

# Perceived service quality, perceived value, overall satisfaction and happiness of outlook for long-term care institution residents

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## Abstract

**Objective** To investigate the psychometric properties and relationships of perceived service quality, perceived value and overall satisfaction for residents with respect to their long-term care institutions.

**Design** The five-point Likert scale questionnaire administered through facetoface interviews.

**Setting** Fourteen long-term care institutions located in central and southern Taiwan stratified according to services and accommodation population.

**Participants** One hundred and eighty long-term institutional care residents.

**Main outcome measures** Perceived service quality (the SERVPERF model), perceived value and overall satisfaction (models based on the literature on perceived value and satisfaction).

**Results** Student's *t*-test on institutional location shows a significant difference between overall satisfaction for central and southern institution long-term care recipients. The correlation test revealed that the higher a resident's level of education, the higher the scores for perceived value. The factor loading results of confirmation factor analysis show acceptable levels of reliability and index-of-model fits for perceived service, perceived value and overall satisfaction. In addition, the results suggest that an additional construct, a positive attitude (happiness of outlook) towards long-term care institutions, is also an important factor in residents' overall satisfaction.

**Conclusion** The primary goal of long-term institutional care policy in Taiwan, as in other countries, is to provide residents with practical, cost-effective but high-quality care. On the basis of the results of in-depth interviews with long-term institutional care residents, this study suggests long-term care institutions arrange more family visit days to increase the accessibility and interaction of family and residents and thereby increase the happiness of outlook of the residents.

## Introduction

In recent years, long-term care issues have been receiving more and more attention in many countries, for at least two reasons. One is the increasing proportion of older people in the population, which results from increases in people's life spans and decreases in the birthrate. The other is the increasing proportion of older people living alone with no relatives to help care for them, resulting from the increasing prevalence of the nuclear family and from the rapid growth in the number of women working outside the home. The steadily increasing senior population (> 65 years old) and decrease in traditional caregivers has resulted in a greatly expanded need for long-term care services and for the resources needed to provide those services.<sup>1,2</sup> This poses challenges to policy makers concerning the providing of older people with high-quality long-term care services,<sup>3,4</sup> the roles and the functions of first-line leaders in the care service programs<sup>5</sup> and the fact that people in need of long-term care services do not often get the care they require or desire.

At the end of 2006, senior citizens accounted for 10% of the total population<sup>6</sup> in Taiwan, qualifying Taiwan as an ageing society. Taiwan is also an increasingly urbanized, nuclear-family society in which husband and wife both work at jobs outside the home. This has resulted in Taiwan witnessing a tremendous expansion of the need for long-term care, especially the services offered by long-term care institutions.

Major credit for pioneering perceived service quality research goes to the PZB (Parasuraman, Zeithaml, Berry) model, which proposes 10 determinants of perceived service quality.<sup>7,8</sup> This model defines customers' perceptions of service quality as the difference between their pre-service expectations and their post-service perceptions of received service and proposes the notion of perceived service quality gap.

On the basis of the PZB model, Cronin and Taylor<sup>9</sup> propose the SERVPERF model, in which perceived service quality is measured based on consumer perceptions of post-service performance alone, rather than on both pre-

service expectations and post-service performance perceptions. The performance-based SERVPERF measure is argued to be a superior means of measuring the perceived service quality construct. Many studies have indicated that SERVPERF more accurately measures medical-care patient perceptions of service quality than SERVQUAL.<sup>10,11</sup> Accordingly, the SERVPERF model was used in this study to measure the service quality perceptions of long-term institutional care residents.

A number of studies on perceived value and overall satisfaction have been conducted. Zeithaml<sup>12</sup> defines perceived value as the result of the comparison between perceived benefits and perceived sacrifices by the customer. Similarly, Buzzell and Gale<sup>13</sup> use the notion of trade-off to argue that perceived service value is a ratio between perceived total benefits received to perceived total sacrifices taking into consideration the available offerings and perceived cost. More specifically, a high perceived value score indicates that a customer perceives a product or a service offered as providing good value for the money with relatively few detriments, while a low score indicates a deal is perceived as bad, with a low level of benefits and a high level of detriments. The value construct of perceived value has generally received relatively little attention in the services marketing literature, especially in the patient satisfaction literature. However, studies indicate that perceived value may either lead directly to the formation of feelings of overall satisfaction or may result in the formation of perceptions that a product or service's performance is different than expected, which can influence overall satisfaction feelings.<sup>14–16</sup> Research on many service industries also suggests that perceived value plays a more important role than perceived quality in influencing customer satisfaction and loyalty.<sup>17</sup> Thus, even if a service has high perceived quality, it may be viewed as low in value by a customer if it also viewed as high in detriments, such as cost. A service offered to customers which they perceive as high in quality but not high in value is unable to attain a high level of customer satisfaction and loyalty.

