From Measurement To Training For Rehabilitation Service Excellence

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ARTICLE INFO	ABSTRACT
	This empirical research aimed to measure the service excellence culture of the community-based rehabilitation centres to train the employees and serve the parents/guardian and trainees (persons with disability) more effectively for sustainability. This survey research was done nation-wide and it yielded one thousand and twenty-nine usable questionnaires. Quantitative statistical analysis was done. The measurement analyses included the reliability and validity analyses that had found the reliable and valid measures. SmartPLS SEM was employed for the relevant measurement and relationship analyses. The measurement analysis confirmed that the rehabilitation service excellence culture is a multi-dimensional measure and it correlates positively with the health-related variables. The measurement scale and information system will be instrumental for information gathering, training and service improvement to co-serve the trainees (persons with disability) with the parents/guardians. **Keywords:** Rehabilitation service excellence, measurement, training, persons with disability

1.0 INTRODUCTION

Healthcare service management is increasingly emphasized for improving the quality of living, especially for the targeted needy groups. The experience of the various stakeholders in a service setting needs to be well-understood and managed comprehensively and accurately. The experiences include the different perspectives, namely: customer experience, employee experience and human experience (Gustafsson et al., 2024). However, a service-driven dynamics, and empathic service management is still much needed for sustainable services and desired outcomes for sustainability. The concerted healthcare efforts for people with disability are even more pressing. The service orientation to empathically serve the changing and unique needs of people with disabilities needs strategic exploration and customized ideation.

Community-based rehabilitation (CBR) services provide a range of offerings, including health rehabilitation such as physiotherapy, vocational training, and educational activities like therapy, as well as teaching skills in writing, reading, counting, and drawing. Additionally, these services promote participation in social activities, including recreational events, creative endeavours, and games. This program was implemented through the collective efforts of persons with disabilities, their families, local communities, and various service sectors including health, education, vocational, and social services, this program operates nationwide (Department of Social Welfare, 2012). It functions with the active participation of the community, within centre-based, centre-home-based, and home-based. In Malaysia, CBR may be expanding numerically, however, there are concerns regarding the quality, long-term impact, and transformation on the lives of persons with disabilities and their communities. Factors such as poverty, lack of access to education and employment opportunities, and inadequate living conditions contribute to poor health conditions and limited healthcare access among PWDs. The PwDs are mainly from the lower income groups who require continuous healthcare and social support from various stakeholders to improve their socio-economic well-being (Voon et al., 2023).

One of the most critical healthcare concerns is the effective provision and management of rehabilitation services for a rising number of trainees. Different types of healthcare services must be continually effective and efficient to co-serve the commonly over-looked people with special needs. Over 50% of individuals, in particular low- and middle-income countries, cannot access the required rehabilitation services (WHO, 2023). From the customer's perspective, internal and external customers. service experience is believed to be essential for better CBR centers to benefit the targeted stakeholders (e.g., Puspitosaria, Wardaningsih & Nanwani, 2019). A scientific inquiry for measurement as well as performance-oriented service training and management for sustainable healthcare service management are imperative.

2.0 LITERATURE REVIEW

The healthcare service sector and service management are increasingly emphasized for improving quality of living especially for the targeted needy groups though a service-driven dynamics and empathic service management is still much needed for sustainable services and desired outcomes.

Service for People with Special Needs
The needs and wants of individuals are dynamic variables. Therefore, the service providers have to consistently and continuously understand and meet in order to co-create, co-design and deliver values (Clarke et al., 2021). The service providers ideally should put the interests of the customers first. Specifically, the customer service experience can play a crucial role to ensure service success in the competitive and dynamic environment. The good and customized knowledge about the various experiences can help to build and manage customer relationship (e.g., Jones et al., 2020; Jones et al., 2021) and good service is essential in nursing (e.g., Zaccagnini and Pechacek, 2019). A satisfactory and positive personal experience with a service-based environment (e.g., rehabilitation) will lead to repeat purchases or revisit intentions (Voon et al., 2014). In fact, every stage of a service delivery should provide authentic experiences. The experience authenticity is crucial for effective service management. They argued that such a unique experience, authenticity, should be the primary source of differentiation, which is the real value demanded by the customers. Customer experience has been regarded as a useful marketing tool as well as way to gain superior service performance (e.g. Kim et al., 2011; Voon et al., 2016). Nevertheless, there has been scant attention and even less emphasis on empirical research to investigate the emotional service experience and quality practices of the priority service sector such as healthcare and rehabilitation services. The hospitality and service practices of the rehabilitation operators need to be understood and measured for effective and efficient management of the programmes to benefit the stakeholders especially the parents/guardians and CBR trainees.

