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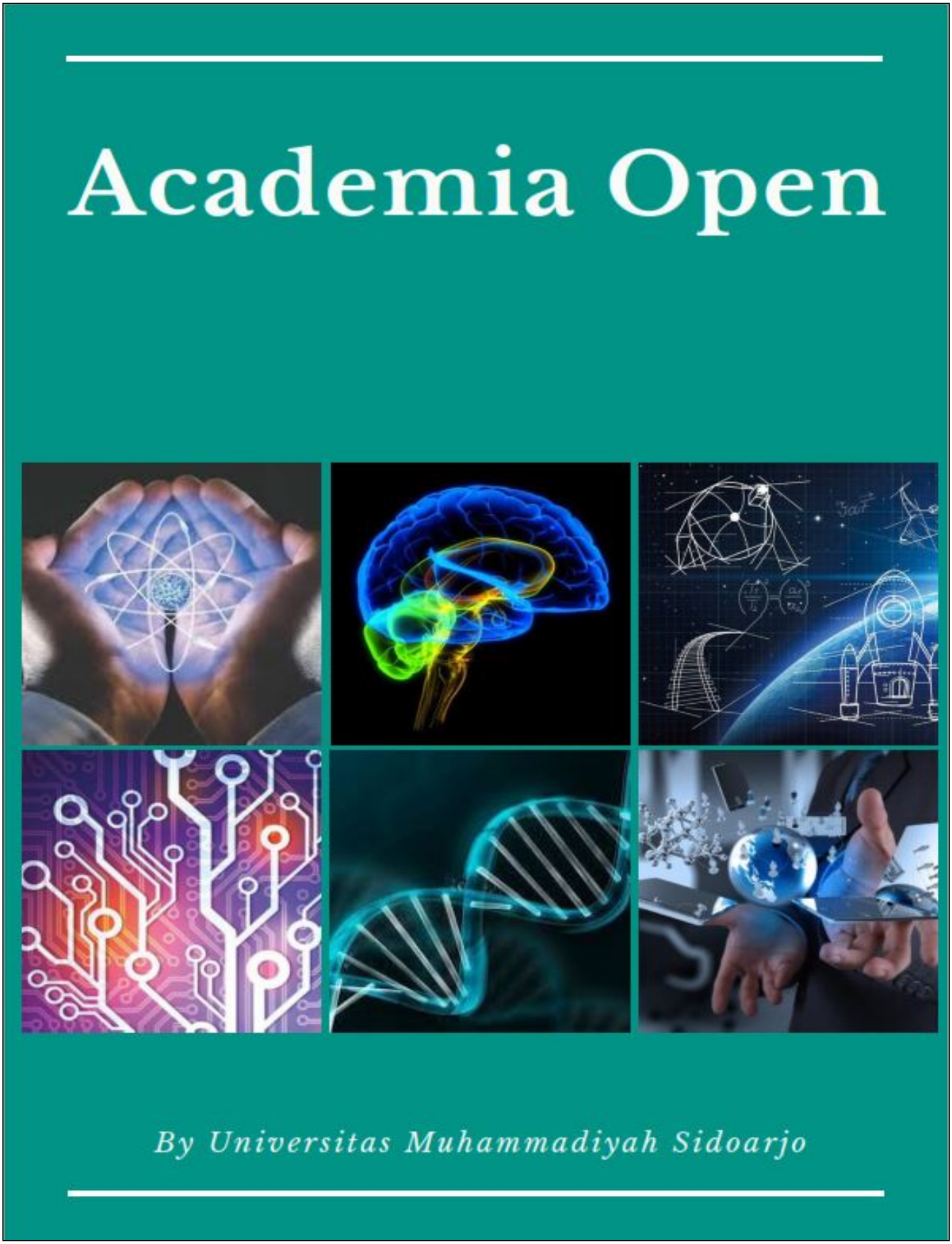

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Knowledge of Mothers Regarding Immunization of One-Year-Old Child at Primary Health Care Centers in Al- Diwaniyah City

Pengetahuan Ibu Mengenai Imunisasi Anak Usia Satu Tahun di Puskesmas di Kota Al- Diwaniyah

