Psychology Research and Behavior Management

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ORIGINAL RESEARCH

How Servant Leadership Influence Employee Service Quality of Fitness Centers During COVID-19: The Interacting Effects of Self-Efficacy

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Purpose: Drawing on conservation of resource theory, social cognitive theory and person-environment fit theory, this study aims to investigate the impact of servant leadership and self-efficacy on service quality in fitness centers.

Patients and Methods: Cross-sectional data came from 771 employees of fitness center. All participants completed the perceived servant leadership scale, self-efficacy scale and service quality scale. The polynomial regression and response surface analysis techniques were used to investigate the mediating influence and boundary conditions of self-efficacy.

Results: Self-efficacy acts as a mediator between servant leadership and employee service quality, with servant leadership having a positive, substantial impact on both. Meanwhile, regarding the relationship, the level of service quality is inversely correlated with the degree to which servant leadership and employee self-efficacy are aligned. The smaller the degree of alignment, the lower the level of employee service quality.

Conclusion: The findings of this study can help fitness centre practitioners better improve the service quality of employees through service-oriented servant leadership during the COVID-19 pandemic, thereby contributing to the development of the sports and service industries.

Keywords: COVID-19, fitness center, servant leadership, service quality, self-efficacy

Introduction

The global pandemic of COVID-19 has had a significant impact on the world economy. In the World Economic Outlook released in 2020, the International Monetary Fund predicted that the global economy would shrink by 3% and the volume of trade would fall by 9.61% in 2020.[1] Each additional month of global shutdown will cause a 2–2.53% decrease in global GDP growth.[2] In 2021, the United Nations proposed in the Financing for Sustainable Development Report 2021 that the COVID-19 would lead to the loss of 114 million jobs and approximately 121 million people in extreme poverty worldwide.[3] At the same time, there were severe losses in various industries, both global and domestic, especially in the service industries (turnover fell by an average of 60%).[2,4] In the first quarter of 2020, the production index of China's service sector fell by 9.1%. Fitness centers, as a typical service sector, have also been significantly affected in the operations and management. Statistics from the 2020 China Fitness Industry Data Report indicated that the number of fitness centers in China decreased to 97,900 in 2020, a decline of 11.1%, which left fitness centers facing a difficult choice of whether to operate and market again after the epidemic.[3]

As a profit-oriented and experiential service industry, fitness centers tend to have much higher consumer demand for their service quality than catering, retail, transportation, and other service industries. Studies have shown that fitness instructor service quality is the most direct and critical factor of customer satisfaction.[5] High customer satisfaction not only encourages customers to pay more for the fitness centers 's goods or services but also draws in repeat customers

Received: 7 November 2022
Accepted: 10 February 2023
Published: 15 March 2023

who will recommend centers to their friends and family, boosting public perception of the club's level of customer service and assisting the club's growth in a positive feedback loop. Therefore, fitness centers place a high value on the level of employee service. Employee service quality is usually affected by internal service quality,[3] leadership style,[5] customer participation,[6] employee job satisfaction and self-efficacy.[7,8] Many studies have shown that servant leadership has a positive effect on employees' positive attitudes, work behaviors, and job performance.[9,10] Servant leadership is employee-centered, focuses on the needs and growth of employees, provides employees with the resources they need, and gives them support and care. As a result, servant leadership motivates employees, making them more trusting and loyal to their leaders and organizations, more enthusiastic and diligent in their work, and improving the quality of their work.[11–13] In the fitness centers, servant leadership motivates employees to improve their self-efficacy and service quality.[14–17]

At present, the epidemic situation of COVID-19 in China has been greatly improved, and fitness center are actively re-operating and marketing. In the fitness centers with service quality as the key marketing point, it is critical for the development of the service industry in China to improve the quality of service provided by its staff and to return the fitness center to its pre-epidemic level of development at a faster pace. Although there has been much research on the effects of servant leadership on service quality in fitness centers, little attention has been paid to the interaction between servant leadership and self-efficacy.[18–22] So based on conservation of resource theory (COR), social cognitive theory and the person-environment fit theory, this paper further discusses the mechanism of servant leadership on the service quality of fitness centers employees by testing the mediating effect and interaction of self-efficacy between servant leadership and service quality, so as to provide useful reference for the effective operation and marketing of fitness centers after the epidemic.

Theoretical Background and Research Hypotheses

The Relationship Between Servant Leadership and Employee Service Quality in Fitness Centers

Servant leadership, which originated in the 1970s, is a "soft" approach to modern organizational management,[8] which refers to the cognitive behavior of leaders who focus on the growth of employees (followers) and the organization, respect and support the values of employees, and voluntarily decentralize for the benefit of the organization.[9] Abandoning the traditional "leader-employee" leadership approach, it examines leaders' limitations and shortcomings with a humanistic, open, servant leadership concept, starts at grass-roots level, and focus on the impact of employees on the leadership process using a "employee-leader" approach.[10] A large number of studies have shown that servant leadership has a positive impact on employees' positive attitude, work behavior and work performance. Kim argued that servant leadership is the engine that drives organizations to provide service excellence.[11,13] As a human resource management leadership style, servant leadership has higher flexibility and intuitiveness, and can be more effective in managing employees and shaping their work behaviors in organizations.[12]

COR theory was first used in stress research. At present, it is widely used in the fields of burnout and challenging work environment, such as organizational politics, performance evaluation, organizational commitment, and so on. In recent years, the theory has also been applied to the study of occupational stress, burnout and mental health of employees in COVID-19 environment.[23,24] COR theory produces additional resources, especially psychological resources, which have a favorable impact on lowering psychological losses, reducing negative emotions, igniting excitement at work and improving work performance.[25] Hobfoll studied the mechanisms by which COR theory affects employee performance.[26] This suggests that COR theory has a motivational effect. In the management practice of fitness centers, servant leadership values employees' personal development, respects their opinions and values, and provides them with assistance and resources to make them feel warm, reduce their occupational stress and negative emotions, and improve their work performance and service quality.

