Impact of Service Quality on Customer Satisfaction in Ghana hospitals: A PLS-SEM Approach

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ABSTRACT

This study investigated the impact of service quality dimensions on customer satisfaction in Ghana private hospitals. This study was conducted using the data from 562 consumers who received services from four (4) different private hospitals in Ghana. Assurance, empathy, reliability, responsiveness and tangibility (Service Quality dimensions) and customer satisfaction were the variables considered for this study. Findings of this study revealed that all five dimensions of SERVQUAL scale but assurance has a positive, direct and significant impact on customer satisfaction. Furthermore, the data was analyzed and the model validated using variance based structural equation modelling (PLS-SEM).

Keywords: Service quality, Customer satisfaction, SERVQUAL scale, PLS-SEM, Hospital.

INTRODUCTION

With the rapid advancements in competitive business environment, customer expectations and demands are also increasing, leading to a situation where most companies find it difficult to retain their customers (Farooq, Salam, Fayolle, Jaafer, & Ayupp, 2018; Fatima, Malik, & Shabbir, 2018). Several scholars agree that quality is critical to consumer's satisfaction (Andaleeb, Siddiqui, & Khandaker, 2007; Demirci Orel & Kara, 2014; Izogo & Ogba, 2015; Jahanshahi, 2009; Santouridis & Trivellas, 2010; Woldeyohanes, Woldehaimanot, Kerie, Mengistie, & Yesuf, 2015). Several business organizations focus on service-quality issues to drive customer's satisfaction above the rest (Meesala & Paul, 2018; Paul, Mittal, & Srivastav, 2016). Hospitals are interested in identifying the most critical factors in hospitals that, if managed well, will ensure survival and success in the future. For this to happen, the strategic factors need to be identified (Kim et al., 2017).

Better service quality is a critical factor which can be useful for distinguishing and improving organization's performance in the era of intense competition (Farooq et al., 2018; Jamaluddin & Ruswanty, 2017). Pertaining to the subjective nature of service quality, its dimensions and measurement issues have been investigated by various recent studies (B & M, 2018; Farooq et al., 2018; Gohain, Thambiah, & Hong, 2018; Meesala & Paul, 2018). Conceptual and empirical relationship between service quality and customer satisfaction have received substantial attention from researchers, turning it into one of the core marketing instruments (Farooq et al., 2018). Although measurement of service quality has received a great deal of attention, yet service quality of hospital industry in developing requires a thorough investigation (Paul et al., 2016; Tenkorang, 2016; Woldeyohanes et al., 2015). Notwithstanding, most of these researches were conducted in public hospitals. The extant literature
does not address this relationship in the context of private hospitals in developing countries as described in the foregoing lines. We seek to fill this gap in the literature. Besides, there was no well-designed study examining the impact of each of the SERVQUAL dimensions on patient's satisfaction in a developing country like Ghana. Similarly, the use of variance based structural equation model (PLS-SEM), has not be tested in this context yet. Our research will determine the most important quality dimensions and their predictive size and relevance on patient’s satisfaction.

Universal access to good quality care and optimal patient satisfaction is the goal of health systems and governments all over the world (Ampofo & Opoku-Danso, 2017)(Meesala & Paul, 2018), many developing countries are lagging far behind compared to the developed ones due to financial, material and human resource constraints (Tenkorang, 2016; Wu, 2011). Therefore, this study seeks to assess the perceptions of outpatients regarding the service quality and resulting customer satisfaction in private hospitals using the SERVQUAL scale in a developing country.

2. Literature review

2.1. Service Quality

Service quality in the management and marketing literature is defined as the extent to which customers' perceptions of service meet and/or exceed their expectation (Shi, Prentice, & He, 2014; Zeithaml, Berry, Leonard, & Parasuraman, 1996). In recent past service quality have received an intense attention from researchers in the field of service marketing and management (Jiang & Zhang, 2016; Kim et al., 2017; Li et al., 2015; Tamwatin, Trimetsoontorn, & Fongsuwan, 2016). Moreover, a considerable attention has been given to its conceptualization and measurement scales as well (Demirci Orel & Kara, 2014; Kitapci, Akgogan, & Dortyol, 2014; Shi et al., 2014). Specifically, element of service quality has been explored extensively in various industries such as mobile banking, health management, telecommunication, education, hoteling, tourism etc.

