

# The Fitness Services During the Covid-19 Pandemic in Relation to Membership Customer Behaviors: A Case in Vietnam

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## Abstract

The situation of fitness services in the midst of the COVID-19 pandemic in general and in Vietnam in particular implied many complicated dilemmas, highlighted by forceful changes in human behaviors and operational difficulties. A mixed approach with multiple linear regression and thematic analysis was adopted from results of 102 quantitative respondents and 12 qualitative interviewees, helping unveil the insights of membership customer behaviors via their involvement into fitness services and corresponding recognition from service providers. Some extracted highlights are the significant positive relationships between physical preparation, perceived level of program effectiveness, price, and level of customer involvement into new operational fitness services, the surprising non-relationship between customers' health awareness and their involvement. Those findings are the foundations for fitness businesses in Vietnam to recover and develop in a new-normal post-Covid era.

**Keywords:** fitness, fitness services, COVID-19, membership customer behaviors, mixed approach, multiple linear regression, thematic analysis

## 1. Introduction

The COVID-19 pandemic has been leaving devastating consequences for human beings within only two years since its first appearance in late 2019. Fitness services stand out not only because these are among the top-list to be closed soonest and to be re-opened latest, but also because of the paradox behind. During the pandemic, staying physically active is recommended that its various forms of activity can decrease the susceptibility to coronavirus, such as reducing blood pressure, risk of heart disease, stroke, and diabetes (World Health Organization, 2021). Physical exercises are also approved as treatments for improving mental health, reducing negative moods and depression, which are vital means to remedy mental health disorders during this pandemic (Bartholomew, Morrison, & Ciccolo, 2005; Kaur, Singh, Arya, & Mittal, 2020). Nonetheless, fitness and gym centers are listed as “high-infectious-risk” venues and usually shut down as part of social distancing requirements. These venues often contain a great number of people at one time, posing a threat of cross-infection if there is any positive case, consequently leading these businesses to a “frozen” stage with no in-person operation.

The application of online attribution in the fitness industry had taken place before the COVID-19 pandemic occurred, yet only considered supportive to the physical fitness services. Online communities on social media are proved to significantly improve health environment sensitivity, thus increasing the engagement of people with physical fitness (Dessart & Duclou, 2019). Online community platforms specialized for fitness also help monitor diets, provide essential knowledge, and motivate people to change their lifestyles (Ba & Wang, 2013). Yet for those who never examined any level of home exercise and fully depended on their membership at fitness studios, finding an adequate substitute for regular leisure fitness routines is not easy, due to the lack of equipment, mates, environments, and follow-up services. Developing new channels to reduce those gaps became extremely critical, yet not feasible for all corporates. Many virtual-based apps (such as Peloton, Les Mills on Demand) went to a booming stage and gained more exposure and success thanks to their variety of distinctive self-organized classes for different groups of users. However, the traditional fitness centers faced lots of difficulties when operating their services, due to the restraints from technology and experience, along with the reliance and commitment on

available membership customers.

During the pandemic, the fitness services in Vietnam - the majority of which are small and medium enterprises - experienced the most stressful stage with loads of uncertainty and struggles in terms of executing new interactive forms and capturing changes in consumer behaviors. The indoor professional fitness services are categorized by the Vietnamese government as “non-essential” - being stopped whenever the first level of lockdown restriction is imposed. There is no predominant home-workout application for Vietnamese consumers, while the training materials from social media influencers are often general and repetitive. In addition, not every fitness center can offer specialized (or even personalized) services to its customers. When all previously common services are discontinued, the demand for offering new adaptive-yet-effective is crucial. That raises concerns for fitness business owners regarding the efficacy of every service they offer, especially when considering the implied dangers of inadequate guidance and surveillance, as well as the repercussions for clients' health problems.

Therefore, this study adds fresh insights to the situational setting of the fitness sector in Vietnam, hoped to serve as a trustworthy reference source for both scholars and managers. To be more specific, the overall objective of this research is to explore and assess the operational fitness services in Vietnam during the COVID-19 pandemic, which was examined via the relation to membership customer behaviors. The study thus explored the participation of membership customers in the new operational services during the COVID-19 pandemic and relevant factors that have significant impacts on their involvement.

## 2. Literature Review

For consumers of fitness services, the initial cognitive drivers for consumption are self-perception and health awareness. Wilson, Rodgers, Blanchard, & Gessell (2003) and Edmunds, Ntoumanis, & Duda (2006) stated the positive relationship between self-determined motivation, psychological and exercise attitudes with physical fitness through the application of self-determination theory. Between these two drivers, the health consciousness seems to be more dominant, reflected by studies from Lim et al., (2015) and Khisti & Raizada (2020), with the majority of fitness services users claiming their purchasing and using objectives as health improvement, strength gain, weight loss, and stress reduction. The criteria for consuming also vary whether the provided services are in-person or online. For traditional in-person physical services, the set of criteria for venue selection are relatively consistent, including facilities, convenience, service, and price, according to Rujiramora (2017), Liudmyla, Oleksandr, Andrii, & Olena (2020) and Khisti & Raizada (2020). Regarding the online services, Chiu & Cho (2020) by using technology acceptance model (TAM) by Davis (1989) - with two constitutional variables “perceived usefulness” and “perceived ease of use” - concluded that technology readiness plays an initiative role in affecting people’s intention to use health and fitness applications. Besides, this study also indicated that perceived usefulness seems dominate perceived ease of use for novice users. Similarly, that insight was proved by Garc á-Fern ández et al., (2020) from another broader perspective by examining the mediating variable “e-lifestyle” - which is considered in relation to other factors such as leisure orientation, internet involvement, and e-shopping preference.