Oliver<sup>18</sup> examines an expectancy/disconfirmation paradigm that encompasses four constructs: expectations, performance, disconfirmation and satisfaction. In this model, disconfirmation arises from discrepancies between pre-transaction expectations of performance and post-transaction perceptions of (actual) performance. Continuing, Oliver<sup>19</sup> defines overall satisfaction as the consumer's fulfilment response. The model of overall satisfaction of residents regarding their long-term institutional care used in this study is derived from the conceptualization of overall satisfaction in Oliver<sup>20</sup> and from additional studies in the literature on patient satisfaction.<sup>21,22</sup>

This study aims to investigate the psychometric properties and relationships of perceived service quality, perceived value and overall satisfaction for long-term care residents in Taiwan and to investigate the differences in measured scores for each construct with respect to the demographics of the residents and the characteristics of long-term care institutions. The research hypothesis (RH) of this study is as follows.

RH: perceived service quality and perceived value are both positively correlated with overall satisfaction; however, perceived service quality is also positively associated with perceived value, and therefore, perceived value mediates the correlation of perceived service quality with overall satisfaction.

RH1a: perceived service quality is positively correlated with perceived value.

RH1b: perceived value is positively correlated with overall satisfaction.

RH1c: perceived value mediates the correlation of perceived service quality with overall satisfaction.

## Method

### Trial registration

This research project was approved through Trial Registration CS08149, Nov 17, 2008; Institutional Review Board, Chung Shan Medical University Hospital, Taichung, Taiwan, <http://www.csh.org.tw>.

### Participants and institutions

Data were collected in 2009 from 180 residents of 14 long-term care institutions located in central and southern Taiwan. The residents targeted for participation in each long-term care institution were contacted by phone to request their consent. A trained interviewer scheduled the interview appointments, administered the questionnaire to the residents and collected the completed questionnaires.

In Taiwan, most long-term care institutions are small or medium sized, < 50 beds, and between 51 and 100 beds, respectively. Among the 14 long-term care institutions in this study, only the one located in Pingtung County is operated by the government. The rest are privately owned, six from the greater metropolitan area of Taichung City in central Taiwan, five from the greater metropolitan area of Kaohsiung in southern Taiwan and two from Pingtung County in southern Taiwan.

### Instrument

The five-point Likert scale questionnaire (see Table 1) consisting of 5 parts – perceived quality, perceived value, overall satisfaction, loyalty and background data on the participants – was developed based on the SERVPERF model of perceived service quality proposed by Cronin and Taylor<sup>9</sup> and on previous literature on perceived value and satisfaction. The first part, perceived quality, consists of 19 items on perceived service quality.<sup>6</sup> The second part, perceived value, contains four items on rating the perception of

**Table 1** Correlation matrix of resident satisfaction components

	Mean (SD)	1	2	4	5
1. Perceived Service Quality	3.88 (0.55)	1.000			
2. Perceived Value	3.86 (0.69)	0.213*	1.000		
3. (Overall) Satisfaction	3.84 (0.69)	0.113*	0.456*	1.000	
4. Loyalty	3.65 (0.85)	0.075	0.413*	0.748*	1.000

\*Significant at the 0.05 level.

value of the participants towards their long-term care institutions. The third part, satisfaction, covered physical and psychological entities, the nurses and overall satisfaction. The two items of the fourth part, loyalty, elicit information on willingness to reuse the service provided and willingness to recommend it to others, such as friends. The final part deals with background data on the participant residents of the long-term care institutions, such as their gender, age and highest educational degree attained.