Service quality is not a monolithic concept and so it leans on several dimensions, each of which varies in importance with regard to overall service quality, and their impact on patient's satisfaction (Paul et al., 2016). Quality service has emerged as an important determinant of customer satisfaction and word-of-mouth communication. Regarding service quality dimensions, there are two concepts: Nordic school view and American school view. On one side, Nordic school view (Grönroos, 2011; Grönroos & Voima, 2013), holds that quality service has two dimensions: functional quality and technical quality. On the other side, American school view holds that there are five dimensions: tangibility, reliability, responsiveness, assurance and empathy (Parasuraman, Zeithaml, & Berry, 1985; Zeithaml et al., 1996). Here is a brief description of all five dimensions involved in SERVQUAL scale:

- **Assurance**: It looks at the efficiency of the hospital; it also measures the ability of staffs to deliver services. (Knowledge and courtesy of staffs and their ability to win customers trust and confidence.)
- **Tangibles**: This dimension measures the physical environment of the hospital in relation to the Out-Patient Department. The nature of the equipment used at the hospital. (Physical facilities, equipment, and appearance of personnel.)
- **Responsiveness**: Responsiveness involves the interest of the patients at the heart of the staff. (Willingness to help customers and provide prompt service)
- **Reliability**: It involves trust in the services, in terms of performing services according to the Standard of Operating Procedures (SOP”s) and consistency in care delivery. (Ability to perform the promised service dependably and accurately);
- **Empathy**: This dimension deals with the caring nature of the staff, meaning how helpful the staffs are. (Caring and personalized attention provided to customers).

2.2 Customer Satisfaction

According to Kotler & Caslione, (2009) satisfaction refers “to a person's feeling of pleasure or disappointment resulting from comparing a product's performance in relation to his or her expectations”. Customer satisfaction have remained a key focus in marketing and management literature (Anabila, 2019; Asnawi, Awang, Afthanorhan, Mohamad, & Karim, 2019). The concept of customer satisfaction is generally based on the notion that a business must satisfy its customers in order to be sustainable and profitable (Fatima et al., 2018; Paul et al., 2016).
Instead of exploring cognitive outcomes, customer satisfaction is considered to be an effective measure of the usefulness of a product or service availed by customers (Munawar Khan & Fasih, 2014; Yang, Chiang, & Lin, 2018). Moreover, Consumer's satisfaction may be a tool for examining the current and potential performance of businesses because it leads to customer's loyalty, recommendation and repeat purchase (Heng L.L., Mahamad O., 2010; Meesala & Paul, 2018). Likewise another recent study by (Anabila, 2019) also reported a positive relationship between customer satisfaction, loyalty and repeat purchase intentions. Therefore in hospital industry customer satisfaction is a very critical element, for ensuring a sustainable business and long term relationship with customers (Aftab & Razzaq, 2016; Anabila, 2019; Chotivanich, 2014).

2.3 Service Quality and Customer Satisfaction

Customer satisfaction is the key objective of any firm seeking for long-term relationship and retention of new customers. In healthcare context where the contacts with customers are one of the most core business processes, customer satisfaction is critical for sustainability and profitability (Tenkorang, 2016; Xesfingi & Vozikis, 2017). One of the main element determining customer satisfaction is the customer’s perception of service quality (Asnawi et al., 2019). Customer satisfaction is described as the result of a comparison of the customers’ expectations and his or her subsequent perceived performance of service quality (Jiang & Zhang, 2016). There is ample evidence in the literature to support links between service quality and customer satisfaction (Kasiri, Guan Cheng, Sambasivan, & Sidin, 2017; Lien, Cao, & Zhou, 2017; Meesala & Paul, 2018; Paul et al., 2016; Priporas, Stylos, Vedanthachari, & Santiwatana, 2017). Notwithstanding, there are only a few studies that examine this relationship in developing countries (Meesala & Paul, 2018; Anabila, 2019; Tenkorang, 2016).

SERVQUAL framework has been used to assess service quality in a variety of service sectors such as banking, hospitality, transport, healthcare, etc (Hussain et al. 2015; Izogo & Ogba, 2015; Krishnamurthy et al 2014; Li et al., 2015; Paul et al., 2016). Similarly, according to Kasiri et al., (2017) all the dimension of SERVQUAL model are significantly related with the patient satisfaction. Although, patient satisfaction among private and public sector hospitals differs significantly.