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Abstract

This study assessed mothers' knowledge about immunization and the factors influencing it through a descriptive study conducted from April to November 2020 on 160 randomly selected women in Diwaniyah. A questionnaire was used to collect demographic, social, and economic data, as well as awareness of vaccine-preventable diseases and vaccination records from 10 primary healthcare centers. Data were analyzed using SPSS 23 with descriptive and inferential statistical methods. Results showed that 52.5% of mothers had moderate knowledge about mandatory vaccinations, while a quarter had low knowledge, indicating a significant lack of awareness. Factors such as age, education level, and marital status greatly influenced their knowledge, with younger and less-educated mothers showing lower awareness. The study recommends awareness campaigns, distribution of informative materials, and intensified vaccination efforts for healthcare workers to address dropouts.

Highlights:

1. Assess mothers' knowledge of immunization and influencing factors.
2. Descriptive study, 160 participants, questionnaire, SPSS analysis.
3. Moderate knowledge, influenced by age and education; recommend awareness campaigns.

Keywords: Mothers' Knowledge, Immunization of One-Year-Old

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Introduction

The Vaccines are the best grace and accomplishment of newfangled medicine. Assessing vaccination covering helps to evaluate advance in fulfill program aims and get better of the best services are provided. The Vaccines existed to help parents for keeping their children from these diseases that could Kill them or devastate their lives. (1)

The boosting of health is social is individual liability. It is known that 5 million children die every year, and other 5 million were suffering from contagious diseases (2,3). Immunizing children almost guarantees protection from many major diseases. Vaccination averts 2 million fatalities globally each year and is broadly regarded as "highly effective" by the scientific community. Vaccination coverage has stabilized in numerous developing nations, and even in areas with substantial coverage, accessing unvaccinated children has been challenging (4). Innovative strategies for enhancing immunization rates are urgently required. The Expanded Programme on Immunization (EPI) has elevated the immunization rate among children globally over the past 30 years, with the majority of affluent nations achieving coverage over 90%. Consequently, numerous countries are endeavoring to enhance their health systems to provide sufficient routine immunization and mitigate the impact of vaccine-preventable diseases (5). Universal immunization against numerous vaccine-preventable diseases is the most economically efficient method to diminish morbidity and mortality among children under five. Annually, 1.5 million youngsters succumb to diseases that could be prevented with vaccines. The absence of information and understanding, along with apprehension regarding the potential harmful effects of vaccines among mothers, constitutes significant obstacles to vaccination coverage. (6,7)

Vaccination substantially alleviates the impact of infectious illnesses, averting illness, disability, and mortality from vaccine-preventable diseases such as measles, pertussis, diphtheria, polio, rubella, and tetanus, while also mitigating poverty and misery (8).

Maternal knowledge, behavior, and practices significantly influence the attainment of complete immunization prior to the child's first birthday. The objective of the Expanded Programme on Immunization (EPI) is to attain 90% routine immunization coverage for all vaccine antigens, with a minimum coverage of 80%. Consequently, mortality and morbidity associated with the seven EPI target diseases can be diminished through the vaccination of children aged 0-11 months and women of reproductive age (9,10). Vaccination is undoubtedly one of the most significant scientific achievements in history. Vaccination safeguards numerous children against illness and mortality due to severe diseases, hence alleviating the distress of many parents. Consequently, it is imperative for parents to acquire knowledge and implement activities that foster a good attitude towards vaccination, thereby aiding in its promotion and regulation (11). Due to the adverse perceptions held by certain parents regarding vaccines, the notion that vaccines induce autism emerged as the predominant concern in a poll performed in the United States. Factors contributing to the failure of immunization programs include insufficient political will, lack of desire, inadequate education and awareness, and deficient infrastructure. Additional reasons contributing to inadequate vaccination coverage in resource-limited nations, prevalent in numerous developing countries, encompass elevated illiteracy rates within the community and high fertility rates in these nations (12). At the individual level, inadequate immunization is associated with impoverished households, uneducated parents, lack of media access, and detrimental health practices. We should concentrate on women inclined to vaccinate their children, not merely disseminating information about vaccinations but also fostering trusting and affirmative connections. The Knowledge on Childhood Immunization (KTCI) study is a crucial initial step in comprehending the factors that affect immunization. Consequently, strategies to enhance vaccine coverage rates should be formulated based on a thorough comprehension of the correlation between KSI and suitable childhood immunization. (13.14)

Methods

A descriptive study employing an evaluative method was undertaken at ten primary health care centers in Diwaniyah city, surveying mothers who brought their children. The research was performed between April and November 2020.