Social exchange theory, which first arose in the 1950s, assumes that social relationship is a kind of exchange relationship in which both parties to the exchange follow the principle of reciprocity, that is, when people receive help or preferential treatment from others, they are obliged to make the same return.[27] From the perspective of

organizational behavior and human resource management, when employees perceive that they receive the support and preferential treatment from their superiors or organizations, they will devote more enthusiasm to their work, work harder, and have more trust and loyalty to their superiors or organizations.[28] Many scholars have studied the effects of service leadership on employees' job performance and service quality based on social exchange theory. It was found that service leadership has a positive impact on employees' work attitude, work performance and work quality.[29–31]

Servant leadership makes employees feel supported and cared for through personalized, humanistic care. Based on the principle of reciprocity, employees give more enthusiasm and effort to their work. Moreover, with the goal of serving others rather than being served, servant leaders in fitness centers are willing to work together with their employees for a shared future, appreciate them, and put employees' interests above their own, which greatly improves the enthusiasm of employees and gives them greater motivation to work. So, when fitness centers employees perceived servant leadership, they will generate identification with the health club, and then keep the individual behavior objectives consistent with the requirements and ideas of the health club, maximize their personal value to help the health club improve its operational efficiency. Certainly, employees also compare their own input and output at work, to measure the perception of servant leadership, and finally determine the initiative of service behavior according to the results, which affects the service quality. It can be inferred that when the employees of the fitness centers feel the organizational sup-port and social recognition, they will be encouraged and inspired, so they can obtain greater work motivation and work actively. Based on the above, we put forward the hypothesis of this study:

H1: the perceived servant leadership of health club employees is positively influence to service quality.

Mediating Effect of Employee Self-Efficacy

In 1977, Albert Bandura, an American psychologist, introduced the concept of self-efficacy in social cognitive theory. Self-efficacy is the term used to describe the confidence and ability of individuals to carry out a certain work or complete a task, including the individual's evaluation of their own ability and their belief and confidence in accomplishing specific tasks. When people believe they are not competent enough to complete a task or are anxious about it, they may choose to avoid or abandon it. However, people with high self-efficacy are driven by their sense of self and often choose to take on more complex or challenging tasks.[32] In accordance with the COR theory, we reckon that the self-efficacy of fitness centers employees has a certain effect on the service quality under the influence of servant leader-ship. First of all, servant leaders show "empathy" and "compassion". When they are faced with the pressure of declining performance and loss of members due to the impact of the epidemic, they are able to trust their employees, show them the direction of work and help them adjust their work style, thus creating a positive work environment and improving their self-efficacy.[33] Secondly, self-efficacy can minimize the work anxiety of health club employees and reduce work stress, so as to allocate more internal energy to work. In the actual operation of fitness centers, the needs of fitness clients are usually vague or imprecise, such as weight loss or fat reduction, sculpting workout or muscle building, etc.[15] When faced with such demanding needs, employees with higher self-efficacy, who are less anxious about their work, tend to be proactive hunting for innovative solutions to help customers solve temporary problems and provide timely and high-quality service. From the perspective of psychological capital, employees' self-efficacy reflects an important personal value resource, which can promote employees to participate in performance improvement activities. In addition to external factors, the service quality of fitness centers staff is also subject to their own internal drive.[13] Self-efficacy, as a psychological capital factor, is the internal psychological force that affects service quality. Alexander, D verified that there is a correlation between self-efficacy and employees' job performance.[26] It has been found that servant leadership can improve employee job satisfaction and performance through self-efficacy,[33] promote innovative behaviour,[34] and even improve the competitiveness of a company through employee self-efficacy.[35] Therefore, this study draws the conclusion that servant leadership in fitness centers can progressively affect the self-efficacy of employees, thus encouraging them to give clients with a tremendous level of service quality. Given the justification provided above, the following hypothesis are put forth:

H2: Self-efficacy mediates the relationship between fitness centers employees' perceptions of servant leadership and service quality.

Interactive Influence of Servant Leadership and Employees' Self-Efficacy on Service Quality in Fitness Centers

Lewin proposed the hypothesis that individual behavior is a function between the individual and the environment and constructed the Person-Environment Fit Theory (PE FIT). Then, according to the different environment, he introduced the Person-Organization Fit Theory (PO FIT), that is, the compatibility between people and organizations, which reflects the consistency, complementary and integration between subjective people and objective organizations. In terms of employee symbolic interactions, what supervisory leaders offer forms part of the external environment. If employees feel that their personalities and behavioral styles match those of their supervisors, they may increase their commitment to their supervisors and to the organization as a whole, and thus improve their performance. Related studies have found that PO FIT has a significant effect on employee job performance. The higher the matching degree between individual and organization, the higher the employees' job performance. The main reason is that when employees are matched with the organization, employees feel the support and recognition of the health club, which improves their self-efficacy, subjective initiative and self-confidence, so that they have a subjective desire to reflect their self-worth, and show their efforts, actions and results in their work performance.[36] Therefore, the interaction of health club employees with higher self-efficacy and leaders with higher levels of servant leadership contributes to better service quality.

