

# Implementing Quality Function Deployment and SERVQUAL to Improve Orphan's Journey at a Charity Organization in Saudi Arabia: A Case Study

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**Abstract:** This study evaluates and explores ways to enhance the orphan's journey at a charity in Saudi Arabia, from registering the orphan and becoming a charity member until they reach the age of 18 years. A mixed-method research approach was applied. Qualitative data were obtained from a group interview with orphans' families and the charity management, and three quantitative survey questionnaires were administered to orphans' families, sponsors, and employees. This study suggested comprehensive integrative framework involving SERVQUAL and Quality Function Deployment (QFD). SERVQUAL scale was used to measure the services provided to orphans, and QFD as one of the Quality Management Tools (QMT). QMT was used to develop the action plan and provide recommendations for charity management to improve the orphan's journey and increase satisfaction. This study implemented seven QMT to solve the challenges and issues faced by the charity to improve the orphans' satisfaction. From the survey, the five main quality issues were found to be a lack of resources, lack of assurance, lack of communication, lack of information, and lack of responsiveness. Several recommendations were presented to solve these issues, including improving marketing management, website functionality, and social media utilization. There is a lack of studies measuring orphans' satisfaction in non-profit organizations, especially in Saudi Arabia. Also, few studies applied the seven QMT tools to increase orphan satisfaction and enhance their journey. This study focused on bridging the service gap and raising service quality provided to the orphans' families.

**Keywords:** Quality management tools; Quality function deployment; house of quality; SERVQUAL; orphans' satisfaction; Charity.

## INTRODUCTION

Third-sector organizations (TSOs) are defined as organizations that are formally organized to distribute charitable donations, being self-governing and independent from the government, and who use volunteers (e.g., trustees and board members or volunteers delivering services) (Bach-Mortensen & Montgomery 2018). They are also defined as institutions that are not interested in financial gain, but in improving community welfare (Rahmatika & Fitriyah 2021). TSOs perform an important role in societies worldwide (Milbourne 2013). They provide unique added value in public service delivery, with their ability to engage people in service delivery, making them a powerful alternative to other forms of public- and private-sector organization (Lebec 2021). TSOs have provided numerous services for centuries, such as for health, education, culture, and civic engagement (Azmi et al. 2020). Due to increased economic uncertainty and adverse socio-economic conditions in many societies worldwide, TSOs have expanded in scale and scope over the past few years, especially during and following the COVID-19 pandemic.

In the US, according to the National Philanthropic Trust (2022), "Giving in 2020 increased in nearly every sector, with double-digit growth in gifts for public-society benefit (15.7%), environment/animals (11.6%) and individuals (12.8%)". In addition, the number of registered charities in England and Wales (a very advanced, formalized, and mature TSO context) was 170,383 in 2022, representing a 0.35% increase from the previous year (Clark 2022). According to a report by Saudi Arabia's Specialized Council for Orphan Associations (GOV, 2023), the number of charities that specialized in orphan care has increased to about 50, operating throughout the country. They report that there are two main types of orphans' charities in Saudi Arabia: (1) associations specialized in caring for orphans and providing them with developmental and pastoral services, without receiving them in the association as a care home; and (2) those specialized in caring for orphans with special circumstances, including those of unknown parentage, and others for whom there is no relative available to take care of them due to family or socio-economic circumstances. For the latter, the associations provide care including shelters and social homes.

This study targeted the first kind of charities, which support orphans who live with their mothers or family members, rather than those living in specialized care homes. These associations play the role as a mediator between the orphan's

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family and the donor or guarantor, whereby the guarantor donates monthly to the orphan's sponsorship by paying to the association, which in turn delivers this assistance to the orphan's family.

Perai (2019) states that the voluntary, charitable, and non-profit basis exists for reasons other than monetary gain, being driven primarily by altruistic motives and the desire to meet societal demands. Islam strongly enjoins kindness and generosity to orphans and widows, thus contributions to orphan TSOs are considered good deeds among Muslim communities worldwide (Kamaruddin & MdAuzair 2019). TSOs in the Islamic charity sector have become a key focal point in many developing countries (Azmi et al. 2020), providing care for orphans as core services (Asdiqa 2022). Orphan care is strictly based on the concept of "kafala", as exemplified by the Prophet Muhammad (ﷺ) throughout his lifetime (Alwani 2020). Kafala, the Islamic custom of child sponsorship or guardianship, is a long-standing practice in Islamic cultures and communities (Rotabi et al. 2017). Contact between an orphan and a charity includes three levels in Saudi Arabia. First, at the preregistered level, the orphan's submits his/her documents to request sponsorship, then the request is approved if all the requirements are met. Second, at the registered level, the orphan is registered, and a sponsor is assigned. After that, an accountant allocates the support money to the account of the orphan's family. Finally, orphans are provided financial and in-kind support, and sponsorships end when the orphan's reached their 18<sup>th</sup> birthday then the sponsor may stop the sponsorship when they are considered to attain adulthood and the orphan has the ability to be independent. Though sometimes orphans may continue to receive informal support from sponsors and other individuals and organizations.

Due to the limited resources available and increased pressure from funders, government, and other stakeholders, competition between organizations to perform services effectively has increased, seeking to give value for money and to attract more donors (Melão et al. 2017). Recently, TSOs have been relying more on implementing Quality Management (QM) programs (Al-Tabbaa et al. 2013). QM is crucial in the TSO industry, since quality differentiation is a competitive tool against other organizations (Melão et al. 2017). One of the most important components in the effective management of customer relationships and the development of value in service industries is the quality of the service provided (Javed & Ilyas 2018). Quality Function Deployment (QFD) is a tool for problem-solving and planning (Altuntas & Kansu 2020). It is an important tool for management to ensure product or service quality (Han et al. 2001). Decision-makers can use QFD to assist by incorporating customer feedback into service quality management, hence customer satisfaction can be enhanced by incorporating and considering the voice of the customer (which may be the donor or, in the case of this study, the orphan) (Altuntas & Kansu 2020).

The rationale for conducting mixed-method research in this study is to improve the quality of services provided by orphan TSOs by identifying specific factors at play in their operations. The primary reason for conducting this study was the scarcity of data in this context in the region, as scarce research can be found discussing the concept of improving

the quality of orphan care services in relation to the satisfaction of orphans themselves. Furthermore, to our knowledge, scant studies have examined the integration of the TSO in Saudi Arabia. One of the reasons to conduct a mixed-method research on this topic is that this approach strengthens the study findings by offering the generalizability of quantitative data alongside the insights gleaned from qualitative analysis, pertaining to revealing the core concepts of the topic being studied (Creswell & Creswell 2019; Johnson & Onwuegbuzie 2004).

