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Quality of vaccination session in the primary healthcare setting at Saudi Arabia

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ABSTRACT
Vaccination is a major health promotive weapon. Hence, proper vaccination session management practicesis the core for successful immunization, reduction of vaccines wastage rate and its associated cost which drain country resources.The aim to assess the Quality of vaccination session in the primary healthcare setting at Saudi Arabia
Research design: A descriptive cross- sectional research design was utilized.
Setting: This study was conducted in vaccination clinics at the following settings ; King Faisal Residential City Clinic (Jeddah Housing); King Khalid Residential City Clinic (Taif Housing); Al-Madena Al-Monawarh Housing Clinic; Khozam Clinic; Bahra Clinic; Um Assalam Clinic; Sharia Clinic; Yanbu Clinic; Jeezan Clinic affiliated to the Ministry of Health of Saudia Arabia.
Subjects: The study comprised all of the healthcare provides(350) who worked in the immunization clinics of the family health centers that were previously chosen.
Tools of the study: Tool I: general vaccination family center questionnaire; Tool II: quality of Vaccination Session Management Practices.
Data collection : The researchers observed the vaccination session using tool (II) and gathered information about the management practices of the vaccination session for each vaccine administered to every child during the vaccination session (8.30 am:12.30 pm). Over the course of one month (January–February 2024), data was gathered from the chosen family health centers twice a week.
Results: this study clarified that the Multi Dose vaccination Policy (MDVVP), Vaccine Vial Monitor (VVM) policy, and monthly report for vaccination usage rate were all in written form at all of the family health centers under study. None of them, meanwhile, provide a monthly report on the rate and trends of vaccine waste. Furthermore, 90.8% of the immunization sessions under study had moderate levels of vaccine management techniques, whereas 2.2% had high levels, Low preparation practices were found in all of the immunization sessions under study; however, moderate (74.0%) to high (21.7%) conducting practices were noted. However, there are high concluding procedures in every immunization session.
Conclusion: Most of the analyzed immunization sessions had mediocre to poor results. overall management procedures for vaccination sessions, based on the current study's findings. Specifically, the preparatory practices for every session were low, and most of the conduction practices were moderate.

Keywords: Quality , Management, Session, Vaccination, Primary Healthcare Settings

INTRODUCTION

Immunization is regarded as an economical way to lower the number of diseases and illness-related fatalities. Vaccine hesitancy, however, poses a threat to both this endeavor and global public health. One Vaccine hesitancy is defined as "a delay in acceptance or refusal of vaccines despite the availability of vaccination services" by the World Health Organization's (WHO) strategic advisory group of immunization specialists.2.It is extremely helpful in eliminating and controllingchildhood infectious diseases and is estimated to prevent about

2-3 million deaths/year. Also, it is a cost-effective tool with verified strategies which increase itsaccessibility to vulnerable and unreachable population. Improved supply and logistics systems, international funding and cooperation are crucial to cover the annually estimated 22 million children in developing countries ((Pedersen, et al.,2020; Torres, et al., 2020).

An effective immunization program must include both the right vaccination and cold chain management. Assuring the safety and efficacy of vaccinations is largely dependent on vaccination session management procedures, which include planning, carrying out, and wrapping up the session Torres, et al., (2020, Nesti, &Goldbaum, (2007). In order to create a safe immunization site, it is first necessary to prepare a sufficient quantity of vaccines, as well as safe injecting supplies, safe disposal containers, reporting systems, and a sufficient cold chain for vaccine preservation. Torres, et al., (2020, Nesti, &Goldbaum, (2007)

Second, the foundation for safe vaccine administration procedures and a reduction in vaccine adverse events is session conduct. It starts with methods of communicating with carers, followed by the evaluation of newborns prior to vaccination, the delivery of vaccines, and the recording of administered vaccines in the child's vaccination card and tally sheet. Thirdly, it is essential to follow session closing procedures to guarantee that vaccines and equipment are handled and maintained properly. Additionally, it is crucial for tracking vaccine waste through accurate documentation and tally sheet completion (Bhutta, et al.. 2014; Kyu, et al.,2017).