#### Power analysis

According to the calculations of Get PS Version 3.0, 2009, when  $\alpha$  equals 0.05 in a two-tailed test, and the sample size is 146, the power is 0.99. If the effect size on the relationship between variables (perceived service quality, perceived value and overall satisfaction) is 0.15, 146 subjects are required. The sample size used in this study is 176, which exceeds 146.

#### Reliability and validity

##### *Internal consistency reliability*

The perception scales for perceived service quality and perceived value have Cronbach's alpha coefficients  $>0.81$ . In addition, the Cronbach's alpha coefficient for the overall customer satisfaction scale is 0.90.

##### *Content validity*

Content validity for the questionnaire was checked through several literature reviews dealing with customer perceived service quality, customer perceived value and customer satisfaction. Triangulation of content validity was achieved through interviews with three residents of long-term care institutions and two health-care management specialists, helping ensure the content validity, clarity and relevance of the measures in the Taiwanese context.

##### *Construct validity*

Construct validity for the questionnaire was calculated using the procedures outlined in Fornell and Larcker,<sup>23</sup> which include the exam-

ination of the parameter estimates, their associated *t*-values and assessments of the average variance extracted (AVE) for each construct.<sup>24,25</sup> Using a confirmatory factor analysis model, this study tested the construct validity of the instrument.<sup>26</sup> All the items loaded significantly on the expected constructs, indicating convergent and discriminant validity of the instrument.<sup>27</sup> Bollen's Rho coefficients for perceived service quality, perceived value and overall satisfaction were equal to 0.85, 0.81 and 0.97, all of which are  $>0.70$ , suggesting convergent validity. *Criterion-Related Validity and Predictive Validity.*

Criterion-related validity and predictive validity indicate that perceived service quality and perceived value are correlated with satisfaction.

#### Statistical analysis

The software STATISTICA<sup>®</sup> Version 7.1 is used for statistical analysis throughout this research. The correlation test and ANOVA are used to test the mean scores of perceived service quality, perceived value and overall satisfaction scores with the long-term institutional care residents' characteristics. Structural equation modelling (SEM) is used to examine relationships between the perceived service quality, perceived value and overall satisfaction components. The assessment of model fit is based on the following goodness-of-fit (GFI) criteria: normed chi-square ( $\chi^2/\text{d.f.}$ )  $<3$ , root mean square error of approximation (RMSEA)  $<0.08$ , root mean square residual (RMSR)  $<0.05$ , comparative fit index (CFI), GFI, adjusted goodness-of-fit (AGFI) and Bollen's Rho  $>0.8$ .<sup>28</sup>

## Results

After a trained interviewer assisted them in scheduled appointments that were facilitated by the director of staff at each institution, 176 of 180 targeted participants completed and returned their questionnaire. The completed questionnaires (176/180 = 97.8%) were considered effective responses. The 176 participants' characteristics are presented in Table 2. Most of

**Table 2** Participant characteristics

No. of participants	176
No. by age	
45 ~ 55	4
56 ~ 65	8
66 ~ 75	58
76 ~ 85	84
86 above	22
No. (%) by gender	
Male	97 (55.1%)
Female	79 (44.9%)
No. by education level	
Primary School	132
Junior High	27
Senior High	12
College	5
Post-Graduate	0
No. by location	
Central Taiwan	86
Southern Taiwan	90

them (94.9%) were over 60 years old, 97 (55.1%) were men and 79 (44.9%) were women, and 132 (75%) had primary school or lower for their highest level of schooling.

Table 1 presents the results of the participants' scores on the various measured constructs. Perceived service quality has the highest mean score, with a mean of 3.88 (SD = 0.55). Second highest is perceived value, at 3.86 (0.69), and overall satisfaction is just a little lower at 3.84 (0.69).

Table 2 gives number breakdowns of the participants in terms of some basic demographical characteristics. All but 12 of the participants are 66 years old or over, and as noted, somewhat over half are male and well over half of the participants did not continue past primary school.

In Table 3, Student's *t*-test on location indicates a significant difference in the overall satisfaction between central and southern participants. Regarding the effect of other participant differences, however, Student's *t*-test on gender shows neither men nor women as having significantly higher overall satisfaction levels, and the correlation test reveals no significant relationship between age, education and overall satisfaction.

