**معارف النساء الحوامل حول عوامل الخطر والوقاية من التشوهات الخلقية في المستشفيات التعليمية في مدينة الموصل**

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**الخلاصة**

**خلفية البحث والاهداف**: زيادة معارف النساء الحوامل حول عوامل الخطر للتشوهات الخلقية وكيفية الوقاية منها يمكن أن يؤدي إلى الوقاية الأولية من المرض. كان الهدف من الدراسة هو تقييم المعارف حول عوامل الخطر ، والوقاية من التشوهات الخلقية بين النساء الحوامل. وكذلك ايجاد العلاقة بين المعارف والخصائص الاجتماعية والديموغرافية.

**المنهجية**: تم تصميم دراسة مقطعية لاختيار 430 امرأة حامل كعينة عشوائية من المشاركات في الدراسة. تم جمع البيانات من مستشفى الخنساء التعليمي ومستشفى البتول التعليمي في مدينة الموصل. بدأت الدراسة من 10 كانون الثاني إلى 30 حزيران 2021. تم جمع البيانات من الفترة 1 نيسان إلى 30 ايار 2021. تكون الاستبيان من 6 أسئلة حول وصف التشوهات الخلقية و 12 سؤال عن عوامل الخطر و 4 أسئلة للوقاية من التشوهات الخلقية. صلاحية الاستبيان تم بواسطة (9) خبراء من مجالات مختلفة لها ارتباط بموضوع البحث. بعد ذلك ، تم حساب المعامل الارتباط لتحديد ثبات الاستبيان وكان (r = 0.80). تم إدخال البيانات وتحليلها باستخدام برنامج الحزمة الاحصائية الإصدار 24. تم إجراء التحليل الإحصائي باستخدام الإحصاء الوصفي والاستنتاجي , ومؤثراً عند مستوى الأهمية 0.05≥.

**النتائج**: معارف النساء الحوامل حول عوامل الخطر والوقاية كانت متوسطة وتمثل (55.6٪) ، (64.9٪) على التوالي ، وأظهرت علاقة معنوية مؤثرة بين المعارف و العمر ، الاقامة ، المستوى التعليمي ، المهنة ، ومصدر المعارف حول التشوهات الخلقية.

**الاستنتاجات**: نشر الوعي بالتشوهات الخلقية لدى النساء الحوامل من خلال برامج موجهة نحو المرض. علاوة على ذلك ، يوصى بالاستشارة الوراثية للعائلات المعرضة لخطر التشوهات الخلقية.

**التوصيات**: اوصت الدراسة بمشاركة النساء الحوامل ببرنامج تعليمي وتدريبي بسيط لمساعدتها على تجنب عوامل الخطر وتحسين الوقاية.

**Abstract**

Background and objectives: Increased pregnant women knowledge about the risk factors of congenital anomalies and how to prevent them can lead to primary illness prevention. The aim of the study was to assess knowledge about risk factors, and prevention of congenital anomalies among pregnant women. Also, finding the relationship between knowledge and sociodemographic characteristics.

**Methodology**: A cross‑sectional study was designed to select 430 pregnant women as a random sample of participants in the study. The data was collected from Al-Kansaa teaching hospital and Al-Batool teaching hospital in Mosul City. The study started from 10th January to 30th June 2021. The Data are collected from the period 1st April to 30th May 2021. The questionnaire contained 6 questions about describe congenital anomalies and 12 questions for risk factors and 4 questions for prevention of congenital anomalies. The validity of the questionnaire was carried out by (9) experts from different fields related to the research topic. Then, questionnaire reliability calculated by correlation coefficient was (r = 0.80). Statistical analysis was performed using SPSS, version 24, and using descriptive and inferential statistical with significance level at P ≤0.05.

**Results**: The knowledge of pregnant women about risk factors and prevention was moderate and represent (55.6%), (64.9%) respectively, and showed a significant relationship between knowledge and age, residence, level of education, occupation, and source of knowledge about congenital anomalies.

**Conclusions**: Raising awareness of congenital anomalies in pregnant women through programs towards the disease. Furthermore, genetic counseling for families at risk of congenital anomalies is recommended.

**Recommendations** : The study recommends that pregnant women participate in a simple educational and training program to help them avoid risk factors and improve prevention.

