

Parents' Attitudes toward Immunization and its Relation with Pediatric Immunization Compliance at Primary Health Care Centers in Karbala City, Iraq

إتجاهات الأبوين تجاه التحصين وعلاقته بإمتثالهم لتحصين الأطفال في مراكز الرعاية الصحية الأولية في مدينة كربلاء، العراق

Eitidal Nassir Hussain, MScN*

Zahid Jasim Mohammed, PhD**

*Assistant Instructor, College of Nursing, University of Karbala

e-mail: ietedal.nasser1204a@conursing.uobaghdad.edu.iq

**Assistant Professor, Basic Sciences Department, University of Baghdad, College of Nursing

e-mail: dr.zahid@conursing.uobaghdad.edu.iq

المستخلص

الأهداف: لتقييم إتجاهات الأبوين تجاه التحصين وعلاقته بإمتثالهم لتحصين الأطفال ولإيجاد العلاقة بين إتجاهات الأبوين نحو تحصين الأطفال وخصائصهم الديموغرافية-الإجتماعية.

منهجية البحث: أجريت هذه الدراسة الوصفية للفترة من ١٩ أيلول ٢٠٢٠ إلى ١٠ آذار ٢٠٢١. أختيرت عينة "متوفرة" غير احتمالية من (٢٩٢) من الأبوين تم اختيارهم من (٥) مراكز رعاية صحية أولية، موزعة على قطاعين للرعاية الصحية الأولية في مدينة كربلاء. أختيرت مراكز الرعاية الصحية الأولية بنسبة (٢٠%) من كل قطاع. صممت الإستبانة وتألقت من ثلاث أجزاء: الجزء الأول: الخصائص الإجتماعية الديموغرافية للأبوين، الجزء الثاني: إتجاهات الأبوين والذي يتكون من (١٣) فقره، والجزء الثالث: حالة تحصين الطفل وأسباب عدم إمتثال الأبوين لجدول التحصين الروتيني. تم تحديد ثبات الإستبانة من خلال إجراء الدراسة المصغرة (الإستدلالية) وحددت مصداقيتها من خلال مجموعة خبراء بالإختصاص (١٧) خبير. جمعت البيانات من خلال الإستبانة، وتم تحليل البيانات باستخدام الحقيبة الإحصائية للعلوم الإجتماعية (SPSS) النسخة (٢٢.٠) حيث تم التعبير عن نتائج الدراسة بإستخدام نظام تحليل البيانات الإحصائية الوصفية والإستنتاجية. **النتائج:** أظهرت نتائج الدراسة أن إتجاهات غالبية عينة الدراسة جيدة تجاه تحصين الأطفال، وكانت مرتبطة بشكل كبير مع مكان السكن. كذلك كانت حالة التحصين للأطفال جزئية لأكثر من (٦٠%) من أطفال عينة الدراسة (الأبوين) إضافة لذلك، أظهرت نتائج الدراسة عدم وجود ارتباط معنوي بين إتجاهات الأبوين نحو التحصين وإلتزامهم بجدول التحصين الروتيني لأطفالهم.

التوصيات: أوصت الدراسة بضرورة زيادة وعي الأبوين نحو أهمية التحصين من خلال تنفيذ البرامج التثقيفية وتفعيل دور وسائل الإعلام التقليدية والإجتماعية وتعزيز التقييم الدوري لتغطية توقيتات تحصين الأطفال.

الكلمات المفتاحية: إتجاهات الأبوين، التحصين، الإمتثال

Abstract

Objective(s): To assess parents' attitude toward immunization and its relation with their compliance and to find out the relationship between parents' attitude and their socio-demographic characteristics.

Methodology: A descriptive design is conducted from the period of 19th September 2020 to the 6th of March 2021. A non-probability (convenient) sample of (292) parents was selected from (5) primary health care centers in Karbala city. These centers are distributed throughout (2) primary health care sectors selected randomly as (20%) from each sectors. The questionnaire is developed and composed of three parts: First part: parent's socio-demographic characteristics, Second part: parents' attitude domain, which involves (13 items), and Third part: child's immunization status and reason for non-compliance by parents with the routine immunization schedule. The reliability of the questionnaire is determined through a pilot study and the content validity through a panel of (17) experts. The data are collected by the questionnaire. The data are analyzed through using the Statistical Package of Social Sciences (SPSS version 22.0) which is performed through the use of descriptive and inferential statistical analysis procedures.