With respect to those diversified factors considered, fitness service providers are responsible for delivering such quality services to customers, especially membership ones. Most fitness businesses nowadays follow the pre-paid (membership) method rather than the pay-to-play method, which shows the substantial importance of membership customers concept in this industry. Retaining customers is proved to cost less than acquiring new ones because of the higher investment on time, effort, and resources to generate new customer relationships (Mandal, 2016; Ascarza et al., 2017). Mandal (2016) also stated that, improving customers’ perception of service quality, resulting in perceived value and satisfaction is the best way to retain customers. The higher the service quality, perceived value, and satisfaction are, the higher the customer loyalty will be, which is translated into positive future intentions (Murray & Howat, 2002; Lim, Romsa, & Armentrout, 2016). Yet in reality, maintaining positive customer retention is still a critical issue. Sperandei, Vieira, & Reis (2016) through their ten-year observations with more than 5000 customers indicated that although purchasing fitness membership is a sign of the intention to become more physically active, only around 3.7% of customers will remain their gym activities after 12 months periods, and 63% tend to abandon their services before the third month.

Service quality and profitability are proved to have direct relationship, and the perception of service quality from customers has strong relationship to their behavioral intentions (Zeithaml, 2000). Customers are the only judges for service quality by comparing the services they receive (perception) with the services they expect (expectation) (Berry, 1990). With respect to the importance of service quality, many studies discussed different service quality assessment frameworks in both general and particular scopes, such as QUESC by D. Kim and Y. Kim (1995), Lagrosen’s Framework by S. Lagrosen & Y. Lagrosen (2007), Service Quality Scale - Fitness Centers (SQS-FC)

by Murat (2011), and Polyakova & Mirza's Model by Polyakova & Mirza (2016).

Under the massive impacts of the COVID-19 pandemic, consumer behaviors have changed both temporarily and enduringly, leading to the forceful adaptation of fitness service providers. Home-based lifestyles (including work and entertainment), “phygital” reality (physical and digital combined), health safety and hygiene priority are those trends which pose possible influences on the new shape of fitness industry during and post COVID-19 pandemic (Kohli, Timelin, Fabius, & Veranen 2020; Westbrook & Angus, 2021). The strict lockdown and relevant restrictions have ceased all general physical activities, directly inhibiting the experience of those who purchased that type of fitness membership (Kaur et al., 2020). The long-lasting impacts of COVID-19 caused more frustration and anxiety, which altered traditional exercising behaviors in both temporary and long-term considerations. Some remarkable trends that were analyzed are: Mental health issues for those stuck at home too long; The loss of internal and external motivation for fitness activities; The decrease in exercise intensity among membership customers of fitness centers; The switch from traditional workout with equipment to substitutes such as bodyweight, outdoor sports (Kaur et al., 2020; Ronkainen, Pesola, Tikkanen, & Brand, 2021). Notably, the stay-at-home requirements also restricted life spheres differently among people with children and those child-free (especially towards workers with young children), reducing the work-life balance and extending the differentiation of “family” and “personal areas”, which indirectly decrease physical and mental motivation for any fitness activities (Schieman, Badawy, Milkie, & Bierman, 2021).

Fitness industry is undergoing a huge reexamination of their value propositions and changes in strategies, given the situation of COVID-19 pandemic and relevant evolvments in consumer behaviors (Falardeau, Glynn, & Ostromecka, 2021). The traditional fitness service requires both tangible actions and interaction in persons, therefore the business operational services is higher likely to be considered as laggards, as both customers and firms are reluctant yet forced to change (based on the prototype introduced by John & Thakur (2021). Kannan & Kulkarni (2021) mentioned the primary challenge for firms during the pandemic was the loss of customers without clear time, condition, and methods to regain, which implied the importance of omnichannel initiatives (especially online channels) as the most beneficial approach to remain connectedness to customers. The loss in the number of customers post COVID-19 can be attributed by the fact that a major group of membership customers are shifting to more affordable forms of fitness activities, including casual ones such as jogging/biking and online fitness solutions (Ducharme, 2021). The blend of physical and digital platforms will be the future for fitness industry and the potential rooms for entrepreneurs, to meet the demands of diversified customer segments (Davalos, 2021).

Amid a volatile development stage of fitness industry with radical changes in membership customer behaviors, it is critical to reexamine the impact of various factors to customers' perception on service quality during this Covid-19. In Vietnam, there is likely no comprehensive research regarding any aspect of fitness services during the Covid-19 pandemic. Besides, fitness industry in Vietnam is still not formalized, which sets heavy boundaries of attaining overall background and generalize findings. Therefore, both qualitative and quantitative methods singularly are not sufficient enough, requiring a mixed-method approach to be applied for this research due to its versatility and proficiency.