Towards Customer-oriented and Inclusive Healthcare Service
The services marketing literature have contemporary theories and studies related to healthcare and community welfare management as well as marketing. Putting the interest of the customers first is imperative. Though services marketing has been explored in multi-cultural Malaysian context, a comprehensive, reliable, and valid measurement for the rehabilitation service experience to benefit this service sector as well as rehabilitation service management and marketing has yet to be found. In fact, co-designing for patients' benefits in healthcare is recommendable (e.g., Clarke, 2021). Service is intangible and its variability is common. In view of the complicity of services, service management is ideally systemic which involves many processes and different levels for system-wide improvement (e.g., Vargo et al., 2016). Hence, measuring it can be very challenging. Customers can be influenced by the physical environment, reliability of the service. The employee's attitudes such as showing empathy to customer needs, being responsive, courteous, knowledgeable and trustworthy. Their study also suggested that food characteristics such as variety, cleanliness and freshness are influential factors in customers' choice. Tangibles aspect of service is essential. Servicescape attributes can affect the consumer well-being (Puspitosaria, Wardaningsih & Nanwani, 2019).

Dimensions of Rehabilitation Service Excellence Culture
Since a CBR establishment is more of a healthcare service, service experience is the service delivery subjective perception (e.g., Seymour, Geiger & Scheffler, 2019). Service experience most probably encompassed the tangibles series of interactions between the consumers and the service setting or environment. Many researchers tend to agree that the service experience will lead to better customer satisfaction, loyalty and outcomes.

The community-based rehabilitation centres, employees and care-takers need to understand the needs and wants of the trainees with disabilities as well as the parents/guardians, then appropriate service and care as well as continual improvements the trainees with disabilities as well as the parents/guardians, then appropriate service and care as well as continual improvements are possible (e.g., Catchpole et al., 2021). The technical and functional service aspects can be more customized to deliver superior service quality and produce favourable health outcomes (e.g., Malinowska-Lipien et al., 2021).

The dimensions of community-based rehabilitation service are described and explained as follows:

Trainee Orientation. Creating an exceptional customer experience is pivotal for service providers aiming to achieve customer satisfaction. This is particularly critical in sectors where the service outcome deeply affects the customer's quality of life, such as healthcare and rehabilitation. A profound understanding of the trainees' needs and wants is essential not only for customer satisfaction but also for the efficacy of the service provided. It is good to emphasize the significance of this understanding, which serves as the foundation for service customization and personalization, ultimately leading to improved service quality (e.g., Voon et al., 2023). The global concern for enhancing healthcare efficiency is not solely about maximizing population health but also about achieving optimal outcomes for each individual. This requires the delivery of high-quality services characterized by appropriate, timely, and individual care for each individual (e.g., trainees). The rehabilitation centre needs to put the trainees at the core of its activities.

Competitor Orientation. It embodies a service provider's strategic approach towards understanding and navigating the competitive landscape. This involves an active process of gathering information, analyzing competitors' strengths and weaknesses, and leveraging this intelligence to forge robust competitive strategies (e.g., Zhou et al., (2009) provide empirical evidence linking competitor orientation to performance improvements. Their research underscores the idea that a deep understanding of the competitive environment contributes to more informed decision-making processes, which, in turn, lead to better performance outcomes for service providers. Competitor orientation is often discussed in conjunction with strategic management practices and it requires an integration of information across various functional domains of an organisation, including marketing, operations, and finance, aligning them towards a common goal of competitive advantage.

Performance Orientation. It involves a focus on achieving results and excellence. It is characterized by the setting of high standards and a continuous striving for improvement (Escandon-Barbosa et al., 2022). This approach is not merely about achieving goals but also about the process of setting and striving towards the goals. The cultural emphasis on performance varies significantly across different societies. In some cultures, performance orientation is highly valued and is seen as a pathway to success and recognition (Hofstede, 2001). A performance orientation leads to a focus on skill demonstration and success which influences how individuals approach tasks, handle challenges, and perceive their abilities. Performance orientation has been linked to various positive outcomes, such as increased productivity, innovation, and job satisfaction (Ryan & Deci, 2000).

