PERCEIVED SERVICE VALUE, CUSTOMER ENGAGEMENT AND BRAND LOYALTY IN HEALTH CARE CENTRES IN EGYPT

This study focused on examining the effect of Cengiz & Kirkbir (2007)’s eight dimensions of perceived value on customer engagement and customer loyalty. Each of the eight dimensions of perceived service value has been studied separately in previous studies. Therefore, this research provides an integrative framework to examine the role all the dimensions of perceived service value in increasing customer engagement and loyalty in health care centres in Egypt. Healthcare centres were chosen because the degree of engagement in the service delivery process has started to increase in the past few years such as engaging the customers in the service delivery plan (e.g. Fitness Monthly Programs), the mechanism of positive/negative recommendation of specific healthcare centres to their friends and family, also to other random users on online social networks, and acquiring a high sense of belonging to their healthcare centre. This has resulted in a great degree of positive behavioural intentions. Also, the active mechanism of receiving complaints and involving the customers in its solving process has been applied in many health care centres. The study focused on the adolescents, youths and adults since they represent the majority of the healthcare centres users according to the context understudy (based on the exploratory research conducted). This research targeted 400 healthcare centres users. In addition, the moderation effect of the brand name of health care centre on the relationship between Hedonics and Customer Engagement was examined. Also, the moderating effect of age on the relationship between service quality and customer engagement was tested. Finally, the mediating effect of customer engagement mediates the relationship between control and customer loyalty was examined.

Keywords: value, customer, engagement, brand, loyalty, health care centres.

Introduction. This paper focuses on empirically examining the role of perceived service value in enhancing customer engagement and loyalty. Each of the eight dimensions of perceived service value has been studied separately in previous studies. Therefore, this research provides an integrative framework to examine the role all the dimensions of perceived service value in increasing customer engagement and loyalty in health care centres in Egypt. Healthcare centres were chosen because the degree of engagement in the service delivery process has started to increase in the past few years such as engaging the customers in the service delivery plan (e.g. Fitness Monthly Programs), the mechanism of positive/negative recommendation of specific healthcare centres to their friends and family, also to other random users on online social networks, and acquiring a high sense of belonging to their healthcare centre. This has resulted in a great degree of positive behavioural intentions. Also, the active mechanism of receiving complaints and involving the customers in its solving process has been applied in many health care centres.
Literature review. Customer Engagement (CE). Customer engagement is conceptualized as having cognitive, emotional, and behavioural aspects (Brodie et al., 2011; Wong & Merrilees, 2015). Van Doorn et al. (2010) defined customer engagement as the clients’ behavioral expression in relation to the brand or the firm, beyond purchasing, emerging from motivational drivers. CE contains a huge cluster of behaviours encompassing word-of-mouth (WOM) attention, recommendations, helping another client, blogging, including reviews, and even involving in lawful action.

The behavioural expressions, other than purchasing can be both affirmative (i.e., posting an affirmative brand memo on a blog) and negative (i.e., coordinating actions opposing firm). CE also involves customer co-creation. Lusch and Vargo (2006) referred to customer co-creation as the involvement of the client in the conception of the main offering. It can appear as across public conception, co-design, or collective fabrication of the goods. Therefore, co-creation happens once the customer participates through unprompted, flexible behaviors that distinctively tailor the customer-to-brand experience. According to Van Dorn et al. (2010), behaviors like making recommendations to develop the consumption know-how, aiding and coaching service providers, and aiding other customers to use the best of the service provided are all characteristics of co-creation, and therefore customer engagement behaviors.

Perceived Value. Dimensions of Perceived Value. Recent literature defined perceived value as a multidimensional concept. Virvilaite et al. (2015) suggest it can be explored through three dimensional: functional, emotional and social value. Meanwhile, Cengiz & Kirkbir (2007) proposed that perceived value is a multidimensional formative construct made up of eight dimensions, which are a functional value (installation, service quality, price, and professionalism), emotional value (Novelty, control, and hedonics) and social value. This study adopts the eight dimensions of Cengiz and Kirkbir (2007), as it is the most explanatory and detailed classification of the value perceived by the consumer while experiencing any service.