Results: The results of the study indicate that most of the study sample have high (good) attitude toward children immunization and are significantly associated with their residence. Also, the child's is partially immunized for more than 60% of the children of the study sample (parents). In addition, the study results reveal that there is no significant association between parents' attitudes towards immunization and their compliance to the routine immunization schedule for their children.

Recommendations: The study recommends that it is necessary to raise parents awareness of the importance of immunization by implementing educational programs, activating the role of traditional and social media, and promote periodically assessment to cover child's immunization timings.

Keywords: Parents' Attitudes, Immunization, Compliance

Introduction:

Children are the future of every country, so their development is as important as the development of other properties. Immunization is an integral component of the proper development of children. Immunization decreases the spread of pathogens, thus protecting society from infectious diseases. As a preventive health action, immunization plays an important role in the lives of children because it protects them from the most harmful childhood diseases⁽¹⁾.

Immunization has been one of the most efficient and cost-effective measures in public health since its early days, and in the 21st century, the scenario is much more convincing. Vaccines have saved more lives than any other intervention, according to WHO figures, and about (2-3) million deaths are averted worldwide by immunization every year⁽²⁾.

In the literature on public health, the contributors to lower immunization rates are well established. Increases in the number of vaccines required and changes to the immunization schedule create difficulties for parents and care providers in tracking immunization status⁽³⁾.

Methodology

Design of the Study:

A descriptive design is conducted through the period of 19th September 2020 to the 6th March 2021.

Study Sample

Non probability "convenient" sample of (292) parents (father and/or mother) who attend the PHCCs where selected in and out of the unit of immunization at the (5) PHCCs which involved in the study in Karbala city.

These centres distributed thought (2) primary health care sectors.

Ethical Considerations

Scientific Research Ethical Committee at the University of Baghdad, College of Nursing has approved the study to be conducted. All mothers who have participated in the study have signed consent form for the human subjects' rights

The Study Instrument

A questionnaire is constructed and developed as a tool for data collection by the researchers, after an extensive review of relevant literatures and consultation from panel of experts and related studies. A questionnaire format was contained three parts were constructed to include all aspect associated to the study (Socio-demographic characteristics, Parents' attitudes toward child immunization, child's immunization status and reason for non-compliance by parents Parental).

Validity of the Questionnaire

Content validity of the questionnaire is determined through panel of experts.

Reliability of the Questionnaire

Internal consistency reliability is obtained through application of split-half technique and computation of Cronbach alpha correlation coefficient.

Data collection

Data are obtained through face to face interview technique as a method of data collection. Interview is conducted with parents after taking the initial consent of each parent to participate in the study.

Data Analysis

It is performed through the computation of frequencies, percentages, standard deviation (SD), mean of the scores (MS), and relative sufficiency (RS %). Also, a contingency coefficient (C.C.) is used to find out the relationship between parents' attitudes and their socio-demographic characteristics and statistical significant was at $p\text{-value} < 0.05$.

Results

Table (1): Distribution of Parents by their Socio-demographic Characteristics Variables (N=292)

Variables	Groups	Frequency (F.)	Per cent (%)
Gender	Male	57	19.5
	Female	235	80.5
Age Groups of fathers (Yrs.)	< 20	0	0.00
	20 _24	4	7.00
	25 _29	14	24.6
	30 _34	18	31.6
	35 _39	13	22.8
	≥ 40	8	14.0
	Mean ± SD	32.26± 5.65	
Age Groups of mothers (Yrs.)	< 20	21	8.9
	20 _24	54	23.0
	25 _29	101	43.0
	30 _34	50	21.3
	35 _39	9	3.80
	≥ 40	0	0.00
	Mean ± SD	26.43± 4.46	
Marital Status	Married	287	98.3
	Divorced	3	1
	Separated	1	0.3
	Widowed	1	0.3
Residency	Rural	25	8.6
	Urban	267	91.4
Educational level of Father	Not read and write	0	0.00
	Read and write	0	0.00
	Primary	8	14.0
	Intermediate	8	14.0
	Secondary	13	22.8
	institute/university	28	49.1

Educational level of Mother	Not read and write	5	2.1
	Read and write	20	8.5
	Primary	76	32.3
	Intermediate	37	15.7
	Secondary	18	7.70
	institute/university	79	33.6
Occupational status of Father	Employee	41	71.9
	Retired	16	28.1
	Earners	0	0.00
Occupational status of Mother	Employee	65	27.7
	Earners	4	1.7
	Unemployed /housewife	166	70.6