According to COR theory, health club employees with the highest self-efficacy must invest "resources", such as fitness instructors to improve fitness skills and front desk staff to improve active service behaviors, so as to cope with "adverse" external environments (eg, poor leadership), prevent the loss of resources and obtain more resources to success-fully complete their work tasks. However, employees with the highest self-efficacy often feel incompatible and mismatched with the organization, thus somehow reducing the quality of service that would otherwise be the highest. Therefore, we predict that the quality of service they provide to their clients will only be relatively high. In addition, when employees with the lowest self-efficacy are in a perceived environment with the highest level of servant leadership, such employees are not thought to provide the lowest service quality. This is because servant leaders will put their subordinates and service to others first. While the impact of servant leadership is somewhat mitigated by the fact that employees with the lowest sense of self-efficacy in fitness centers feel a personal and organizational mismatch, servant leaders empower employees with freedom and rights, pro-vides opportunities to learn and grow, and encourages employees to reach their potential and achieve their goals. The lowest self-efficacy employees may completely benefit from servant leadership and accelerate their own identification with the growth concepts and goals of the health club with such support and encouragement, which in turn motivates proactive service action. Therefore, we predict that employees with the lowest levels of self-efficacy will likewise be able to offer consumers services of a better caliber. Further-more, if both servant leadership and self-efficacy remain at a constant level with no deviations, neither one of them will be above the minimum required to motivate staff to deliver a generally exceptional level of customer service. Henceforth, compared to the previous two scenarios, the employees' expected level of service quality is lower. Using the information above, we develop hypothesis H3 and H4.

H3: When the level of servant leadership and employee self-efficacy in the fitness centre are both high (or low), the service quality of employees is higher (or lower) than in any other cases.

H4: Self-efficacy moderates the relationship between fitness centers employees' perceptions of servant leadership and service quality.

Material and Methods

Sample and Procedure

The purpose of this study is to examine the impact of servant leadership and self-efficacy on the service quality of fitness centre employees. The population for this study was employees who were working in fitness centers, had to

provide direct service to customers and perceived their immediate supervisor's leadership style as servant leadership. The sample was collected through convenience sampling and snowball sampling (a non-probability sampling method). Prior to conducting the survey, the manager or human resources manager of the fitness centre was contacted to request permission to conduct the survey. All participants were informed of the purpose of the study and completed it voluntarily and anonymously. Taking fitness centers in Beijing, Shanghai, Guangzhou, Shandong and Jiangsu and other places as examples, a total of 771 employees participated in the survey, of which 84 were excluded due to insufficient information or not meeting the inclusion criteria, with an effective rate of 89.1% of questionnaires returned.

In terms of sample structure, among the valid sample, 54.4% were male employees and 45.6% were female employees. 25.7% of the employees were under 20 years old, 62.1% were 20–24 years old, 6.8% were 25–30 years old, 4.4% were 30–40 years old, and only 1% were over 40 years old. The percentage of those with education below high school was 3.9%, college specialist was 3.9%, undergraduate was 72.3%, and master or above was 13.6%. This shows that the education level and quality of health club employees have greatly improved in recent years, and with the growth of female fitness demand, female employees such as female coaches have gradually increased. 47.6% of employees have worked for less than one year, 39.8% for 1–3 years, 9.7% for 4–7 years and 2.9% for more than 8 years. Most employees were mainly from the coaching department, accounting for about 29.1%, and the rest were from the front desk department, marketing department, membership department, finance department, etc.

Measures

Perceived Servant Leadership Scale (PSL)

Ehrhart developed a 14-item servant leadership scale[16,17] and Liden et al[6] developed a shortened version of the scale with seven questions based on it. This study assessed perceived servant leadership using Liden et al's seven-item scale, using the Chinese version of the scale, which has been used in China and has good reliability and validity. The questions included "My leader gives priority to my career development", "My leader can tell if there is a problem with work-related matters", "If I have personal problems, I will ask my leader for help", and so on. The Cronbach α coefficient for this scale in this study is 0.883.

Self-Efficacy Scale (SE)

A scale developed by Riggs et al was used to measure employee self-efficacy.[18] The scale consists of 10 questions, including "I have all the skills needed for fitness work", "I am an expert in fitness work", "My lack of skills may hinder my job future" and so on. The Chinese version of the scale has been used in China with good reliability and validity. Therefore, we used the Chinese version of the scale. The Cronbach α coefficient of the scale in this study is 0.827.

Service Quality Scale (SQ)

The scale developed by Ling was used, consisting of five questions, such as "I am always willing to help customers", "I care about the needs of customers", "I am very dedicated to my work", "I have strong communication skills with customers" and "I am very proactive in serving customers".[18] The scale is based on five items drawn from the soft attributes of service quality,[37] including helpfulness, caring, commitment, communication and flexibility. We chose the Chinese version of the scale, which has been applied in China and has good reliability.[19] Previous studies has indicated that the ideal effect of servant leadership is for employees to have a deep experience of leadership. Therefore, employee reports were used. In this study, the Cronbach α coefficient of the scale is 0.831.

Control Variables

In this paper, gender, age, education level, job duration, and department of the employees were used as control variables. According to existing studies, these demographic variables may affect the service quality of fitness centers employees.[20,38] Gender was a dummy variable with 1 for men and 0 for women. The age variable included 5 grades, the education level covered 4 grades, and the work duration contained 4 grades.

Statistical Analysis

In this study, SPSS 24.0 was used for statistical analysis of the sample data and Amos 24.0 was used for structural equation modelling. Firstly, common method biases test, confirmatory factor analysis and variable correlation analysis were conducted for the three variables. Secondly, mediating effect was tested using Model IV in the Process Macrov3.3 plug-in of SPSS,[39] where PROCESS can automatically generate bootstrap confidence intervals to account for possible non-normality in the sampling distribution. The mediating effect of fitness centre employee self-efficacy between servant leadership and service quality was tested at a 95% confidence interval over 5000 iterations. Amos then performed an overall fit and path analysis of the model. Finally, to further investigate and analyse how servant leadership and self-efficacy in fitness centers interact to affect service quality, a polynomial regression approach to response surface analysis was used.[21,22] This analysis method can test the interaction of the two variables on the result variables in three dimensions under uniform metric or diversity measurement.