**Introduction**

During the first three months of pregnancy, the developing embryo may be vulnerable to external and internal factors, which may result in congenital anomalies that can or cannot be observed at birth but are frequently detected later in life. These can be structural or functional flaws (Taye et al, 2019). Congenital anomalies are birth defects in the morphogenesis of organs or body districts. Their birth rate is approximately (2–3 %). Congenital anomalies can be caused by both genetic and environmental factors. Diagnostic and therapeutic tools have steadily improved over the last few decades, allowing for better identification and reduction of long-term morbidity/mortality. As a result of their longer life expectancy (Corsello & Giuffrè, 2012). According to a WHO report, one in every 33 babies in the world is born with a congenital anomaly, and birth defects are a leading cause of morbidity and mortality in children. Around three million fetuses and infants are born each year with a major congenital anomaly. Over three million children die each year as a result of congenital anomalies, according to estimates. Furthermore, another three million babies born with a congenital anomaly who are not treated at birth may be permanently disabled. The risk of major congenital anomalies in developed countries is approximately one in ten (3-5 % ) (Kanchana & Youhasan, 2018). Congenital anomalies are a broad group of prenatal abnormalities that affect an individual's structure or function. Congenital anomalies are a global health issue that kills 303,000 newborns in their first four weeks of life every year (De Silva, Amarasena, Jayaratne & Perera, 2019). Genetic and environmental factors, as well as maternal health conditions/diseases, substance abuse, and micronutrient deficiencies, have all been linked to congenital anomalies (Alborz , 2013); which are also linked to chromosomal abnormalities; these occur as a result of errors in the number or structure of the chromosomes However, the causes of many congenital anomalies remain unknown (Francine, Psascale, & Aline, 2014). Women continue to be unaware of factors that can have a negative impact on them and their unborn children, leading to maternal and infant mortality. Prospective pregnant women lack of knowledge about the defects may lead to delayed interventions. Understanding the causes, risk factors, and early detection of some features of congenital anomalies in pregnant women is the foundation of prevention and is critical for care planning. Avoiding teratogenic exposures to radiation, smoking, drinking alcohol, medical treatment of maternal diseases, adequate nutrition, and normal obstetrical care are all preventative approaches. This also includes a safe and clean delivery as well as postpartum care for mothers and infants (Prabhuswami et.al, 2016).

**Objectives of the Study**

1. To assess pregnant women knowledge about congenital anomalies in Mosul city
2. To identify a relationship between knowledge of pregnant women about congenital anomalies and sociodemographic characteristics

**Methodology**

A cross‑sectional study conducted in Mosul city. The data collected from Al-Kansaa teaching hospital, and Al-Batool teaching hospital. The study started from 10th January to 30th  June 2021. The Data are collected from the period 1st April to 30th May 2021. The (430) pregnant women who took part in the study were chosen at random. Data was gathered through the use of a questionnaire based on previous research and referenced to the literature (Bello et al.2013; Bener et al., 2006). The questionnaire consisted of three different groups of questions: The first part was comprised of variables of socio-demographic characteristics such as age, residence, level of education, occupation, number of pregnant, number of visits , previous congenital anomalies , previous toxoplasmosis, and source of knowledge about congenital anomalies). second part was knowledge of pregnant women about congenital anomalies include (1) knowledge of describe congenital anomalies included six questions. (2) knowledge of the risk factors of congenital anomalies included 12 questions about the participants. (3) knowledge for prevention of congenital anomalies involve (4) questions. Content validity was established by (9) experts who were health educators and faculty members of the University. Pearson Correlation Coefficient was calculated for the questionnaire to determine the internal reliability (r = 0.80). . Total of 22 questions were closed‑ended requiring such answers as (yes), (no), (I don’t know) . Correct answers scored two point and a one score was given for each wrong answer. SPSS, version 24, was used to enter and analyze the data. The descriptive and inferential statistics were used in the statistical analysis, and significance at P ≤ 0.05.