Research site: The research was carried out in the vaccination section of the primary health care clinics in Diwaniyah city. Health facilities were randomly chosen to access moms who vaccinate their children, namely in the districts of Al-Furat, Al-Urouba, Al-Jazair, Al-Tali'a, Al-Askar, Al-Wahda, Al-Jam'iya, Al-Asri, Al-Dhubat, and Umm Al-Khail.

Study sample: For this study, 160 moms were randomly selected who bring their children for immunization.

Data collection: The study's goal was communicated to all participating moms through study materials and interview procedures, followed by the administration of a questionnaire and interviews. Informed consent was secured, and the confidentiality of the responses was guaranteed.

The standard questionnaire for the Expanded Program on Immunization (EPI) surveys was adapted to align with the Iraqi vaccination schedule and potential factors contributing to non-vaccination. Inquiries regarding maternal

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demographic and socio-economic attributes, awareness of vaccine-preventable diseases in babies, significance of vaccination programs for their offspring, and vaccination history were also incorporated. immunization history was acquired by instructing responders to reference their child's immunization card.

Verification of vaccination history was acquired from the child's immunization record in the health service registry, when accessible. Aside from the typhus vaccine, it was neither utilized nor incorporated into the immunization schedule, and hepatitis A was not prioritized among necessary vaccinations.

All knowledge inquiries and three attitude inquiries were evaluated using a three-point Likert scale, comprising the options "agree," "not sure," and "disagree." Attitude inquiries regarding the efficacy of vaccinations were similarly assessed on this scale to evaluate age-specific vaccination levels for both mandatory and non-mandatory vaccines.

Statistical analysis:

Statistical examination In the model we constructed, we incorporated variables deemed pertinent to the subsequent outcomes of interest: awareness of all compulsory infant vaccinations (TB, hepatitis B, polio, tetanus, diphtheria, pertussis, measles, mumps, rotavirus, Haemophilus influenzae B, vitamin A) (Table 2-A); and (Table 2-B) regarding the significance of vaccination for their children. For analytical purposes, multivalued outcome variables were incorporated in Table 1, and mothers were classified while respondents were grouped based on their adherence to the schedule for all obligatory immunizations. The explanatory variables incorporated were: maternal marital status (1 = married, 2 = divorced, 3 = widowed); maternal education level (1 = illiterate, 2 = primary, 3 = secondary, 4 = diploma, 5 = bachelor’s, 6 = postgraduate); maternal age; maternal age at the birth of the study child (continuous); and birth order of the study child (1 = first born, 2 = second, 3 = third or more). It also featured a variable indicating awareness of all requisite immunizations for newborns (3=agree, 2=uncertain, 1=disagree). Odds ratios (ORs) and 95% confidence intervals (CIs) were computed. The data were analyzed utilizing SPSS (23), employing statistical methodologies including descriptive analysis (frequency, percentages), arithmetic mean, standard deviation, inferential analysis, Pearson correlation coefficient, and Spearman correlation coefficient

Result and Discussion

Result

Mother's Age at Marriage	Frequency	Percent
Less than 20 years	84	52.5
21- 26 years	59	36.9
27- 32 years	11	6.9
33- 40 years	6	3.8
Total	160	100.0
Mother's Age at Child's Birth	Frequency	Percent
Less than 20 years	32	20.0
21- 26 years	56	35.0
27- 32 years	35	21.9
33- 44 years	37	23.1
Total	160	100.0
Child's Age	Frequency	Percent
1-	5 Months	60
6- 10 Months	75	46.9
11- 15 Months	25	15.6
Total	160	100.0
Child's Gender	Frequency	Percent
Female	89	55.6
Male	71	44.4
Total	160	100.0
Child's Birth Order	Frequency	Percent
1	52	32.5
2	40	25.0
3	68	42.5
Total	160	100.0