F= frequency, %= percentage

Table (1) shows that most of the study sample was mothers and they are accounted (80.5%). More than half of fathers within age group of (30-29) years, and less than half of mothers within age group of (25-29) years. The most of fathers and mothers were married, and they were accounted (98.3%). Most of the study sample are living in an urban area, and they were accounted (91.4%), Highest percentage of fathers and mothers are graduates from institute and university and they are accounted for (49.1%, 33.6%) respectively, (71.9%) of fathers are employees, and (70.6%) of mothers are housewives.

Table (2): Overall Assessment of Parents' Attitudes and Distribution of Main Domains of Parents' Attitudes toward Immunization

List	Parents' Attitudes toward Immunization							
	Main Domain	F.	Min.	Max.	GMS	PSD	GRS%	Ass.
1	Parents' attitudes toward the importance of immunization	292	0.200	1.000	0.951	0.111	95.07	H
2	Parents' attitudes toward routine immunization	292	0.330	1.000	0.982	0.090	98.17	H
3	Parents' attitudes toward immunization side effects	292	0.200	1.000	0.771	0.242	77.05	H
Overall Assessment of Parents' Attitudes toward Immunization						GMS	PSD	Ass.
Parents' Attitudes towards Immunization						0.888	0.119	H

F: frequency, GMS: Global Mean of Score, PSD: Pooled Standard Deviation, GRS%: Grand/or Global Relative Sufficiency, Ass. : Assessment (0.00 – 33.33) Low (L) ; (33.34 – 66.66) Moderate (M) ; (66.67– 100) High (H).

This table reveals the parents' attitudes toward immunization which revealed that all items have a high level in all (3) sub items.

Table (3): Association between Overall Assessment of Parents' Attitudes toward Immunization and their Socio- demographic Characteristics

Socio-demographic Characteristics	Parents' Attitude toward Immunization		
	C.C.	Sig.	C.S.
Gender	0.032	0.585	NS
Mother's Age (Years)	0.131	0.396	NS
Father's Age(Years)	0.208	0.633	NS
Marital Status	0.058	0.805	NS
Residency	0.185	0.001	HS
Father's Education	0.151	0.233	NS
Mother's Education	0.156	0.203	NS
Father's Occupation	0.112	0.159	NS
Mother's Occupation	0.046	0.732	NS

HS : Highly Sig. at $P < 0.01$; NS : Non Sig. at $P > 0.05$; S : Sig. at $P < 0.05$; Testing based on a Contingency Coefficient test (C.C).

This table indicates that there is no-significant relationship between parents' attitudes and their socio-demographic characteristics, except the residence that has a highly significant relationship with parents' attitudes toward immunization.

Table (4): Distribution of Reasons for Non-compliance of Parents with the Routine Immunization Schedule

Immunization Status	Groups	F.	%	C.S. (*) P-value
Child was sick	Non Applicable	115	39.4	P=0.367 (NS)
	NO	95	53.7	
	Yes	82	46.3	
Fear of side effects	Non Applicable	115	39.4	P=0.000 (HS)
	NO	124	70.1	
	Yes	53	29.9	
Unavailability of vaccine	Non Applicable	115	39.4	P=0.000 (HS)
	NO	144	81.4	
	Yes	33	18.6	
Forget the data of next dose	Non Applicable	115	39.4	P=0.000 (HS)
	NO	130	73.4	
	Yes	47	26.6	
Lack of information	Non Applicable	115	39.4	P=0.000 (HS)
	NO	150	84.7	
	Yes	27	15.3	
Distance from PHC centers	Non Applicable	115	39.4	P=0.000 (HS)
	NO	164	92.7	
	Yes	13	7.3	
Getting busy with work	Non Applicable	115	39.4	P=0.000 (HS)
	NO	142	80.2	
	Yes	35	19.8	
Short of time and crowding	Non Applicable	115	39.4	P=0.000 (HS)
	NO	165	93.2	
	Yes	12	6.8	

F= frequency, %= percentage

This table shows that the main reason for non-compliance by parents was child was sick and accounted (46.3), followed by fear of side effects (29.9%), forget the data of next dose (26.6%), getting busy with work (19.8%), unavailability of vaccine (18.6%), lack of information (15.3%), distance from PHC centers (7.3%), and short of time and crowding (6.8%) respectively.