The study was conducted to evaluate the orphan's journey at a private charity in Saudi Arabia from the orphan's preregistration level until the end of formal support. To achieve this goal, qualitative data was collected via focus group discussion, while quantitative data was gathered from surveys. Both approaches sought to explore the implementation of quality management tools to develop an action plan, provide recommendations, and improve the overall orphan's journey. This study aims to contribute to existing literature on orphan TSOs and the quality of their services studies by integrating SERVQUAL and QFD, seeking thereby to improve the quality of services and increase TSO customer satisfaction.

This paper is organized as follows: the literature review discusses customer satisfaction and the importance of implementing quality management tools to improve the orphan's journey at a charity organization. The next section describes the research methodology, followed by the analysis and results. Finally, the discussion and conclusion highlight the main theoretical and managerial implications of this research, and identify areas for further study.

## LITERATURE REVIEW

### Service Quality

Service quality has emerged as one of the most critical concerns in the field of services (Joudeh & Dandis 2018). Parasuraman et al. (1988) defined service quality as comparing the actual performance to what customers expect. Another definition proposed by Nguyen and Nagase (2019) argued that service quality results from a comparison of a customer's expectation and perception of service quality. Parasuraman et al. (1985) introduced the SERVQUAL model, which was intended for the service sector. Additionally, Parasuraman et al. (1988) defined five dimensions of service quality (SERVQUAL): tangibles, reliability, assurance, empathy, and responsiveness, which are also considered for assessing customer satisfaction in service and retail organizations. They are adumbrated below:

- Tangibles: Physical facilities, equipment, and personnel appearance.
- Reliability: Providing accurate and dependable service as promised.
- Responsiveness: Customer service and willingness to help.
- Assurance: Employees' knowledge and courtesy inspire trust and confidence.
- Empathy: Customer care and individual attention provided by the firm.

### Customer Journey Map (CJM)

A CJM is primarily defined as a visual depiction of the series of events that occur during a user's interaction with a product or service (Alvarez et al. 2020) as a growing number of academics and practitioners are praising the value of CJM as a strategic management tool due to its effectiveness in understanding and enhancing engagement with customer needs (Rosenbaum et al. 2017).

### Quality Management Tools

The term "total quality management" (TQM) refers to a strategic approach to enhancing organizational performance and encompassing technical and sociocultural factors (Tortorella et al. 2019). Quality tools (QTs) are specific visual approaches that are particularly effective in spotting issues with product quality (Tsironis 2018). TQM tools can help facilitate creative problem-solving and improve performance and customer satisfaction (Alfalah 2017). These may include affinity diagram, interrelationship digraph, tree diagram, process decision program chart (PDPC), matrix diagram, prioritization matrix, and QFD (as explained in detail below). Such tools can be used to explore customer focus, employee involvement, continual process improvement, and improving service/product quality, which can promote and improve profitability by fostering and increasing customer satisfaction (Griffin 1992). Moreover, these seven tools can offer the user a visual language that makes it easier to break down and explore complex situations otherwise difficult for the user to comprehend or address (Rajamanickam et al. 1998).

The value of these tools can be mutually buttressed by combining them into a cycle of activity, whereby the output of one technique becomes an input into the next technique. For instance, each of the fundamental statistical techniques (such as the affinity diagram) can be utilized separately. When affinity diagram serves as the focal point to organize data, then the relationship between the variables appear in interrelationship digrap. These seven management tools all follow the same methodology, and it is advantageous that each method can be utilized successfully individually, as well as in combination with others (Anjard 1995).

Affinity diagram was developed by Kawakita Jiro in the 1960s, and is consequently also known as the "KJ method" (Helmold 2021). It is one of seven key quality tools (usually referred to as the seven management and planning tools) used to organize data and ideas (Dias & Saraiva 2004). Affinity diagrams enable individuals to more easily understand the essence of the problem and potential options, enabling requirements to be arranged more easily within the house of quality (Mohsin et al. 2021).

The interrelationship digraph explains the links between the categories in an affinity diagram (Toffaha & Dongyan 2018). It can be used to identify priorities, problems' core causes, and customers' unstated needs (Özgener 2003). Moreover, the QFD matrix section showing technical correlations is an example of how this tool is utilized (Shahin et al. 2010). The tree diagram is useful for breaking down complex ideas into smaller, more manageable chunks, such as policies, targets, goals, problems, and objectives (Pramono et al. 2018). It is a

technique used to pinpoint a problem's root causes by developing a more organized thinking of the cause and effect component connected with priority issues (Kharisma & Laumal 2019). The primary item is put on the top and then divided into two or more branches; each branch is subsequently divided into two or more branches, and so forth, creating a tree-like structure (Pramono et al. 2018). After the team determined the primary issues using (voice of the consumer) focus groups, surveys, and affinity diagrams, the tree diagram was regarded as complementary in determining the primary and sub-causes.

The PDPC method is used in operations research as a problem-solving technique. It is a qualitative model that may be described graphically or using tree charts in many circumstances. PDPC is utilized in order to convey a systematic view of a phenomenon throughout the procedure (Chu & Tosirsuk 1991). The first level represents the primary issues, the second level represents the primary causes, the third level represents the remedies, and the fourth level represents the dangers. The last level represents alternate options, each level denoted by a different color. The following stage entails studying the matrix diagram's linkages between causes and solutions.

Cause-and-effect relationships are explored in detail using a matrix diagram. Besides that, it identifies the root causes of difficulties that arise throughout the production process (Tsironis 2018). The PDPC's solutions were analyzed to determine the link between the causes and the solutions. PDPC symbols have different values. For example, the highest relation between the variables has a symbol of (●), which represent a value of 9, the medium relation (○) has a value of 3, and the weak relation (∇) has a value of 1. Afterward, the prioritizing matrix will identify the order in which these solutions should be implemented.

A prioritization matrix organizes data from a matrix diagram to show quantitatively the strength of relationships among variables (Mohsin et al. 2021). Consequently, it is useful for the technical assessment portion of the QFD (Shahin et al. 2010). Using a prioritizing matrix, management and their team could identify which activities or tasks must be completed first based on a set of parameters (e.g., cost, time, quality specification) (Damayanti et al. 2019). After implementing the previous QM tools, it will be gathered at the end to be illustrated in the QFD.