Also, from the study of Kassim & Asiah Abdullah, (2010) perceived service quality was found to have a significant impact on customer satisfaction. Notwithstanding, there is the lack of consensus about the conceptualization of the service quality-satisfaction relationship, service quality is an antecedent to customer satisfaction is considered as dominant position in recent research, especially in service context industry like healthcare (Widadi & Wadji, 2015; Woldeyohanes et al., 2015; Wu, 2011). Therefore, this research has to establish which of the SERVQUAL dimensions most influences the customers’ satisfaction. Therefore, the following hypothesis is offered:

- H1. Assurance has positive and significant direct effect on customer satisfaction.
- H2. Tangibility has positive and significant direct effect on customer satisfaction.
- H3. Reliability has a positive and significant direct effect on customer satisfaction.
- H4. Responsiveness has a positive and significant direct effect on customer satisfaction.
- H5. Empathy has a positive and significant direct effect on customer satisfaction.

Figure 1. conceptual Framework

Research Methodology
3.1. Research instrument

A survey instrument was adopted from Parasuraman et al., (1985) servqual scale for data collection from data of patients of selected Hospitals. Final questionnaire comprised of total 17 items, out of which three items belonged to each service quality dimension.

- Assurance (Ass) 1. Patients feel safe in their interactions with staffs. 2. Staffs were knowledgeable. 3. Staffs were polite.
- 2. Tangibility (Tan) 1. The hospital has up-to-date equipment. 2. Hospital's physical facilities are visually appealing. 3. Hospital's staffs were well dressed.
- 3. Reliability (Rel) 1. The hospital provided its services on time. 2. When patients have problems, hospital's Staffs are sympathetic and reassuring. 3. The hospital is accurate in its billing.
- 4. Responsiveness (Res) 1. Offering prompt services to patients. 2. Patients receive prompt service from the Staffs. 3. Hospital Staffs are always willing to help patients.
- 5. Empathy (Ept) 1. The hospital's Staffs give patients personal attention. 2. The hospital has patients' best interests at heart. 3. Convenient consultation hours. Last two items belonged to customer satisfaction (CS) i.e. 1. I am satisfied with the medical services of the hospital. 2. The medical services have fulfilled my expectation. A five point Likert-type scale was used to enhance the redundancy and sanctity of this study, as advised by J. F. Hair et al (2017). Moreover, in order to validate the questionnaire, a pilot study was conducted, which involved 50 respondents who had visited the selected hospitals. Although some minor changes were made in the sentence structure of final questionnaire, but overall findings of pilot study established the reliability and validity of questionnaire used for data collection.

3.2. Sample Design and Data Collection

This study aimed to investigate the role of service quality in determining customer satisfaction of private hospitals. In order to achieve this objective, the target population for this study was identified as all out-patients who have visited the selected hospitals between March and June 2017. Determining a right sample size is very crucial for ensuring quality of any study. For this purpose, Hair et al (2017, p. 20) have suggested the use of 10 times rule, for determining minimum sample size in a PLS-SEM analysis. This rule states that minimum sample should be “10 times the largest number of structural paths directed at a particular construct in structural model”. Structural model of this study involves six constructs (i.e. five independent and one dependent variable) and according to this 10 times rule criterion, our minimum sample size should be 50 respondents. However, 700 patients answered the questionnaire before leaving the hospital, 562 (80%) responses were valid and analyzed after data cleaning.

3.3. Analytical Methods

Data was analyzed using IBM SPSS Statistics version 23.0 and SmartPLS version 3 (Ringle et al 2019). Variance based PLS-SEM approach was adopted. This is because PLS-SEM can estimate causal relationships among all latent constructs simultaneously, while dealing with measurement errors in the structural model (Hair et al, 2017). Furthermore, our study is explanatory in nature; therefore, PLS-SEM is a best fit for this study. Considering the guidelines suggested by Hair et al (2017) measurement models were evaluated separately before the evaluation of structural model. Furthermore, in order to ascertain the data quality and consistency of structural model, several tests (e.g. common-method variance bias test, non-response bias test and data screening for missing values etc.) were also performed along with other validity and reliability checks, before performing PLS-SEM analysis.