Long-term Orientation. It plays a pivotal role in trainees' health improvement and care. Long-term orientation fosters virtues oriented towards future rewards, particularly perseverance and thrift (Hofstede et al., 2010). This approach involves a deliberate focus on future outcomes, forward-thinking decision-making, and a commitment to investments that yield lasting benefits. It signifies a proactive stance towards future growth, actively striving for strategic and well-defined long-term objectives (Ma et al., 2022). Long-term orientation allows rehabilitation centres to develop comprehensive, individualised care plans beyond short-term interventions.

Inter-Functional Coordination. Inter-functional coordination (IFC) harmonises all organisational processes and functions. The primary objective of the IFC is to promote the coordination of all procedures and activities in an organisation and facilitate the exchange of information efficiently within and outside the organisation. Coordinated efforts among departments lead to more comprehensive service delivery, addressing all facets of a customer's (e.g., trainees) needs and optimizing the chances of successful outcomes (Tay & Tay, 2007). Peng (2011) stated that IFC involves cooperation in all activities and sharing of resources. Coordinated efforts among different functions ensure that all aspects of a trainee's needs are addressed comprehensively.

Employee Orientation. Employee orientation improves new hires' performance on the job by acquainting them with the position, tasks, and other elements of the working environment (Rowland et al., 2017). Understanding the specified task is crucial for achieving productivity. By practising a comprehensive employee orientation, staff in a rehabilitation centre can contribute to creating a positive and supportive work environment, ultimately enhancing the quality of care for the trainees. When the training is comprehensive and well-executed, it helps to mitigate potential future problems such as absenteeism, demotivation, lack of commitment, intentions to quit, and other unforeseen uncertainties (Georgellis et al., 2012).

3.0 METHODOLOGY

This is a quantitative survey research using structured questionnaire. The objective was to measure the rehabilitation service culture to serve the parents/guardians and persons with disability better. The measurement would help the education and improvement of rehabilitation service and thereafter leverage the health performance of the trainees.

The questionnaire survey was done nation-wide and it yielded 1,029 usable questionnaires for the measurement-driven quantitative statistical analyses which included the measurement and relationship analyses. The measurement-oriented analysis included the reliability and validity analyses. The internal

consistency analysis of the dimensions (Cronbach's Alpha coefficients) and items (item-to-total correlations) were performed. Measurement and relationship analyses were done to evaluate the goodness of measures and investigated the effects of rehabilitation service excellence (RehabServE) scale. The employees of the CBR centres also participated the rehabilitation service measurement and administration processes.

4.0 RESULTS AND DISCUSSION

Table 1 shows the demographic characteristics of the respondents who took part in the study. The inclusion criteria for selecting the participant for this subject were the parents whose children received the CBR services—in total 1029 parents and guardians participated in the survey which was usable for data analysis processing. The respondents are mainly parents (89.6%) while the guardians make up the remaining 10.4%.

Table 1: The Respondents' Profile

Demographic	Groups	Respondents	Percentage
Respondent	Parent	922	89.6%
	Guardian	107	10.4%
Gender	Male	359	34.9%
	Female	670	65.1%
Religion	Muslim	541	52.6%
	Christian	420	40.8%
	Buddhist	67	6.5%
	Other	1	0.1%
Age	18-24 years	7	0.7%
	25-34 years	139	13.5%
	35-44 years	329	32.0%
	45-54 years	267	25.9%
	55 years and above	287	27.9%
Educational Level	SPM or Lower	729	70.8%
	STPM/Diploma	201	19.5%
	Degree	89	8.6%
	Postgraduate	8	0.8%
	Professional	2	0.2%

Table 2 illustrates the factor loading criterion, Cronbach alpha, composite reliability (CR), and average variance extracted (AVE) (Fornell & Larcker, 1981). The standardised factor loadings in the measurement model surpassed the accepted threshold of 0.700, indicating a satisfactory level of reliability (Hair et al., 2017).

