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A Review of Children's Day-Care Centers Systems

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ABSTRACT

The increasing need for daycare service among societies has become a desirable choice by worker parents. This need was met in several nations by providing high-quality daycare services under strict regulations. The demand on daycare services is currently in raise in Saudi society due to the recent transformation that gives women more opportunities to work. The aim of the research is to study the children's day-care centers systems' that can improve and facilitate the daycare centers services such as, check-in/out features and easy parent communications. Keeping parents informed of children progress and how to impede the idea in Saudi Arabia society. Moreover, the research focuses on eliminating the traditional outdated ways of storing and retrieving files, which is used widely in the Saudi daycare centers. In addition, the research highlights different smart features that can be used by the daycare centers, such as a smart card for each child connected to the daycare system. In this case, the card helps in the picking up and the dropping off child process, which is faster and easier, it also will increase the child security. The study works to measure the willingness and the ability of both the day-care centers employees and the parents who have children in the day-care centers in Saudi Arabia to deal with an electronic system instead of the traditional ways. The aim of this research is to increase the quality of all center's processes, services, activities, registration, inquiries, supplies, storing and retrieving files, training workers, infrastructure, etc. However, the research might be limited to daycare centers in Jeddah city in Saudi Arabia.

Key words: Daycare center, Daycare electronic system, Daycare management system, Monitoring system.

1. INTRODUCTION

Early childhood years are an important stage in the development of children's personality to grow up with mature and effective individuals of society[1][2]. According to UNICEF the effective care in the first five years of life includes parental guidance, feeding practices, and interactions between caregivers and the child [3]. All of these practices play significant roles in the information of the child's personality and development properly. Although this kind of practice is mainly done by families, with the social need to look after their children while they are at work led to an increase in the availability of daycare centers in societies [4]. One of the most common types of daycare of children are center-based care and family daycare that refers to the care of children in private homes that have been supervised by a governmental staff or social organization [5][6]. Major types of daycare centers in Saudi include private commercial, nonprofit, and those under the ministry of education [7]. Although this claim is a bit outdated, but there is a lack of finding a recent study to show the current status of the day care services in Saudi Arabia [8]. The increasing need for families among societies to daycare service has become common mostly when both parents are working during the daytime[9]. This need was met in several nations by providing high-quality daycare services. However, several childcare centers in Saudi still use paperwork and rely on less professional tools such as text messages and emails for their daily operations and communication. All this time is wasted using traditional ways. Instead, it could be utilized in developing electronic systems to increase the process management and work efficiency in the daycare centers. Recently the use of electronic systems in daily life has become indispensable, it has facilitated communication, access to information and improved the educational field. The electronic system in childcare centers seeks to find solutions to make the service of the centers easier, faster and safer.

This research aims to study the international systems and their possibilities that facilitate the daycare center services and keep the parents updated about everything related to their children. Some of these services are check-in/out features and the possibility of child tracking, easy parent communications, and activity logging for digital daily sheets. In a sense, it can keep the parents updated and reassured about their children. As well as, how to execute and develop such a system in Saudi Arabia to better help daycare centers everywhere.

In the research a sample of data will be collected of participants (managers, workers, parents) from Jeddah daycare centers. In addition, a quantitative and qualitative research methods will be used in order to analyze and explore what type of technology should be used currently in the daycare centers in Jeddah and how to improve it. This method concentrates on data collection from managements, babysitters and parents through online questionnaires. Then the paper studies, measures the data, identifies the causes of the problem and presents recommendations about how it can be managed. These topics will be discussed in more details

through this research. Sufficient information will be presented about the existence or absence of systems, how to develop and use them and identify the reasons of not using systems effectively.