4. Data Analysis

4.1 Data screening and pre-analysis

As part of preparation for data analysis, a thorough screening process was conducted. Data was tested for any possible statistical error of normality, outliers, missing values. Although there were no missing values. Further, data analysis and discussion of research findings begins with the brief description of demographic attributes of respondents in terms of their age, gender, and education level and employment status. Out of total 562 respondents, 52.5% were female, whereas 47.5% were male. However, 36.3% of the respondents were between 18
and 29 years while 43.2% of the respondents were between 30 and 44 years. In addition, 15.2% of the respondents were between 45 and 59 years while 4.8% were 60 years and above. Furthermore, 4.4% had a master's degree or above, 17.6% of the respondents had a bachelor degree or equivalent, 42.3% had a high school certificate and 32.6% had below secondary education. Complete details about the respondents' demographic attributes are listed in Table 1 below.

4.2. Analysis of Measurement Models

In order to evaluate the reflective measurement models, all constructs were assessed for their reliability and validity (Hair et al., 2017; Henseler, 2018). Results revealed that, all constructs have an acceptable factor loading value, ranging between 0.70 and 0.90. The composite reliability (CR) and average variance extracted (AVE) obtained after running the measurement model using PLS-SEM are given in Table 2. Based on the results, it can be seen that CR of all constructs is above 0.7 and AVE above 0.5, which meets the rule of thumb (Hair et al., 2017). The AVE of each construct was compared with the squared correlation of that construct with other constructs and AVE was found to be greater (Henseler, 2018). Overall, the measurement model results indicate the compliance with the requirements for convergent and discriminant validities (Hair et al., 2017). Another test for discriminant validity of reflective measurement models was performed by evaluating all cross-loading values of reflective constructs’ indicators. As a rule of thumb, indicators of reflective measurement models should have highest loading on their own underlying latent construct, as compared to other constructs involved in the structural model (Hair et al., 2017).

As per the findings presented in Table 2 all indicators (measurement scale items) of reflective measurement models have a higher loading on their respective underlying latent construct, as compared to loading on any other construct involved in the model. Hence, these findings meet the cross loadings evaluation criteria and provide a satisfactory evidence for discriminant validity of the reflective measurement models.

| Table 2: Validity and reliability of latent constructs |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| **Latent variables** | **Loading** | **Reflective Reliability** | **Average Variance Extracted** | **Composite Reliability** | **Cronbach’s Alpha** |
| Assurance | 0.83 | 0.74 | 0.60-0.90 | Yes |
| Empathy | 0.84 | 0.76 | 0.60-0.90 | Yes |
| Reliability | 0.82 | 0.76 | 0.60-0.90 | Yes |
| Responsiveness | 0.86 | 0.78 | 0.60-0.90 | Yes |
| Satisfaction | 0.92 | 0.74 | 0.60-0.90 | Yes |
| tangibility | 0.94 | 0.75 | 0.60-0.90 | Yes |

4.3. Evaluation of Structural Model

A six-step procedure suggested by Hair et al., (2017 p.209) was adopted and the rule of thumb adhered to. First, each predictor construct’s tolerance (VIF) value should be higher than 0.20 (lower than 5). The VIF for each construct are: assurance – 2.26, empathy – 3.37, reliability – 2.38, responsiveness - 4.12 and tangibility – 4.07. From our results, all VIF values are clearly below the threshold of 5. Therefore, collinearity among the predictor constructs is not a critical issue in the structural model, and we can continue examining the results report.

Second, the significance of relationships assessed based on the path coefficients. Moreover, it is found that relationship between hospital assurance and customer satisfaction (β = - 0.021; t-value = 0.567; p = 0.571) is negative and insignificant, rejecting H1. H2 which is relationship between tangibility and customer satisfaction (β = 0.156; t-value = 2.474; p = .013) is positive, significant and supported. Similarly, proposed relation between reliability and customer satisfaction (β = 0.085; t-value = 2.152; p = .031) is also significant, thus H3 is supported. Further, a strong relationship of (β = 0.340; t-value = 5.519; p = .000) between responsiveness and customer satisfaction provides support for H4. Lastly, findings of SEM analysis support H5 indicating a strong and positive direct relationship between empathy and customer satisfaction (β = 0.363; t-value = 6.984; p = .000). The acceptance of significance of the relationship was based on the rule
of thumb “the minimum number of bootstrap samples must be at least as large as the number of valid observations but should be 5,000. Critical t values for a two-tailed test are 1.96 (significance level = 5%). Alternatively, examine the p value, which should be lower than 0.05 (significance level = 5%).”