Table 2: Confirmatory Factor Analysis Results

Variables	Items	Loadings	[a] CA	[b] CR	[c] AVE
Competitor Orientation	Respond to competitors' actions.	0.809	0.917	0.919	0.707
	Identify competitors to provide better service.	0.872			
	Can serve better than its competitors.	0.871			
	Learn from other rehabilitation centers.	0.859			
	Be different and better than other centres.	0.855			
	Work with other CBR centers.	0.776			
Employee Orientation	Employees are well-trained	0.797	0.912	0.914	0.741
	Employees are motivated and joyful	0.887			
	Suitable staff to interact with trainees	0.875			
	Employees show love and care	0.887			
	Employees have good relationships with parents	0.857			
Inter-functional Coordination	Employees emphasize trainee care	0.845	0.933	0.933	0.791
	Different departments have good relationships	0.891			
	Good coordination in activities	0.913			
	Good communication in different departments	0.917			
	Work with external organizations/individuals	0.877			
Long-Term Orientation	Excellent services to the trainees	0.820	0.938	0.940	0.699
	Implement changes in the long term	0.866			
	Emphasize long-term survival	0.858			
	Products/services improvement	0.855			
	Long-term plans in service	0.873			
	Serving trainees as long-term investment	0.780			

	Emphasizes service excellence	0.862			
	Generate income for sustainability	0.765			
Performance Orientation	Strives for service excellence.	0.862	0.926	0.926	0.730
	Committed to delivering excellent services.	0.852			
	Constantly measures its service performance.	0.834			
	Monitors service performance.	0.876			
	Resources to provide excellent service.	0.864			
	Aiming for being excellent Centre.	0.836			
Trainee Orientation	Staff's commitment to serve the trainees.	0.838	0.916	0.917	0.706
	Good understanding of trainee's needs.	0.856			
	Showing love and patient to trainees	0.833			
	Understand trainee's satisfaction.	0.861			
	Know trainees' preferences.	0.858			
	Excellent after-training service.	0.793			
Satisfaction	Overall, I am satisfied.	0.909	0.921	0.921	0.864
	Excellent service to trainees.	0.944			
	Excellent service to the parents/guardian	0.935			
Behavioural Intention	Cooperate with the Centre.	0.911	0.754	0.765	0.802
	I will recommend the Centre.	0.879			
Rehab Outcomes	Rehab outcomes	1.000	NA	NA	NA

a CA – Cronbach Alpha; b CR = Composite Reliability; c AVE = Average variance extracted

The results show that all outer loadings were above the threshold value 0.700 ranging from (0.765 to 1.000). The acceptable range of CR cut-off thresholds is from 0.600 to 0.700, while thresholds between 0.700 and 0.900 are considered satisfactory to good (J. Hair et al., 2017). The CR of the constructs was above 0.700, thus achieving a good level of internal consistency reliability within these constructs (Hair et al., 2019). Based on the results shown in Table 2, Cronbach's α coefficients ranged from 0.754 to 0.938. The level of reliability is satisfactory.

Based on the Fornell and Larcker (1981) criterion, as shown in Table 3 and Table 4, the square root of the AVE was greater than the correlation values between the other research constructs. Hence, discriminant validity is established for all constructs in the study under the Fornell and Larcker (1981) criterion. Critics of the Fornell and Larcker (1981) criterion have highlighted possible weaknesses, such as a lack of reliability and consistency in finding discriminant validity concerns (Henseler et al., 2015) and poor performance, particularly when the loading values of items differ slightly (Hair et al., 2017).

Table 3: Discriminant Validity Results for First-Order Measurement Model

		CO	EO	IC	LO	PO	TO	S	BI	RO
Fornell-Larcker Criterion*	CO	**0.841**								
	EO	0.550	**0.861**							
	IC	0.623	0.792	**0.889**						
	LO	0.730	0.704	0.785	**0.836**					
	PO	0.681	0.677	0.736	0.792	**0.854**				
	TO	0.570	0.606	0.661	0.671	0.797	**0.840**			
	S	0.468	0.691	0.604	0.576	0.605	0.560	**0.929**		
	BI	0.453	0.620	0.560	0.532	0.545	0.476	0.734	**0.895**	
	RO	0.233	0.286	0.276	0.297	0.309	0.320	0.320	0.254	
Heterotrait-Monotrait (HTMT) Criterion	CO	■								
	EO	0.600 (0.517, 0.671)	■							
	IC	0.674 (0.598, 0.742)	0.858 (0.778, 0.905)	■						
	LO	0.787 (0.723, 0.839)	0.759 (0.687, 0.814)	0.838 (0.794, 0.877)	■					
	PO	0.738 (0.659, 0.798)	0.737 (0.651, 0.803)	0.792 (0.737, 0.837)	0.848 (0.808, 0.884)	■				