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Mother's marital status	Frequency	Percent
Married	145	90.6
Divorced	4	2.5
Widowed	11	6.9
Total	160	100.0
Mother's Education	Frequency	Percent
Illiterate	6	3.8
Primary	40	25.0
High school	37	23.1
Diploma	39	24.4
Bachelor	34	21.3
Postgraduate	4	2.5
Total	160	100.0

Table 1. *Shows the Demographic Data of the Sample:*

Relative to “Age at marriage” (less than 20) at majority age (n = 84, 52%), while "Mother's Age at Child's Birth" was (21- 26 years) age-old (n=56, 35%), that distributed along age groups with focusing. As for "Child's Age" (1-5) months, was (n= 60, 37.5%) of the total sample. Show through the entire sample, "Child's Gender" the females have been a higher proportion of males (n=89, 55.6%). We also observe, that most of mothers who were among the sample, "Child's Birth Order" had more than three children(n= 68, 42.5%). As well, shown that "Mother's Marital Status" has been most of the sample are married women (145, 90.6%). As for their cultural level "Mother's Education" they are most of primary school graduates (n= 40, 25.0%).

Mandatory Vaccinations	Mean	Std. Deviation
Tuberculosis	3.00	.000
Hepatitis A	1.07	.264
Hepatitis B	3.00	.000
Poliomyelitis	3.00	.000
Tetanus	3.00	.000
Diphtheria	3.00	.000
Pertussis	3.00	.000
Measles	3.00	.000
Rubella	3.00	.000
Mumps	3.00	.000
Rotavirus	3.00	.000
Haemophilus influenzae B	3.00	.000
Influenza	3.00	.000
Vitamin A	3.00	.000
Typhus	1.00	.000
Pneumococcal	2.00	.000
Meningococcal	1.28	.451

Table 2. *Descriptive Statistics of Items*

The total scores of mother's knowledge about "Mandatory Vaccinations" was moderate (n= 84 ,52.5%). While the percentage of low level of knowledge was also its percentage by a quarter from the entire of sample, and this indicates that their number is not insignificant mothers who are unaware of the benefit and importance of the vaccine for their children. While was the ratio (Low) represent (n= 34, 21.3%), and proportion of (High) was represent (n=42, 26.3%).

Total score	Frequency	Percent
Low	34	21.3
Moderate	84	52.5
High	42	26.3
Total	160	100.0

Table 3. ***The Total Scores of Mother's Knowledge***

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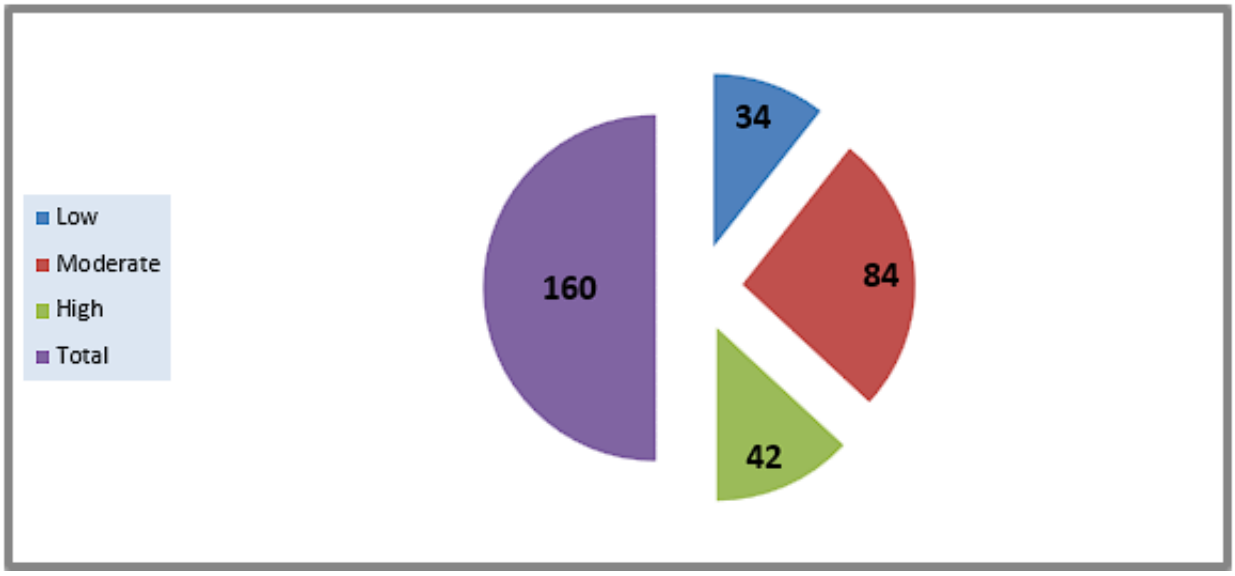