Suppose the polynomial regression equation is

$$z = b_0 + b_1x + b_2y + b_3x^2 + b_4xy + b_5y^2 + e_z \quad (1)$$

The above equation does not contain control variables, where z is the outcome variable (service quality), x represents the service-oriented human resource management perceived by employees, and y represents the self-efficacy of employees. b_0 is the intercept, b_1 and b_2 are the coefficients of x and y, respectively, b_3 is the coefficient of x^2, b_4 is the coefficient of xy interaction term, b_5 is the coefficient of y^2, and e_z is the error. The variables x and y were centralized to reduce multi-collinearity. Also, response surface plots were drawn and key points and lines were selected on the response surface to test hypotheses 3 and 4. Along the perfectly matched consistent line y=x, ie, in equilibrium of the variables, equation (1) is transformed into:

$$z = b_0 + (b_1 + b_2)x + (b_3 + b_4 + b_5)x^2 + e_z \quad (2)$$

Along the non-matching inconsistent line y=−x ie, with the independent variables in disequilibrium, equation (1) is transformed into:

$$z = b_0 + (b_1 - b_2)x + (b_3 - b_4 + b_5)x^2 + e_z \quad (3)$$

Multilevel regression analysis was performed on (1) to obtain the regression coefficients of the variables of interest, and the slope (coefficient of x) and curvature (coefficient of x^2) in tests (2) and (3) were calculated.

Specifically, if the slope is positive, it indicates that the “double high” (high levels of servant leadership and high employee self-efficacy) matching condition has a greater effect on the dependent variable than the “double low” (low levels of servant leadership and low employee self-efficacy) matching condition. Conversely, if the slope is negative, it means that the “double low” matching condition has a greater effect on the outcome variable than the “double high” matching condition. The curvature indicates a nonlinear curvilinear relationship between the matching status of the independent variable and the dependent variable. If the curvature is positive, it indicates that the curve is quadratic with an upward opening and the variables show a U-shaped relationship, ie, the consistent matching status of the independent variable has a greater effect on the dependent variable. If the curvature is negative, it demonstrates that the curve is quadratic with a downward opening and the variables show an inverted U-shaped relationship, ie, the consistent matching condition of the independent variables has less influence on the dependent variable.

Results

Descriptive Analysis

To avoid homogeneous data errors, this study tested the severity of the model test with common method bias variance before performing it. Using Harman’s single factor test, the three variables of employee servant leadership perception, self-efficacy, and service quality and the involved items were set as a common factor of 1 without rotation, and two factors with characteristic roots greater than 1 were selected. Among them, the first factor with the strongest explanatory power had a low explanatory power of 32.023%, less than 50%. This shows that the deviation of the common method is not serious and statistically controllable, so the follow-up analysis can be carried out.

Reliability and Validity Test Results

As shown in Table 1, the total Cronbach α coefficient of the servant leadership perception scale for health club employees is 0.88, with α coefficients ranging from 0.86–0.88 for the seven question items; the total Cronbach α coefficient of the self-efficacy scale is 0.83, with α coefficients ranging from 0.78–0.81 for the six question items; the total Cronbach α coefficient of employee service quality scale is 0.83, and the α coefficients for the five question items ranges from 0.78 to 0.83. All coefficients are greater than 0.70, indicating that each scale has good internal consistency. In addition, the combined reliability of the three scales are 0.88, 0.83, and 0.83, respectively, all of which are greater than 0.60, suggesting that the scales used in this study have high reliability and can be analyzed for the variables.

The structural validity of the scale was examined in terms of convergent validity and discriminant validity. Through confirmatory factor analysis, all standardized loading coefficients for all items of each scale are greater than 0.50, and the Average Variance Extracted (AVE) values are 0.53, 0.55, and 0.59, respectively, which are all greater than 0.50, showing that the convergent validity of all scales is verified. Meanwhile, according to Table 1, the square root values of AVE for all three factors are greater than the correlation coefficients among the corresponding factors, which indicate that the three variables are well differentiated.

Finally, the fitting degree of the model was analyzed. Confirmatory factor analysis (CFA) was performed on the three variables to construct three-, two-, and one-factor models to compare the fit indices of the study hypothesis models with representative alternative models (see Table 2). The results show that the fitting degree of each data of the three factor measurement model is the best, and the value of each index is χ^2= 218.24, df=132, χ^2/ df=2.41<3, GFI=0.92>0.9, RMSEA<0.1, RMR=0.04<0.05, CFI=0.94>0.9, NFI=0.86(<0.9), IFI=0.91>0.9.