The significance of childhood vaccination is highlighted by the fact that children are more likely to have infectious diseases because of their immature immune systems and lack of exposure (Powell-Jackson, et al.,2018). As a result, vaccination campaigns against prevalent infectious diseases in children are implemented in many nations. However, vaccine reluctance and rejection are common problems in many nations, and children under the age of 12 are currently not eligible for vaccines. Health concerns make it difficult to persuade parents to vaccinate their children. Despite significant advancements in Saudi Arabia's healthcare system, vaccination hesitancy still prevents the country from reaching ideal immunization coverage (Al-Zalfawi et al.,2021).

Comprehensive vaccination programs have been in place in the country since 1984, which has decreased the rates of child mortality and morbidity brought on by vaccine-preventable illnesses (VPDs).11. Saudi Arabia, like other developing nations, has difficulties guaranteeing that all children receive all recommended vaccinations, though, because of low parental literacy rates, social stigmas, and restricted access to healthcare in rural and remote areas.12, 13 Since up to 20% of children in some places may not have all recommended vaccinations, it is imperative to understand the reasons behind parents' reluctance to get their children vaccinated in order to design effective solutions.(Sayed, & El-liethey, 2020; Mohamed Elshahat, et al.,2023).

Significance of the study

Effective vaccine management practicesareessential for maintaining vaccine security, ensuring successful service provision and decreasing vaccine wastage and its associated cost.This review looks at Saudi Arabian parents' reluctance to get vaccines (Alleyne, et al.,2006; Elsebaei, et al.,2021). In order to direct public health initiatives and policy-making, it draws attention to its prevalence and the relevant causes. The study aims to provide important insights for public health authorities, healthcare providers, and policymakers to create focused strategies aimed at raising vaccination acceptance and coverage rates among Saudi Arabian children by understanding the factors influencing vaccine hesitancy..Hence, this study was conducted to examine the quality of vaccination chain management session in the primary healthcare settings in family health care centers at Gaddah city.

Aim of the study

The aim of the study was to assess the quality of vaccination session management practices in family health care centers at Gaddahcity

Research question

What is the level of the quality of vaccination session management practices in family health care centers at Gaddah city.

MATERIALS AND METHOD

Materials

Research Design

A descriptive cross-sectional research design was utilized to conduct this study.

Setting

This study was conducted in vaccination clinics at the following settings;King Faisal Residential City Clinic (Jeddah Housing); King Khalid Residential City Clinic (Taif Housing); Al-Madena Al-Monawarh Housing

Clinic; Khozam Clinic;Bahra Clinic;Um Assalam Clinic; Sharia Clinic; Yanbu Clinic; Jeezan Clinicaffiliated to the Ministry of Health of Saudia Arabia

Subjects

All the vaccination sessions conducted on the prior selected family health centers during the study period (January 2024-till February 2024 /45 sessions/month). All the vaccines in the national obligatory vaccination schedule of infants were included in the study .

The study comprised all of the staff nurses who worked in the immunization clinics of the family health centers that were previously chosen.

Tools of the study

Tool I: general vaccination family center questionnaire

It was created by the researchers after a careful analysis of pertinent literature (Saad, et al., (2009; Rémy, et al., 2015; Chatterjee, et al.,((2018).). Age, educational attainment, years of experience, and attendance at any prior training pertaining to vaccination session management procedures and vaccine waste rate computation and monitoring are among the clinical and personal characteristics of nurses that are included. Clinical information includes records of vaccination utilization rate and waste patterns, as well as the existence of vaccination Vial Monitor (VVM) and Multi-Dose Vaccine Vial (MDVV) policies.

Tool II: quality of Vaccination Session Management Practices

The researchers created it using the World Health Organization's (WHO) 2015 recommendations (Saad, et al., (2009; Rémy, et al., 2015; Chatterjee, et al.,((2018); the Canadian Standard for Administration of Immunizations of Alberta Health Services 2013, and the Centers for Disease Control and Prevention's (CDC 2018) vaccine storage & handling toolkit. By observing how nurses prepared, conducted, and concluded the vaccination session, it was utilizedto evaluate vaccination session management techniques. 101 items make up the scale, which is graded on a four-point Likert scale: fully completed (3), partially completed (2), not completed (1), and not relevant (0) for items that do not apply to specific children or are not present in the clinic. The overall practice score, which varied from 1 to 303, was determined.