### Quality Function Deployment (QFD)

In the late 1960s, Yoji Akao from Japan developed the QFD to improve the quality appraisal process. Information about customer needs is gathered and converted into engineering criteria to resolve the primary requirements for products and services (Junior et al. 2022). Its purpose is to comprehend and identify customer needs, maximize value through quality enhancement, create a comprehensive quality system that ensures customer satisfaction, and build strategies to enhance the product or service (Sharma 2020). It is well-known that QFD is a way of translating the "voice of the customer" or consumers wants (the "whats") into methods of attaining those goals inside an organization (the "hows") (Hamilton & Selen 2004). the first stage of quality function deployment (QFD) (John et al. 2014), is also known as the house of qual-

ity (HoQ). HoQ is a method for prioritizing product or service design features based on the needs of the target market. HoQ is the most popular QFD matrix (Shahin et al. 2018) because it serves as a process guide for analyzing the connections between customer needs and the features of the service that aim to meet those needs. Using this method, companies may better assess client satisfaction, enhance their current qualities, and speed up the creation of new services by identifying and incorporating appealing features into future offerings (Camgöz-Akdağ et al. 2013).

Various studies have integrated SERVQUAL and QFD, including Kayapınar & Erginel (2019) in their study to develop airport service quality in Turkey, who deployed the tools for performance assessment and utilized the empirical findings as input for QFD in the service design process, based on passengers' expectations for the services provided from the airport. Camgöz-Akdağ et al. (2013) used SERVQUAL and QFD integration at a private university hospital to identify and maximize internal capabilities and address particular customer possibilities, which helped hospitals improve their services design in tandem with the demands of their customers. Altuntas and Kansu (2020) conducted a case study in a public hospital in Turkey by implementing SERVQUAL, QFD, and FEMA. The study's findings demonstrate that the suggested methods can be utilized to evaluate service quality in hospitals to acquire the customer satisfaction and reduce the failure of services.

Previous studies of QFD implementation proved that it can enhance quality and satisfaction. According to Aka0 (2004), the benefits of implementing QFD include the following: prioritizing customer wants and needs; translating customer needs into technical characteristics and specifications; building and delivering a quality product or service by focusing all employees on customer satisfaction; coordinating all efforts to improve service quality; and enhancing customer satisfaction.

### Customer Satisfaction

Customer satisfaction significantly affects basic organizational outcomes, such as brand loyalty and profitability, and thus competitiveness, market share, and firm value (Joudeh & Dandis 2018). Quality improvement fundamentally ensures high-quality operations and output, which may help organizations emerge into international markets and be competitive (Owusu-Kyei et al. 2023). On an elemental level, the quality of services enhances customer satisfaction, which leads to increased business performance. According to Deming (2018), a business's survival depends on its customers' satisfaction. Kotler (1994) identified customer satisfaction as fulfilling an individual's expectations and perceptions regarding a product or service. Previous studies have often assumed that service quality dimensions and customer satisfaction are related (Narteh 2018). Improving customer satisfaction is a major goal of TQM (Anil & Satish 2019).

Moreover, studies have shown that TQM affects customer satisfaction across various industries, including service businesses and manufacturing (Owusu-Kyei et al. 2023). The integration of internal and external quality control procedures directly impacts customer satisfaction since consumers are the most important aspect of service delivery (Khorshidi

et al. 2016). QFD was defined by Liu and Wu (2008) as an effective quality tool that fulfills customer needs in terms of fulfilling the customer's anticipated and desired characteristics in a product, enhancing customer satisfaction, and assuring continual improvement. Therefore, achieving customer satisfaction when a company build its strategy to the use of quality tools and processes that identify a need, build a structure that satisfies the need, assess adherence to the need, and guarantee that the need is properly met (John et al. 2014). Several studies have examined the related quality tools with reference to the customer satisfaction. Abu-Rumman et al. (2021) conducted a study using quality management tools and contributed to quality management in healthcare. They explored patient satisfaction with the help of the application of customer results criteria and provided a framework to effectively improve patient experience.

### METHODOLOGY

This study used a mixed-method approach, which mutually strengthens the findings of the qualitative and quantitative wings while reducing their disadvantages when used individually. Mixed-methods studies can qualitatively reveal and explore the core concepts of the topic being studied in depth, while achieving quantitative operational insights; they commensurately avoid the narrow generalizability or limited depth of insight generated by solely qualitative or quantitative research designs (respectively) (Creswell & Creswell 2019; Johnson & Onwuegbuzie 2004).

Qualitative data were collected through observations and interviews by the study investigator. The qualitative part is collecting the data through implementing two focus groups. One focus group was with the charity management, to find out the procedure to find a sponsor and to register the orphan, and the challenges they face. The other focus group was with orphans' families, to identify the advantages they receive and the problems they face.

The quantitative data was collected using three different surveys distributed to three different parties: employees, orphans' families, and sponsors. Employees were recruited directly from the charity, while orphans' families and sponsors were invited via social media, using contact details shared by the charity.

### Focus Group

This mixed-method research was conducted to evaluate the orphans' satisfaction with Asdiqa charity, a TSO located in the Western region of Saudi Arabia. This charity was chosen for convenience as the management gave permission to conduct this study, and were eager to facilitate it due to the practical insights they can gain from the outcomes. The management of the charity invited us to conduct the study because they want to check the orphans satisfaction with their services. This charity aims to invest available resources to provide a variety of social services with professionalism and quality to create awareness and meet the needs of the community groups, including through its "Orphan Sponsorship" program (Asdiqa 2022). To measure the orphans' satisfaction, this study depends on two focus groups because of the situation's sensitivity. The researchers were the moderators of both focus groups.

The first focus group interview included the executive manager and the social researcher in the Asdiqa charity main campus. The meeting was to know about the orphans from pre-registered and when they find a sponsor to him/her. Also, the discussion was mainly about the services provided by the Asdiqa charity to orphans’ families and the challenges faced by the charity.

After we collected the information from the charity, we need to collect information from the orphans’ families. Therefore, the second focus group held virtually which interviewed 15 family members of orphans who gave consent to participate. All of them were women, and were the orphans’ mothers and social researchers. The interview was conducted in Arabic as it is the main language. This interview was to know the orphans’ families’ expectations regarding the services and support provided by the charity. This was in order to identify the parameters and extent of their satisfaction with the services they expected and received, and the challenges faced in meeting such customer needs. All of the survey respondents were Arabic speakers, thus the survey questions were translated into Arabic. Based on the back-translation technique recommended by Brislin (1976), the survey was then translated from Arabic to English to assure its quality and correctness.

**Survey Design**

The data was collected based on the focus group and distributed survey based on the SERVQUAL scale. This research used a questionnaire to survey orphans’ families who registered orphans in the Asdiqa charity in Saudi Arabia. Since our interest was related to measuring the quality of service and satisfaction, the survey was adopted from the previous scales, validated, and tested by different studies; it is adopted from Parasuraman et al. (1988) and Donovan and Rossiter (1982). The orphans’ families use the charity website solely to register their orphans, and it has limited specifications, thus to measure the quality of the website a few questions were adopted from Barnes and Vidgen (2002).