**The Results**

**Table (1) Socio-Demographic characteristics of pregnant women**

|  |  |  |  |
| --- | --- | --- | --- |
| **Socio-Demographic characteristics** | | **F** | **%** |
| **Age**  **(M=28.41, S.D=6.64)** | Less than 21 years | 23 | 5.3 |
| 21-30 years | **274** | **63.7** |
| 31-40 years | 111 | 25.8 |
| More than 41 years | 22 | 5.1 |
| **Residence** | Urban | **356** | **82.8** |
| Rural | 74 | 17.2 |
| **Level of education** | Illiterate | 34 | 7.9 |
| Read and Write | 111 | 25.8 |
| Primary School | 63 | 14.7 |
| Secondary School | 22 | 5.1 |
| Institutes and above | **200** | **46.5** |
| **Occupation** | Housewife | **259** | **60.2** |
| Employee | 171 | 39.8 |
| **Number of Pregnant**  **(M=2.21, S.D=0.77)** | 1-3 Pregnant | **312** | **72.6** |
| 3-9 Pregnant | 115 | 26.7 |
| More than 9 Pregnant | 3 | 0.7 |
| **Number of visits**  **(M=4.07, S.D=3.65)** | No Visit | 63 | 14.7 |
| Less than 9 visits | **302** | **70.2** |
| 9 visit and more | 65 | 15.1 |
| **Name of hospital** | Al-Kansaa teaching hospital | 204 | 47.4 |
| Al-Batool teaching hospital | **226** | **52.6** |
| **Previous congenital anomalies** | No | **399** | **92.8** |
| Yes | 31 | 7.2 |
| **Previous toxoplasmosis** | No | **381** | **88.6** |
| Yes | 49 | 11.4 |
| **Source of knowledge about congenital anomalies** | No have knowledge | 114 | 26.5 |
| Education | 71 | 16.5 |
| Family | 71 | 16.5 |
| Books | 59 | 13.7 |
| Internet | **115** | **26.7** |

***F =frequency, %= percentage, M= mean, S.D, standard deviation***

Figure (1) shows pregnant women knowledge related to description of congenital anomalies

Figure (2) Explain pregnant women knowledge related to risk factors for congenital anomalies

Figure (3) Distribution pregnant women knowledge about prevention of congenital anomalies

Table (2) Distribution of the overall pregnant knowledge about description, risk factors, and prevention of congenital anomalies

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pregnant Women Knowledge** | **Poor knowledge** | | **Moderate knowledge** | | **Good knowledge** | |
| **F** | **%** | **F** | **%** | **F** | **%** |
| **Description of congenital anomalies** | 28 | 6.5 | 182 | 42.3 | **220** | **51.2** |
| **Risk factors for congenital anomalies** | 46 | 10.7 | **239** | **55.6** | 145 | 33.7 |
| **Prevention of congenital anomalies** | 68 | 15.8 | **279** | **64.9** | 83 | 19.3 |
| **Total** | 142 | 11.0 | **700** | **54.27** | 448 | 34.73 |

**Table (3) Association between pregnant women knowledge and socio-demographic characteristics**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Socio-Demographic characteristics** | | **N** | **M.** | **S.D** | **F** | **Sig.** |
| **Age** | Less than 21 years | 23 | 2.12 | 0.18 | 2.841 | **0.038**  **S.** |
| 21-30 years | 274 | 2.25 | 0.22 |
| 31-40 years | 111 | 2.26 | 0.24 |
| More than 41 years | 22 | 2.23 | 0.18 |
| **Residence** | Urban | 356 | 2.26 | 0.22 | 6.43 | **0.012**  **S.** |
| Rural | 74 | 2.19 | 0.20 |
| **Level of education** | Illiterate | 34 | 2.15 | 0.18 | 10.749 | **0.000**  **H.S** |
| Read and Write | 111 | 2.17 | 0.22 |
| Primary school | 63 | 2.21 | 0.22 |
| Secondary school | 22 | 2.25 | 0.23 |
| Institutes and above | 200 | 2.31 | 0.21 |
| **Occupation** | Housewife | 259 | 2.23 | 0.21 | 5.283 | **0.022**  **S.** |
| Employee | 171 | 2.27 | 0.23 |
| **Number of Pregnant** | 1-3 pregnant | 312 | 2.24 | 0.22 | 0.576 | 0.562  N.S |
| 3-9 pregnant | 115 | 2.24 | 0.21 |
| More than 9 Pregnant | 3 | 2.38 | 0.23 |
| **Number of visits** | No visits | 63 | 2.23 | 0.25 | 0.395 | 0.674  N.S |
| Less than 9 visits | 302 | 2.25 | 0.21 |
| 9 visits and more | 65 | 2.23 | 0.22 |
| **Name of hospital** | Al-Kansaa teaching hospital | 204 | 2.20 | 0.22 | 16.041 | **0.000**  **H.S** |
| Al-Batool teaching hospital | 226 | 2.28 | 0.21 |
| **Previous congenital anomalies** | No | 399 | 2.25 | 0.22 | 0.668 | 0.414  N.S |
| Yes | 31 | 2.21 | 0.23 |
| **Previous toxoplasmosis** | No | 381 | 2.25 | 0.22 | 1.142 | 0.286  N.S |
| Yes | 49 | 2.21 | 0.22 |
| **Source of knowledge about congenital anomalies** | No have knowledge | 114 | 2.18 | 0.22 | 4.73 | **0.001**  **H.S** |
| Education | 71 | 2.24 | 0.23 |
| Family | 71 | 2.24 | 0.22 |
| Books | 59 | 2.26 | 0.20 |
| Internet | 115 | 2.30 | 0.21 |