Figure 1.

The total scores of mother's knowledge about "Mandatory Vaccinations" was moderate (n= 84 ,52.5%). While the percentage of low level of knowledge was also its percentage by a quarter from the entire of sample, and this indicates that their number is not insignificant mothers who are unaware of the benefit and importance of the vaccine for their children. While was the ratio (Low) represent (n= 34, 21.3%), and proportion of (High) was represent (n=42, 26.3%).

		TS (Total Score)			Total
		Low	Moderate	High	
Mother's age at child's birth	Less than 20 years	9	12	11	32
	21-26 years	9	33	14	56
	27-32 years	5	21	9	35
	33-44 years	11	18	8	37
Total		34	84	42	160

Table 4. *Shows the Relationship of Sample Demographic and Knowledge: Mother's Age at Child's Birth * ts*

Symmetric Measures

		Value	Asymptotic Standardized Errora	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	-.068-	.085	-.853-	.395c
Ordinal by Ordinal	Spearman Correlation	-.065-	.085	-.816-	.416c
N of Valid Cases		160			
a. Not assuming the null hypothesis. b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Table 5.

There was weak relationship between mothers knowledge and their age r= -0.068 which mean if the age of mothers is high, the knowledge is high too.

Child's Age * Ts

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		TS (Total Score)			Total
		Low	Moderate	High	
Child's age	1-5 Months	13	31	16	60
	6-10 Months	14	43	18	75
	11-15 Months	7	10	8	25
Total		34	84	42	160

Table 6.

Symmetric Measures

		Value	Asymptotic Standardized Errora	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	-.003-	.084	-.041-	.967c
Ordinal by Ordinal	Spearman Correlation	-.002-	.083	-.023-	.982c
N of Valid Cases		160			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Table 7.

There was weak relationship between mothers knowledge and their age and child's age r= -0.003- which mean if age of child is big, and the age of mother is high, the knowledge is high too.

Mother's Marital Status * Ts

		Ts (Total Score)			Total
		Low	Moderate	High	
Mother's Marital Status	1	30	78	37	145
	2	1	2	1	4
	3	3	4	4	11
Total		34	84	42	160

Table 8.

Symmetric Measures

		Value	Asymptotic Standardized Errora	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	.012	.090	.153	.879c
Ordinal by Ordinal	Spearman Correlation	.011	.088	.132	.895c
N of Valid Cases		160			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Table 9.

There was weak relationship between mothers knowledge and their mother's marital status r= -0.12 which mean if the marital status of the mother is for a long interval, the knowledge is high too.

Mother's Education * Ts

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		Ts (Total Score)			Total
		Low	Moderate	High	
Mother's education	1	1	2	3	6
	2	10	16	14	40
	3	9	18	10	37
	4	4	27	8	39
	5	8	20	6	34
	6	2	1	1	4
Total		34	84	42	160

Table 10.

Symmetric Measures

		Value	Asymptotic Standardized Errora	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	-.105-	.083	-1.327-	.186c
Ordinal by Ordinal	Spearman Correlation	-.103-	.083	-1.301-	.195c
N of Valid Cases		160			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Table 11.

There was weak relationship between mothers knowledge and their education r= -0.105- which mean if the education of mothers is high, the knowledge is high too.

Discussion:

This survey's results are the inaugural provision of comprehensive insights on Iraqi mothers' awareness and significance of vaccinations.