TO	0.621 (0.538, 0.695)	0.662 (0.588, 0.724)	0.714 (0.651, 0.773)	0.723 (0.665, 0.774)	0.865 (0.828, 0.895)			
S	0.507 (0.414, 0.588)	0.754 (0.686, 0.810)	0.652 (0.551, 0.728)	0.619 (0.523, 0.689)	0.654 (0.555, 0.731)	0.608 (0.516, 0.683)		
BI	0.542 (0.448, 0.623)	0.742 (0.658, 0.809)	0.661 (0.556, 0.750)	0.626 (0.528, 0.701)	0.647 (0.545, 0.731)	0.566 (0.468, 0.651)	0.877 (0.822, 0.925)	
RO	0.243 (0.167, 0.310)	0.298 (0.232, 0.362)	0.285 (0.223, 0.344)	0.306 (0.243, 0.364)	0.321 (0.257, 0.380)	0.333 (0.272, 0.390)	0.333 (0.267, 0.398)	0.293 (0.219, 0.364)

CO = Competitor Orientation; EO = Employee Orientation; IC = Inter-functional Coordination; LO = Long-Term Orientation; PO = Performance Orientation; TO = Trainee Orientation; S = Satisfaction; BI = Behavioural Intention; RO = Rehab Outcomes. Bold diagonals represent the square root of the AVE while the off-diagonal represents the correlations **Note: HTMT value in bracket represent the 2.5% and 97.5% confidence interval

The study adopts the Heterotrait-Monotrait (HTMT) ratio of correlations by Henseler et al., (2015). According to (Franke & Sarstedt, 2019), if the HTMT value is below the critical value of 0.90, the discriminant validity is established. Bootstrapping procedure to create a confidence interval (2.5%, 95.0%) and compare it to the threshold value (< 1.000, HTMT$_{Inference}$) (Henseler et al., 2015). The results in Table 3 and Table 4 show that all the HTMT values were below 0.90. Therefore, constructs under the study have demonstrated discriminant validity.

Table 4: Discriminant Validity Results for Second-Order Measurement Model

		RS	S	BI	RO
Fornell-Larcker Criterion*	RS	**0.863**			
	S	0.683	**0.929**		
	BI	0.621	0.734	**0.895**	
	RO	0.333	0.320	0.254	**1.000**
Heterotrait-Monotrait (HTMT) Criterion	RS				
	S	0.732 (0.642; 0.799)			
	BI	0.729 (0.633;0.805)	0.877 (0.822; 0.925)		
	RO	0.345 (0.281; 0.402)	0.333 (0.267; 0.398)	0.293 (0.219; 0.364)	

Rs = Rehabilitation Service; S = Satisfaction; BI = Behavioural Intention; RO = Rehab Outcomes
*Note: Bold diagonals represent the square root of the AVE while the off-diagonal represents the correlations
**Note: HTMT value in bracket represent the 2.5% and 97.5% confidence interval

The Structural Model

Table 5: Structural Model Results

Hypothesis	Path Relationship	Path Coefficient (β)	Std Error	t-statistic	p-Value	VIF	f^2	Decision
H1	BI-> RO	-0.016	0.050	0.314	0.753	2.302	0.000	Rejected
H2	RS-> BI	0.223	0.049	4.520	0.000**	1.877	0.061	Accepted
H3	RS -> RO	0.219	0.045	4.882	0.000**	1.991	0.028	Accepted
H4	RS -> S	0.683	0.036	19.214	0.000**	1.000	0.877	Accepted
H5	S-> BI	0.582	0.050	11.562	0.000**	1.877	0.416	Accepted
H6	S-> RO	0.182	0.053	3.443	0.001**	2.657	0.014	Accepted
Post Hoc (Mediation)								
H7	RS->BI->RO	-0.004	0.012	0.301	0.764			Rejected
H8	S->BI->RO	-0.009	0.029	0.313	0.754			Rejected
H9	RS->S->RO	0.124	0.037	3.402	0.001*			**Accepted**

H = Hypothesis; BI = Behavioural Intention; RO = Rehab Outcomes; RS = Rehabilitation Services; S = Satisfaction. Note: VIF = Variance Inflation Factor. *p < 0.05

The coefficient of determination, R², quantifies the variances that can be explained in certain endogenous factors, hence indicating the model's explanatory power of the model (Shmueli & Koppius, 2011). The

coefficient depicts the amount to which connected exogenous latent constructs affect the variances in endogenous constructs. It also indicates in-sample predictive power, calculated by squared correlation between actual and predicted values, encompassing all the data utilised to evaluate the model.