### **3. Research Methodology**

Based on the research objectives and background, mixed-method approach is chosen for this research, thanks to its versatility and suitability. For such comprehensive research problems, both qualitative and quantitative methods singularly are not sufficient to generalize the context of fitness services industry in Vietnam. Besides, the two main contributors to the service co-creation - customers and fitness services providers - require distinctive tactics for confrontation. The main concepts to dominate the conceptual framework are the service consumption model (Wirtz & Lovelock, 2021) and the co-creation service quality model for fitness industry (Polyakova & Mirza, 2016). The data collection and analysis for each procedure are conducted simultaneously, of which the interpreted results are triangulated to deliver comparisons and comprehensive managerial implications. Notably, the literature frameworks to be adopted are chosen carefully to yield the compatibility and validity of data collected via both methods.

The quantitative approach is applied specifically to study membership customer behaviors and related aspects, with the adoption of multiple linear regression. The purpose of this stage is to examine which independent variable remains significant towards customer involvement into fitness services during this time. When membership customers are forced to adapt to new contexts and service organizing norms, assessing their level of readiness and contribution to the co-creation becomes more critical than only following their experience. There are in total nine independent and one dependent variables, with nine hypotheses respectively. The selected

constructs are adopted from QUESC (Kim & Kim, 1995) and other different theories to better explain the causal/perceptive relationships between possible independent and key dependent variables. Remarkably, no relationship between antecedent variables and customer retention is studied, as the customer perceived quality of traditional fitness is not examined in this research - which is a predominant factor to switch/retain the form of regular fitness service. Thus, fitness centers can recognize which factors are controllable and which are not (following the original framework by Polyakova & Mirza, 2016). Nine hypotheses respectively are:

- H1: There is a positive relationship between Physical Health Consciousness (CM1) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H2: There is a positive relationship between Mental Health Consciousness (CM2) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H3: There is a positive relationship between Socializing Motive (CM3) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H4: There is a positive relationship between Physical Preparation (CR1) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H5: There is a positive relationship between Digital Preparation (CR2) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H6: There is a negative relationship between Personal Life Interference (CR3) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H7: There is a positive relationship between Convenience (FC1) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H8: There is a positive relationship between Program Effectiveness (FC2) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.
- H9: There is a positive relationship between Price (FC3) and Customer Involvement (CI) when membership customers using new fitness services during the COVID-19.

The data are gathered via the instrument as a self-developed pre-structured online questionnaire, using 7-point Likert scale for measurement. The target candidates for survey are the members of any fitness center located in Ha Noi or Ho Chi Minh City, who had their membership postponed due to the COVID-19 related restriction and experienced new form of fitness services during the meantime. The collected data contained in total 108 samples, yet then reduced to 102 after the removal of some invalid responses. Table 1 illustrates the breakdown of demographic background of 102 respondents.

Table 1. Respondents' characteristics

Category	Choices	Number of respondents	Percentage
Gender	Male	<b>39</b>	38.2%
	Female	<b>63</b>	61.8%
Age group	15-25	<b>61</b>	59.8%
	26-35	<b>23</b>	22.5%
	36-45	<b>12</b>	11.8%
	46-55	<b>6</b>	5.9%
	56+	<b>0</b>	0.0%
Number of Dependents	0	<b>63</b>	61.8%
	1	<b>17</b>	16.7%
	2	<b>12</b>	11.8%
	More than 2	<b>10</b>	9.8%
Years of being fitness member (in total)	Less than 1 year	<b>51</b>	50.0%
	1-3 years	<b>32</b>	31.4%
	3-5 years	<b>11</b>	10.8%
	More than 5 years	<b>8</b>	7.8%

Category	Choices	Number of respondents	Percentage
Type of services used during the COVID-19 restrictions	Free passive interaction	<b>49</b>	48.0%
	Purchase-required passive interaction	<b>18</b>	17.6%
	Purchase-required live interaction	<b>35</b>	34.3%

Meanwhile, the qualitative approach is chosen to examine the preparation, execution, and expectation of fitness centers related to the new operational fitness services and consumer behaviors. The goal of this segment is to discover whether fitness business owners and instructors understood the changes in membership customer behaviors or not, how they operated their services during this time, as well as how they expect to keep developing these services, returning to the traditional operations, or blending both in the “new” normal condition. Semi-structured interviews are conducted with the participation of instructors, operation managers, and owners of fitness centers in Ha Noi and Ho Chi Minh City, whose organizations were forced to shut down physically during the COVID-19 lockdowns and had their services operated under other forms. In total, there were 12 candidates qualified and to be interviewed (Table 2). All interviewees have more than four years of working experience in fitness industry - which guarantee their insightful comparisons about services and industry in both pre and during COVID-19 time, with some even having 10 years of working experience in fitness industry.