A multitude of studies has been published regarding the vaccination status of children across various countries and time periods; comparisons among these studies are intriguing however should be approached with caution. Numerous factors influence vaccination coverage; thus, critical elements must be considered, including the prevalence of vaccine-preventable diseases, the accessibility of vaccination centers, the extent of information and knowledge regarding vaccination, and the various methodologies employed to assess vaccination status (15).

The research employed a standardized self-administered questionnaire. Conventional means of inquiry, such as written questionnaires or organized personal interviews in community health research, thereby offer greater assurance of data replicability. Moreover, we opted for less organized or unstructured methodologies, such as "field studies" or "open-ended questionnaires," due to the "threatening" nature of certain inquiries concerning child health-related behaviors and mother knowledge. Consequently, we employed closed-ended questions due to respondents' potential unpreparedness to invest time in answering open-ended questions and their comparative proficiency in written expression. Open-ended response forms are suboptimal for attitudinal questions due to the challenges associated with coding and categorizing responses to non-factual and attitudinal inquiries. Outcomes from such a framework would exhibit greater inconsistency and unreliability throughout the sample compared to standardized closed categories.

Our findings indicate that insufficient knowledge is hindering Iraqi women from effectively contributing to the eradication of vaccine-preventable illnesses in Iraq. Indeed, hardly fifty percent of the participants could accurately identify all required immunizations for infants. More concerningly, just a small fraction of them recognized the diseases that vaccination could prevent in their children. The deficiency in mothers' understanding of vaccinations is evidenced by the discovery that the primary cause for not receiving immunizations or failing to complete the vaccination schedule was a lack of information This study is consistent with a study conducted by Tagbo et al., in Enugu during the year 2012(16). The extent of awareness regarding compulsory newborn immunizations is highly correlated with the woman's age (specifically, not being a teenage mother) and her educational attainment. My research indicates a notable temporal discrepancy between the administration of vaccines and their scheduled timing. For instance, a one-year-old child has not received the measles vaccine, despite the vaccination schedule

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indicating it should have been administered at nine months. Similarly, a five-month-old child did not receive the initial doses of the rotavirus, polio, and pentavalent vaccines (DPT, HBV, HIB) at the prescribed age of two months. Despite recent improvements in immunization coverage for infants in Iraq, it continues to fall short of the targets established by the World Health Organization. A primary objective is to attain 90% vaccination coverage for babies for all advised vaccines. It is noteworthy that for compulsory vaccinations, including three doses of the diphtheria and tetanus vaccine, oral polio vaccine, and hepatitis B vaccine, the coverage target has been met; however, the current rate of individuals receiving recommended vaccinations, such as pertussis and rubella, is comparatively lower. In Iraq, initiatives to ensure mandated vaccinations involve the proactive recruitment and solicitation of all families with babies at the age advised by immunization providers, accompanied by follow-up reminders. Nonetheless, non-compliance with obligatory vaccines persists as an unresolved issue. Limited maternal education may correlate with non-compliance to vaccination initiatives, and women without literacy skills may be disproportionately represented among non-respondents. The role of under-vaccination in the reappearance of vaccine-preventable diseases has been recorded, particularly during the COVID-19 pandemic(17), owing to the halt of vaccine importation during that time. Our findings indicate that the birth order of children in our study serves as a predictor for their adherence to age-appropriate vaccinations as stipulated by the mandated immunization program. Previous studies have documented a significant negative correlation between family characteristics, specifically family size (a variable linked to birth order), and age-appropriate vaccination status, indicating that children from larger families are less likely to comply with mandatory vaccination requirements This study is consistent with a study conducted by Verulava et al., in Georgia during the year 2019(18). The impact of birth order discussed above is notably significant, considering the substantial percentage of non-first-born children in the villages of Diwaniyah city.

Conclusion

The study showed that the relationship between mothers, their age, cultural level, and marital status had a great influence on their level of knowledge of the benefit of the vaccine for their children. As shows their young age and weak cultural level had a clear impact on their knowledge of the importance of the vaccine to give their children and protect them from the diseases that could be infected by them, if they refrain from vaccinating them.

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