Data collection

Ethical consideration

The Ethical Committee of Research granted permission to perform the study. The medical director of the chosen family health centers formally granted permission to carry out the study and gather the required data. Six professionals in the field of vaccination evaluated the tool's face and content validity. The experts' reaction demonstrated the validity of the tool in both face and content validity. Cronbach alpha was used to examine the internal consistency of tool (II), and the results showed that it was dependable (r=0.77).

After outlining the goal of the study, each healthcare practitioner gave their informed oral permission. Prior to the questionnaire's launch, the following points were also underlined: confidentiality of data, anonymity, privacy, and the ability to leave the study at any moment.

Pilot study

a pilot study was conducted on one vaccination session that was not part of the study to assess and ensure the tool's clarity, identify research constraints, identify potential issues during data collection, and estimate the time required to complete the tool. The required changes were made in light of the findings. The researchers explained the aim of the study to nurseswho were working in the vaccination clinics to gain their cooperation. Each staff was individually hand delivered the questionnaire during the working day and any needed instructions about the study were given to gain cooperation before the dissemination of the questionnaire which took about 30 minutes.

Data collection

The researchers observed the vaccination session using tool (II) and gathered information about the management practices of the vaccination session for each vaccine administered to every kid during the vaccination session (8.30 am:12.30 pm). Over the course of one month (January–February 2024), data was gathered from the chosen family health centers twice a week.

The Statistical Package of Social Sciences (SPSS) version 20 was used to update, classify, code, tabulate, and analyze the gathered data. The subsequent statistical metrics were employed:

In order to characterize the scale and categorical data, descriptive statistics include frequency, percent, mean, and standard deviation. Statistics for analysis: r is the Pearson correlation coefficient. A P-value of ≥ 0.5 was chosen as the threshold for statistical significance.

RESULTS

Table (II) Distribution of the studied nurses according to their personal characteristics and clinical data
Table(II) shows that 55.6% of healthcare providersare in the age group of30≥400 years with a mean age of 32.11±7.20. The majority of studied healthcare providers (83.9%) graduated fromsecondary technical nursing school. About 67.0% of them had ten years of experience or more with a mean of 9.44±5.18. All the studied nurses did not receive training about vaccines wastage monitoring and calculation whereas 66.7% of them receive training about vaccination session management practices. Moreover, 60.0% of the studied nurses received their last training since ten years or more with a mean of 7.67±7.18.
Figure (I)shows that the Multi Dose vaccination Policy (MDVVP), Vaccine Vial Monitor (VVM) policy, and monthly report for vaccination usage rate were all in written form at all of the family health centers under study. None of them, meanwhile, provide a monthly report on the rate and trends of vaccine waste.