A summarized overview of these findings is presented in Table 3.

Third, we examine the $R^2$ values of the endogenous latent variables. Our results indicate that the proposed model have 72.3% of explanatory power for customer satisfaction with $R^2 = 0.723$, which is considered moderate by rules of thumb (Ketchen, 2013).

Fourth, the assessment of effect size of relationships, $f^2$, between constructs is given in Table 3. According to (Cohen, 1998), effect size between 0.02 and 0.15 is considered to be small, between 0.15 and 0.30 is considered to be medium, and above 0.30 is considered to be high.

Fifth, as a rule of thumb, if a $Q^2$ value is larger than zero, it suggests that latent exogenous constructs involved in the structural model possess predictive relevance for latent endogenous constructs. The $Q^2$ value of our model is 0.473; which supports the underlying assumption of this study, that the endogenous construct (i.e. Customer Satisfaction) involved in this study have strong predictive relevance.

Lastly, Similar to the $f^2$ effect size approach for assessing $R^2$ value, the relative impact of predictive relevance can be compared by means of the measure to the $q^2$ effect size the assessment of effect size of relationships, $q^2$, between constructs is given in Table 3. According to Henseler et al. (2009), effect size between 0.02 and 0.15 is considered small, between 0.15 and 0.30 is considered medium, and above 0.30 is considered high.

PLS-SEM does not generate overall Goodness of Fit (GoF) indices, and adjusted $R^2$ value is considered as the primary way to evaluate the explanatory power of the model.

Table 3: Path coefficient of structural model

<table>
<thead>
<tr>
<th>Path Coefficient</th>
<th>Original Sample</th>
<th>Sample Mean</th>
<th>P Value</th>
<th>Significant</th>
<th>$p$-value</th>
<th>$q^2$</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assurance &lt;= Satisfaction</td>
<td>-0.021</td>
<td>-0.020</td>
<td>0.571</td>
<td>No</td>
<td>0.001</td>
<td>-0.002</td>
<td>2.264</td>
</tr>
<tr>
<td>Empathy &lt;= Satisfaction</td>
<td>0.165</td>
<td>0.161</td>
<td>0.000</td>
<td>Yes</td>
<td>0.141</td>
<td>0.040</td>
<td>3.173</td>
</tr>
<tr>
<td>Reliability &lt;= Satisfaction</td>
<td>0.085</td>
<td>0.085</td>
<td>0.031</td>
<td>Yes</td>
<td>0.011</td>
<td>0.062</td>
<td>2.378</td>
</tr>
<tr>
<td>Responsiveness &lt;= Satisfaction</td>
<td>0.100</td>
<td>0.100</td>
<td>0.000</td>
<td>Yes</td>
<td>0.010</td>
<td>0.027</td>
<td>4.128</td>
</tr>
<tr>
<td>Satisfaction &lt;= Tangibility</td>
<td>0.156</td>
<td>0.157</td>
<td>0.013</td>
<td>Yes</td>
<td>0.022</td>
<td>0.004</td>
<td>4.075</td>
</tr>
</tbody>
</table>

Service quality is one of the critical success factors in today’s service industry (Jiang & Zhang, 2016). This argument holds true in the recent competitive and challenging nature of hospitals industry (Li et al., 2015). Intense competition among private hospitals have forced them to improve service quality in order to retain and satisfy their customers (Aftab & Razzaq, 2016). This study aimed to evaluate the service quality of Ghana Hospitals by employing the SERVQUAL scale, which was developed by Parasuraman et al., (1985); Zeithaml et al., (1996) for investigating its impact on overall customer satisfaction. Findings of this study revealed that, all proposed hypotheses except assurance, are strongly supported. This outcome is in line with the works of B & M., (2018); Anabila et al., (2019); Tenkorang., (2016) and other researchers. Notwithstanding, Meesala & Paul., (2018) disagreed with the use of SERVQUAL to determine customers satisfaction in developing country setting. This study contributes to service quality literature by providing evidence of the validity of SERVQUAL scale in assessing patients’ perception of Ghana Private Hospitals. Murali et al (2016) studied the applicability of SERVQUAL dimensions to healthcare service through structural equation modeling analysis. Their research suggests that the SERVQUAL is a useful measuring instrument in assessing service quality in hospitals. This model can also apply to the range of different service companies. This study suggests that most
important factors that influence the service quality are empathy and responsiveness while assurance has no influence on patient satisfaction. Similar findings were found in the study by B & M, (2018), in that study they examined patient satisfaction in the healthcare industry. Their study showed that empathy and tangibility are important antecedents of satisfaction. In this study, our results indicate that empathy, responsiveness, reliability and tangible are significant for patient satisfaction, but assurance is insignificant. The findings of this study are important for all hospitals especially those in Ghana.