The acceptability of R^2 values depends on the specific research context and can be influenced by factors such as the model's complexity and the research's discipline (Raithel et al., 2012). For studies that focus on satisfaction, it is important to have R^2 values of 0.750 and above. In marketing phenomena research, R^2 values of 0.750, 0.500, and 0.250 correspond to strong, medium, and weak explanatory power, respectively (Hair et al., 2011; Henseler et al., 2009). The R^2 value of the behavioural intention ($R^2 = 0.566$). It indicates that the R^2 for behavioural intention has a medium explanatory power. In contrast, rehab outcomes ($R^2 = 0.127$) and satisfaction (R2 = 0.467) have weak explanatory power.

Results of Hypothesis Testing

After establishing the model's explanatory and predictive power in a previous section, the study determines the statistical significance and relevance of path coefficients for hypotheses. Path coefficients measure the strength of the relationship between exogenous and endogenous constructs, (β), a standardized regression coefficient (Sarstedt et al., 2021). Path coefficient values normally range between -1.000 and +1.000; values near 1.000 or -1.000 indicate the presence of a strong positive/negative relationship, while values near zero indicate the absence of a weak relationship (Benitez et al., 2020).

As presented in Table 5, RehabServE and satisfaction have a positive and significant relationship on behavioural intention (RehabServE: β-value = 0.223, t-value = 4.520, ρ-value = 0.000; satisfaction: β-value = 0.582, t-value = 11.562, ρ-value = 0.000). Besides, RehabServE has a positive and significant relationship with satisfaction (RehabServE: β-value = 0.683, t-value = 19.214, ρ-value = 0.000). In addition, RehabServE and satisfaction have a positive and significant relationship with rehab outcomes (RehabServE: β-value = 0.219, t-value = 4.882, ρ-value = 0.000; satisfaction: β-value = 0.182, t-value = 3.443, ρ-value = 0.001). Thus, H2, H3, H4, H5, and H6 are accepted. However, based on the hypothesis test, behavioural intention does not have a significant relationship with rehab outcomes (behavioural intention: β-value = -0.016, t-value = 0.314, ρ-value = 0.753). Therefore, H1 is rejected.

The post hoc analysis in Table 5 reveals that satisfaction positively mediates the relationship between RehabServE and rehab outcomes (RehabServE: β-value = 0.124, t-value = 3.402, ρ-value = 0.001). Therefore, H9 is accepted. In addition, behavioural intention does not mediate the relationship between RehabServE, satisfaction and rehab outcomes (RehabServE: β-value = -0.004, t-value = 0.301, ρ-value = 0.764; satisfaction: β-value = -0.009, t-value = 0.313, ρ-value = 0.754). Thus, H7 and H8 are rejected.

5.0 IMPLICATIONS FOR SERVICE MEASUREMENT AND EDUCATIONAL ADMINISTRATION

The findings from the quantitative research procedures offer numerous important managerial implications for a trainee-oriented rehabilitation service management. These findings are timely and imperative especially for the leaders and employees of the rehabilitation centres, be they in the public or private sectors. This is even more necessary when the socio-economic situations are dynamic and the various stakeholders are more demanding. The trainee orientation will be more essential for sustainable service management towards better inclusivity for serving the different target groups/individuals.

The community-oriented service research suggests that the strategic construct called RehabServ (for rehabilitation service excellence culture) has demonstrated its potential influence on parent/guardian satisfaction, and thereafter health performance of the trainees. This service excellence measure is intentionally explored and quantitatively developed for the sake of building more service-driven organizations towards excellence and more meaningfully serving the people with special needs.