Table 2. Qualitative Respondents’ Characteristics

No	Code*	Gender	Role	Type/Size of Business	Years of Experience
1	I1	Female	Group Exercise Instructor	Freelance	6
2	I2	Female	Group Exercise Instructor	Freelance	6
3	M1	Female	Group Exercise Manager	Comprehensive fitness center with five branches	5
4	I3	Male	Group Exercise Instructor and Personal Trainer	Freelance	7
5	M2	Male	Operation Manager	Comprehensive fitness center with three branches	5
6	M3	Female	Sale Manager	Comprehensive fitness center with four branches	10
7	M4	Female	CEO	Comprehensive fitness center with three branches	10
8	C1	Female	Fitness Content Creator	Freelance	6
9	M5	Male	Manager	Home-business branch	10
10	I4	Male	Group Exercise Instructor	Freelance	6
11	I5	Male	Personal Trainer	Freelance	5
12	C2	Female	Fitness Content Creator	Freelance	4

\*I: Instructor; M: Manager; C: Content Creator

## 4. Data Analysis

### 4.1 Quantitative Analysis

To analyze comprehensively the collected quantitative data following the multiple linear regression approach, a process with multiple steps is implemented, starting with reliability test. Next, since the designated items for variable measurement in this research were originally formed and constructed, the principal component was required to examine the validity of items and sort out eligible items for further analysis. Finally, multicollinearity test, correlation test, and linear regression test are conducted for the conclusion about relationships among constructs.

First, for social research, Cronbach’s Alpha is the most common statistical measure to be used for testing reliability, especially with the application of Likert scale in this research. The Cronbach’s Alpha results can help

discover whether the using scale is reliable or not; an acceptable Cronbach's Alpha value needs to be equal or greater than 0.7, which all constructs passed this threshold sufficiently. All variables associated in this study are examined to be reliable enough to execute following analysis steps, with their respective Cronbach's Alpha values from 0.755 minimum to 0.938 maximum (Table 3).

Table 3. Cronbach's Alpha Test Results

Variables	Number of items	Cronbach's Alpha
<i>Customer Motivation</i>		
Physical Health Consciousness (CM1)	5	0.900
Mental Health Consciousness (CM2)	4	0.896
Socializing motive (CM3)	5	0.846
<i>Customer Resources and Capabilities</i>		
Physical Preparation (CR1)	5	0.881
Digital Preparation (CR2)	4	0.892
Personal life influences (CR3)	4	0.782
<i>Fitness Centers' Resources and Capabilities</i>		
Convenience (FC1)	6	0.938
Program Effectiveness (FC2)	6	0.931
Price (FC3)	2	0.755
Customer Involvement (CI)	3	0.903

Barlett's Test of Sphericity and Kaiser-Meyer-Olkin (KMO) are essential to be considered before executing factor analysis. The Bartlett's Test of Sphericity helps identify if there is any significant deviation among variables or is any redundancy in variables that requires variable reduction. The value of KMO cannot be lower than 0.5 and should be equal or higher than 0.700 (as close to 1.00 as possible) to reflect the adequate beneficiary for factor analysis. The p-value under Barlett's Test of Sphericity for all independent and dependent variables are all much lower than the threshold 0.05, indicating the relationship between factors to move forward (Table 4). Likewise, nine out of ten variables had KMO test value above 0.700 - the average acceptable threshold, except for Price (FC3) at 0.500 only. However, this is still an acceptable value, especially considering there are only two items designed for measuring this construct.

Table 4. Barlett's Test of Sphericity and Kaiser-Meyer-Olkin Results

Variables	The Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Barlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Physical Health Consciousness (CM1)	0.821	324.467	10	0.00
Mental Health Consciousness (CM2)	0.832	250.961	6	0.00
Socializing motive (CM3)	0.821	212.265	10	0.00
Physical Preparation (CR1)	0.814	298.165	10	0.00
Digital Preparation (CR2)	0.773	246.508	6	0.00
Personal life influences (CR3)	0.724	133.219	6	0.00
Convenience (FC1)	0.908	513.027	15	0.00
Program Effectiveness (FC2)	0.884	495.116	15	0.00
Price (FC3)	0.500	45.553	1	0.00
Customer Involvement (CI)	0.750	193.006	3	0.00

Principal Component Analysis (PCA) is used to detect the level of dimensionality of the dataset, thus reducing several possibly correlated factors into smaller number of uncorrelated factors (referred as "principal component"). Since the designated items for variable measurement in this research were originally formed and constructed, the PCA was conducted to examine the validity of items and sort out eligible items for further analysis. The common method to be used in this stage was orthogonal matrix with varimax rotation technique.

The set of criteria for acceptance includes: (1) the extracted value under one item got above the threshold at 0.4; (2) the extracted communalities got above the threshold at 0.3; and (3) the total eigenvalue exceeded 1. Additionally, the percentage that the included items complete the variance should account at least 60%. From the result in Table 5, all items under examined constructs are validated as “principal components” after loaded together and can be used for further analysis in the research.