As indicated in Table 4, there are also no significant gender-based differences in perceived

**Table 3** Tests on overall satisfaction on participant characteristics

No. of residents	176	Mean (SD)	
Overall satisfaction	3.84 (0.69)	1-5	<i>n</i> = 176
Gender			
Male	3.84 (0.64)	<i>d.f.</i> = 174	<i>n</i> = 97
Female	3.80 (0.74)	<i>t</i> = 0.132	<i>n</i> = 79
Age		<i>r</i> = -0.02	
Educational level		<i>F</i> = 0.65	<i>d.f.</i> = 3
			<i>d.f.</i> = 173
Institution location			
Central	4.24 (0.42)	<i>t</i> = 9.74	<i>P</i> < 0.001
Southern	3.43 (0.67)		
Institution ownership			
Private	3.93 (0.65)	<i>t</i> = 4.70	<i>P</i> < 0.001
Public	3.27 (0.68)		
Institution size			
Small	3.83 (0.67)	<i>t</i> = -0.21	<i>P</i> > 0.05
Medium	3.85 (0.71)		

service quality and perceived value. Similarly, the correlation test shows no significant differences in perceived service quality scores and perceived value scores for the different ages. Although revealing no significant relationship between educational level and perceived service quality, the correlation test results indicate that the higher the degree of education, the higher the scores for perceived value (*r* = 0.14, *P* < 0.1). Student's *t*-test indicates no evidence of a significant difference in the perceived service quality and perceived value scores for the central location participants and the southern location ones.

The factor loading results of confirmation factor analysis, presented in Table 5, show an acceptable index-of-model fit ( $\chi^2/\text{d.f.} = 2.06$ , GFI = 0.897, AGFI = 0.845, RMSR = 0.03) for the SERVPERF perceived quality instrument used in this study, and that the loading of each item is significant. In addition, perceived value and overall satisfaction also have acceptable levels of reliability, AVE values and index-of-model fits.

Figures 1 and 2 and Tables 6 and 7 summarize the GFI results of the SEM, showing the directions and concepts in perceived service quality, perceived value and overall satisfaction.



**Table 4** Perceived (service) quality and value tests on participant demographics

	Mean (SD)	<i>n</i>		<i>P</i>
<b>Gender</b>				
PQ1_PQ15				
Male	3.94 (0.56)	97	<i>t</i> = 1.41	0.05
Female	3.82 (0.55)	79		
PV1_PV6				
Male	3.95 (0.63)	97	<i>t</i> = 1.97	0.05
Female	3.74 (0.74)	79		
<b>Age</b>				
PQ1_PQ15			<i>r</i> = -0.03	0.05
PV1_PV6			<i>r</i> = 0.02	0.05
<b>Educational degree</b>				
PQ1_PQ15			<i>r</i> = 0.08	0.05
PV1_PV6			<i>r</i> = 0.11	0.05
<b>Institution location</b>				
PQ1_PQ15				
Central	3.80 (0.55)	86	<i>t</i> = 0.38	0.05
Southern	3.96 (0.54)	90		
PV1_PV6				
Central	3.90 (0.76)	86	<i>t</i> = 0.91	0.05
Southern	3.81 (0.60)	90		
<b>Institution ownership</b>				
PQ1_PQ15				
Private	3.88 (0.57)	100	<i>t</i> = -0.06	0.05
Public	3.89 (0.45)	76		
PV1_PV6				
Private	3.90 (0.70)	100	<i>t</i> = 2.02	0.05
Public	3.60 (0.51)	76		
<b>Institution size</b>				
PQ1_PQ15				
Small	3.83 (0.61)	89	<i>t</i> = -1.18	0.05
Medium	3.92 (0.49)	87		
PV1_PV6				
Small	3.81 (0.79)	89	<i>t</i> = -0.89 (ns)	0.05
Medium	3.90 (0.58)	87		

For convenience, the GFI criteria used are repeated here: normed chi-square ( $\chi^2/\text{d.f.}$ ) < 3, RMSEA < 0.08, RMSR < 0.05, CFI, GFI, AGFI and Bollen's Rho > 0.8.<sup>28</sup>