Functional Dimensions. Cengiz & Kirkbir (2007) concluded that functional values are more important than emotional and communal ones in healthcare services. It was also found in their research that control plays a momentous act in the assessment process. Providing a client opinion to select from is a competent method of enhancing an individual’s sense of manipulation and therefore satisfaction alongside the experience. Clients are pursuing a nature in that they possess options to select from and whereas they discern possessing a sense of control. The impact of novelty on overall satisfaction and value seems to vary based on respondent characteristics. Thus, we hypothesize:

H1: Installation as a Functional Perceived Value Dimension is associated with Customer Engagement
H2: Price as a Functional Perceived Value Dimension is associated with Customer Engagement.
H3: Professionalism as a Functional Perceived Value Dimension is associated with Customer Engagement.

Meanwhile, Service quality is generally viewed as the output of the service delivery service systems (Akhade et al., 2013). Customer perceived value discovers the communication between the product and service, while service quality commonly focuses on the product or service, i.e. what the business provided. (Akhade, G., 2013). Chen & Hu (2009)'s study broadens prior studies by confirming that determinant attributes of service quality can impact customers’ functional value and symbolic value. The reading proved a significant relationship between determinant characteristics of service quality and perceived value.

Several studies examined the relationship between service quality and more behavioral intentions. In previous literature, (Parasuraman, Zeithaml, and Berry 1991) a significant association between customers' perceptions of service quality and their willingness to endorse the company was found. Zeithaml et al. (1996) stated another aspect of service provision that can impact behavioral intentions involves the problematic experience of customers. Once customers encounter service problems, these experiences are probable to affect behavioral intentions adversely. Though, the influence of problem resolution on
customers’ intentions is less clear. Another view that is based primarily on anecdotal evidence is that superior problem resolution forges stronger links between customers and the corporation that would occur had no service problem arisen. Finally, Athanasopoulou (2012) indicate that enhancing service quality can increase favorable behavioral intentions and reduce unfavorable intentions. The findings show the significance of approaches that can direct behavioral intentions in the right directions, including struggling to meet customers’ desired-service levels (rather than merely performing at their adequate service levels), emphasizing the prevention of service problems, and effectively resolving problems that do occur. Hence, we hypothesize:

**H4:** Service Quality as a Functional Perceived Value Dimension is associated with Customer Engagement.

Emotional dimensions. Novelty perceptions. Beryne (1950) is one of the early studies to examine novelty-seeking in psychology. As Beryne suggests, novelty could grasp the key to our understanding of a little of the convoluted levels of human motivation. Accordingly, novelty (change from routine, getaway, thrill, adventure, surprise and boredom alleviation) is one of the blunt motivations steering services clients find for new and disparate experiences (Bello & Etzel, 1985; Lee & Crompton, 1992; Unger & Kernan, 1983). Virvilaite et al. (2015)’s work in psychology indicates that arousal or novelty-seeking is time- and place- specific. If novelty is wanted by experiential service customers, next extra novel experiences must result in higher perceptions of value. Thus, we predict:

**H5:** Novelty as an emotional perceived value dimension is associated with Customer Engagement.

Control perceptions. In service settings, customers experience a sequence of connections with personnel and the physical atmosphere during the consumption experience as mentioned by Bateson (2000). These connections may lead to higher levels of consumer involvement in the service procedure, which at that point opens up a need for control. The concept of control is an integral portion of human motivations. Hence, we hypothesize:

**H6:** Control as an emotional perceived value dimension is associated with Customer Engagement.

Hedonics perceptions. Most human behavior is basically pleasure-seeking (Holbrook & Hirschman, 1982), and consumers typically desire a feeling of pleasure from a service experience. The hedonic consumption paradigm suggests that in many situations’ consumers seek “fun, amusement, fantasy, arousal, sensory stimulation and enjoyment” Virvilaite et al. (2015). Holbrook and Hirschman further debate that the degree of hedonic responses varies across product categories. In Petrick’s (2003) study, emotional responses (i.e., how a service makes one feel) were directly related to the perceived value associated with the service experiences.

**H7:** Hedonics Value is associated with Customer Engagement.

Social Value. According to Virvilaite et al. (2015), Social value has been defined as perceptual benefits acquired from a product’s association with social class status, or a specific social group. Therefore, it can be concluded that the more benefits in terms of social benefits the customers have (e.g. belonging or admiration), the more likely they will engage in helping behavior. Thus, we predict:

**H8:** Social Value is associated with Customer Engagement.

Customer Engagement and Brand Loyalty. The process of engagement traces the spatial development of loyalty by mapping the relationships between the constructs of calculative commitment, affective commitment, involvement, and trust as customers' development from being new to a service brand to becoming repeated buyers of specific service brands (Mabkhot et al., 2016). This approach therefore emphasizes the role of specific psychological mediating variables in the development of a more enduring state of brand loyalty, and in so doing, differentiates truly loyal customers from those who have limited brand sensitivity and repeat purchase due to a state of inertia or spurious loyalty (Odin et al., 2001).