Table 5. Principal Component Analysis Test Results

Variable	Component 1 Values of items			Eigenvalues	Percentage of Variance
Physical Health Consciousness (CM1)	0.878	0.804	0.866	3.597	71.933
	0.875	0.815			
Mental Health Consciousness (CM2)	0.888	0.869	0.916	3.078	76.962
	0.834				
Socializing motive (CM3)	0.724	0.774	0.841	3.158	63.152
	0.847	0.782			
Physical Preparation (CR1)	0.89	0.842	0.878	3.406	68.124
	0.777	0.728			
Digital Preparation (CR2)	0.857	0.887	0.822	3.021	75.537
	0.908				
Personal life influences (CR3)	0.607	0.851	0.886	2.445	61.114
	0.753				
Convenience (FC1)	0.885	0.898	0.912	4.584	76.407
	0.895	0.977	0.771		
Program Usefulness (FC2)	0.85	0.856	0.835	4.468	74.463
	0.913	0.922	0.795		
Price (FC3)	0.896	0.896		1.606	80.304
Customer Involvement (CI)	0.923	0.924	0.901	2.518	83.934

With nine independent variables proposed in the empirical model, it is critical to test for the multicollinearity to identify the extreme correlation among variables. The thresholds for multicollinearity tolerance and variance inflation factors (VIF) to accept/reject variables for this research are yielded at 5.00 for VIF and 0.2 for multicollinearity, to assure the precision of relevant conditions and avoid strictness towards a new and situational topic. Therefore, all variables in this model generally passed the threshold for multicollinearity and can be used for later analysis (Table 6). However, the signals from two pairs of variables - CM1-CM2 and FC1-FC2 - are noticed, as their corresponding values for multicollinearity testing come relatively close to the benchmarks and might need to consider later.

Table 6. Multicollinearity Test Results

Code	Variable Name	Collinearity Statistics	
		Tolerance	VIF
CM1	Mental Health Consciousness	0.287	3.490
CM2	Physical Health Consciousness	0.289	3.461
CM3	Socializing Motive	0.677	1.477
CR1	Physical Preparation	0.809	1.236
CR2	Digital Preparation	0.624	1.601
CR3	Personal Life Interference	0.661	1.513
FC1	Convenience	0.255	3.914
FC2	Program Effectiveness	0.298	3.355
FC3	Price	0.552	1.811

Spearman’s rank order correlation was run to determine the relationship between every two out of 10 variables included in the proposed model, considering that variables in the model are ordinal, not continuous, and not normally distributed (via the Shapiro-Wilk Test Results). From Table 7, it is clearly seen that there are only six out of nine variables, namely CM1, CM2, CR1, FC1, FC2, and FC3, having statistically significant correlation to the dependent variable CI. The remaining variables CM3 “Socializing Motive”, CR2 “Digital Preparation”, and CR3 “Personal Life Interference” are not statistically significantly correlated to the dependent variable. Therefore, for next steps, these variables are removed from the model.

Table 7. Correlation Test Results

	CM1	CM2	CM3	CR1	CR2	CR3	FC1	FC2	FC3	CI
CM1	1.000	.821**	.543**	0.174	.384**	-.446**	0.173	.216*	.232*	.239*
CM2		1.000	.481**	0.145	.330**	-.409**	0.171	.245*	.297**	.247*
CM3			1.000	0.163	.303**	-.329**	0.146	0.163	0.165	0.156
CR1				1.000	.411**	-.221*	.250*	0.103	.212*	.261**
CR2					1.000	-.210*	.300**	.232*	.207*	0.166
CR3						1.000	-.221*	-0.138	-.221*	-0.110
FC1							1.000	.814**	.560**	.505**
FC2								1.000	.500**	.540**
FC3									1.000	.489**
CI										1.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Finally, the ordinal linear regression is used to estimate the relationships between the dependent variable CI “Customer Involvement” and the remaining six independent variables. The initial result indicates that only three out of six independent variables - namely CR1, FC2, and FC3 - had their parameter estimation statistically significant by having their corresponding p-value lower than 0.05. Other variables - CM1, CM2, and FC1 - had their respective p-values for parameter estimation greater than 0.05, which indicate that their estimated parameters are not statistically significant and considered as zero (Table 8). The model after the final exclusion only contains three independent variables - CR1, FC2, and FC3 - and all of them are statistically significant. On one hand, the model is statistically proved to fit the dataset, with the significance value of the Model Fitting Test lower than 0.05 (Table 9). On the other hand, the dataset is also statistically fit to the expected data of the model, proved by the significance value at 1.000 of the Deviance’s Chi-square Test in Table 10 (the Pearson’s Chi-square Test is neglected since our nominal variables are not normally distributed). Finally, the Nagelkerke figure at 0.506 explained that 50.6% of changes of the dependent variable can be explained by three examined independent variables (Table 11). This indicator is not as strong as other multiple linear regression model, yet considering the sample size, the characteristics of ordinal variables, and the complication of consumer behaviors generalization, this number is still appreciated.