To examine the possible mediation of perceived value, this study uses two SEM models, the first of which (Model 1) has perceived value as not being a mediator between perceived service quality and overall satisfaction – depicted in Fig. 1, and the second of which (Model 2) has perceived value as being such a mediator – depicted in Fig. 2. This study follows the procedures outlined in Anderson and Gerbing<sup>24</sup> for comparing SEM models, with the comparison of the models determined by

**Table 5** Confirmed factor analysis of satisfaction models

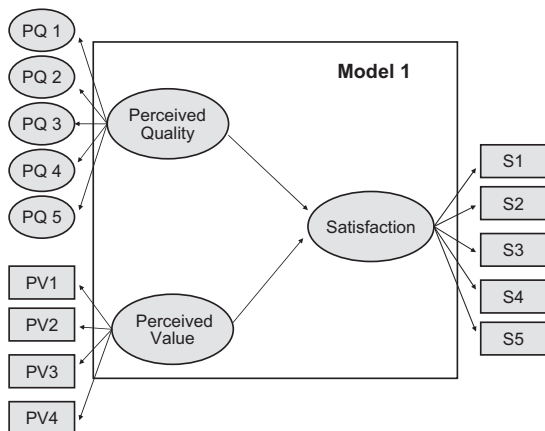
	SFL	<i>t</i> -Value	Model fit
Perceived (Service) Quality (Cronbach's alpha = 0.93)			
PQ1	0.72	9.01	$\chi^2/\text{d.f.} = 2.06$
PQ2	0.69	8.77	GFI = 0.897
PQ3	0.73	9.54	AGFI = 0.845
PQ4	0.59	7.81	RMSR = 0.03
PQ5	0.73	10.99	
PQ6	0.75	11.42	
PQ7	0.81	12.61	
PQ8	0.81	12.78	
PQ9	0.65	9.40	
PQ10	0.58	8.11	
PQ11	0.66	9.54	
PQ12	0.86	13.95	
PQ13	0.76	11.58	
PQ14	0.75	11.02	
PQ15	0.77	11.43	
Perceived value (Cronbach's alpha = 0.81; CR = 0.88; AVE = 0.50)			
PV1	0.74	10.40	$\chi^2/\text{d.f.} = 7.89$
PV4	0.81	11.77	GFI = 0.956
PV5	0.77	10.97	AGFI = 0.781
PV6	0.61	8.19	RMSR = 0.04
(Overall) Satisfaction (Cronbach's alpha = 0.90; CR = 0.90; AVE = 0.80)			
S1	0.84	13.34	$\chi^2/\text{d.f.} = 1.39$
S2	0.67	9.64	GFI = 0.984
S3	0.75	11.33	AGFI = 0.953
S4	0.87	13.97	RMSR = 0.02
S5	0.86	13.85	

SFL, standard factor loading; CR, composite reliability; AVE, average variance extracted; AGFI, adjusted goodness-of-fit; GFI, goodness-of-fit; RMSR, root mean square residual.

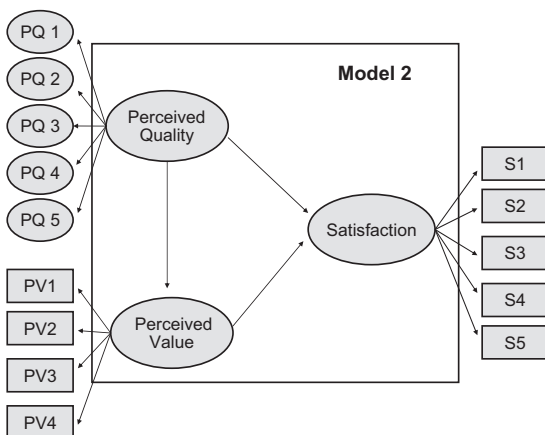
calculating the difference in  $\chi^2$  values.<sup>24</sup> Models 1 and 2 both yield adequate test results in RMSEA (< 0.08), GFI (> 0.8), AGFI (> 0.8) and Bollen's Rho (> 0.8). The  $\chi^2$  value of Model 2 is significantly lower than that of Model 1, however, as presented in Table 6.

On the basis of the GFI results and the SEM model comparison results, then, all three parts of the research hypothesis – RH1a, RH1b and RH1c – are accepted. Using a content analysis approach, the results indicate that high perceived service quality alone does not result in a high level of overall satisfaction in the participants, but must be accompanied by high perceived value.