As a managerial tool, RehabServ help the rehabilitation service leaders and managers to understand, assess and enhance service management practice awareness and performance. It can contribute to yielding a pool of performance indicators in service culture management. The scores for the various RehabServ dimensions will offer key information on the different service excellence practices to enhance service performance, satisfaction, behavioural intentions, and most importantly the health performance of the PwD.

Effective performance measurement and management is imperative for CBR service excellence achievement and sustenance. Key performance indicators(s) will help. With the valid and reliable measurement scale, the individual RehabServ Index with respect to each dimension can be computed for each centre. The said Index can be the average value of that dimension per item. It will be able to give an indication of how service-oriented the centres are, in terms of serving the trainees (from the parents'/guardians' viewpoint) with respect to a particular dimension. Furthermore, the aggregated RehabServ Index value of all the six dimensions will give

an overall picture of the level of service excellence culture. Leaders and managers can use these indices as a yardstick, with which improvement efforts can be focused and monitored accordingly.

The quantitative experience data from other groups of customers like the experienced employees and employers can also help to provide useful insights for better understanding of a service culture. There are also other implications for future research. Undoubtedly, there is still a lot of empirical and health services research that remains to be commissioned, specifically service research relating to measurement and causal relationship investigations. Besides, contextual and environment-specific investigations (especially in terms of cross-cultural differences) should be of great importance too. International research will be useful for higher reliability and validity.

The newly developed RehabServ measure can be further validated in the rehabilitation service sector with a broader base of sample groups. Validation is important for this potentially novel service management and marketing construct. The validation might involve the relevant stakeholder samples from other nations. Cross-national research can be done in cooperation with researchers in other countries to better understand the RehabServ in different cultural and environmental settings for useful comparisons.

It is believed that the testing of the RehabServ-Satisfaction-Health Performance relationship on a longitudinal basis will be important for enhancing the healthcare service management and service excellence culture. Longitudinal research will be useful for establishing the more conclusive causal linkages with the variables of interest. Besides, the RehabServ scale should be replicated in other service sub-sectors, and future studies might also examine whether relationships found in the context of the rehabilitation service are present in other sub-sectors. This is important to improve the generalizability of the measure.

6.0 CONCLUSION

This empirical service research found the dimensions and items of rehabilitation service excellence culture for sustainable rehabilitation services to train and care for the employees, parents/guardians, and care for the persons with disability (i.e., PwD). The nation-wide questionnaire survey yielded more than a thousand questions and quantitative statistical analysis using SmartPLS SEM have managed to identify the dimensions of rehabilitation service excellence culture effectively. The six dimensions (thirty-eight items) for the rehabilitation service excellence culture, namely: Trainee, Competitor, Inter-functional Coordination, Excellence-driven, Long-term, and Employee orientations. The measurement model fit of the dimensions and items are satisfactory. This multi-item measure is called RehabServE. The parent/guardian satisfaction mediated the relationship between RehabServE and health performance of the PwD. Practically, the service excellence culture of the community-based rehabilitation centres will be essential and it needs to be consistently and continuously managed. RehabServE will most probably cause the parents/guardians to be satisfied and thereafter increase the health performance of their children. The rehabilitation service excellence measurement is essential for service sustainability and inclusivity towards better health and happiness of the persons with disability.

CONTRIBUTIONS OF AUTHORS

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All authors declare that they have no conflicts of interest.