**H9:** Successful Customer Engagement is associated with Brand loyalty.

**Methodology.** Measures and Survey Instrument. The study used questionnaires collected through
using personal interviews with the respondents in different healthcare centers around Cairo and Giza. Unlike services that require brief interactions (e.g. retail banking), social benefits are more likely to occur within services that require a high level of repeated personal interactions (e.g. GYM). It is important to note that all the measurement scales used were derived from previously validated scales and were pre-tested through piloting by academic experts in the field of marketing and statistics. The questionnaire first included a filtering question about whether the respondent is a member of a healthcare center or not. If it was responded by “Yes”, the respondent shall proceed to questions specifying their frequency of visiting the healthcare center, along with specifying which healthcare center they are visiting. Also, the questionnaire encompassed 54 statements measure the variables under study on a 5-point Likert scale ranging where the respondents were asked to report on their agreement on each statement with a scales ranging from strongly disagree to strongly agree.

Functional value (installation), functional value (professionalism), and social value were adapted from S’Sanchez et al., (2006). Emotional values (novelty, control, and hedonics) were adapted from the studies of Otto, (1997) and Otto and Ritchie, (1996). Functional value (price) was adopted from Ralston (1999). Functional value (Service quality) was adapted from Gallarz-Saura (2006). Customer engagement was adopted from Byrne (1994). Customer loyalty (Brand loyalty) was adopted from Mols (1998). All of these constructs are reflectively measured. Finally, the questionnaire inquired about demographic information using five questions tackling Frequency of visits, age, gender, educational level and occupation. A few items were changed slightly after the pre-test stage because they were misinterpreted by the respondents. The measures’ validity and reliability data are presented in the results section.

Sample selection and data collection. This study was conducted in the Egyptian Context and it examined the healthcare centers users’ behaviour, so it is important to point out that there is no population frame for the targeted population, who are health care centers users in Egypt during the period of study. A non-probability convenience sampling was used to select a sample representative of the population. The choice of the sample focuses on the segment of young adults between 16 years and 45 years. The study focused on the adolescents, youths and adults since they represent the majority of the healthcare centers users according to the context understudy (Based on the exploratory research conducted). This
research targeted 400 healthcare centers users (Hair et al., 2010). Caution has been given to include users with different frequency of visiting healthcare centers along with taking into consideration other demographic factors such as: gender, age, educational level and employment, to fairly represent the users of healthcare centers. Table 1 describes the sample characteristics. Both women (38.7%) and men (61.3%) were represented in the sample; the majority of the sample chosen was characterized to be university students with age ranging between 16 to 25, who are definitely unemployed and visit the healthcare center more than once a week. Also, almost half of the sample (46%) goes to health care center two times and more weekly. In addition, 57.5% of respondents visit top five healthcare centers’ brands in Egypt as the most luxurious healthcare center brands.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarely</td>
<td>28.3%</td>
</tr>
<tr>
<td>Once a week or less</td>
<td>25.6%</td>
</tr>
<tr>
<td>Two times and more</td>
<td>46.3%</td>
</tr>
<tr>
<td>Name of Healthcare Center</td>
<td></td>
</tr>
<tr>
<td>Top five brands</td>
<td>57.5%</td>
</tr>
<tr>
<td>Others</td>
<td>42.5%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>61.3%</td>
</tr>
<tr>
<td>Female</td>
<td>38.8%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>25 or less</td>
<td>80.3%</td>
</tr>
<tr>
<td>More than 25</td>
<td>19.7%</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>69.5%</td>
</tr>
<tr>
<td>Unemployed</td>
<td></td>
</tr>
<tr>
<td>Private Sector Employee</td>
<td>21.3%</td>
</tr>
<tr>
<td>Public Sector Employee</td>
<td>2.8%</td>
</tr>
<tr>
<td>Professional</td>
<td>0.3%</td>
</tr>
<tr>
<td>Businessman/woman</td>
<td>5.8%</td>
</tr>
<tr>
<td>Retired</td>
<td>0.5%</td>
</tr>
<tr>
<td>High School</td>
<td>2.3%</td>
</tr>
<tr>
<td>University Student</td>
<td>74.0%</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>16.3%</td>
</tr>
<tr>
<td>Post-Graduate Degree</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