In addition, to evaluate the charity from a different perspective, another two surveys were developed and distributed to assess the charity from sponsors perspective using SERVQUAL scale, similar to orphan’s survey but reworded and exchanged some items. Additionally, a survey of the employee to measure their satisfaction was retrieved from Hartline and Ferrell (1996) and Netemeyer et al. (1997). The reason was satisfying employees (internal customers) will be reflected in satisfying orphans and sponsors (external customers).

**Distributing Survey and Ethical Consideration**

According to the data gathered from the charity, the number of orphan families it serves was 664 at the time of the data collection, all of whom were invited to participate, and of whom 142 families agreed to participate. The survey was distributed electronically through social media such as WhatsApp, including a link to the survey. In the end, 122 completed and returned valid responses, representing a response rate of 18.4%, and their data was used in the subsequent steps. The limited number of respondents reflects that most of the families did not have access to the internet, and it was hard to reach them by other means. The research was

based on the charity’s desire to conduct the study, so it is approved and agreed by the charity committee. All participants provided their informed consent, and it was assured that their participation was voluntary (with the right to decline or to subsequently withdraw at any time without that affecting the services received, orphan conditions, or any statutory rights); and that data would be kept confidential. The qualitative and quantitative data collected during this study were triangulated during data analysis and reporting (Creswell & Creswell 2019).

**RESULTS**

**Descriptive Results**

The descriptive statistics based on the 122 participants in Asdiqa charity are presented in Table 1. From Table 1 around 60% of the orphans were girls, and 40% were boys. The majority (70%) were aged 11 and older, and similar proportions (approximately 30% each) had elementary, middle, and high school education. The largest cohort of orphans’ mothers’ had elementary school education (40%). Most of the respondents (76%) had experienced less than 5 years of support from the charity. The majority of respondents received their monthly income through social security and other sources. According to GOV united national program in Saudi Arabia, social security and citizen account program are a Saudi program supported by the government to support citizens in each stage at different levels such as orphans, widows, elderly, persons with disabilities and others. Moreover, the Citizen Account Program cushions Saudi families from the adverse consequences of economic shifts that may fall disproportionately on certain demographics. By delivering cash directly to qualifying users, the program reallocates government benefits to those who need them in a way that promotes rational consumption and ensures subsidies are correctly distributed.

**Table 1. Descriptive Analysis.**

Gender	Boy	49
	Girl	73
Age (years)	3-5	5
	6-10	32
	11-14	45
	15+	40
Orphan’s Education level	Kindergarten	3
	Elementary	41
	Middle school	38
	High school	40
Mother educational level	Elementary	49
	Middle school	44
	High school	45
	Bachelor	4

The period of obtaining support from the charity	Less than 5 years	93
	5-10	18
	More than 10 years	11
Where does the family get the income from (answer as appropriate)	Social security	78
	Citizen's account	42
	Donations from other parties	16
	Other income	34

**Validity and Reliability**

This section describes the SERVQUAL scale data pertaining to the studied charity. Orphans' data collected using the SERVQUAL scale had to undergo reliability analysis using Cronbach's alpha (CA) coefficient testing, to determine the reliability of the model; the resultant values ranged between

0.754-0.99. Composite reliability (CR) ranged between 0.833-0.994. These outcomes indicate that the data is reliable, because both the CA and CR values were above the threshold of 0.7 (Hair et al. 2021). Also, the correlation method was implemented to analyze the validity of the questionnaire (Guilford 1954). Tests of reliability and validity showed that all constructs were valid and reliable. The data in Table 2 shows that the mean of orphan satisfaction was 4.356 out of 5, which indicates that the orphans were satisfied with the services provided by the charity. However, the researcher took all the items that were less than 4 to dig deep into them to find the main root of the problem. The Fornell-Larcker Criterion was used to measure the discriminant validity. As seen from Table 3, the AVE scores' square root was greater than the correlation coefficients among the variables, which showed that the discriminant validity was satisfactory. Therefore, this study sought to enhance the orphan's satisfaction by showing some solutions to the problems collected from the focus group and the survey.

**Table 2. Measuring Reliability and Validity of the Questionnaire.**

	Item	LF	Mean	Standard Deviation	CA	CR
<b>Tangible</b>	TAN1	0.658	4.083	1.302	0.835	0.884
	TAN2	0.810	4.413	1.018		
	TAN3	0.804	4.777	0.649		
	TAN4	0.793	4.463	1.004		
	TAN5	0.812	4.488	0.954		
<b>Empathy</b>	EMP1	0.921	4.347	1.081	0.902	0.932
	EMP2	0.909	4.281	1.144		
	EMP3	0.837	4.099	1.326		
	EMP4	0.850	4.041	1.345		
<b>Reliability</b>	REL1	0.763	4.645	0.889	0.888	0.909
	REL10	0.819	4.488	0.892		
	REL2	0.669	4.223	1.223		
	REL3	0.618	4.025	1.411		
	REL4	0.742	4.281	1.07		
	REL5	0.755	4.545	0.900		
	REL6	0.623	3.446	1.681		
	REL7	0.559	4.000	1.336		
	REL8	0.710	4.471	0.98		
REL9	0.785	4.355	1.027			
<b>Responsive</b>	RES1	0.791	4.554	0.89	0.864	0.908
	RES2	0.801	3.347	1.589		
	RES3	0.877	4.174	1.197		
	RES4	0.898	4.298	1.14		
<b>Assurance</b>	ASS1	0.918	4.579	0.831	0.879	0.926

	ASS2	0.879	4.512	0.972		
	ASS3	0.895	4.727	0.75		
Website	WEB1	0.992	4.625	1.055	0.991	0.994
	WEB2	0.987	4.700	0.823		
	WEB3	0.996	4.700	0.966		
Additional services	ADD1	0.762	4.669	0.847	0.754	0.833
	ADD2	0.800	4.57	0.994		
	ADD3	0.734	4.455	1.157		
	ADD4	0.680	4.19	1.255		
Customer Satisfaction	CS1	0.882	4.562	0.987	0.941	0.955
	CS2	0.917	4.479	1.013		
	CS3	0.909	4.347	1.148		
	CS4	0.861	4.124	1.296		
	CS5	0.926	4.43	0.994		

Note: LF: Loading factor; CA: Cronbach Alpha; CR: Composite reliability.

Table 3. Discriminant Validity: Fornell-Larcker Criterion.