2. LITERATURE REVIEW

2.1 The term and types of daycares

A vast number of families' lifestyles is changing, as a result of different factors, such as the situation of both parents tend to work during the day. This change led to an increase in the demand for someone to take care of their children and infants. Therefore, an increase of daycare centers is found. Daycare centers, also called day nursery, nursery school, are defined as an "institution that provides supervision and care of infants and young children during the daytime, particularly so that their parents can hold jobs" [10]. Previous studies conducted in U.S have found that in 2018, the number of families that have children below the age of 18, was 33.6 million families, and the percentage of families that have at the least one parent who's employed is 90.8%, which is higher than the previous year by 0.6%. Besides, there is a 97.4% of married-couple families that have at the least one parent holding a job, and 63.0% of them have both parents holding a job. Among families that have only a single parent, 84.2% of them have employed fathers, and 74.1% of them have employed mothers [11]. On the other hand, there is a lack to find academic studies to explore the situation in Saudi Arabia regarding working parents. Nonetheless, in 2015 the ministry of education announced that, there is more than 2,000 nurseries in different countries of Saudi Arabia that are prepared to receive 18,000 children, which will be supervised by 2,185 administrative employees, 2,709 professional babysitters, and 1,355 other employees[9]. All of the numbers mentioned above demonstrate the need for well-managed daycare centers and electronic systems to help the parents and keep them updated about their kids.

2.1.1 Types of daycare and childcare in United Sates

There are different types of children's daycare centers in the United States, here are the types for further knowledge and understanding:

• Center-based care: Also known as nursery schools, preschools, daycare or childcare centers. It supports children's group's care. Parents choose this type since it is reliable and safer due to regular state inspections, and they believe in large groups of children, and the presence of multiple caregivers. In addition, they are convinced that these centers are a better environment for learning [12]. This type can have various types of sponsors, such as; universities, schools, independent organizations, and social service organizations. The National Association for the Education of Young Children (NAEYC) has released recommendations for daycare centers organizations and their structuring, especially the ones that care for toddlers and infants. The NAEYC recommendations are considerably defined as the minimum standards for daycare centers to accommodate[7];

• Family childcare providers: This type of care is for children care but it's in the provider's homes [13]. The majority of U.S states require for the providers to be registered officially and following state regulations if they're watching more than four children to ensure minimum nutrition, safety and health standards. Also, they are obligated to have criminal background checks. Parents may choose this type because they believe that single caregivers, smaller groups are better for their children and they also favor that their children stay in an environment that is similar to home. This choice of care is considered to be more flexible and cheaper than center-based care [7];

• In-home caregivers: It is done in the children's own homes. It involves living-in/out babysitters and nannies [14, 15]. Many of these caregivers are not regulated by the state, however, most of the nanny and babysitter agencies are subjected to state regulations. Few states have minimal safety training and health requirements, on the other side, many states require criminal background checks so that caregivers receive their subsidy payments [7];

• Care provided by relatives, friends, and neighbors: Is also another type of care, which can do in the children's or the caregiver's homes. It's mostly known as kith and kin care [7].

2.1.2 Types of daycare and childcare in Saudi Arabia

The local daycare market of Saudi Arabia shows three types of daycare and child-care centers that are released by The Ministry of Education [16], which are:

• Daycare centers under educational government sectors (the ministry of education): Children of government employees parents have the priority to be registered in this type of daycare centers;

• Daycare centers under educational private and foreign sectors: Accept to register children of the local community, with priority to those with employed parents in this type of sectors;

• Independent daycare centers, usually under private sector (private and foreign): Accept to register all children in general.

• The ministry of education has released in 2018 an organizational guide for daycare and kindergarten centers in Saudi Arabia, the guide contains all the conditions and health and safety regulations for daycare centers [16].