As the data were collected from a single source, common method bias could affect the relationships between the constructs (Podsakoff, et al., 2003). The common method bias was tested using Harman’s one-factor test. The Exploratory Factor Analysis (EFA) of all measurement items extracted eleven factors explaining 62% of the total variance using SPSS v.25. However, the first factor explained only 31.17% of the total variance. Thus, common method bias is not a major concern in this study. The eleven factors for the ten constructs in the abovementioned theoretical model mean guides authors to specify all constructs of the model as first-order measurement level except customer engagement which will be measured at second-order level.

**Results.** We used SPSS v.25 to describe the sampling profile, while Smart PLS v. 3.2.7 (Ringle et al., 2015) is used to conduct Structure Equation Modeling using Partial Least Squares (SEM-PLS) for research model evaluation and research hypotheses testing purposes. Confirmatory Factor Analysis (CFA) was used to evaluate the measurement model. Table (2) illustrates the results of CFA. Table (2) show that all measurement model constructs’ convergent validity is established since the AVE for each construct is higher than 0.5. (Hair et al., 2010; 2014; 2016). Also, discriminant validity has been established according to HTMT<0.85 and HTMT<0.9 and their inference (Henseler et al., 2015).

Thus, researcher tested the constructed reliability using Cronbach’s alpha and Composite Reliability (CR), both indicated the reliability of all constructs since all parameters are higher than 0.6. (Malhotra, 2010). Although, Social value seems to lack of internal consistency as its Cronbach’s alpha less than 0.6. however, one of the main disadvantages of Cronbach’s alpha is it is sensitive to a number of items per construct, with short scales that have less than 10 items it is common to find it less than 0.6, and that is the case of Social value.
Table 2 – CFA results

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Validity</th>
<th>Reliability</th>
<th>Composite Reliability (CR)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Variance Extracted (AVE)</td>
<td>Cronbach’s Alpha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand Loyalty</td>
<td>0.505</td>
<td>0.800</td>
<td>0.858</td>
<td>0.554</td>
</tr>
<tr>
<td>Control</td>
<td>0.513</td>
<td>0.763</td>
<td>0.840</td>
<td></td>
</tr>
<tr>
<td>Customer Eng.</td>
<td>0.507</td>
<td>0.805</td>
<td>0.860</td>
<td>0.417</td>
</tr>
<tr>
<td>Hedonics</td>
<td>0.534</td>
<td>0.703</td>
<td>0.819</td>
<td></td>
</tr>
<tr>
<td>Installation</td>
<td>0.656</td>
<td>0.736</td>
<td>0.851</td>
<td></td>
</tr>
<tr>
<td>Novelty</td>
<td>0.586</td>
<td>0.764</td>
<td>0.850</td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>0.765</td>
<td>0.694</td>
<td>0.867</td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td>0.832</td>
<td>0.854</td>
<td>0.895</td>
<td></td>
</tr>
<tr>
<td>Service Quality</td>
<td>0.540</td>
<td>0.857</td>
<td>0.891</td>
<td></td>
</tr>
<tr>
<td>Social Value</td>
<td>0.672</td>
<td>0.513 (0.345)</td>
<td>0.804</td>
<td></td>
</tr>
</tbody>
</table>

So, instead, we report Social value mean of inter-item correlations value that is 0.345 that is fall in the rage between 0.2 and 0.4, therefore, Social value has internal consistency (Briggs and Cheek, 1986). Thus, the current structural model explains 55.4% of Brand loyalty, and 41.7% of Customer Engagement.

Figure 2 – Theoretical model

After the measurement model has been assessed, hypotheses testing will be conducted using a bootstrapping procedure of 5000 subsamples. First, we started by the direct hypotheses testing as in table 3.

Then indirect mediation test – hypotheses testing as in table (4). Finally, the indirect moderation test will be conducted as in table (5). As can be seen from the table (3), H1 to H5 is not significantly supported at confidence level 95%. On the other hand, H6 has been supported with confidence level 95%. Thus,
control has a positive effect on customer engagement by 16.3%. Also, H7 has been supported with confidence level 99.9%. Therefore, hedonics has a positive effect on customer engagement by 26.4%. In addition, H8 has been supported with confidence level 99%. Moreover, H9 has been supported with confidence level 99.9%.