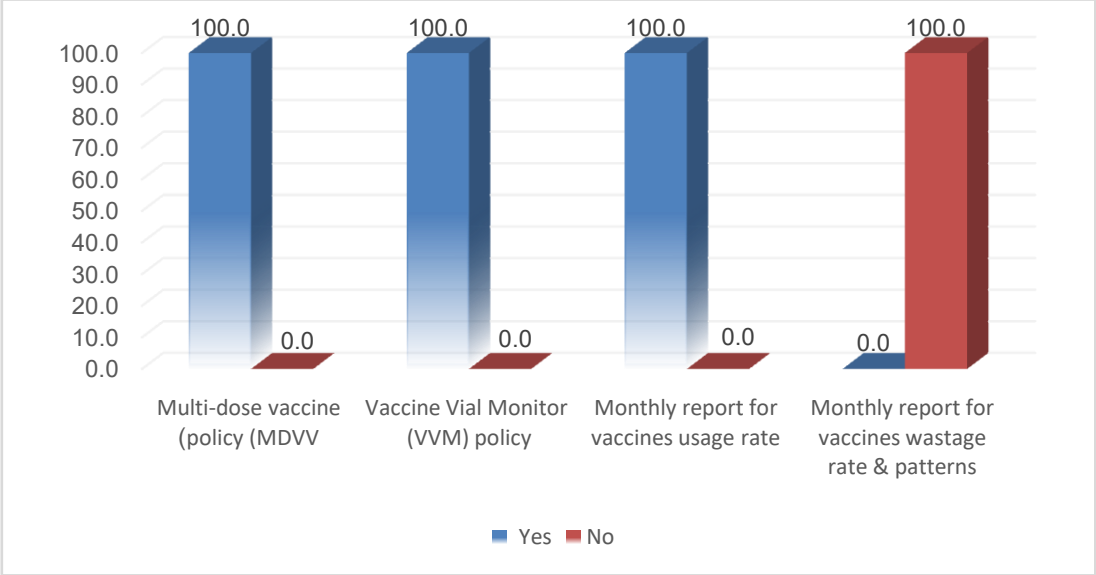

Figure 1. Study family health centers' distribution based on the existence of vaccination management policies

90.8% of the immunization sessions under study had moderate levels of vaccine management techniques, whereas 2.2% had high levels, as shown in Figure (II). Low preparation practices were found in all of the immunization sessions under study; however, moderate (74.0%) to high (21.7%) conducting practices were noted. However, there are high concluding procedures in every immunization session.

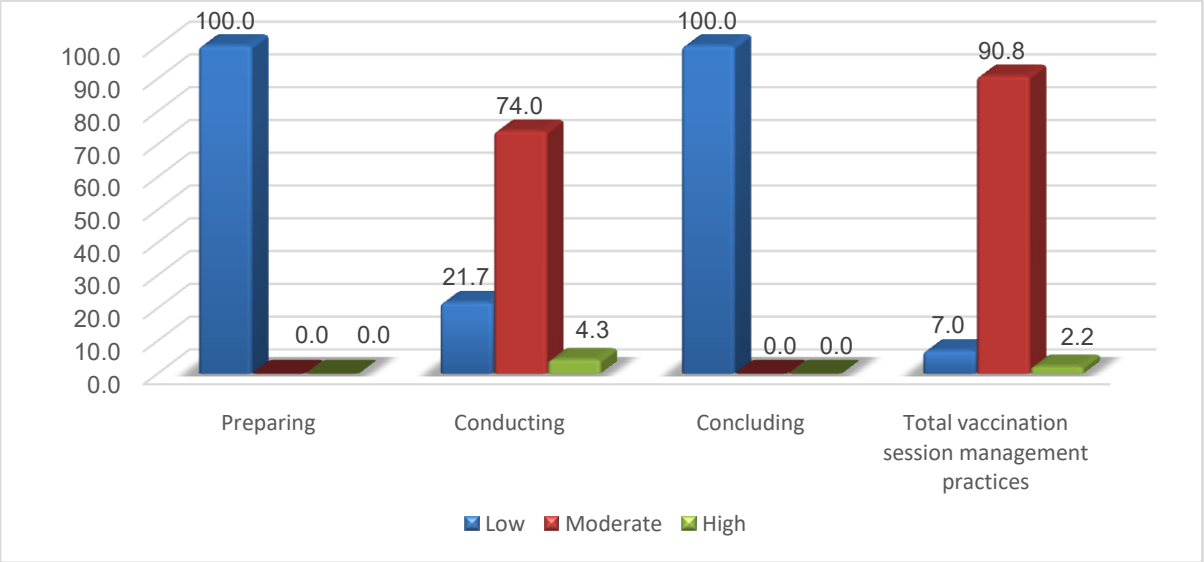

Table (1) depicts a statistical significant negative relationship between total vaccination session management practices and nurses' years of experience in vaccination (r= -0.761, P= 0.017) and training experienceabout vaccinationand vaccines wastage calculation and monitoring (r= -0.756, P= 0.018). On the other hand, there is

no statistical significant relationship between vaccines wastage rate and nurses' age (r= -0.070, P= 0.858), education (r= -0.189, P= 0.626) and duration since last training (r= -0.606, P= 0.084).