	ADD	ASS	CS	EMP	REL	RES	TAN	WEB
ADD	0.789							
ASS	0.490	0.929						
CS	0.448	0.746	0.938					
EMP	0.478	0.643	0.773	0.791				
REL	0.572	0.789	0.830	0.750	0.773			
RES	0.468	0.704	0.781	0.779	0.719	0.852		
TAN	0.384	0.683	0.675	0.539	0.668	0.556	0.817	
WEB	0.275	0.372	0.433	0.344	0.497	0.360	0.334	0.834

### Orphans Journey Map

Fig. (1) illustrates the CJM of the orphans, which was created based on the results from the survey. It is divided into two sections. The first section depicts the relationship between orphans and the Asdiqa charity, which is based on three stages: preregistered, registered, and support. Through these stages, the orphans’ families interacted with different staff in different departments, including social researchers, management, and accountant. The second section shows the perception of the orphan’s mean of the services provided by the Asdiqa charity, which was retrieved from the survey. The results collected from the SERVQUAL survey was distributed based on three sections (preregistered, registered, and support) to calculate the average of orphans experience in each stage. Based on the orphans’ experience depicted in Fig. (1), we found that the orphans’ perception rate was higher in the preregistration stage compared to the registration and support stage, which exhibited decreased values (i.e. 4.52, 4.32, and 4.1, respectively).

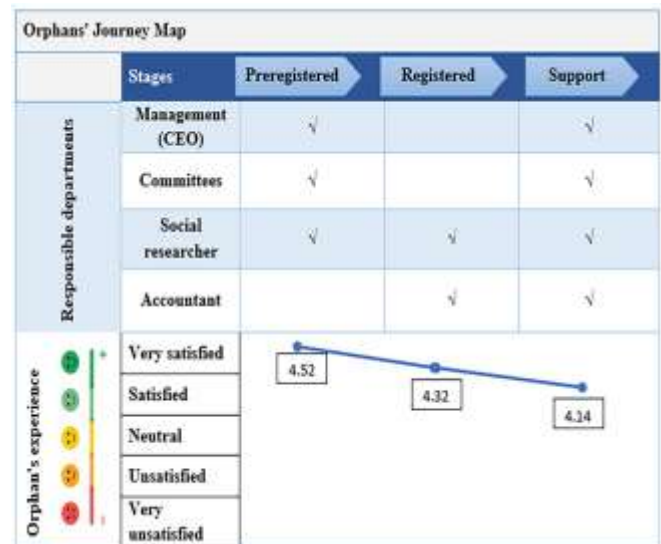


Fig. (1). Orphans’ journey map.



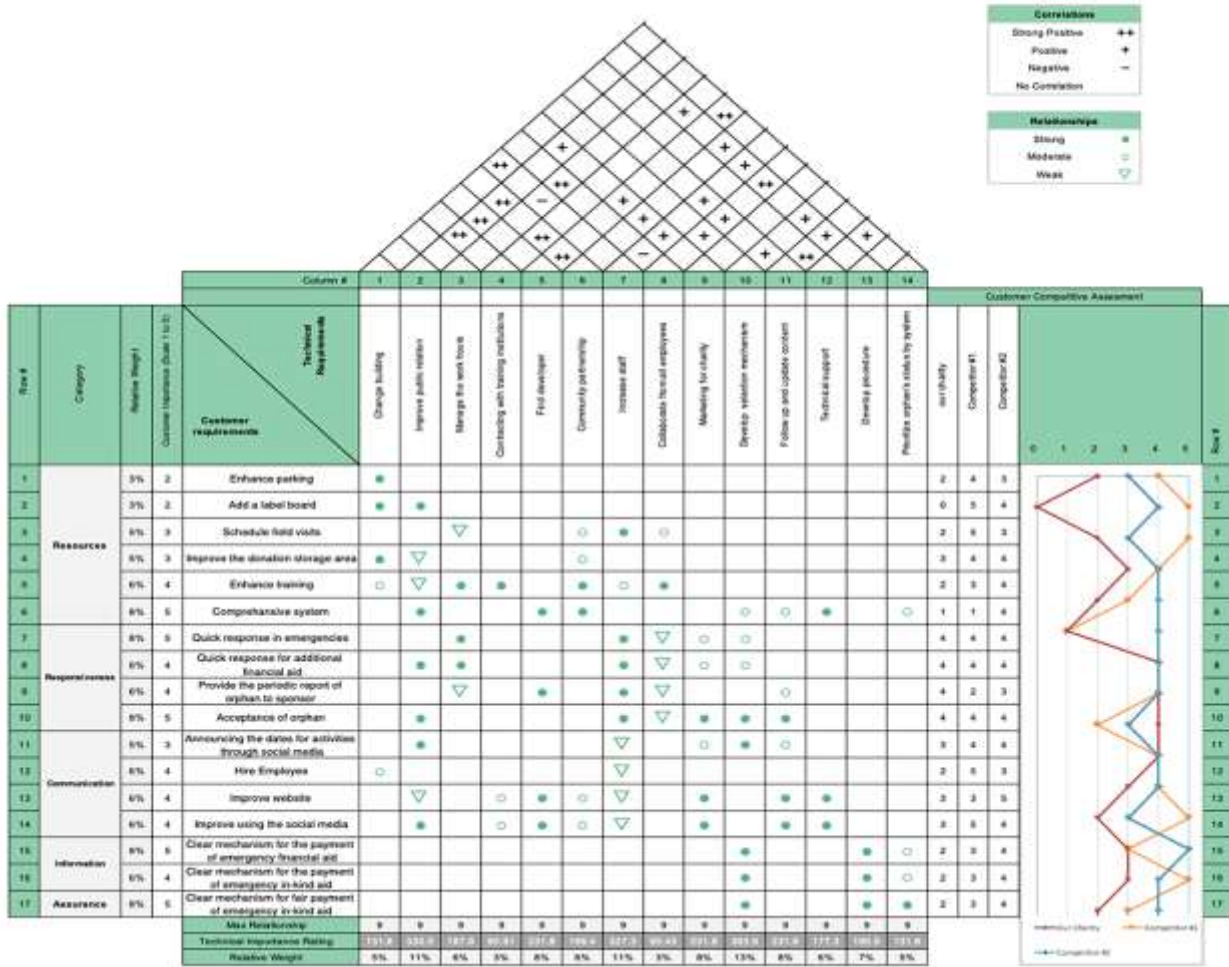


Fig. (2). The house of quality (HoQ).

