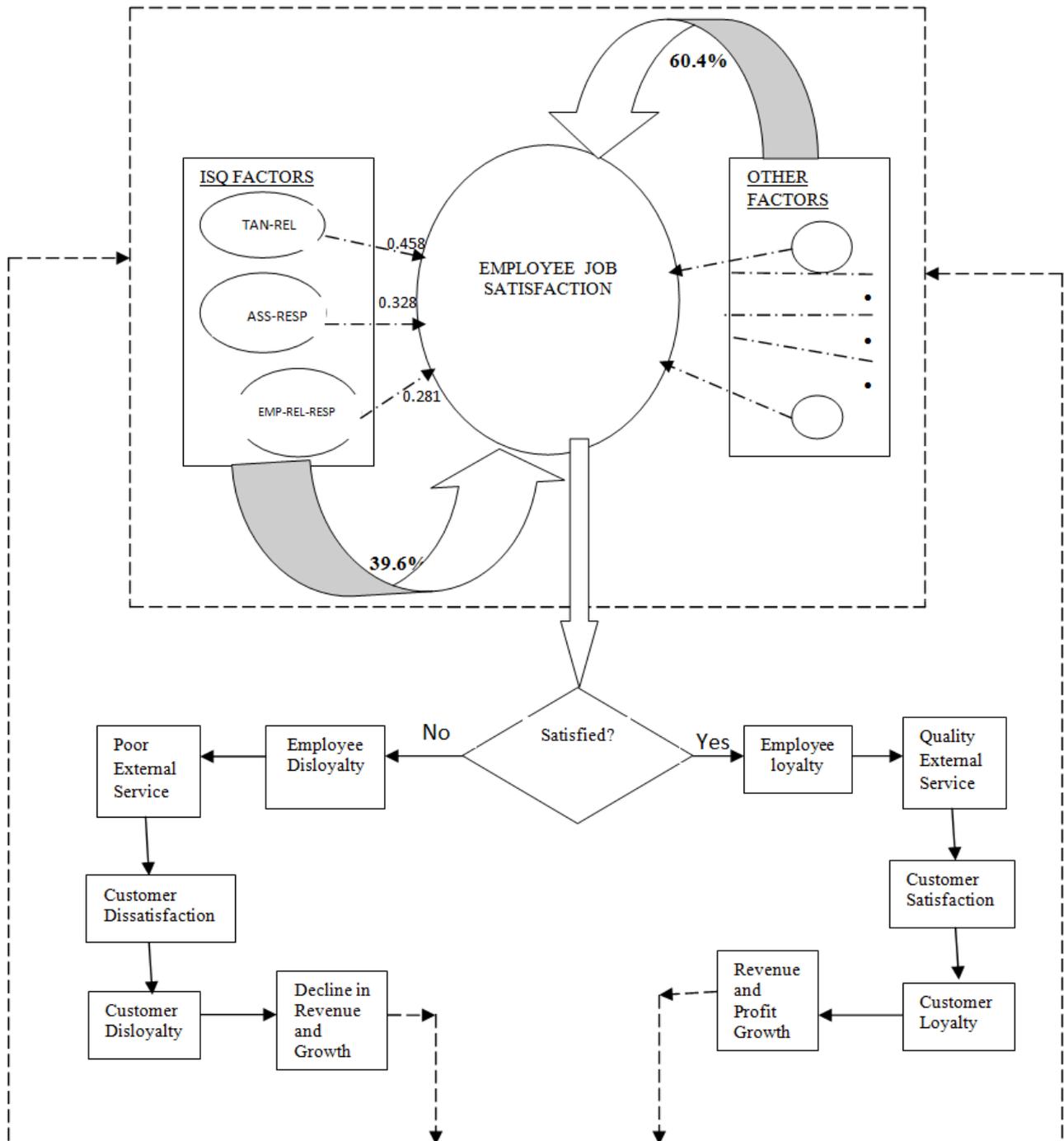
Note: Curved Block Arrows indicate percentage contribution of factor to Employee Job Satisfaction (EJS), the long dash dot arrows indicate magnitude of factors' components contribution to EJS while the dash arrow is the feedback loop.

Figure 3. Research Model Result Combined with Service-Profit Chain

5. Conclusion and Recommendation

The result of this work confirms [20] opinion on ISQ and EJS in the Pakistan telecom and IT sector as positively correlated. Also, results showed ISQ components contributes significantly to EJS, this is in concord with [18], who concluded that high ISQ triggers high EJS, which in turn boost service quality delivery to external customers (patients and members of the public), culminating in an increase patronage and revenue for the hospital.

In conclusion, the SERVPERF model for ISQ dimension was successfully implemented along with the [19] Employee Job Satisfaction scale at Federal NeuroPsychiatric Hospital Benin City. The findings were:

- Wide range of EJS with majority representing 65% satisfied with their job, 23.2% on the other hand were not and the remainders (11.9%) were undecided.
- Among the ISQ dimensions, Assurance ranked highest as the most important among FNPH staff.
- The outcome of the exploratory factor analysis of ISQ dimension showed that TANGIBLE and RELIABILITY were combined (i.e TAN-REL), ASSURANCE and RESPONSIVENESS (ASS-RESP) while some items from RELIABILITY and RESPONSIVENESS combined with EMPATHY to form the third component (EMP-REL-RESP) .
- TAN-REL component contributed the most to EJS, followed by ASS-RES, while EMP-REL-RESP contributed the least. ISQ components (TAN-REL, ASS-RES, EMP-REL-RESP) contributes 39.6% to EJS, while other ISQ-independent factors contributes the remaining 60.4%.

Thus, the study recommends that the Management of the Hospital should upgrade and sustain the ISQ components identified in this work in order to facilitate efficient ISQ delivery, which is a prerequisite for external customer satisfaction, delight, loyalty and patronage. The SERVICOM unit staff in addition to monitoring and ensuring external customers' service quality compliance should be empowered to also monitor and ensure ISQ compliance among staff/ departments within the Hospital.

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