Table 1: relation between total vaccination session management practices and nurses' personal data and training experience

	Total Vaccination Session Management Practices	
	R	**P**
Age	0.070	0.858
Education	0.189	0.626
Years of experience	- 0.761	0.017*
Training experience	- 0.756	0.018*
Duration since last training	0.606	0.084

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

DISCUSSION

Since 1984, Saudi Arabia, a developing nation, has had a comprehensive vaccination program in place as a crucial and integrated component of PHC. Children's mortality and morbidity from the target diseases have been considerably decreased in Saudi Arabia as a result of this immunization campaign. However, Saudi Arabia, like other nations, struggles with an unequal vaccination status among its citizens because of societal stigmas, slow health access in rural areas, and parents' moderate literacy rates. Although non-compliance with kid vaccinations has been documented in all nations, developing nations exhibit a significant prevalence of child vaccination non-completion rates (Sayed, & El-liethey, 2020; Mohamed Elshahat, et al.,2023).

The percentage of Saudi Arabian children who have not received all recommended vaccinations varies by province, with some regions claiming as much as 20% non-compliance. Given the paucity of study in this field, and especially in Saudi Arabia, it is critical to investigate the rates of vaccination compliance in the nation's rural and urban areas as well as the causes of non-compliance(Al-Zalfawi et al.,2021).

Vaccination is a very economical and health-promoting practice. It can prevent pediatric illnesses, lessen pain, and even save children's lives. Nevertheless, this is impossible without appropriate cold chain and vaccination session management procedures, which are fundamental to preserving the efficacy and safety of vaccines. This can help cut down on vaccine waste and related expenses that deplete the nation's resources(Sayed, & El-liethey, 2020; Mohamed Elshahat, et al.,2023).

the majority of the examined vaccination sessions had moderate (90.8%) to poor (7.0%) overall vaccination session management practices, according to the results of the current study. In particular, the majority of the conduction practices (74.0%) were moderate, while the preparatory practices for all sessions were low. In addition to the fact that the majority of the nurses in the study only got training once in over a decade, this should also be attributed to the lower educational attainment of the nurses in the study, nearly all of whom had only completed secondary school nursing education.

The nurses' emphasis on protecting themselves in the event of supervisory visits by the local health authority by maintaining complete records of vaccine stock that are compatible with the number of vaccinated children, on the other hand, explains why all of the vaccination sessions had high concluding practices. Two new research demonstrated consistent findings. First, the majority of the health institutions under study had insufficient immunization procedures, according to Rahim et al. (2017). Second, Choudhury SA and Ojah J (2016) investigated the low to moderate nursing practice during the immunization session in the majority of the health centers under study.

According to three recent research, the majority of the healthcare professionals under investigation had good immunization practices. These investigations were conducted in Egypt by El Shazly H et al. (2016) (24), Dairo DM and Osizimete OE (2016) , and Abd Wahid G and Nagi A (2015) . The authors of those opposing studies ascribed this to the investigated sample's demonstrated adequate level of vaccination knowledge as well as their higher educational attainment in comparison to those of the current study. Additionally, the local health authorities implemented routine training and monitoring systems for vaccination and cold chain protocols.

Interestingly, the current study found a statistically significant positive correlation between nurses' years of experience and vaccination and vaccine waste management methods and the total number of vaccination sessions. Three recent studies—Ogboghodo E et al. (2017), Dairo DM and Osizimete OE (2016)(25), and Pillay SH (2014), showed similar results, indicating that vaccine management practices were favorably connected with the years of experience and training of health workers. Therefore, the orientation program, program updates, and the addition of new vaccines should be coordinated with continuous staff capacity building through in-service training and regular supervision for managing immunization sessions. This can also lessen vaccination waste and the related expenses while protecting the health of newborns .

CONCLUSION

Most of the analyzed immunization sessions had mediocre to poor results. overall management procedures for vaccination sessions, based on the current study's findings. Specifically, the preparatory practices for every session were low, and most of the conduction practices were moderate. This should be explained by the lower educational level of the nurses in the study, almost all of them had only completed secondary school nursing education, in addition to the fact that most of them had only received training once in more than ten years.

Implication in healthcare

In order to improve nurses' knowledge and abilities regarding vaccination sessions, cold chain management procedures, and vaccine waste estimation and monitoring, the current study suggested creating and executing educational and training programs. Encourage MOHP to set up a routine mechanism for tracking and evaluating the rate and trends of vaccine waste. Due to the paucity of evidence in this area, more research is needed to determine the reasons of vaccine waste in other contexts and to replicate the current findings in other contexts.

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