**N= number, F =frequency, %= percentage, M= mean, S.D, standard deviation,F= F value, Sig.= significant, S.= significant, H.S.= high significant, N.S.= not significant**

**Discussion**

The majority of the participants in our current study were housewives, and the majority of the participants had (1-3) pregnancies. The demographic characteristics represented the highest percentage with regard to age between (21-30) years and from urban dwellers, and the highest percentage of the certificate of the Institute or above, and the highest percentage represented the certificate of the Institute or University. During pregnancy, the average number of visits to clinics or health centers is less than nine. The majority of the participants did not have births with congenital deformities or had previously been infected with cat sickness, and the information was obtained over the Internet. Table 1 shows the results. The present study disagreement with a study of Prabhuswami et.al, (2016) which mentions the majority of the pregnant women in this study were between the ages of 21 and 25, visited 4-6 times for antenatal checkups (69 %), were graduates (38 %). Furthermore, another study by AlAbedi, Arar, and Radhi (2019) found that the majority of the sample was (16-20) years old (32.7%), with the majority of the sample falling within the reading and writing and primary education levels (20 % ). With regard to the knowledge of pregnant women about the description of congenital malformations, most of the participants had (51.2%) good knowledge and the lowest percentage of poor knowledge, as shown in Figure (1). The participants had moderate knowledge about the risk factors for congenital malformations in pregnant women Figure (2). Numerous studies have been conducted regarding pregnant women knowledge of congenital anomalies. And in a study conducted on 443 pregnant women at the University of Ghana found that 205 (46.3%) had High knowledge of risk factors while 213 (48.1%) and224 (50.6%) have moderate and specific general knowledge (Prabhuswami,et.al). This supports our study where the results were shown the knowledge of pregnant women about risk factors and prevention was moderate and represent (55.6%), (64.9%) respectively, and showed a significant relationship between knowledge and age, residence, level of education, occupation, and source of knowledge about congenital anomalies. congenital anomalies were found to be significantly associated with inadequate antenatal care. Pregnant women who receive adequate antenatal care are frequently given health education on a variety of topics, such as the importance of proper nutrition, how to avoid teratogens, and how to prevent maternal infections. Additionally, folic acid supplements are frequently offered during prenatal care visits (Penchaszadeh ,2002). Regarding the description of congenital anomalies, the majority of the participants (55.6 %) had a good understanding, whereas when it came to risk factors for congenital malformations, the majority of the participants (51.2 %) had a moderate understanding. This means that moms of all ages should gain a better understanding of birth abnormalities and their causes in order to avoid them and limit their prevalence as much as possible. Furthermore, (64.9 %) represents pregnant women's understanding of congenital malformation prevention. Which that describe as follow in figures (1,2,3). Martínez, 2016. Folic acid consumption is recommended in women during pregnancy for the prevention of neural tube defects. Consumption is required three months before pregnancy because the embryonic nervous system develops between the third and fifth weeks, even before the woman realizes she is pregnant. Furthermore, roughly 40% of pregnancies are unplanned, and most countries' strategies to increase vitamin B complex consumption have failed. In the current study, a significant, significant relationship was found between women’s knowledge about congenital malformations and demographic characteristics, except for the number of pregnancies and the number of visits during pregnancy to the health center or clinic, and there is also no relationship with previous congenital malformations or previous toxoplasmosis infection, and this is illustrated by table 2. The study by Martínez(2016) found that the majority of pregnant women have a low level of education, as the number of those who cannot read and write or only read reached The study found that the majority of pregnant women have a low educational level, as the number of those who cannot read and write or read at a very high level (0.000) highly significant. This means that health education for pregnant women in the community must be increased. increase the awareness of pregnant women about congenital anomalies, and increase the role of health care providers in raising awareness and counseling about congenital anomalies. Bello's investigation (2013). There were no significant correlations between the participants' specific knowledge and their ages, educational levels, number of pregnancies, or prenatal visits.