2.2 Technical information of daycare and childcare

2.2.1 Technical research papers of daycare and childcare internationally

There is a lack of technical information on daycare and childcare systems, however, some studies and online systems of the daycare were found. Some papers focused on introducing a technical solution to daycare centers, to improve and facilitate one or more of the daycare center's requirements and needs. One of which is the study [17] which demonstrates the development of an interactive system referred to as "Meru-Robo". The system consists of an Action Switch Platform (AcSP) established by (NTT Laboratories) for dialog

exchanges with a personal robot (PaPeRo) established by (NEC Corporation) using text message communications of cellular phones. The development of the digital log system Meru-Robo, is an interactive network-based prototype system for child watch and enables the parents to be part of their children daycare activities. This robotic system provides asynchronous communication between children, families, and nursery teachers. The Meru-Robo system was implemented and applied in two daycare and childcare centers, and a trial was done with the help of twelve families. The paper found that parents in distant locations, whenever desired, they can have much better communication with their children, and get details about their activities and movements [17].

In addition, Zhang, B., et al. proposed a robust tracking system for children behavior by applying the multiple Kinect sensors for the childcare assistant robot. The system is able to track and recognize each individual. The children are identified by combining their features, such as; face, color, and motion. The goal of this system is to support the teachers of nurseries with their daily work in the center and to improve school environments for children [18].

Fathoni, K., I. Prasetyaningrum, and C.L. Hariyati. have focused on a technical solution that benefits the parents. Due to the lack of information regarding daycare centers, profiles and locations, parents are in need for a software solution to provide this kind of information and knowledge, thus giving families advise for the best daycare centers. The proposed decision-making system in this study was offered. The system was implemented using Analytical hierarchy Process (AHP), that is a decision making multi criteria method. This system is able to provide parents with all the information and suggestions about the best daycare centers that satisfy their needs[19].

Moreover, some papers concentrated on the health aspect[20], such as the "KiMS", which is a kid's health monitoring system. This study presented an integrated system to monitor children at the daycare centers, thus, facilitating suitable care of children's health and their wellbeing. The system includes detection of symptoms in early stages for different diseases, provides monitoring post treatment and motivate healthy activities and habits. It is able to detect a variety of audio signals that are relevant, such as; sneezes, cries, and coughs, by using a wearable acoustical sensor that has the ability to process digital signals. In addition, the system is equipped with a wearable pulse rate, body temperature sensors, and a Bluetooth unit to communicate activities and alerts on a timely basis. The data of the children can be used by parents, and specialists of the center, to better understand the cause of symptoms and encourage healthy habits [21]. In the same sense, another study which was projected to improve and optimize the children's healthcare quality, child neglect or abuse anticipation, enhancement of children's development, and other social values childcare activities. All of which encourage the implementation of Electronic Child Records (ECRs). The daycare and stakeholder providers who are concerned about the wellbeing of children should have an ECR system in place, to effectively and efficiently do the work. However, data that are personal can only be given to a certain extent, to avoid conflict with ethical, legal values and regulations. These clarifications underline the need to carefully design and introduce the ECRs. The paper introduced the process of gradual design of ECRs in both the institutional arrangements and technical issues [22].

2.2.2 Technical research papers of daycare and childcare in Saudi Arabia

There is a substantial absence of technical research papers regarding daycare and childcare centers in Saudi Arabia. Hence proving the need of this paper to shed the light on daycare and childcare centers in technical and technological aspects.

2.2.3 Ready to use international software systems of daycare

As utilizing Information and Communication Technology (ICT) solutions in the day care sector would facilitate and boost the outcomes of this sector for both businesses and customers, including parents and their children [23]. A considerable number of daycare software solutions that are ready to use and maintain by daycare administration and parents were found. These software solutions are available online to buy and use immediately by daycare centers, to assist with the center's daily operation and management necessities and to keep the parents connected with the centers. According to [24], an extensive comparison of 42 daycare software systems was conducted. They determined the pricing value based on this extensive research and comparison of the systems, in addition the other information. Table 1 shows their comparison of the best seventeen systems according to user's ratings and reviews, their features, price, platforms, deployments and business size (small, medium, large) is demonstrated.