Table 3 – Direct hypotheses testing

<table>
<thead>
<tr>
<th>H</th>
<th>Direct path</th>
<th>$\beta$</th>
<th>t-value</th>
<th>P. values</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>installation -&gt; Customer Engagement</td>
<td>0.052</td>
<td>0.906</td>
<td>0.365</td>
<td>Not supported</td>
</tr>
<tr>
<td>H2</td>
<td>Service Quality -&gt; Customer Engagement</td>
<td>0.056</td>
<td>0.649</td>
<td>0.517</td>
<td>Not supported</td>
</tr>
<tr>
<td>H3</td>
<td>Price -&gt; Customer Engagement</td>
<td>-0.001</td>
<td>0.016</td>
<td>0.987</td>
<td>Rejected</td>
</tr>
<tr>
<td>H4</td>
<td>Professionalism -&gt; Customer Engagement</td>
<td>0.079</td>
<td>1.160</td>
<td>0.246</td>
<td>Not supported</td>
</tr>
<tr>
<td>H5</td>
<td>Novelty -&gt; Customer Engagement</td>
<td>0.058</td>
<td>0.978</td>
<td>0.328</td>
<td>Not supported</td>
</tr>
<tr>
<td>H6</td>
<td>Control -&gt; Customer Engagement</td>
<td>0.163</td>
<td>2.416</td>
<td>0.016</td>
<td>Supported *</td>
</tr>
<tr>
<td>H7</td>
<td>Hedonics -&gt; Customer Engagement</td>
<td>0.264</td>
<td>4.339</td>
<td>0.000</td>
<td>Supported ***</td>
</tr>
<tr>
<td>H8</td>
<td>Social value -&gt; Customer Engagement</td>
<td>0.139</td>
<td>2.661</td>
<td>0.008</td>
<td>Supported**</td>
</tr>
<tr>
<td>H9</td>
<td>Customer Engagement -&gt; Brand Loyalty</td>
<td>0.486</td>
<td>10.859</td>
<td>0.000</td>
<td>Supported ***</td>
</tr>
</tbody>
</table>

*** Confidence level is 99.9%, Significance level P value < 0.001, t value ±3.29; ** Confidence level is 99%, Significance level P value < 0.01, t value ±2.58; * Confidence level is 95%, Significance level P value < 0.05, t value ±1.96. redetected refers to not supported and wrong direction

With respect to the mediation analysis, Preacher and Hayes (2004; 2008) approach as illustrated in Nitzl et al., (2016) has been followed. Firstly, the direct relationships from all perceived value dimensions on customer loyalty, without customer engagement presence, should be significant as demonstrated in step (1) (see table. 4). Price, Novelty, and Control have been significant. Secondly, the significant relationships in step (1) will proceed to step (2) where the mediator role included in the model.

Table 4 – Indirect hypotheses testing – mediation test

<table>
<thead>
<tr>
<th>Step (1)</th>
<th>Direct Path coefficients without mediator</th>
<th>$\beta$ (P-value)</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous variable -&gt; Endogenous variable</td>
<td>$\beta$ (P-value)</td>
<td>Decision</td>
<td></td>
</tr>
<tr>
<td>installation -&gt; Brand Loyalty</td>
<td>0.049 (0.226)</td>
<td>Non-mediation</td>
<td></td>
</tr>
<tr>
<td>Service Quality -&gt; Brand Loyalty</td>
<td>0.164 (0.004)</td>
<td>Non-mediation</td>
<td></td>
</tr>
<tr>
<td>Price -&gt; Brand Loyalty</td>
<td>0.112 (2.012)</td>
<td>Go to step (2)</td>
<td></td>
</tr>
<tr>
<td>Professionalism -&gt; Brand Loyalty</td>
<td>-0.008 (0.127)</td>
<td>Non-mediation</td>
<td></td>
</tr>
<tr>
<td>Novelty -&gt; Brand Loyalty</td>
<td>0.155 (2.530)</td>
<td>Go to step (2)</td>
<td></td>
</tr>
<tr>
<td>Control -&gt; Brand Loyalty</td>
<td>0.166 (2.442)</td>
<td>Go to step (2)</td>
<td></td>
</tr>
<tr>
<td>Hedonics -&gt; Brand Loyalty</td>
<td>0.124 (1.861)</td>
<td>Non-mediation</td>
<td></td>
</tr>
<tr>
<td>Social value -&gt; Brand Loyalty</td>
<td>0.162 (1.860)</td>
<td>Non-mediation</td>
<td></td>
</tr>
</tbody>
</table>