Table 8. Ordinal Linear Regression Result with six variables

		Parameter Estimates					95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[CI = 1.00]	3.073	1.527	4.052	1	0.044	0.081	6.065
	[CI = 2.00]	5.029	1.250	16.178	1	0.000	2.579	7.480
	[CI = 3.00]	8.597	1.368	39.518	1	0.000	5.917	11.278
	[CI = 4.00]	9.995	1.440	48.200	1	0.000	7.173	12.816
	[CI = 5.00]	12.346	1.611	58.719	1	0.000	9.188	15.504
	[CI = 6.00]	14.270	1.851	59.424	1	0.000	10.642	17.899



Location	CM1	-0.019	0.252	0.005	1	0.941	-0.513	0.475
	CM2	0.100	0.280	0.127	1	0.721	-0.448	0.648
	CR1	0.532	0.171	9.608	1	0.002	0.195	0.868
	FC1	-0.122	0.258	0.224	1	0.636	-0.627	0.383
	FC2	0.969	0.273	12.576	1	0.000	0.433	1.504
	FC3	0.725	0.249	8.509	1	0.004	0.238	1.213

Table 9: Model Fitting Information Test

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	299.278			
Final	231.9721356	67.30622628	3	0.000

Table 10. Goodness-of-Fit Results

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	787.805	423	0.000
Deviance	219.1556882	423	1

Table 11. Pseudo R-Square Results

Pseudo R-Square	
Cox and Snell	0.483
Nagelkerke	0.506
McFadden	0.212

To conclude, only three out of nine hypotheses - H4, H8, and H9 respectively - are accepted based on our data analysis. The outcome is under expectation yet comprehensible, especially when considered under the volatility and novelty of research backgrounds for this study.

#### 4.2 Qualitative Analysis

After the interview process, the data collected were transcribed and grouped into five major themes. Each theme represents a highlight that an adequate number of interviewees shared and agreed on the situation, and all findings are significant and relevant enough to be generalized. The upcoming parts of this session will analyze in depth about each principal finding, along with corresponding reports from respondents.

Theme 1: The free online contents are highly preferred and subscribed

With the burst of Internet and online interaction during the lockdown time, people are more dependent on Internet and online contents, and fitness industry is also a notable part of it. The first outstanding phenomenon to be acknowledged is how online contents related to fitness exercises are generated with both quantity and quality. Participants C1 and C2 stated that,

“I received nearly 30.000 subscribers on my YouTube Channel and 10.000 followers on Instagram - the platforms I use to upload my contents - within only 2 months. The numbers of views, likes, and comments also increased considerably, two to three times higher than before pandemic. That motivated me a lot to produce more contents for people.” (C1, Female, Fitness Content Creator, 6 years of experience)

“Nowadays, me and my team have to work harder to update more contents for people, because different body parts and conditions require different training exercises. The creativity and desire to inspire

viewers gets higher and higher in me, but I feel always excited cause I know I contribute partly to people's exercising behaviors towards healthy lifestyles. Moreover, I received more income from those platforms, as well as more advertising contracts from healthcare and nutrition brands.” (C2, Female, Fitness Content Creator, 4 years of experience)

This trend is also recognized by people working in traditional fitness sector, yet seemingly as a negative influence on their businesses which were severely damaged by the pandemic. Participants I2 and I4 shared their points of view that,

“During the lockdown time, people can access plenty of online instruction videos. With 99% are free, they are attractive to audience cause people almost pay nothing for it, thus saving a lot a money.” (I2, Female, Group Exercise Instructor, 6 years of experience)

“Since people cannot go to the fitness centers and enjoy services there anymore, they think that no need to spend money on any online service, because there are so many free contents available. Just google or search on YouTube, hundreds of videos are available, and people somehow think those are enough to survive through the pandemic already.” (I4, Male, Group Exercise Instructor, 6 years of experience)

Free, available, and diversified are the most outstanding characteristics that help this service dominate the market during this time. However, its implicit downsides lie on the nature of passive interaction, which is the difficulty for users to supervise and correct themselves. Besides, the volatility of social media contents might cause confusion and misunderstandings for users who do not have an adequate technical background of fitness and healthcare; therefore, the progress of fitness transformation might be under expectation, or worse, counter-productive in some cases.

#### Theme 2: The lack of equipment and technique reduces exercise effectiveness

Physical condition has been highlighted as a substantial difference between fitness services pre and during COVID-19 time. Not only customers but fitness service providers are also aware and concern about the effectiveness of workout performances, considering the lack of equipment and technique when performing any exercise. Participants C2, I5, and M4 shared that,

“Knowing that most people at home do not have much equipment, the contents I created do not require much equipment. However, having some specific equipment do not only allow people to perform with more variety of exercises, but also increasing the intensity and effectiveness of exercises as well. Besides, the choreography also needs to be designed to suit people with different level of personal technique, yet still effective to a certain extent.” (C2, Female, Fitness Content Creator, 4 years of experience)

“One of the major differences between workout at fitness centers and home workout is equipment and space. Fitness services always require a specific amount of essential equipment to enhance and diversify exercising performances. Home-workout condition restraints in all these perspectives, thus reducing people's motivation to join any physical exercise.” (I5, Male, Personal Trainer, 5 years of experience)

“It's not only about having equipment, but also about understanding the use of it. During this stage, my fitness center also sells exercise devices to anyone interested and provides instructions as an additional service. Indeed, customers paid more attention to this than the online practicing service, and it helped my center partly in covering the fixed expenses.” (M4, Female, CEO, 10 years of experience)

Apparently, not everyone can have enough space to equip some kinds of multi-functional training machines, as well as being able to utilize their potentials. And since the interaction is more limited, it might lead to underperforming and ineffectiveness of workout sessions. Consequently, people cannot see the training progress, and their involvement into these activities might decrease.