**Application of QFD**

Applying QFD to orphans’ satisfaction is explained in the following six steps:

1. Identify the customers’ wants. By reviewing the literature and previous studies and interviews with orphans’ families, the orphans’ wants from the charity were identified.
2. Determine the importance of customers’ wants using a questionnaire. This stage entails receiving orphan families’ feedback and comprehending the context in which the consumer makes assertions. This activity’s objective was to comprehensively understand all customers’ needs and expectations, especially regarding subjective performance. After comprehending the requirements and expectations of all orphan families, these needs, expectations, and weights had to be ranked. 122 orphans who participated in the survey determined the construct of orphans’ families’ expectations.
3. This stage identifies and describes the technical requirements associated with the orphan’s families’

4. After defining the technical requirements, specialists created the linkages between orphans families’ expectations and technical requirements, bearing in mind the significance of ratings and the direction of progress, which are essential aspects of QFD analysis. Experts analyzed and determined this information.
5. Managers and experts of the charity defined which orphans families’ expectations were associated with which technical requirement. The resultant connections, improvement directions, and significance levels are shown in Fig. (2).
6. Management determined the technical significance of each condition. These values were computed for each technical requirement. The formula is as follows:



**Table 4. Matrix Diagram Symbol Value.**

Symbol	●	○	▽
Value	9	3	1
Relationship	Strong	Medium	Weak

$\sum$  Technical Importance Degree =  $\sum$  (importance degree of customer satisfaction x weight of customer expectations)

As the questionnaire was designed with a five-point Likert scale, the responses to each question indicated the degree of importance for each consumer expectation. Explaining the proportional weight of client expectations as a percentage for each degree of important answer. The maximum relationship degree is the degree to which consumer expectation(s) and technical requirement(s) are related. The relation was illustrated based on the symbols on Table 4.

[Insert Table 4 here]

In addition to the information provided in the house of quality (HoQ) matrix, it must be understood that there might be a link between each technical need. Improving one technological demand might have indirect or direct positive or negative effects on other technical requirements, or vice versa. These relationships between technical criteria are shown in Figure 2, utilizing a correlation matrix that also serves as the quality house’s roof. The correlation matrix used four distinct symbols to depict the link. For a high positive correlation, two plus signs (++) . One plus sign (+) was used for a positive correlation, and for a negative correlation, a negative symbol (-) was used. After determining the link between technical standards, symbols were put on the house’s roof of quality. The house of the quality matrix indicates whether technical standards had a positive or negative connection with one another. For example, there was a strong relationship (++) between managing the working hours and collaboration between all employees.

This methodology showed the minimum set of technical requirements of charity must achieve to meet the different orphans’ needs. Applying QFD to orphans’ satisfaction is illustrated in the HOQ shown in Fig. (2), which illustrates all the steps mentioned above, such as the relation between the customer and technical requirements and the related weight. For example, it is demonstrated that a strong relationship between improved public relations, increased staff, and acceptance of orphans impacted the final results. There was a weaker relationship between collaboration from all employees and acceptance of orphans; nevertheless, this was still an existent relationship, which means the acceptance of orphans slightly affected collaboration from all employees.

When analyzing the relative weight of the column, it was seen that the developed selection mechanism of the orphans had the highest weight score, with 13% stating that when the developing selection mechanism was improved, there was a 13% improvement in the charity service quality. The second-highest relative weight was shown to be increased staff, which improved public relations; it was revealed that when staff increased and enhanced public relations, there was an 11% improvement in the charity service quality. Lastly, marketing for charity, follow-up and updating content, and

finding developers were ranked third in relative weight, with 8%. Therefore, when improving all of the above mentioned, the charity service quality will be improved and orphan satisfaction will be enhanced by 59%, i.e.:  $13\% * 1 + 11\% * 2 + 8\% * 3 = 59\%$ .

The correlation among technical requirements indicated that changing the building had a strong relationship with increasing the number of staff. Additionally, improving public relations had a strong positive relationship with contracting with training institutions, finding developer and community partnerships, and having a moderate relationship with marketing for charity. Also, managing the working hours had a strong relationship with collaboration from all employees. However, it had a negative relationship with increased staff. Moreover, contracting with training institutions had a strong positive relationship with community partners and moderate positive with developing procedures. Finding a developer had a strong positive relationship with community partners which will enhance the selection of the orphans based on the prioritized orphan’s status by the system, but had a moderate relationship with marketing for charity. In addition, there was a moderate positive relationship between community partnership and marketing for charity and development procedures. Increased staff had a moderate positive relationship with marketing for charity, follow-up and updating content, and developing procedures; however, it had a negative relationship with collaboration among all employees.

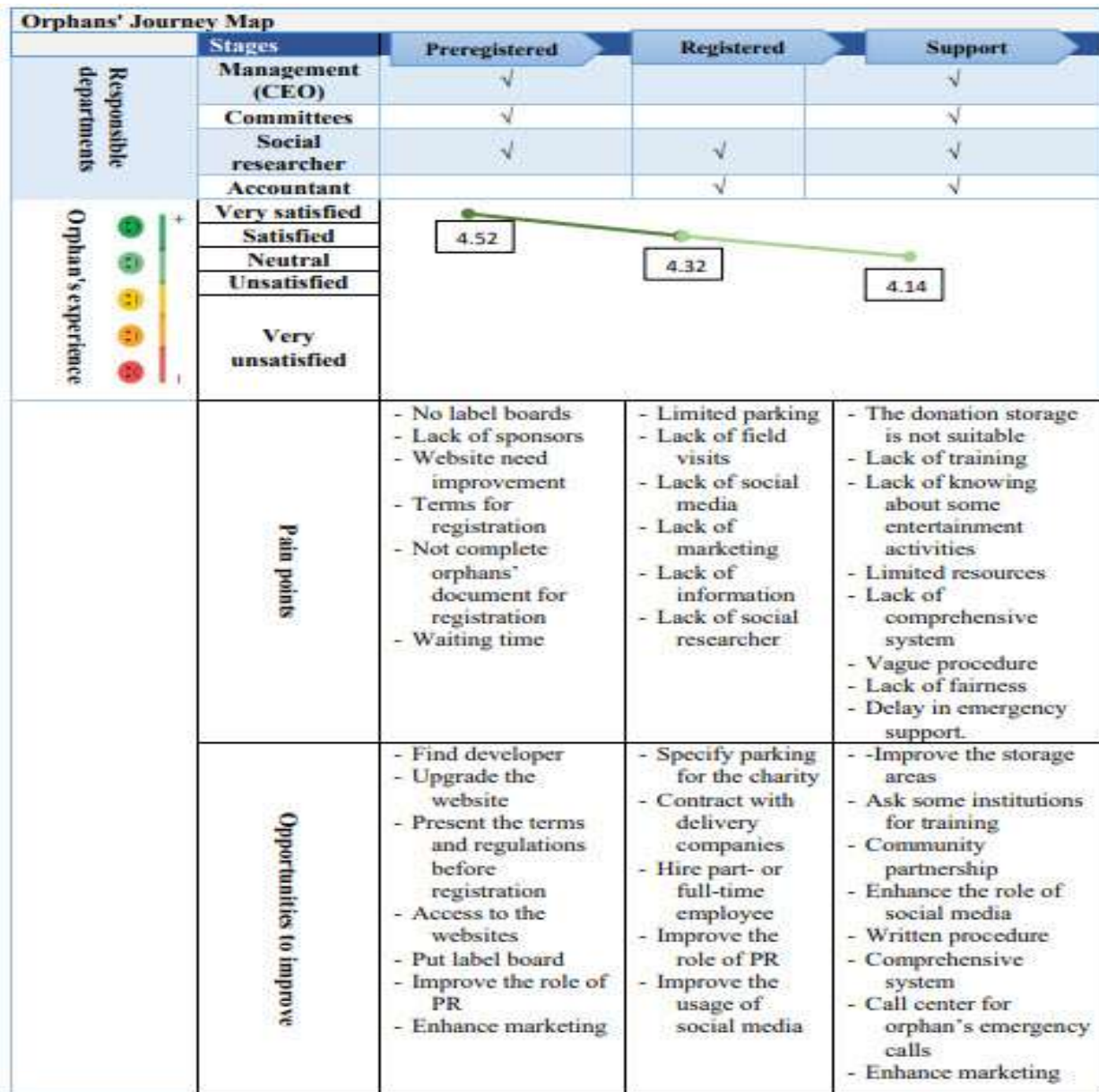
Additionally, a collaboration between all employees and the development procedure had a strong relationship and a moderate relationship with follow-up and updated content and developing selection mechanisms. Developing a selection mechanism had a moderate positive relationship with follow-up, updated content, and developing procedures. Moreover, there was a strong positive relationship between follow-up and updated content and technical support and a moderate positive relationship with developing procedures. Finally, there was a moderate positive relationship between technical support and prioritized orphan status by the system.