**Conclusions**

The majority of women in age group between (21-30) years, and lived in urban. High percentage of women have institutes certificate and above, but only (39.8%) was employee. More than half of women have moderate level for overall knowledge about congenital anomalies. While have good knowledge about description of congenital anomalies, and moderate knowledge for risk factors and prevention of congenital anomalies. The study finding relationship between women knowledge and some socio-demographic characteristics such as: age, residence, level of education, occupation, and source of knowledge about congenital anomalies are significant factors affecting knowledge .

**Recommendations**

To increase the awareness of pregnant women about congenital anomalies, and increase the role of health care providers in raising awareness and counseling about congenital anomalies. Also, importance of genetic counseling can be helpful. Preconception counseling is provided in women’s health centers. In addition, simple education and training program for pregnant women to avoid risk factors and to practice prevention is recommended.

**References**

1. Taye, M., Afework, M., Fantaye, W., Diro, E., & Worku, A. (2019). Congenital anomalies prevalence in Addis Ababa and the Amhara region, Ethiopia: a descriptive cross-sectional study. *BMC pediatrics*, *19*(1), 1-11.
2. Corsello, G., & Giuffrè, M. (2012). Congenital malformations. *The Journal of Maternal-Fetal & Neonatal Medicine*, *25*(sup1), 25-29.
3. Kanchana, K. T. G., & Youhasan, P. (2018). Knowledge and Attitudes on Fetal Anomalies among Pregnant Women in Teaching Hospital Mahamodara, Galle. *International Journal of Public Health*, *7*(4), 231-235.
4. De Silva, J., Amarasena, S., Jayaratne, K., & Perera, B. (2019). Correlates of knowledge on birth defects and associated factors among antenatal mothers in Galle, Sri Lanka: a cross-sectional analytical study. *BMC pregnancy and childbirth*, *19*(1), 1-9.
5. Alborz A. (2013). Environmental characteristics and prevalence of birth defects among children in post-war Iraq: implications for policies on rebuilding the Iraqi education system. Med Confl Surviv. 2013;29(1):26–44 http://www.ncbi.nlm.nih.gov/pubmed/23729096.
6. Francine R, Psascale S, Aline H. (2014). Congenital anomalies: prevalence and risk factors. Universal J Public Health. 2(2):58–63. <https://doi.org/10.13189/> ujph.12014.020204 http://www.hrpub.org.
7. Prabhuswami, M., Naregal, M. P., Avinash, M., Manisha, M., Mahesh, M., & More, M. U. R. (2016). Knowledge of Pregnant Women About Congenital Anomalies: A Cross-Sectional Study at Krishna Hospital Karad. *people*, *5*(8).
8. AlAbedi, G. A., Arar, A., & Radhi, T. A. (2019). Assessment of Knowledge for Pregnant Women toward Risk of Pregnancy in Al-Amara Primary Health Care Centers at Southern of Iraq. *Indian Journal of Public Health*, *10*(6), 57.
9. Bello, A. I., Acquah, A. A., Quartey, J. N., & Hughton, A. (2013). Knowledge of pregnant women about birth defects. *BMC pregnancy and childbirth*, *13*(1), 6-7.
10. Bener, A., Al Maadid, M. G., Al-Bast, D. A., & Al-Marri, S. (2006). Maternal knowledge, attitude and practice on folic acid intake among Arabian Qatari women. *Reproductive toxicology*, *21*(1), 23.
11. Penchaszadeh, V. B. (2002). Preventing congenital anomalies in developing countries. *Public Health Genomics*, *5*(1), 61-69.
12. Martínez-Garza, L. E. (2016). Twenty-five years of knowledge of the prevention of neural tube defects with folic acid. Medicina Universitaria, 18(73), 187-188.
13. Bello, A. I., Acquah, A. A., Quartey, J. N., & Hughton, A. (2013). Knowledge of pregnant women about birth defects. *BMC Pregnancy and Childbirth*, *13*(1), 1-7.