Table (5): Association between Parents' Compliance and Child's Immunization Status and Parents' Attitudes

Immunization Status	Groups	F.	%	C.S. (*) P-value
Child's immunization status	Fully immunized	115	39.4	P=0.000 (HS)
	Partially immunized	177	60.6	
Child's immunization status and Parents' attitudes				
Relationships		C.C.	Sig.	C.S.
		0.033	0.576	NS

NS : Non Sig. at $P > 0.05$; Testing based on a Contingency Coefficient test (C.C).

This table shows that more than half of children are partially immunized and accounted for (60.6%) and there is no-significant relationship between parents' attitudes toward immunization and child's immunization status.

Discussion:

Concerning parent's gender, the study findings reveal that more than 80% of the studied sample are mothers. This result is due to our Arabic culture as well as in others, mothers often have the responsibility of taking children to health care facilities to get immunization. This finding is consistent with a study that finds that most of the participants 528 (86%) were mothers⁽⁴⁾.

Regarding the age of parents, the study finds that most of fathers and mothers are within (30-34) and (25-29) years respectively. This result is consistent with a descriptive study in Nigeria was reported that

the majority of fathers within age group (30-34) and accounted 86 (19.46%), and most of mothers 116 (26.24%) falls within age group (25-29) years old⁽⁵⁾.

The current study found that higher proportion of participants were married (represented more than three-quarters of the participants), These findings agree with study conducted in Lebanon was reported that a large majority 2683 (96.3%) of the participants were married⁽⁶⁾.

From another point of view, more than 90% of the participants in the present study were residents in urban areas; from researcher's view point, the vast majority of people in Iraq prefer to live in urban areas,

perhaps because there are more services which are easily accessible for citizens than in rural areas.

With respect to the level of education, the study results indicate that the majority of fathers and mothers obtained institute and university degrees and they are accounted as 28 (49.1%) and 79 (33.6%) respectively. This

This result is consistent with the study which is conducted in Jeddah City that reports that 366 (61%) of the participants (fathers and mothers) are graduated from colleges ⁽⁷⁾.

Regarding the occupational status of participants, the study found that more than half of fathers were employed, while more than half of mothers were housewives, from the researcher's point of view most of fathers are employees because they want to increase family income in order to provide children and household needs, While most of mothers are housewives in order to follow up home affairs including their children and provide their daily needs. These results are consistent with study which is done in Delhi that is found that the majority of mothers were housewives and accounted 354 (91.2%) ⁽⁸⁾.

The current study findings have indicated that the overall assessment of parents' attitudes toward immunization is at a high (good) level. This finding is supported by a cross-sectional study of (600) parents done in Saudi Arabia that reveals that most of the studied parents (87.2%) have positive attitudes ⁽⁷⁾. Another study of (250) mothers who have attended primary health care centers

in Nigeria that aims at determining Knowledge, attitudes and compliance of maternal towards immunization of children under five years in primary health care centres in Ikorodu Local Government area, Lagos State. They report that all the participants (100%) have positive attitudes toward immunization ⁽⁹⁾.

Concerning the association between the overall assessment of parents' attitudes and their socio-demographic characteristics, the study shows that there is no significant association existing between parents' attitudes and their socio-demographical characteristics of gender, age of fathers and mothers, marital status, educational level of both fathers and mothers, and fathers and mothers occupation. Whereas, the result of the current study shows that there is significant correlation between the residency of parents and their attitudes toward immunization at (p-value =0.001). These results are supported by study which is conducted in Saudi Arabia mentioned that indicates that there is no significant relationship between parents' attitudes and their demographic characteristics of gender, age group, educational level, residence place, and occupational status ⁽¹⁰⁾. Moreover, the result of the current study supported by study done in Taif Region, Saudi Arabia that has mentioned that there is a significant association between parents' attitudes and the place of residence ⁽¹¹⁾.

Relative to the reason of partially immunized, the current study findings have reported that the main reason is that the child is

sick 82 (46.3%) followed by fear from side effects of vaccination 53 (29.9%), and forget the data of next dose 47 (26.6%). These findings are consistent with the study done in Libya that reports that the child's health and mild illness is the most common cause for uncomplete of immunization schedule, followed by non-availability of the vaccine, social problems and forgetfulness (54%, 20%, 10.5% and 5.5%) respectively ⁽¹¹⁾.