Table 1 The Reliability and Validity Test Results

Factors	Items	α Coefficient	Sources	Cronbach α Coefficient	Standard Load Factor	CR	AVE
Perceived Servant Leadership (PSL)	A1	0.875	Liden, 2014; Qiu, 2019	0.883	0.630	0.884	0.525
	A2	0.862			0.748		
	A3	0.860			0.764		
	A4	0.862			0.755		
	A5	0.865			0.736		
	A6	0.869			0.690		
	A7	0.865			0.724		
Self-efficacy (SE)	B1	0.801	Riggs, 1994	0.828	0.677	0.831	0.554
	B2	0.809			0.625		
	B3	0.789			0.710		
	B4	0.784			0.764		
	B5	0.812			0.615		
	B6	0.809			0.636		
Service Quality (SQ)	C1	0.782	Ling, 2016	0.831	0.780	0.832	0.599
	C2	0.800			0.711		
	C3	0.797			0.700		
	C4	0.825			0.785		
	C5	0.780			0.753		

Table 2 The Results of Confirmatory Factor Analysis

Model	χ^2	df	χ^2/df	GFI	RMSEA	RMR	CFI	NFI	IFI
Three factor model	218.24	132	2.41	0.92	0.08	0.04	0.94	0.87	0.91
Two factor model a	551.31	134	4.11	0.72	0.12	0.12	0.74	0.69	0.74
Two factor model b	489.42	128	3.82	0.77	0.12	0.20	0.78	0.72	0.78
One factor model	659.12	131	5.03	0.69	0.14	0.14	0.67	0.63	0.68

Notes: 90% CI is 90% confidence interval; a indicates that all items of service-oriented leadership perception and self-efficacy are assigned to the same potential factor; b indicates that all items of self-efficacy and service performance are assigned to the same potential factor; c indicates that all items are assigned to the same potential factor.

Variable Correlation Test Results

Means, standard deviations, and Pearson correlation coefficients are calculated for each variable in the model (see Table 3). As can be seen from Table 3, the correlation coefficients of the relationships among the three variables are positive, demonstrating a positive correlation between them. The correlation coefficient between the perception of servant leadership and service quality of fitness centers employees is 0.46* ($p < 0.01$), and the correlation coefficient between self-efficacy and employee service quality is 0.32 * ($p < 0.01$), which is statistically significant and supports the main effect hypothesis.

Regression Results

We conducted a regression analysis using health club employees' perception of servant leadership as the main effect, self-efficacy as the mediating effect, and employee service quality as the outcome variable. The test results are shown in Table 4. Based on the results, it is clear that health club employees' perception of servant leadership has a significant predictive effect on employee service quality ($t=4.74$, $p<0.001$), which means that hypothesis H1 holds. On this basis, self-efficacy intermediary variables are added for regression analysis. The results show that self-efficacy is a significant predictor of employee service quality ($t=-2.30$, $p<0.05$), employee servant leadership perceptions significantly affected service quality ($t=5.32$, $p<0.01$), and self-efficacy ($t=7.46$, $p<0.01$). Thus, self-efficacy mediates the relationship between employees' perceptions of servant leadership and service quality, ie, hypothesis H2 is proved.

To further verify the robustness of the mediating variables, the mediating effect study was conducted using Bootstrap sampling test according to the mediating effect testing process proposed by Zhonglin Wen et al. The sampling times were 5000. The results are shown in Table 4 and Table 5. Servant leadership perceptions significantly and positively predicted employees' service quality (LLCI=0.21, ULCI=0.42, 95% interval excluding the number 0). After adding the mediating variables, the effect value of the path "servant leadership perception → self-efficacy → service quality" was 0.07 ($p<0.05$), which accounted for 25.19% of the total effect, and the 95% interval did not include the number 0 (LLCI=−0.13, ULCI=−0.006). Thus, it indicates that self-efficacy has a mediating role in the path of employees' servant

Table 3 Mean, Standard Deviation and Correlation Coefficient of Each Variable

	M	SD	1	2	3	4	5	6
1. Education	2.112	0.619	1					
2. Department	3.767	1.463	0.09	1				
3. Working years	2.272	1.093	0.135	0.009	1			
4. PSL	2.621	0.815	0.062	0.107	0.085	1		
5. SE	2.912	0.689	0.135	0.085	0.016	0.008	1	
6. SQ	3.123	0.806	0.002	0.035	0.019	0.461*	0.315*	1

Note: *p<0. 05.

Table 4 Model Test of Self-Efficacy Mediation Effect

	SE				SQ				SQ			
	B	SE	t	p	B	SE	t	p	B	SE	t	p
Constant	1.78**	0.21	8.62	0.000	2.89**	0.19	15.35	0.000	3.15**	0.22	14.47	0.000
PSL	0.47**	0.06	7.46	0.000	0.27**	0.06	4.74	0.000	0.34**	0.06	5.32	0.000
SE									0.15*	0.06	−2.30	0.022
R^2	0.21				0.099				0.12			
Adjust R^2	0.21				0.095				0.11			
F	F(1204)=55.59, p=0.000				F(1204)=22.51, p=0.000				F(2203)=14.14, p=0.000			

Note: **p<0.01, *p<0. 05.

Table 5 Mediating Effect Analysis Process

Effect	Items	Effect Value	bootSE	p	LLCI	ULCI
Direct effect	PLS→SQ	0.34	0.06	0.000	0.21	0.46
Indirect effect	PLS→SE	0.47	0.06	0.000	0.34	0.59
	SE→SQ	0.15	0.06	0.022	−0.27	−0.02
Total effect	PLS→SQ	0.27	0.05	0.000	0.16	0.38

Notes: LLCI is the lower limit of the 95% interval of the estimated value; ULCI refers to the upper limit of the 95% range of the estimated value.

leadership perceptions affecting service quality. H2 is further verified, that is, employees' perception of servant leadership in fitness centers would first affect self-efficacy, and then influence service quality through self-efficacy.