Step (2) | Indirect Path coefficients with the mediator = (exogenous to mediator, mediator to endogenous variable) | $\beta$ (P-value) | Decision |
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous variable -&gt; Mediator -&gt; Endogenous variable</td>
<td>$\beta$ (P-value)</td>
<td>Decision</td>
<td></td>
</tr>
<tr>
<td>Price -&gt; Customer Engagement -&gt; Brand Loyalty</td>
<td>0.000 (0.016)</td>
<td>Non-mediation</td>
<td></td>
</tr>
<tr>
<td>Novelty -&gt; Customer Engagement -&gt; Brand Loyalty</td>
<td>0.028 (0.070)</td>
<td>Non-mediation</td>
<td></td>
</tr>
<tr>
<td>Control -&gt; Customer Engagement -&gt; Brand Loyalty</td>
<td>0.079 (2.364)</td>
<td>Go to step (3)</td>
<td></td>
</tr>
</tbody>
</table>

Step (3) | Total Path coefficients with the mediator = (Direct + Indirect effect) | $\beta$ (P-value) | Decision |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous variable -&gt; Mediator -&gt; Endogenous variable</td>
<td>$\beta$ (P-value)</td>
<td>Decision</td>
<td></td>
</tr>
<tr>
<td>Control -&gt; Customer Engagement -&gt; Brand Loyalty</td>
<td>0.165 (2.162)</td>
<td>Go to step (4)</td>
<td></td>
</tr>
</tbody>
</table>

Step (4) | Mediation effect Variance Accounted For VAF= (Indirect effect / Total effect)  | VAF  | Result |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous variable -&gt; Mediator -&gt; Endogenous variable</td>
<td>VAF</td>
<td>Partial mediation</td>
<td></td>
</tr>
<tr>
<td>Control -&gt; Customer Engagement -&gt; Brand Loyalty</td>
<td>0.079 / 0.165 = 0.478</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Next, the indirect relationships from the three abovementioned exogenous variables on Customer loyalty should be significant. Only Control has a significant indirect relationship on loyalty through Customer Engagement. Step (3) procedure includes testing the total effect from the Control (the only variable that has a significant indirect relationship on loyalty) variable on Customer Loyalty. Finally, since the total effect for control variable is significant, the researcher should calculate the Variance Accounted For (VAF) value to determine exactly the effect size of the mediator though multiplying sig. indirect relationship by sig. total effect. VAF value indicates one of the three levels of mediation. If VAF is less than 0.2, the relationship is not mediated. Form 0.2-0.8, the relationship is partially mediated. Finally, if VAF is higher than 0.8, the relationship is fully mediated (Hair et al., 2014; Hayes, 2013). Therefore, Customer engagement partially mediates the relationship between Control and Customer loyalty by 47.8%.

To test the indirect moderation effects, Multi Group Analysis (MGA) methodology has been followed (Hair et al., 2010; 2014). Table (5) indicates the significant difference between respondents in regarding the relationship between control on customer engagement because of their visits frequencies. Respondents who go to health care centre rarely are significantly different from those who go repeatedly, by 41.1% from once a week with confidence level 95% and 44.4% from two visits and more a weak with confidence level 99%. Since the effect of control on customer engagement in rarely visitors is not significant negative by 13.6%. Where, the same relationship in once a week group is significant positive by 27.5%, and 30.9% for more two or more visits’ a week group. Another significant effect from visits frequency variable is on the relationship between service quality and customer engagement by 55.8% with confidence level 99%. Since the effect of control on customer engagement because of their visits frequencies.

Moreover, the brand name of health care centre has a significant moderation effect on the relationship between Hedonics and Customer Engagement. Since the top five healthcare brands’ visitors are significantly different from other healthcare brands’ visitors by 24.5% with confidence level 95%. Although both groups have significant positive relationships, the magnitude of each relationship makes the significant difference between those groups. Top five brands group has 40.4% percentage of Hedonics customer engagement by 40.1% where once a week group has no significant negative relationship with 15.7%.