3. METHODOLOGY

3.1 Research Methodology

A mixed research method is used in order to reach the aim of the research: quantitative and qualitative. The quantitative research method has some characteristics, such as predetermined, performance data, attitude data, observational data, and census data statistical analysis. It is very effective and infallible at answering such questions as what percentage, to what reach, how many, and how much [25]. On the other hand, qualitative research method helps in analyzing open-ended questions, interview data, document data. Based on these characteristics, the quantitative and qualitative research method were chosen in this paper to get the best data, percentages, feedback and answers regarding the employment of software systems in the daycare centers in Jeddah city.

Daycare centers systems became highly demanded to increase the centers work quality whether in administrative work, electronic transactions or childcare etc. [2].

Table 1: Comparison of daycare software

Software name	Description and features	Raring and reviews / Platforms/ Deployment/ Business size
Brightwheel	Brightwheel is a software designed to improve the programs of "daycare, childcare and preschool", it helps to efficiently manage with less manual work these centers. It gives more time to those who are looking after the children and their wellbeing. The main features of the software are: (parent communication, simple logging for the daily digital sheets and check in/out function). Plus, it includes all of the business back end tools (data management, billing and reports).	4.66 stars, 2,428 reviews / Mac, Win, Linux/ Cloud/ S, M, L
LifeCubby	LifeCubby is a childcare developed to manage early education programs. Main features consist of parent communication, check-in/out, meal tracking, payments/billing and reporting. It keeps the parent connected with their children by providing videos and growth documents. The software includes lesson plans, portfolios and assessments, calendars and daily sheets. It makes the parents to be updated all the time and be connected with teachers. The software also lets users import data from other childcare systems.	4.33 stars, 1,424 reviews/ Mac, Win, Linux/ Cloud/ S, M
Procare	Procare is a management system for daycare, childcare and child activity school centers. The software formats can help the centers to choose the modules they want and need. It manages employee data, activities, meals, accounting, payroll, attendance, expenses, and track family data. It also contains modules for parental engagement, management of classrooms and collection of tuition. The software is developed to automate administrative tasks and data management and collection.	4.64 stars, 1,143 reviews/ Mac, Win, Linux/ Cloud, On premise/ S, M, L
HiMama	HiMama is a childcare management system to help childcare centers and administrations manage their daily tasks, such as planning of programs, reporting, and interaction with parents, etc. Key functions include lesson scheduling, employees attendance and it can generate reports regularly when user wants that also can be customized. The software also provides a photo and video uploads in real time, calendar management, parents SMS notifications, activities and meal tracking, training for employees, online registration, import data and document management.	4.52 stars, 928 reviews/ Mac, Win, Linux/ Cloud/ S, M
SmartCare	SmartCare is a software system developed to help childcare administration, teachers and parents and keep them connected. It's for K-12 schools and childcare centers in the U.S. The software includes payment and billing functions done via the system. Parents can share videos and photos by connecting their social media accounts into the system. In addition, they can create libraries for their children to upload content and share with others on social media. It also helps parents to track the activities of their children and it sends them alerts for pickup. The software includes other features such as records storing for children and family data, family enrollment and accounting.	3.83 stars, 259 reviews/ Mac, Win, Linux/ Cloud/ S, M, L
Childcare Manager	Childcare Manager is a software system developed for childcare centers. It comes with these functions: contact management, tuition collection, accounting, enrolments, and attendance. The system includes eight modules: (my center, employee, accounting, payroll, child, family, lead center and reports). The functions also include: (managing employees schedules, tracking of payer notes, employee report, billing, keeping track of receipts and deposits). It also can restore, backup data, grant user access and privileges, enables creation of lists for children and related family members in the database.	4.26 stars, 205 reviews/ Win/ Cloud, On premise/ S, M
Kaymbu	Kaymbu is a documentation software developed for parents, teachers and schools. Its main functions include photo-books, messages, assessment, and documentation. It keeps parent engaged and updated by enabling	4.61 stars, 140 reviews/ Mac, Win, Linux/ Cloud/