#### Theme 3: Healthcare and fitness services are commonly underestimated

Fitness training services are commonly listed under healthcare sector, which factoring the role of healthcare awareness is vital. However, the level of healthcare attention among Vietnamese people is still underestimated, especially when it is related to money spend on any non-essential service. This fact is largely recognized by the participants, with candidates I2, M1, and M2 significantly claimed that,

“Having worked in this industry for six years, I strongly believe Vietnamese people in general are not aware of their health condition. They might state that they care about their health, but they hardly take any action until they find out some issues. Even during the pandemic, people tend to express their consciousness about health, but they will consider money first before actually joining any

fitness/healthcare service.” (I2, Female, Group Exercise Instructor, 6 years of experience)

“I believe that the amount of money and effort that Vietnamese people spend on healthcare and fitness is still far too low. Not many people are patient and dedicated enough to exercise for their goals, the majority often quit halfway or only practice occasionally. And with the risk of being infected with COVID, people have more and more excuses to not take any real physical activities, not even professional fitness services.” (M1, Female, Group Exercise Manager, 5 years of experience)

“COVID-19 has hit the traditional fitness business extremely hard. Even before pandemic, the rate of membership consistently going to fitness centers was only around 20-30%. I am not sure if people can actually change their behaviors post COVID, but it will definitely take a very long time to increase health awareness among people, and even longer time to turn that awareness into real actions.” (M2, Male, Operation Manager, 5 years of experience)

COVID-19 pandemic has reshaped human mindset about healthcare; yet from perceiving to purchasing behaviors is such a long psychological process of consumers. This theme therefore might need to reexamine further once the COVID-19 restriction in Vietnam is generally lifted off, in order to conclude comprehensively about the changes in health awareness of Vietnamese people post-COVID-19.

#### Theme 4: Great potential of private fitness services

Private fitness services refer to those services built to serve a specific customer/group of customers, with more flexibility in terms of location, programs, coaches, and other relevant facilities. These customized services were already available before pandemic, yet becoming much more popular during the lockdown, due to crowd gathering limits and the risks of infection. Not only benefiting customers, but this type of service also became the survival tactic for a number of employees and fitness centers in the midst of COVID-19. To be more specific, participants I1, M1, and M3 shared their experience of executing this service that,

“During the lockdown, fortunately for me that I still had some private sessions to be operated. They were limited to only one to five people, mostly living in the same area or being close to each other (mostly my loyal customers). It helped me to earn certain income to survive through the pandemic, and also helped customers satisfy their demands, especially when all temporary online services still had many drawbacks.” (I1, Female, Group Exercise Instructor, 6 years of experience)

“This service will be the future of fitness industry. It does not require much initial investment on facilities and can be maintained in long term cause all customers have real demand and dedicated to do the exercise frequently. This service suits most workers in this industry who are freelancers, they can utilize their free time and earn more money.” (M1, Female, Group Exercise Manager, 5 years of experience)

“As long as customers have demands, we can offer customizable services that can generate profits for us at an acceptable level. Customers can select their favorite coaches/instructors, booking sessions with them at specific times, and coaching can be operated at the fitness center or at customer home. Basically, any demand of customer this time is so valuable, and that is the only way to sustain business - service diversification.” (M3, Female, Sale Manager, 10 years of experience)

Unfortunately, this type of service is not fully examined in this research, due to the lack of volume and approach. However, the potential of this service in the future is undeniable when fitness industry in Vietnam becomes more segmented. That also sets the challenge to manage and operate this service efficiently and not overlapped to other traditional service streams.

## 5. Discussion

From the empirical analysis about constructs under Customer Motivation category, it is surprising that those sub-segment variables (Physical Health Awareness, Mental Health Awareness, and Socializing Motive) in fact have no linear relationship to customer involvement into fitness services during the COVID-19 pandemic. That evidence about insignificant relationships among those variables is contradictory to the results concluded by Lim et al (2015) and Khisti & Raizada (2020), which were generalized for customers in other countries. Fortunately, fitness service providers in Vietnam acknowledged this fact adequately, with appropriate justification about price sensitiveness and psychology of free. To be more specific, despite the physical health awareness being more and more critical, it is still not significant enough to motivate consumers to actually purchase and pursue any healthcare service, such as common fitness services. Whereas fitness services are likely not to a preferable solution perceived by Vietnamese people for mental health, although these phenomena are concluded to occur more frequently and extremely under the COVID-19 restriction (Kaur et al., 2020). Similarly, there is no study

explicitly mentioning fitness activities as alternative for regular socializing activities during the COVID-19 time. Also, the findings imply another underlying fact, which is once the customers decided to use/purchase the fitness services and move to the service encounter stage, all the factors regarding their motivation have nearly no effect on their performances. The level of involvement into the service core activity at that stage are coordinated by other immediate factors, which are discussed later in this session.