In addition, more than half of the interviewees indicated that a happy outlook while in long-term



**Figure 1** Satisfaction SEM Model 1. Perceived service quality and perceived value are positively correlated with overall satisfaction. SEM, structural equation modelling.



**Figure 2** Satisfaction SEM Model 2. Perceived service quality and perceived value are positively correlated with overall satisfaction. Perceived service quality is positively correlated with perceived value. Perceived value mediates the relationship between perceived service quality and overall satisfaction. SEM, structural equation modelling.

care plays an important role in having a high level of overall satisfaction. All of the participants agreed that perceived value can result in overall satisfaction, depending on the degree of

happiness of outlook they have. The happiness of outlook scores has a mean of 3.95 (SD = 0.79), with an acceptable value for Cronbach’s alpha (0.81–0.93), as seen in Table 5. Table 6 shows that Model 3 and Fig. 3 has adequate test results in RMSEA, GFI, AGFI and Bollen’s Rho. Presented in Table 7, the results for Model 3 suggest that along with perceived value, the happiness of outlook also is a factor that is positively correlative with overall satisfaction.

**Discussion and conclusion**

One psychometric property result of this study is that there is no gender difference for overall satisfaction scores for residents in long-term care institutions, which is similar to the findings of previous studies.<sup>29</sup> There is also not found to be a significant relationship between age or education and overall satisfaction scores, which is similar to results from a previous study that focused on LASIK patients.<sup>30</sup> Significant differences in overall satisfaction between participants in privately owned institutions and publicly owned institutions, however, are found. Residents of privately owned institutions have higher overall satisfaction scores than residents of publicly owned institutions. On the basis of the results on the in-depth interview with residents, this could be because private institutions in Taiwan invest more funds in new and novel equipment for their residents than public institutions. In addition, there is a significant difference in overall satisfaction for the central and southern locations. Central location residents have higher overall satisfaction scores than southern location ones.

The results of this research are that the highest score is in perceived service quality and the

**Table 6** Goodness-of-fit summary for satisfaction models

	$\chi^2$	d.f.	$\chi^2 / d.f.$	RMSEA	GFI	AGFI	Bollen’s Rho	$\Delta\chi^2 (\Delta d.f.)$
Model 1	105.96	75	1.41	0.49	0.92	0.89	0.91	
Model 2	95.17	74	1.29	0.40	0.93	0.90	0.92	10.79(1)*
Model 3	138.47	100	1.39	0.47	0.91	0.88	0.89	

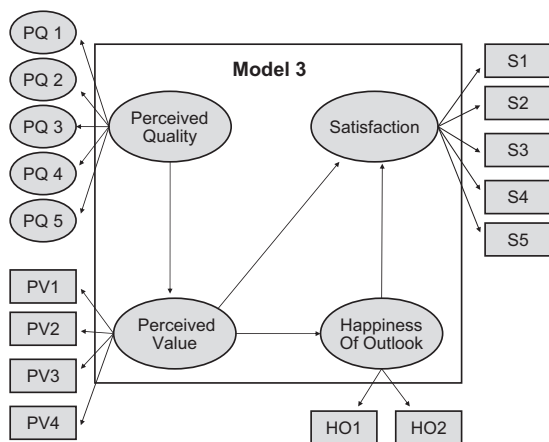
AGFI, adjusted goodness-of-fit; GFI, goodness-of-fit; RMSEA, root mean square error of approximation.

\*Significant at the 0.05 level.