	visual messages that keeps parent updated of their children growth and learning. It keeps the parent connected with teachers through documents, photos and videos in the classrooms. It also establishes good parent engagement through video, photo and story sharing from the classroom. It aligns the curriculum with classroom observation to track the student's development and share that with their families.	S, M
Daily Connect	Daily Connect is a software solution for managing parents and childcare centers communications. Main features include immunization records, daily reports, registration, text messages and billing. It allows users to track attendance and it has push notifications and automated emails to inform the parent about important events. It can generate reports about daily, weekly and monthly activities. The system is developed for small and midsize businesses.	4.76 stars, 123 reviews/ Mac, Win, Linux/ Cloud/ S, M
Kinderlime	Kinderlime is a childcare software platform for daycare, childcare, and after schools programs. It contains the following functions: (photo sharing, parental communication, time-clock of staff, reports, bills, attendance, and sign-in/out). It also helps in maintain pickup authorizations of kids, and the parents will be notified of pickups. The software can also be used to share parent messages, newsletters, photos, videos, and manage multiple locations and centers. It is compatible with android and IOS.	4.63 stars, 87 reviews/ Mac, Win, Linux/ Cloud/ S, M, L
Sandbox Child Care Management	Sandbox Childcare Management is a management software for childcare and daycare centers, by helping the centers with daily operations through functions such as: (payment processing, tracking of attendance, keep track of records). The software includes some modules, such as: (reports, bills, registering, a time clock, dashboard for administration). Also, it helps with payments, invoices delivery, parents email notifications, check-in/out processes. It also has an app for the teachers that helps them with daily logs, uploads activities and photos, communicates with parents, views children's information and tracks staff attendance.	4.92 stars, 63 reviews/ Mac, Win, Linux/ Cloud/ S, M
Amilia	Amilia is a software solution, developed to help businesses to collaborate with members by these functions: (reports automation, fundraising activities, payments, billings, registration, share information with targeted audience, events and activities, creating forms for classes, keeps track of members information, send emails either or mass or individual, and announcements). The software is primarily designed for small and midsize businesses.	4.52 stars, 50 reviews/ Mac, Win, Linux/ Cloud/ S, M
KidReports	KidReports is software for managing childcare centers to enable parental and classroom engagement through tracking the time of dropping off children, parents can view their children photos and videos in real time, and view activities histories. The school can assign authorization and permissions to members. It allows schools updated records and reports daily, manage attendance, and plan their activities. It also enables data storage and access to manage quality assurance.	4.15 stars, 34 reviews/ Mac, Win, Linux/ Cloud/ S, M
CommunityPass	CommunityPass is a school management system. It's designed to help the needs of teachers, parents and different types of schools. It helps in managing attendance. It has comprehensive reporting features to build reports. Users also can create accounts and manage them and helps with donation management.	4.63 stars, 32 reviews/ Mac, Win, Linux/ Cloud/ S, M, L
PREto3	PREto3 is a software system, to assists schools, preschool centers, daycare and childcare centers. Key functions include: (student enrolment, alerts, messages, attendance management, billing, events reminders, payroll, tracking of working hours, and student and staff schedules). It helps parents keep track of their children's daily activities. The system also sends check-in/out notifications to parents.	4.33 stars, 24 reviews/ Mac, Win, Linux/ Cloud/ S
Jackrabbit Care	Jackrabbit Care is a childcare management system. It helps users to manage communications, billing, scheduling, and attendance. The teachers can check class schedules and students' activities. It enables parents, students and teachers to view classes on a virtual calendar and add events and activities to these calendars. Users can generate lists, view	4.40 stars, 20 reviews/ Mac, Win, Linux/ Cloud/ S, M