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REFERENCES

1. Bagozzi, R. P., Yi, Y., & Singh, S. (1991). On the use of structural equation models in experimental designs: Two extensions. *International Journal of Research in Marketing*, *8*(2). https://doi.org/10.1016/0167-8116(91)90020-8
2. Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information and Management*, *57*(2). https://doi.org/10.1016/j.im.2019.05.003
3. Cohen, J. (1988). Statistical power analysis for the behavioural sciences. Hillside. In *NJ: Lawrence Earlbaum Associates*.
4. Clarke, D., Gombert-Waldron, K., Honey, S., Cloud, G., Harris, R., MacDonald, A., McKevitt, C., Robert, G., & Jones, F. (2021). Co-designing organisational improvements and interventions to increase inpatient activity in four stroke units in England: A mixed-methods process evaluation using normalisation process theory. *BMJ Open*, *11*(1). https://doi.org/10.1136/bmjopen-2020-042723
5. Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: a comparison of four procedures. *Internet Research*, *29*(3). https://doi.org/10.1108/IntR-12-2017-0515
6. Gustafsson, A., Caruelle, D., &Bowen, D.E. (2024). Customer experience (CX), employee experience (EX) and human experience (HX): introductions, interactions and interdisciplinary implications. *Journal of Service Management*, 1757-5818. DOI 10.1108/JOSM-02-2024-0072
7. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis. In *Vectors*. https://doi.org/10.1016/j.ijpharm.2011.02.019
8. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2). https://doi.org/10.2753/MTP1069-6679190202
9. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *European Business Review* (Vol. 31, Issue 1). https://doi.org/10.1108/EBR-11-2018-0203
10. Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management and Data Systems*, *117*(3). https://doi.org/10.1108/IMDS-04-2016-0130
11. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1). https://doi.org/10.1007/s11747-014-0403-8
12. Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, *20*. https://doi.org/10.1108/S1474-7979(2009)0000020014
13. Jones, F., Gombert, K., Honey, S., Cloud, G., Harris, R., Macdonald, A., McKevitt, C., Robert, G., & Clarke, D. (2021). Addressing inactivity after stroke: The Collaborative Rehabilitation in Acute Stroke (CREATE) study. *International Journal of Stroke*, *16*(6). https://doi.org/10.1177/1747493020969367
14. Jones, F., Gombert-Waldron, K., Honey, S., Cloud, G., Harris, R., Macdonald, A., McKevitt, C., Robert, G., & Clarke, D. (2020). Using co-production to increase activity in acute stroke units: the CREATE mixed-methods study. *Health Services and Delivery Research*, *8*(35). https://doi.org/10.3310/hsdr08350
15. Lee J. Cronbach. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16(3), 297–334. doi:10.1007/bf02310555. In *PSYCHOMETRIKA* (Vol. 16, Issue 3).
16. Ned, K. (2017). Common Method Bias: A Full Collinearity Assessment Method for PLS-SEM. In *Partial Least Squares Path Modeling: Basic Concepts, Methodological Issues and Applications*.
17. Puspitosari, W. A., Wardaningsih, S., & Nanwani, S. (2019). Improving the quality of life of people with schizophrenia through community-based rehabilitation in Yogyakarta Province, Indonesia: A quasi experimental study. *Asian Journal of Psychiatry*, *42*. https://doi.org/10.1016/j.ajp.2019.03.022
18. Raithel, S., Sarstedt, M., Scharf, S., & Schwaiger, M. (2012). On the value relevance of customer satisfaction. Multiple drivers and multiple markets. *Journal of the Academy of Marketing Science*, *40*(4). https://doi.org/10.1007/s11747-011-0247-4
19. Rigdon, E. E., Ringle, C. M., Sarstedt, M., & Gudergan, S. P. (2011). Assessing heterogeneity in customer satisfaction studies: Across industry similarities and within industry differences. *Advances in International Marketing*, *22*. https://doi.org/10.1108/S1474-7979(2011)0000022011
20. Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial Least Squares Structural Equation Modeling. In *Handbook of Market Research*. https://doi.org/10.1007/978-3-319-57413-4_15
21. Seymour, N., Geiger, M., & Scheffler, E. (2019). Community-based rehabilitation workers' perspectives of wheelchair provision in Uganda: A qualitative study. *African Journal of Disability*, *8*. https://doi.org/10.4102/ajod.v8i0.432
22. Shmueli, G., & Koppius, O. R. (2011). Predictive analytics in information systems research. In *MIS Quarterly: Management Information Systems* (Vol. 35, Issue 3). https://doi.org/10.2307/23042796
23. Voon, B. H., Jee, T. W., Shufian, N. B., & Teo, A. K. (2023). Community-based Rehabilitation Service Excellence for Sustainability. *Environment-Behaviour Proceedings Journal*, *8*(SI15), 191–196. https://doi.org/10.21834/e-bpj.v8isi15.5078

24. Zaccagnini, M. E., & Pechacek, J. M. (2019). *The doctor of nursing practice essentials : a new model for advanced practice nursing* (4th Edition). Burlington: Jones & Barlett Learning, Burlington, USA.
25. Zhou, K. Z., Brown, J. R., & Dev, C. S. (2009). Market orientation, competitive advantage, and performance: A demand-based perspective. *Journal of Business Research*, *62*(11). https://doi.org/10.1016/j.jbusres.2008.10.001