The customer competitive assessment section included the charity under study and two other charities competing for the same customer (orphans). The services were assessed against orphans’ need on a scale of 0 to 5.

**Orphans Journey Map Opportunities to Improve**

Based on these issues and implementing the quality tools to find solutions, this study completed the orphan’s journey by presenting the pain points and opportunities to improve in each stage of the orphan journey (preregistered, registered, and support) to enhance the quality of service, as shown in Fig. (3).

**Preregistered:** In this stage, the biggest problem faced by the charity was finding sponsors for orphans on the waiting



**Fig. (3).** Orphans’ journey map – pain points and opportunities to improve.

list. When evaluating the website, it was observed that it needed improvements, and the registration terms and documents must be presented on the first page. Additionally, some families suffered from the waiting time to accept their orphans. All of these problems could be addressed as follows:

- Increase the marketing for the charity through social media and advertising could help get more sponsors.
- Find a developer to improve the website for the charity and make it easy to register the orphan through it.
- Improve the role of public relations to find developers and sponsors for the orphans.
- The charity might provide in-person guides/ liaison agents (i.e., charity employees) holding sessions in

community settings such as mosques where orphan’s families/ guardians can meet with representatives face-to-face.

- Collaborating with local mosques and community organizations to support those families and find sponsors to them.

**Registered:** In this stage, the orphans are already registered and the charity has started to undertake responsibility for meeting their needs. The barriers faced by orphans’ families at this stage included limited parking, a lack of field visits, lack of social media access/ use, lack of information, and a limited number of social researchers. Some potential remedies for these issues include:

- Specifying and allocating parking for the charity.
- Contracting with delivery companies (i.e., Uber, Taxi, etc.) to facilitate access.

- Hiring part- or full-time employees or volunteers to undertake practical facilitation tasks
- Saudi universities should consider charitable involvement to get their students involved in the local community by helping others as part of their course requirement.
- Improving the usage of social media.

**Support:** The orphan families rely mainly on support they receive from the charity. However, they faced some issues and solutions revealed by this study to solve these issues in this stage. The results revealed that there are some issues related to this stage. The orphans families revealed that there are limited resources from the charity and the donation storage is not suitable especially when there is a food donation. Also, the orphans families stressed that there is a lack of training and lack of knowing about some activities. Moreover, the families stressed that there is a vague in the procedure of choosing the orphan to be sponsored by charity. These problems could be solved as follows:

- Improve the storage area of the charity with all the requirement need such as spaces, arrangement and ventilation.
- Contact with some training institution to train the orphans or their families to prepare them to be dependable.
- Improve the use of social media by updating the website and increase the marketing and the advertisement for the charity to attract more sponsors.
- The rule and policy should be written as well as the selection procedure should be clear.
- The charity should specify more than one person to respond to the emergency calls from the orphans family.

## DISCUSSION AND CONCLUSION

This study examined and appraised the journey of the orphan at the Asdiqa charity in Saudi Arabia. This study gathered information from a focus group and distributed a SERVQUAL-based survey with satisfaction-testing questions to gauge the orphans' contentment. In the academic literature, measuring service quality is a frequently discussed subject. From the survey and focus group, this study revealed some problems related to orphans' families. To solve these problems, the researchers analyzed the data and used the seven quality management tools: affinity diagram, tree diagram, PDPC, matrix diagram, interrelationship digraph, prioritization matrix, and QFD.

Based on SERVQUAL and QFD, a unique assessment and improvement technique was created through this study. There are research assessing orphans' needs, but there are no methodologies for monitoring and evaluating service quality in the literature. It is advisable to use SERVQUAL and QFD together, rather than separately. The technique's main benefit was that it made it possible to evaluate the service system thoroughly while considering orphans' requirements and service design.

QFD was used to ascertain the preferences of orphans and their support needs. The management function is crucial in improving the services offered to orphans. Placing a charity sign on the structure to make it simple for people to discover the site, establishing a system for prioritizing the situation of the orphan, creating a protocol and having it written down, building the selection process for aiding the orphans' family, and being concerned with staff training to advance knowledge and skills are all basic and straightforward solutions that can immediately achieve immense improvements in service quality, and facilitate access to charitable resources.

Human resources also greatly influence the improvement of the orphan journey and orphans' contentment. Enhancing the orphan's contentment is greatly influenced by employee cooperation, controlling working hours, establishing contact with training facilities, and hiring full- or part-time staff and volunteers. Social care facilities make every effort to ensure that the child's life is balanced, but they cannot take the place of the community's responsibility towards the orphan. Additionally, they help orphans to be happy and have a positive attitude toward life by minimizing the stigmatization and negative aspects associated with their socio-economic conditions (Alqahtani 2021).