	attendance, create bus rosters, end of year statements and financial reports. Parents can make payments, view statements, update information and create portals. It also includes healthcare and immunization management.	
Kangarootime	Kangarootime is a childcare management system for parents, owners, and directors. It includes the following features: (accounting, class management, employee management, record keeping, tuition, billings, daily messages, photos, emails, feedback, track check-in/out, clock-in/out of staff, employee attendance, calendar functionalities, and accounting).	4.42 stars, 19 reviews/ Mac, Win, Linux/ Cloud/ S, M
myKidzDay	myKidzDay is a software that helps parents, daycare owners and maintains communication with the parents. Main functions of the software include classroom management, document sharing, notifications, alerts, reports, and attendance. It also provides daily information, reports, assessments, videos, documents, and pictures to parents. In addition, it provides records and healthcare assessments. The owners can also monitor parents' and teachers' communications.	4.37 stars, 19 reviews/ Mac, Win, Linux/ Cloud/ S, M, L

This paper will detect systems and processes of the daycare centers needs through planning, systematic analysis, data collection, data analysis and discussion.

3.2 Data Collection

In order to reach the target participants, an online Google form was used. The sample contained daycare centers in Jeddah city and a group of parents in the same area, take into account the diversity between the staff and parents. It took around two weeks to finish collecting the data. Two types of surveys were made: The first survey targets the daycare center workers for both the management and the babysitters. The second survey target the parents; it helped in getting a clear picture of their experiences with daycare centers.

The survey of the workers was sent to around 30 persons from different daycare centers to be filled out, but only 22 participants had filled it. The worker's questionnaire aim is to get data about the number of daycare centers that are using an electronic system and the kind of methods (electronic or manual) used by those centers in the registration, storing and retrieving of files. Also, to assure the willingness of the workers to work with an electronic system. Further to collect the workers ideas about the requirements and features that must be included in the system and the kind of problems that can be solved by using an electronic system.

The parents' questionnaire was sent to around 250 parents (mothers and fathers) dealing with different daycare centers in Jeddah city to be filled, 224 participants had filled it. The parents' survey aims to get information about the ways being used in the centers for the registration, storing and retrieving files. In addition, to know their opinions about the benefits, drawbacks, difficulties of using an electronic system in daycare centers, and what are the important requirements and features that should be added to the system. Moreover, knowing the significance of having a system and a smart electronic tool (e.g. electronic bracelet) to monitor children's activities and whereabouts inside the center.

Both of the questionnaires have identified four main aspects which can be highlighted as follows:

(1) The importance of having an electronic system in the daycare centers.

(2) The willingness of dealing with an electronic system.
(3) The important requirements that should be in the system to serve the daycare center in a better way.
(4) The differences that will occur when using a system in the daycare centers.

4. DATA ANALYSIS AND RESULTS

4.1 Discussion of the Quantitative Data

After data collection in both questionnaires. The results from the workers' survey indicated that 66.7% of the daycare centers did not have an electronic system and 85.7% of their work is done manually. Moreover, 90.5% of the workers find it is very important to have an electronic system in their workstations and that they have a willingness to use it, where 81% think dealing with an electronic system is much easier than the traditional ways.

On the other hand, 80.3% of the participants in the parents' survey elucidated the lack of electronic system in the daycare centers they are dealing with and 83.9% of the center transactions are done manually. Moreover, 93.2% of parents show a full willingness to deal with an electronic system for the daycare center and 95.2% think it will be easier to deal with a system.

Furthermore, 94% of the parents find that it is a great idea to have website and smart electronics (e.g. electronic bracelet) in the centers, that facilitates the monitoring of their children's activities inside the center and accelerate the process of taking your child to and from the nursery center, thus increasing their engagement with their children.

4.2 Discussion of the Qualitative Data

This section presents a discussion of the data and how it creates a strong base to reach the aim of this research. It was clear that by using an electronic system in daycare centers will help to save time, cost, and workers' effort. In addition, will improve the way of storing or retrieving data. Moreover, it will increase data security and availability.

Parents and workers were also asked about the important requirements to have in the systems, both would like to have a camera access, a schedule for center's activities (daily,

weekly, monthly), organize the bills, registration (attendance, absence, delay, departure), save transactions, communication methods, social media accounts, staff tasks, and health and nutrition record for every child.