Interaction Test for Multiple Responses

In order to further study and test the hypothesis, we carried out polynomial regression analysis. The results are shown in Table 6, Model 1 is the baseline model in which we only input control variables in the regression equation. Health club servant leadership employee perceptions and self-efficacy were included in the basic model 2. The R^2 values significantly increased from model 1 to model 2 (ΔR^2=0.15, p<0.001). Model 3 was created by adding three second-order terms to model 2. The R^2 value rose from 0.18 (model 2) to 0.35 (model 3), a significant increase (ΔR^2=0.319, p<0.001), and the regression coefficients of the squared terms and interaction terms of perceived servant leadership and self-efficacy were significantly non-zero (β=0.165, p<0.01; β=−0.104, p<0.05; β=0.271, p<0.01). The three-dimensional response surface in Figure 1 shows that the impact on employee service quality is greater when the level of consistent matching of servant leadership perceptions and self-efficacy is higher among health club employees. Once there is a difference between employee servant leadership perception and self-efficacy, service quality also changes and the three-dimensional response surface bends upward along the y=−x line, that is, the U-shaped cross-sectional line is very obvious. It follows that when the difference between the perceived level of service leadership and self-efficacy becomes larger, the service quality of employees will be improved. Therefore, Figure 2 provides preliminary support for research hypotheses H3 and H4. Meanwhile, according to model 3 in Table 6, the slope of servant leadership perception and self-efficacy of fitness centers employees along the y=x cross-section line at point (0,0) is obviously positive (b1+b2=0.778, p<0.01), and there is no significant difference between curvature and 0 (b3+b4+b5=0.332, p<0.01), which shows that the response surface is a straight line with an upward slope along the y=x cross-sectional line. It also demonstrates that with the improvement of the perception of servant leadership and self-efficacy, the service quality of fitness centers employees will also be

Table 6 Polynomial Regression Analysis Results

SQ			
	Model 1	**Model 2**	**Model 3**
Constant	0.309	0.253	0.322
Control variable			
Gender	0.127	0.117	0.036
Age	−0.171**	−0.147 *	−0.155**
Education	−0.167*	−0.153*	−0.113
Department	0.040	0.039	0.021
Working years	0.011	0.012	0.036
Independent variable			
PSL		0.318 **	0.460**
SE		0.117	0.318**
PSL2			0.165**
PSL*SE			−0.104
SE2			0.271**
R^2	0.068	0.177	0.352
Adjusted R^2	0.045	0.148	0.319
F	F (5200)=2.927, p=0.014	F (7198)=6.095, p=0.000	F (10,195)=10.587, p=0.000
Consistency line: y=x			
Slope (b1+b2)			0.778**
Curvature (b3+b4+b5)			0.332**
Inconsistent line: y=-x			
Slope (b1-b2)			0.142**
Curvature (b3-b4+b5)			0.540**

Notes: *p<0.05, **p<0.01. The significance test of the curvature value of the response surface cross-section along the consistent line or the non-consistent line and the slope value at (0,0) is compared with 0.

improved, and under the consistent matching of "double high", the service quality of employees is the highest. Therefore, the hypotheses H3 and H3a are verified. In addition, the curvature of servant leadership perception and self-efficacy of fitness centers employees along the y=−x cross-section is significantly positive (b3-b4+b5=0.540, p<0.01), indicating that the response surface curves upward along y in a U-shaped curve. And the slope of the y=−x cross-sectional line at the point (0,0) is remarkably positive (b1-b2=0.142, p<0.01), which suggests that the service quality of employees will be improved when the difference between the perceived level of service leaders and self-efficacy becomes larger. Therefore, the research hypothesis H4 is tested.

Of particular note, as evidenced by the significance of the interaction terms in Table 6, self-efficacy not only mediates between fitness center employees' perceptions of servant leadership and service quality, but also plays a moderating effect from a response perspective (β=−0.104, p<0.05). In order to investigate in depth, the differences in the effects of the independent variable health club servant leadership perception on employee service quality at different condition values of self-efficacy, we conducted simple slope analysis at 2 levels, namely high level (mean

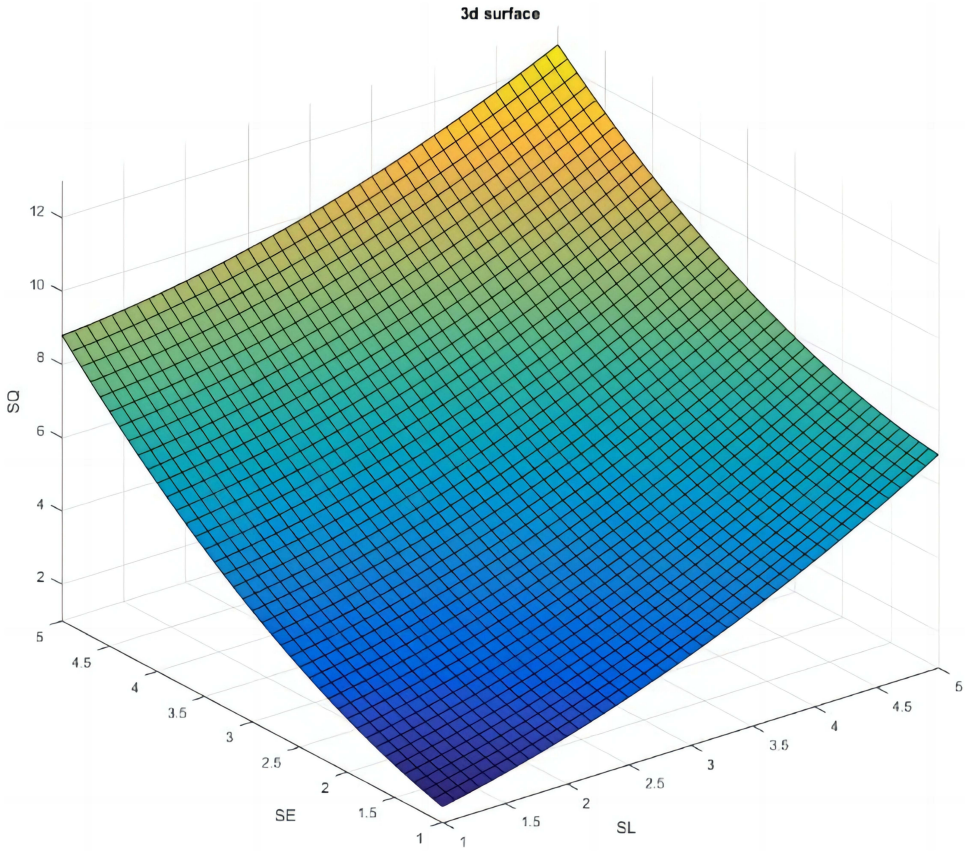

Figure 1 The matching between level of servant leadership and self-efficacy in fitness centers.