The value of public relations (PR) to a charity has a strong effect on improving and financially supporting the organization. Thus, it plays a significant role in fundraising for charities and boosting financial performance. Furthermore, community partnership is crucial for the organization to support initiatives like free training and hiring a developer to improve the website.

Lastly, information technology and technical support offer the charity tools to enhance its system, website, and social media. The charity's basic system (using Microsoft Excel and Word), as used by the social researcher (SR), needs improvement, to create a comprehensive system to share the information between SR and management. Also, building a system could enhance fairness in choosing orphan families who need more support. On the other hand, improve an electronic system for communicating with other government agencies (e.g., Hafez, Human Resource And Social Development, Saudi electricity company, or Tajeer) could alert concerned stakeholders to orphans' situations, instead of sending an email and waiting for a response. Top management commitment to implementing those suggestions by assigning enough resources and establishing new standards for service quality is essential.

The orphans' families rely mainly on support from charity. In Saudi Arabia, orphans are nurtured and housed in social care facilities, to prevent loss and diversion if one or both of an orphan's parents are absent, in addition to cases with the absence of relatives, or the breakdown and divorce of families. The need for social support is even more urgent for orphans who have lost one or both parents. Financial and material support is often given priority by families of orphans, while some basic elements such as psychosocial needs that affect the mental and emotional development of orphans are ignored, thus orphans need perceived social support that promotes mental health and development (Caserta et al. 2017). A municipal institutional approach must be revised to

provide more family-like conditions for orphan care, incorporating actual family and community members when possible, in order to promote a healthy social environment and improve children’s quality of life (Huynh et al. 2019).

The standard of living for orphans is positively correlated with such services. Decision-makers and experts in the care and rehabilitation of orphans should implement the suggested program to raise their standard of living. Additionally, the program should be a crucial component of future initiatives for orphans’ rehabilitation and education (Alqahtani 2021).

**THEORETICAL IMPLICATIONS**

The majority of previous research has concentrated on how to evaluate service quality in with different application. However, the focus of this study is based on an invitation from the Asdiqa charity to evaluate the service quality and provide suggestions to the charity to improve its service quality. Therefore, this study used a comprehensive method which is based on the SERVQUAL scale and QFD. The integration between them is used by the previous studies of Altuntas and Kansu (2020), Camgöz-Akdağ et al. (2013), and Gavahi et al. (2022). The suggested approach offers a comprehensive assessment of the service system, taking into account orphans’ needs to close the service gap. According to our knowledge, this is the first study to employ an integrated strategy based on the SERVQUAL scale and QFD to evaluate the services provided to orphans. In order to fulfill their strategic role for orphans, non-profit organizations need continuous improvement tools. Sustainable service delivery may be achieved via the application of the suggested methodology with integrated methods as a tool for continual improvement.

**MANAGERIAL IMPLICATIONS**

The decision-makers and administrators of TSOs exert enormous effort and conduct extensive studies to determine the most effective ways of exceeding orphans’ needs. It is anticipated that using the SERVQUAL scale and QFD can improve service quality within a framework to improve the quality of services provided to orphans. Charities need to create an action plan, which may assist management and decision-makers in bringing their goals to reality and promote organizational efficiency and accountability.

**LIMITATIONS AND FURTHER RESEARCH**

This study has some limitations, the most notable of which is that it only analyzed the case of orphans related to one charity. However, the approach introduced in this study can be generalized and applied to different TSO. Also, future studies could implement the QFD and SERVQUAL together, to evaluate service quality from different perspectives (e.g., widow and humanitarian). Orphans generally require intensive support services from charities, thus an online survey could be prepared to gather basic and voluminous data from orphan’s families automatically. The SERVQUAL was used to assign a weight to each orphan’s requirements in this study. In addition to the SERVQUAL, multi-criteria decision-making methods such as AHP can also be used to assign a weight to each orphan’s needs for future research.

**APPENDIX A**

Item	Sentences
<b>Tangible</b>	
TAN1	There is enough parking at the headquarters of the charity in the branch I visited recently
TAN2	There is a suitable place to wait at the headquarters of the charity that I visited recently
TAN3	The charity takes care of the cleanliness of the premises.
TAN4	The in-kind aids are well packaged.
TAN5	The place designated for receiving in-kind items (food baskets, dates, Eid clothing etc.) is suitable.
<b>Empathy</b>	
EMP1	The charity gives special attention to each orphan.
EMP2	The charity provides psychological and moral support to an orphan’s family.
EMP3	The charity provides financial support to the orphan’s family.
EMP4	The charity holds recreational activities for orphans from time to time.
<b>Reliability</b>	
REL1	The registration procedures for the orphan sponsorship program were carried out with ease.
REL10	Every time I visit the charity, I receive the same quality of service.
REL2	The orphan was joined in the sponsorship program in a short period of time.
REL3	The charity disburses the amount of orphan sponsorship on a monthly basis at the specified time.
REL4	The charity meets the date of providing support to the orphan’s family.
REL5	The charity keeps records of the orphan’s social and monetary status.
REL6	The charity provides additional material assistance to orphans when needed (electricity bill payment, house rent payment etc.)
REL7	The social researcher of the charity makes field visits to the homes of orphans’ families to ascertain their needs.
REL8	The charity responds to the orphans’ families during the official working hours.
REL9	The service provided during my visit to the charity suited my needs.
<b>Responsive</b>	
RES1	The charity responds to the requests of the orphan’s family through various communication channels (messages, phone calls, social media).
RES2	The charity provides immediate financial assistance in emergency situations.

Item	Sentences
RES3	Charity employees respond to complaints submitted by the orphan's family.
RES4	The charity's employees are always ready to help the orphan's family.
<b>Assurance</b>	
ASS1	The employees of the charity are trustworthy.
ASS2	I trust the fairness of the charity when distributing in-kind aid among all families.
ASS3	I trust the charity's employees to keep my information secret.
<b>Website</b>	
WEB1	The charity's website is easy to use and browse.
WEB2	Ease of using the website in registering orphan's data.
WEB3	In general, I have a successful experience when browsing the website.
<b>Additional Services</b>	
ADD1	I would like the charity to deliver seasonal in-kind aid to the home.
ADD2	I would like to provide training courses for orphans.
ADD3	I would like to provide training courses for the orphan's family.
ADD4	I would like to provide psychological counseling on a regular basis.
<b>Customer Satisfaction</b>	
CS1	I recommend others to deal with this charity
CS2	I am satisfied with the services provided by the employees
CS3	I am satisfied with the moral support provided by the charity.
CS4	I am satisfied with the financial support provided by the charity.
CS5	In general, I am satisfied with the services provided by the charity.

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