One of the limitations, which the staff thought that it could held back this system is the cost and training. Participants of the surveys shared the improvements that will occur when using a daycare system, such as reducing a lot of time and effort in registrations, accomplish tasks faster, feeling satisfied and reassured when it comes to children, avoiding human mistakes, easily saving and access to data, and increase the daycare centers quality. Parent's shared the problems that they face when dealing with daycare centers, like the delay in registration and the checking-in and out of their children daily in the centers, the lack of knowledge of children's activities inside the centers, and the lack of a quick ways to communicate with babysitters in emergencies situations. Some of the daycare centers stated that because of the situation of the devices and network workers training, they are still not ready to deal with an electronic system yet.

4.3 Results

This section presents the final result of using electronic systems in daycare centers in Saudi Arabia depending on the two questionnaires, which were built for the workers working in the daycare center and for parents dealing with those centers. During data collection phase, we found that some of the daycare centers that participated in the survey use some programs and applications for accounting, billing, and worker's attendance, such as excel sheets, Word, etc. while most of the daycare centers do not use any electronic system and some do not even have computer devices or network connections. According to hardware and software issues, many daycare centers are still not willingness to use electronic systems. On the other hand, most of the workers and the babysitters have shown a full interest and willingness to use electronic systems in the baby centers.

Based on all of the above and the data received from participants, it proves the need for applying a software solution in daycare centers, and it demonstrates how it will improve the work quality and performance in the daycare centers. Also, it shows the many ways that it will benefit both parents and daycare centers. Thus, confirming the need and objective of this paper.

5. LIMITATION OF THE STUDY AND FUTURE WORK

Every study has limitations. These factors might impact the findings of the study. However, by bringing out limitations` that would indicate the level of undermines the research value. In this research, the limitations can be highlighted as follows: First, lack of previous research studies on daycare systems, especially in Saudi Arabia. Second, time constraints, which has resulted in fewer participants in the employee's questionnaire and no interviews were conducted.

Therefore, future studies on this topic should be conducted and expanded especially in other cities in Saudi Arabia. Also,

conducting the interviews will lead to more accurate and clear results.

6. RECOMMENDATIONS

Based on the data analysis results of this study, there are some recommendations, which can be highlighted as follow:

- Daycare centers should provide electronic systems to make center services easier, faster and safer;
- Electronic systems have vast potential in daycare centers that may facilitate their operation and increase their quality. Therefore, owners and managers of the daycare centers should be educated enough on using these systems;
- The systems of daycare centers should include at least these main features such as parent communication, check-in/out, meal tracking, payments/billing and reporting.
- There is currently a lack of training and it is one of the barriers for using electronic systems in daycare centers, thus, increasing employees' training in the use of electronic systems is imperative;
- It would be useful to contract an IT service provider, to assist with the implementation and maintenance of applying the daycare information system.

7. CONCLUSION

This paper studies the needs of the electronic systems for children's daycare centers in Jeddah in Saudi Arabia, the extent of the willingness of workers and parents to deal with the systems, the reasons that limit the existence of systems and the requirements that should be in the systems according to the increasing need of these centers. Where the usage of electronic systems instead of the traditional manual ways will increase the quality of all center's processes, services and activities.

The development of electronic systems in daycare centers requires a good understanding of the factors and requirements that lead to successful use of electronic systems in the center's operations and services. Although effective use of electronic systems in daycare centers can have enormous benefits, systems in centers have been discussed earlier in this paper not fully exploited. These benefits include helping employees to save time, cost, and effort, make storing or retrieving of data much easier and faster where it will increase data security and availability. In addition, helping parents to communicate with the daycare center easily, keep them engaged and updated about everything related to their children. Although system cost and workers training might stand in the way of using electronic systems in daycare centers, the implementation of the electronic systems can be possible if these barriers are addressed appropriately.

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