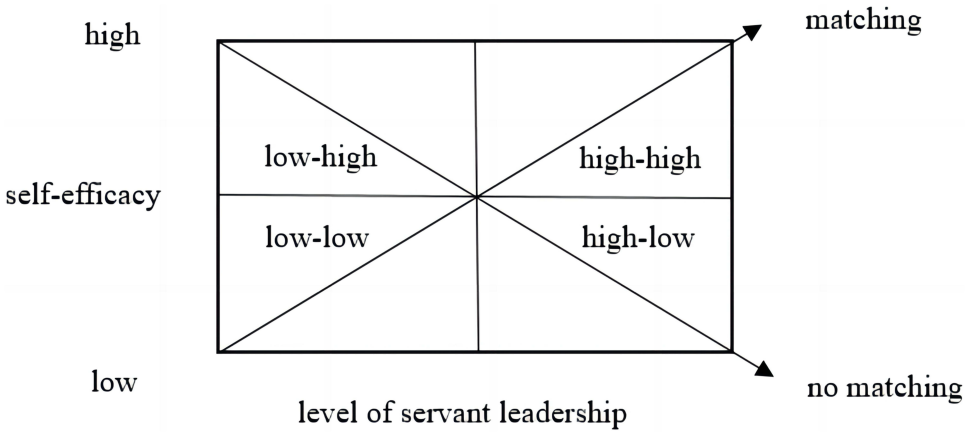

Figure 2 Three-dimensional response surface of the service quality of employees in commercial fitness centers.

plus 1 standard deviation) and low level (mean minus 1 standard deviation), and plotted the effects (see Figure 3). From Figure 3, it is clear that the positive effect of employees' perception of servant leadership on service quality is stronger when the self-efficacy of health club employees is low; and the positive effect of employees' servant leadership perceptions on service quality is weaker when the self-efficacy of employees is high, thus further supporting hypothesis H4. Based on the above results, we proposed the mediation model of this study (see Figure 4).

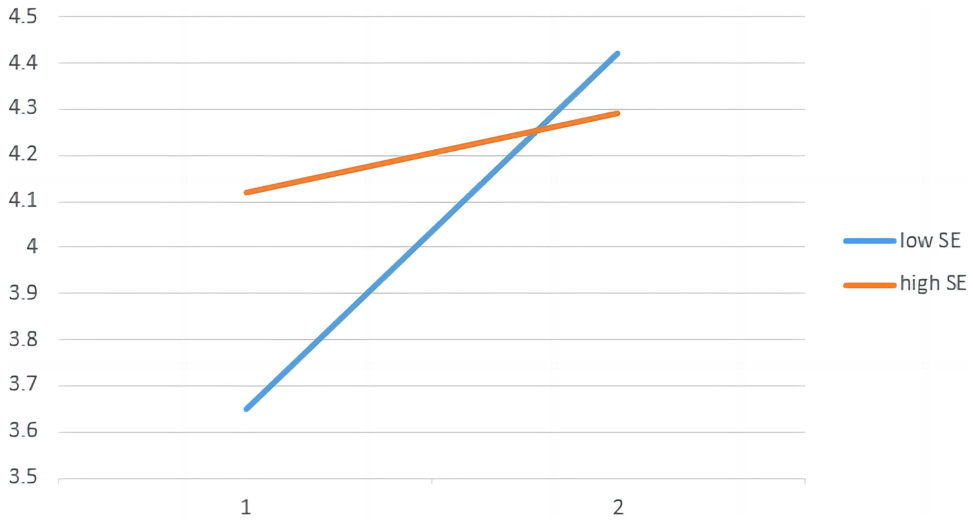

Figure 3 The interaction of PSL and SE on SQ.

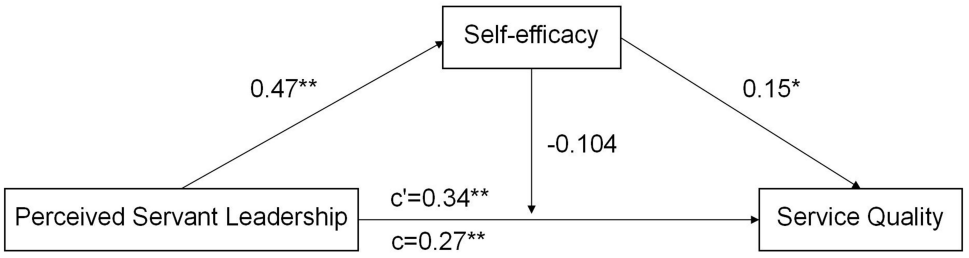

Figure 4 An intermediary model.

Discussion

Based on COR theory, social cognitive theory and person-environment fit theory, this study explores the influence mechanisms of fitness centre employees' perceived servant leadership on their service quality. Our research results indicate that fitness centre employees' perceived servant leadership has a significant positive effect on employees' service quality; employees' self-efficacy mediates the relationship between perceived servant leadership and service quality, and the higher employees' perceived servant leadership and self-efficacy, the higher employees' service quality. In addition, employees' self-efficacy plays a moderating role between perceived servant leadership and service quality, that is, with the improvement of employees' self-efficacy, the influence of perceived servant leadership on service quality gradually weakens.