6. Managerial Implications
The present research study has some key managerial implications for private hospitals. The current findings can help providers better understand how each service quality dimension can contribute to a pleasant experience, which, in turn, would potentially affect post consumption behaviour (Anabila, Kumi, & Anome, 2019; Wang, Shieh, & Hsiao, 2013; Yang et al., 2018). It can help providers to know their patients better; to focus on patients’ desires regarding service quality; and to satisfy the needs, desires, and demands of their existing and potential customers, which could lead to increased customer satisfaction, retention, loyalty, and ultimately, financial performance (Li et al., 2015; Yang et al., 2018).

The hospital manager can improve his/her business by understanding the relationships between perceived quality and customer satisfaction. Through a survey of the customers and the subsequent structural equation modeling in SmartPLS, the important quality dimensions that lead to customer satisfaction are identified.

Although, all the effect size of the quality dimensions are weak. The study has shown that among consumers, empathy and responsiveness plays a greater role in increasing customer satisfaction with $f^2$ of 0.141 and 0.101 respectively. The managers must encourage their employees to emphasize on the process of the service delivery. For example, the service delivered to the customer can be customized to the customer specific needs; however, the process of delivering the service can be standardized so that the customers making similar requests are handled in a standardized manner. Third, the study has revealed to the managers that assurance does not contributing to customer satisfaction.

The analysis of inner model shows that; Perceived quality can only explain 72.3% of the variance in customer satisfaction. Moreover, Perceived quality can only predict 47.3% of the variance in customer satisfaction. It is an important finding because it suggests that there are other factors, which hospital managers should consider when exploring customer satisfaction in future research.

7. Conclusion
Success of any country depends on its people if they are healthy then they will be active and can do better for their country by actively participating in their daily activities. On the other hand, if they are not healthy, they cannot actively participate in their work, so it is very important to upgrade hospitals and improve their service quality in order to satisfied patients. It is therefore important to examine whether patients are satisfied with the services they receive and the aspect they value most.

Moreover, this paper has discussed the use of a second-generation multivariate data analysis method (PLS-SEM) for healthcare consumer research, which is an emerging path modeling approach. These findings are in line with the previous studies in this field. The study was conducted in Ghana by analyzing the experiences and perceptions of consumers in healthcare (hospital) industry. The findings show that the most important aspects the hospital managers need to focus on, based on the findings of our research, are: Empathy, tangibility, reliability and responsiveness (but not assurance) impact patients’ satisfaction.

Although findings of this study shed light on several important issues, yet some limitations need to be considered. This study employed only five dimensions of SERVQUAL scale i.e. assurance, empathy, tangibility, reliability and responsiveness therefore other indicators which are not a part of SERVQUAL scale e.g. safety matters, culture, technology acceptance and repurchase intention were not included in the conceptual model of this study. Future researchers can explore these dimensions using latest hospital industry. Due to limited resources and time constraints, this study employed convenience sampling method; however, future studies can overcome this limitation by using any other sampling technique. Secondly, sample size for this study was relatively small as compared to the target population of hospital industry. Further studies from other hospitals are also required to explore more dimensions of hospital service quality by making comparative analysis of different cultures.

Appendix A. Supporting information
This work was supported by the National Natural Science Foundation of China (Grant No.71673121); and Jiangsu Government Scholarship for Overseas Studies (Grant No. JS-2016-099).
Conflicts of Interest
The authors declare that they have no competing interests.

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International Journal of Humanities and Social Science.