Regarding the immunization status of children, the present study indicates that more than half of the studied children 177 (60.6%) are partially immunized. These results are consistent with a cross-sectional study performed on (155) mothers in India in order to assess knowledge, attitudes, and practices of respondents for children aged (12-23) month with respect to the immunization. The study reveals that (62.58%) of studied children were partially immunized ⁽¹²⁾. The results of this study show that there is no significant association between attitudes of parents toward immunization and their compliance (child's immunization status). These results are consistent with a study about assessment of parents' knowledge, attitude and practice about child vaccination. The study reports that there is no significant association between parents' attitudes and the immunization status of their children ⁽¹³⁾.

Recommendations

The study recommended:

1. Increasing the public awareness about the importance of immunization by implementing educational program and activating the role of traditional and social media.
2. Suggesting periodical assessment to the immunization rate in the primary health care centers.

References

1. Shastri, S., Sharma, A., & Mansotra, V. (2016). Child immunization coverage- a critical review. *IOSR Journal of Computer Engineering*, 18(5), 48-53.
2. Mahapatra, T. (2013). Role of physician's knowledge in routine immunization coverage. *Annals of Tropical Medicine and Public Health*, 6(5), 564.
3. Ferris, C.A. (2017). Social ecological factors associated with parental vaccination decisions and perceptions of barriers to childhood immunizations (Doctoral dissertation). Retrieved from <https://digital.sandiego.edu/cgi/viewcontent.cgi?article=1068&context=dissertations>
4. Alfahl, S., & Alharbi, K., (2017). Parent's Knowledge, Attitude and Practice towards Childhood Vaccination, Al-Madinah, Saudi Arabia 2017. *Journal of Neonatal and Pediatric*

- Medicine, 3(1), 1-2. Available at: 10.4172/2572-4983.1000126.
5. Njidda, U. M., Keвер, R. T., Lola, N., Dathini, H., & Mshelia, A. (2017). Assessment of parents' knowledge towards the benefits of child immunization in Maiduguri, Borno State, Nigeria. *Nurse Care Open Access J*, 3(2), 226-239.
 6. Matta, P., El Mouallem, R., Akel, M., Hallit, S., & Khalife, M. C. F. (2020). Parents' knowledge, attitude and practice towards children's vaccination in Lebanon: role of the parent-physician communication. *BMC Public Health*, 20(1), 1-9
 7. Alenazi, A. A. S., Alshareef, R. A., Alabudib, F. A., & Almuqarrab, A. J. H. (2017). Assessment of knowledge and attitude and practice of parents about immunization in Jeddah City, 2017. *The Egyptian Journal of Hospital Medicine*, 69(7), 2939-2943.
 8. Mukherjee, R., Arora, M., Kotwal, A., & Hooda, P. (2017). Awareness and attitudes of mothers towards new vaccines in the childhood vaccination programme in delhi state: a cross sectional study. *International Journal of Community Medicine and Public Health*, 4(10), 3859.
 9. Adefolalu, O. A., Kanma-Okafor, O. J., & Balogun, M. R. (2019). Maternal knowledge, attitude and compliance regarding immunization of under five children in Primary Health Care centres in Ikorodu Local Government Area, Lagos State. *Journal of Clinical Sciences*, 16(1), 7.
 10. Al-Zahrani, J. (2013). Knowledge, attitude and practice of parents towards childhood vaccination. *Majmaah Journal of Health Sciences*, 1(1), 23-32, doi: 10.12816/0004768.
 11. Elbur, A., Yousif, M., Albarraq, A., & Abdallah, M. (2014). Knowledge and attitudes on childhood vaccination a survey among Saudi parents in Taif region, Saudi Arabia. *International Journal of Pharmacy Practice & Drug Research*, 4(2), 92-97.
 12. Angadi, M. M., Jose, A. P., Udgiri, R., Masali, K. A., & Sorganvi, V. (2013). A study of knowledge, attitude and practices on immunization of children in urban slums of Bijapur city, Karnataka, India. *Journal of clinical and diagnostic research: JCDR*, 7(12), 2803.
 13. Trushitkumar, B. P., Pathak, R., Singh, R., Alves, V., Mahesh, N. M., Chalubaraj, T. S., ... & Varghese, B. (2017). Assessment of parents' knowledge, attitude and practice about child vaccination in rural areas. *Journal of Pharmaceutical Research*, 16(3)