<table>
<thead>
<tr>
<th>Path</th>
<th>Visits frequencies</th>
<th>Once a week or less</th>
<th>Rarely</th>
<th>([Once a week or less - Rarely])</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Path Coefficient</td>
<td>t-Value</td>
<td>p-Value</td>
<td>Path Coefficient</td>
</tr>
<tr>
<td>Control → Customer Engagement</td>
<td>0.275</td>
<td>2.621</td>
<td>0.009</td>
<td>-0.136</td>
</tr>
<tr>
<td>Service Quality → Customer Engagement</td>
<td>-0.157</td>
<td>0.913</td>
<td>0.362</td>
<td>0.401</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Path</th>
<th>Visits frequencies</th>
<th>Two times and more</th>
<th>Rarely</th>
<th>([Two times and more - Rarely])</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Path Coefficient</td>
<td>t-Value</td>
<td>p-Value</td>
<td>Path Coefficient</td>
</tr>
<tr>
<td>Control → Customer Engagement</td>
<td>0.309</td>
<td>3.267</td>
<td>0.001</td>
<td>-0.136</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Path</th>
<th>Healthcare Centre brand name</th>
<th>Top five brands</th>
<th>Others</th>
<th>([Top five brands – Others])</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Path Coefficient</td>
<td>t-Value</td>
<td>p-Value</td>
<td>Path Coefficient</td>
</tr>
<tr>
<td>Hedonics → Customer Engagement</td>
<td>0.159</td>
<td>2.113</td>
<td>0.035</td>
<td>0.404</td>
</tr>
</tbody>
</table>

Table 5 – Indirect hypotheses testing – Multi-Group Analysis moderation test
Finally, age has a significant effect on two of the proposed relationships. First, 25 years or fewer groups are significantly differing from more than 25 years group regarding the relationship of professionalism on customer engagement by 40.9% confidence level. Although both groups have not a significant relationship, the direction of each group plays the vital role for this distinction. 25 or less group has a positive effect by 11.5% where another group has a negative effect by 30.6%. Second, age significantly moderates the relationship between service quality and customer engagement by 42.1% with confidence level 95%. To clarify this difference, the 25 years or fewer groups has a negative not significant relationship by 0.3%, where more than 25 years group has a significant positive relationship with 40.6%.

**Discussion and implications.** This study focused on examining the effect of Cengiz & Kirkbir (2007)’s eight dimensions of perceived value on customer engagement and customer loyalty. First, there is no significant relationship between installation, price, professionalism, service quality, as dimensions of the functional perceived value dimension, and Customer Engagement. Moreover, novelty as an emotional perceived value dimension has no significant relationship with customer engagement. However, control and hedonics as emotional perceived value dimensions have a significant relationship with customer engagement. Meanwhile, social value has a significant relationship with customer engagement. Finally, it is found that customer engagement and brand loyalty are significantly associated. With respect to the mediation analysis, the results show that only control has significant indirect relationship on loyalty through Customer Engagement. Also, customer engagement partially mediates the relationship between Control and Customer loyalty by 47.8%. Finally, age, frequency of health care centres visits and health care centres’ brand name moderates the relationship between some aspects of perceived value and customer engagement. The brand name of health care center has a significant moderation effect on the relationship between Hedonics and Customer Engagement. Age significantly moderates the relationship between service quality and customer engagement. Also, age significantly moderates the relationship between professionalism on customer engagement. Finally, healthcare visits frequency moderates the relationship between service quality and customer engagement.

In addition, implementing this study in the Egyptian context which lacks similar studies, would provide a better understanding of the Egyptian Healthcare Centres’ users behavior in general, and how their loyalty might be affected by a different variable in specific. This study would also help marketing practitioners, healthcare centers and similar service providers create more effective service delivery process that would positively influence their perceived value and similarly their loyalty. Also, the different contextual variables understudy could be used as a guide for them to improve the healthcare service level to gain better value proposition to deliver to their customer, therefore, enhancing the healthcare centers’ service effectiveness in the Egyptian Market.

**Limitations and Future Research.** The findings of this research need to be viewed in light of their limitations. First, the sample characteristics have a majority of male university students below 25 years old. Therefore, it is recommended for future researchers to focus on studying the female users of healthcare centers in the Egyptian context, as a rapidly growing population that requires academic research...
attention to gain further insight and provide a better understanding on its female user's patterns and preferences. Moreover, empirical research is needed to study the effect of contextual variables of perceived value (e.g. functional, emotional and social value dimensions) separately on customer loyalty.

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