In terms of Customer Resources and Capabilities, the results related to Physical Preparation is predictable, yet not the ones with Digital Preparation and Personal Life Interference - those two were projected to drastically change under the COVID-19 circumstances. Within the situation of this study for operational fitness services in Vietnam, the construct "Physical" outweighs the "Digital" in determining customer involvement. The significant relationship between Physical Preparation and Customer Involvement also reaffirms the irreplaceable role of Physical Environment (or other terms but referring to the similar factor), which are all included in different major fitness service quality management models from Kim & Kim (1995), Lagrosen & Lagrosen (2007), and Murat (2011). This also supports the preceding findings of Khisti & Raizada (2020) about the significance of facilities. From service providers' perspective, they also recognized this situation, which triggered some fitness centers to start selling exercising equipment as mentioned, not only to cover the loss from traditional services but also to address and improve home-workout experience as well. Meanwhile, the digital aspects do not have significant impact on the level of customer involvement into fitness services in general, which differs from results of Garc ía-Fern ández et al., (2020). Perhaps after a long period of adaptation to online instruments in many extents, customers no longer perceive this as a constrain anymore. Finally, the insignificant relationship of personal life interference in this service encounter stage from the study is not consistent to the results of Schieman et al (2021). However, it is still acceptable as for service encounter stage, the most essential aspect is to enhance the perception of value, which no research has mentioned about the relationship between these two variables. Remarkably, the results might considerably change if the examination was conducted for pre-purchase stage when more considerations are usually required.

Two out of three factors under the fitness centers' resources and capabilities are statistically proved to have linear impacts to customer involvement into fitness services, which were also moderately addressed by the service provider representatives. As characterized by Wirtz & Lovelock (2021), the assignments for fitness services providers in the service encounter stage is to secure their service quality. Therefore, it is no surprising when the program effectiveness construct is manifested as the most impactful factor, again reaffirming the core of fitness services in progressing customers' exercising performance. Indeed, instructors who operated their training during this stage were well aware of this aspect and paid efforts and enthusiasm into their programs. However, since the customers are the only judges for service quality, that results in unfavorable attitude towards specific services and their dismissal. Notably, the dissimilarity between the relationships of Convenience and Program Usefulness to Customer Involvement in this study also differs from the technology acceptance model (TAM) by Davis (1989) - with two similar constructs "perceived ease of use" and "perceived usefulness". Even though operated via online platforms, that cannot alter the actual core activities of fitness services - physical exercises - to be performed physically. Regardless of interacting time, the real physical performances measured by intensity, duration, and frequency are the reflection of customer involvement, which could possibly reduce the essentiality of the Convenience factor in these particular services. Finally, it is interesting to discover the relationship between Price and Customer Involvement in this stage, besides its common influence in the pre-purchase stage when customers weigh up their selection. The blossom of free online contents has created more expense and price pressure on purchase-required services, and along with the prudence for new services from customers, it is increasingly difficult for service providers to position their services and restrict them from charging customers with long-term membership benefits. As a result, the price comparison and implicit perceived value compared to price always exist, affecting their overall involvement into services.

Besides the findings, it is also essential to discuss about the relevance of the conceptual theory applied for this study - the model proposed by Polyakova & Mirza (2016) - as the volatility and dispersion in concluded findings is evident. The first and foremost concern is that statistically, is there no motivation construct that has significant relationship to the involvement of customers into fitness services during the COVID-19 pandemic? Definitely not, because the correlations between physical health awareness, mental health awareness and customer involvement are still significant, yet due to various possible reasons (such as sample size, the inequality of responses for each examined service), the significance of these motivation variables were not accepted in the model. The non-linear relationship might be attributed to this result as well, especially when considering the qualitative finding about how customer real actions are not in line with their health awareness. The same justification might also be applied for Convenience variable, since it also has significant correlation to the

dependent variable yet being insignificant in the model. Another major implication from the conceptual model is the specification of controllable/uncontrollable factors towards the service quality from service providers' perspective. For this research, the controllable factors are clearly Program Effectiveness and Price, whereas the uncontrollable one is Physical Preparation. Yet the participation of fitness centers into exercising equipment selling business is recognized at some levels, reflecting their incentives to control, or at least improve this uncontrollable factor to a certain point. Excluding the methodical limitation, overall, the theoretical framework by Polyakova & Mirza (2016) still served the purpose of unveiling the impactful factors to customer involvement into the service co-creation and derive acceptable outcomes for the contributors to fitness service quality in the context of Vietnam during the COVID-19 pandemic.

## 6. Conclusion

In the midst of the COVID-19 pandemic, traditional fitness services were heavily disrupted, making new fitness services with dominant online interaction become alternates. Nonetheless, the volatile and disorganized of fitness industry in Vietnam, along with the substantial changes in membership customer behaviors have made the operation of these services uncertain and remain underestimated. In the long period, the developing trend for fitness industry in Vietnam is projected to be the combination between at fitness centers and at home training, with higher demand for individualization and private personal/group services. Fitness businesses - which are mostly small and medium enterprises - thus need to acknowledge the changes in customer behaviors to adjust and operate their services more adaptably and sustainably.

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