**Table 7** Path coefficients of structural equation modellings

Model 1	Estimate	C.R.	Model 2	Estimate	C.R.	Model 3	Estimate	C.R.
			PQ to PV	0.322	3.13*	PQ to PV	0.323	3.16*
PQ to PV	0.593	5.37*	PV to S	0.598	5.25*	PV to HO	0.287	3.03*
PV to S	0.027	0.28(ns)	PQ to S	-0.007	-0.07(ns)	PV to S	0.443	4.25*
PQ to PQ_1	1.000		PQ to PQ_1	1.000		HO to S	0.537	4.07*
PQ to PQ_2	1.184	14.49*	PQ to PQ_2	1.188	14.61*	PQ to PQ_1	1.000	
PQ to PQ_3	1.037	14.42*	PQ to PQ_3	1.036	14.44*	PQ to PQ_2	1.188	14.61*
PQ to PQ_4	1.048	11.38*	PQ to PQ_4	1.042	11.31*	PQ to PQ_3	1.036	14.45*
PQ to PQ_5	0.702	8.50*	PQ to PQ_5	0.699	8.47*	PQ to PQ_4	1.042	11.31*
PV to PV_1	1.000		PV to PV_1	1.000		PQ to PQ_5	0.699	8.47*
PV to PV_2	1.091	7.59*	PV to PV_2	1.083	7.63*	PV to PV_1	1.000	
PV to PV_3	1.068	7.72*	PV to PV_3	1.069	7.79*	PV to PV_2	1.082	7.62*
PV to PV_4	0.947	7.26*	PV to PV_4	0.94	7.28*	PV to PV_3	1.073	7.79*
S to S_1	1.000		S to S_1	1.000		PV to PV_4	0.94	7.27*
S to S_2	1.036	14.12*	S to S_2	1.036	14.16*	S to S_1	1.000	
S to S_3	0.845	11.60*	S to S_3	0.845	11.63*	S to S_2	1.029	14.03*
S to S_4	0.896	9.83*	S to S_4	0.896	9.86*	S to S_3	0.853	11.81*
S to S_5	0.999	13.83*	S to S_5	0.999	13.87*	S to S_4	0.909	10.06*
						S to S_5	0.993	13.78*
						HO to HO_1	1.00	
						HO to HO_2	1.64	4.80*

\*Significant at the 0.05 level (ns) = not significant at the 0.05 level.  
 PQ, perceived (service) quality; PV, perceived value; HO, happiness (of) outlook; S, satisfaction.



**Figure 3** Satisfaction SEM Model 3. Perceived service quality, perceived value and happiness of outlook are positively correlated with overall satisfaction. Perceived service quality is positively correlated with perceived value. Happiness of outlook mediates the relationship between perceived value and overall satisfaction. SEM, structural equation modelling.

second highest is in perceived value, with the overall satisfaction score lower than the perceived value score. These findings imply that there are differences between perceived quality, perceived value and overall satisfaction, which suggests that long-term care institution should

consider other factors that may influence perceived value and overall satisfaction.

Using content analysis for the comments from the in-depth interviews, it was found that ageing residents are generally averse to living in long-term care institutions and would prefer instead to live with their family. Ageing residents reported that only their family members could console them, and that others were unable to do so. Studies, in general, have found that ageing residents in Asia (almost exclusively in the East Asia region, such as China, Japan, South Korea or Vietnam) prefer family companionship to friendship companionship more than those in Europe and North America. Thus, even though the score for perceived quality provided by their institutions was high, residents were not satisfied with long-term institutional care because of the absence of family companions.

According to the comments from the in-depth interviews, increasing accessibility to residents' family members could increase the perception of value and overall satisfaction towards the institution. To address those views and that possibility, this study suggests that institutions



arrange more family days to enhance the accessibility of the family to their resident relatives in the institutions.

Furthermore, it appears that considering residents' care solely from the perspective of the medical-care items extremely decreases their positive acceptance of their long-term care institutions, as they feel such a perspective views them as merely being ailing patients, rather than normal human beings, albeit ones who are old and not able to completely care for themselves.

The results also support the proposed relationships between perceived service quality, perceived value and overall satisfaction for long-term care residents, through SEM methods. Model 2 reveals that perceived quality of the institutional service alone is not a direct correlative factor in residents' overall satisfaction. The perceived value of the institutional service mediates the relationship between perceived service quality and overall satisfaction, with perceived value a direct correlative factor of perceived value. This implies that a high level of perceived service quality is a necessary but not sufficient condition for residents' overall satisfaction.<sup>31</sup> The results also suggest the existence of an additional factor, happiness of outlook, an additional important direct correlative factor of overall satisfaction. On the basis of the results of this study, then, it is suggested that long-term care institutions seek to enhance both the perceived value of service and the happiness of outlook for residents to increase their satisfaction.

### Competing interests

The authors declare that they have no competing interests.

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