Firstly, the results of this study indicate that there is a significant positive effect of perceived servant leadership on service quality among fitness centre employees, with the higher the perceived servant leadership of employees, the higher their service quality. This is consistent with the findings of previous studies.[17] How quickly fitness centers can resume normal operations after COVID-19 to increase social penetration and contribute to the country's economic development has become an important issue in the sporting and service sectors. The quality of service remains the cornerstone of the survival of fitness organizations, both online and offline. It has been shown that employees' service quality is an important factor affecting customer satisfaction and the sustainability of the fitness industry,[40] and that perceived servant leadership has a significant positive impact on employees' service quality. The most important characteristic of servant leadership is service to others, which is in line with the service mission of fitness centers. As people's mindsets improve and change, employees are also choosing jobs with a greater focus on their own growth and the leadership style of their leaders. With the care, help and guidance of servant leaders, staff will feel valued and respected, learn skills faster, grow

more quickly, become more loyal to their leaders and the organization, and voluntarily contribute to the organization to improve the quality of their service to customers.

Secondly, this study reveals the relationship between perceived servant leadership and service quality in fitness centre employees' self-efficacy, ie perceived servant leadership can influence service quality through employees' self-efficacy, and the higher the employees' perceived servant leadership and self-efficacy, the higher their service quality. This has enriched the human resource management theory of fitness centers to some extent. In recent years, fitness centers have found it increasingly difficult to anticipate and plan for the increasingly personalized and on-site fitness needs of their customers. As a result, they are increasingly relying on servant leadership to improve staff self-efficacy and service quality. Research has shown that servant leadership in fitness centers can increase employees' alternative experiences and self-efficacy through physical action and verbal persuasion, relieving their anxiety and stress and giving them confidence in their ability to perform successfully.[26] In return, employees with a low sense of self-efficacy will be appreciated for the quality of fitness services they provide to their customers, in line with the person-environment fit theory. The essential attributes of fitness centers are service industries, the key characteristic of servant leadership is service to others, and the primary purpose and content of the work of fitness centre employees is to serve customers. Therefore, both subjectively and objectively, employees, leaders and organizations are aligned. Due to the impact of the COVID-19, staff performance has declined and clients have been lost. Servant leadership provides service by offering help and care to employees, thus increasing their self-efficacy and reducing their stress and anxiety at work. Employees will provide a better quality of service to customers with the encouragement and self-efficacy of their leaders.

Third, this study found that self-efficacy not only mediated the relationship between perceived servant leadership and service quality, but also had a moderating effect. That is, as employees' self-efficacy increased, the effect of their perceived servant leadership on service quality diminished, which is consistent with previous research findings.[19] According to COR theory, for employees with high self-efficacy, they tend to feel incompatible and mismatched with the organization, and even if their leaders provide them with a wealth of help and resources, they do not motivate them to significantly improve their service quality from their original base. Employees with a low sense of self-efficacy often find it difficult to find ways to improve their performance in a quicker time, and will be in a high level of stress and anxiety for a long time. When leaders provide support and assistance, they often make an effort and take action to improve the quality of their service in order to retain the material and moral resources of the leader and to prevent the loss of resources.[26] Therefore, leaders should pay more attention to employees with low self-efficacy, provide them with support and help, improve their self-efficacy, and thus improve their service quality.

Limitation and Future Research Recommendation

First of all, this study tests the impact of fitness centers staff self-efficacy on service quality from the perspective of employees rather than servant leaders. If there is a reasonable theory, the relevant research can be carried out from the perspective of servant leadership in the future. Secondly, the data in this study are mainly cross-sectional static data and no dynamic data are available. Attempts at staged data collection for dynamic structural equation analysis can be made in later investigations. Besides that, due to the impact of the epidemic, the samples of this study are mainly medium-sized fitness centers and do not involve a sample of fitness studios as such. Future research can expand the sample area and type for comparative analysis. In the sample data collection, we sought to carry out a two-week interval between the measurement of the prediction variables and the result variables to temporarily separate the data collection and avoid the deviation of the common methods.

Conclusion

Fitness centre employees' perceived servant leadership has a significant positive effect on employees' service quality. When employees' perceived servant leadership and self-efficacy are higher, employees' service quality is higher. Self-efficacy plays both a mediating and moderating role between servant leadership and service quality among fitness centre employees, and as self-efficacy increases, the effect of servant leadership on service quality diminishes. Therefore, for fitness centre employees with high or low self-efficacy, the service quality will be greatly improved with the increase of

their perception of servant leadership behavior. Conversely, servant leadership will have less of an effect on employees with high levels of self-efficacy if we solely consider offering consumers high-quality fitness services.

Ethical Statement

This study does not involve human clinical trials or animal experiments. The data were collected through a questionnaire survey. The questionnaire is anonymous and the respondents are random. All respondents' information is protected. For the above reasons, this study is considered to meet the requirements of the institution and is therefore not ethically recognized. According to the 1964 Helsinki Declaration, all respondents understood the research process and provided written informed consent. The above investigation process has been approved by the Institutional Review Committee of the School of Physical Education of Shandong University.

Acknowledgments

This work was supported by the National Social Science Foundation of China [grant number: 21BTY054]; China Postdoctoral Science Foundation [grant number: 2017M622169] and Future Project for Youth Scholar of Shandong University [grant number: 2017WLJH17]. The content of the paper is solely the responsibility of the authors and does not necessarily represent the official views of the funders.

Disclosure

The authors report no conflicts of interest in this work.

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