Original Article

Knowledge, Attitude, Practice Study of Congenital Anomalies After Ultrasound Scanning Among Expecting Women in Tertiary Care Hospitals in Islamabad

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Abstract

Objective: To determine the knowledge, attitude, Practice regarding congenital anomalies after ultrasound scanning among expecting women in tertiary care hospitals in Islamabad.

Methodology: This cross-sectional study was done at three tertiary hospitals of Islamabad. The duration of the study was six months, from January 2021 to June 2021 All the women who had undergone prenatal ultrasound scanning for fetal wellbeing suspected for congenital anomalies, aged 18 to 45 years, both primary and multiparous women were included. All the study subjects were interviewed for their knowledge, attitude and practice regarding congenital anomalies. An interview-administered questionnaire was designed to gather socio-demographic variables and health status data, with the KAP. Further to pilot testing on 30 participants, reliability was established, new options were added to performa questions, and some more questions were introduced**.** The questionnaire was administered in person by trained researchers or self-administered by participants. All the information was collected via questioner-based study proforma and the analysis of the data was done by using SPSS version 26.

Results: Out of the total of 126 participants, only 46% had good knowledge, while 54% had an estimated poor knowledge level about congenital anomalies. 64.3%, had a poor attitude towards congenital disabilities and 35.7% had a good attitude towards congenital disabilities. Poor self-efficacy, contains respondents with no or one answer 44.6%, fair segment, 49.6% contained those respondents who were given at least two to seven answers, while the good segment, 5.8%, contained those respondents who were given at least eight to nine answer. Socio-demographic variables like family income, age, and residence were not significantly related to knowledge ($p= >0.05$). The educational level of participants was statistically significant with knowledge ($p= <0.05$).

Conclusion: There was no significant knowledge and attitude towards the congenital anomalies after ultrasound scanning. Only 46% of the participants had good knowledge and 35.7% had a good attitude towards congenital disabilities. Through education and awareness-raising initiatives, efforts are needed to improve maternal knowledge and attitudes.

Key words: Congenital anomalies, knowledge, attitude, Mothers

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Introduction

Congenital anomalies and congenital abnormalities are terms used for the defects present at birth. The World Health Organization has defined congenital anomalies as defects that develop in the fetus due to biochemical, physiological, or molecular defects at conception or anytime and may present at birth or be detected later.[1] Congenital anomalies are abnormalities of antenatal origin caused by single gene mutation, multi-factorial, chromosomal abnormalities, environmental teratogenic substances, and micronutrient deficiencies.[2] Other factors could be maternal rubella, diabetes mellites, substance abuse like alcohol and tobacco, medications, hazardous chemicals exposure, and irradiation.[3]

Developed and non-developed countries are the victims of these diseases, which have become a leading cause of prenatal, neonatal and childhood mortality. Every

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year, 8.14 million children are born with congenital disabilities.[4] In Pakistan, congenital anomalies account for 6% to 9% of perinatal mortality.[5] Congenital anomalies are responsible for 260,000 deaths worldwide.[3] The prevalence, i.e., frequency and specification of congenital anomalies, differ from one country to another and from one area to another. The prevalence depends on their definition, how they were detected, the observation period, and the ethnic and socio-economic circumstances of the population studied. These anomalies can be classified as major and minor; major ones require surgical intervention and can even lead to the death of neonates. Minor congenital anomalies are detrimental to the quality of life and affect the neonates' health.[6] This cause of infant and childhood demise is not sufficiently recognized as a severe issue in our society, and this is also reflected in government policies due to other more common issues like diarrhea, pneumonia, measles and other diseases.[1] Hence, this is a public health dilemma for our society, which reveals the seriousness of this issue and suggests that individuals and other stakeholders could make a difference. Previous studies have shown that preventive care can reduce adverse pregnancy outcomes such as congenital abnormalities by 70%.[7] Any effort to increase preventive care would require an understanding and knowledge of congenital diseases and their prevention,[8] not just in the general population but specifically in pregnant women.[9]

A current study has been done to evaluate the knowledge, attitude, Practice regarding congenital anomalies after ultrasound scanning among expecting women in tertiary care hospitals in Islamabad. The study on maternal knowledge and attitude regarding congenital anomalies after ultrasound scanning can contribute to improving maternal and fetal health outcomes, enhancing informed decision-making, informing healthcare providers, identifying gaps in knowledge and attitude, and supporting health policy efforts.

Methodology

This cross-sectional study was done at three tertiary hospitals of Islamabad. The duration of study was six months, from January 2021 to June 2021 and the study was done after obtaining ethical approval from the Ethical Board of Punjab Employees Social Security Institute (PESSI). Patient surveys were conducted at the Radiology (Sonography) outpatient departments of three major hospitals in Islamabad, i.e., PESSI, Federal Government Polyclinic and Pakistan Institute of Medical Sciences (PIMS). All the women who have undergone prenatal ultrasound scanning for fetal wellbeing and suspected for congenital anomalies, aged 18 to 45 years, both primary and multiparous women were included. Women who have a pre-existing knowledge of congenital anomalies or who have received previous counseling or education on the topic and women with significant mental health conditions or cognitive impairments that may affect their understanding or response to the study questions were excluded.

Sample size calculation was done using Open Epi, Version 3, an open-source calculator software. The confidence level was 95% with 5% precision, response allowance of 5% and a population size of one million. The sample size was calculated to be 126. Participants signed the consent form after an explanation in Urdu language by the researcher. The consent form was modified and translated into Urdu for those who can read for better understanding others were explained by the researcher in the presence of the duty physician or the patient's attendant. Privacy was provided to the respondent by providing a separate room.

All the study subjects were interviewed for their knowledge, attitude and practice regarding congenital anomalies. An interview-administered questionnaire was designed to gather socio- demographic variables and health status data, with the KAP study modified.[7,8] Further to pilot testing on 30 participants, reliability was established, new options were added to performa questions, and some more questions were introduced. The questionnaire was administered in person by trained researchers or self-administered by participants. All the information was collected via questioner-based study proforma and analysis of the data was done by using SPSS version 26.

Results

Out of 126 suspected respondents, 12(9.5%) had congenital defects. The majority of respondents (80.5%) are between the ages of 21 and 30, while 13 (10.3%) are between the ages of 18 and 20, and 33 (26.2%) are between the ages of 31 and 45.Their educational level was also categorized into three or more categories while most of them were in middle school 35(27.8%) and university level segment 29 (23.0%). Economically, main segment falls in low monthly income of bread earner group 10,000-20,000 Rs/month [73 (57.9%)] while 21,000-30,000 Rs/month [36 (28.6%)] and 31,000-50,000 Rs/month [17 (13.5%)] respectively. Although the bread earner in the family, profession of bread earner, residential status, addictive habits, diet status and history of abortion and child with birth defect presented in table I.

Table I: Sociodemographic and clinical characteristics of the study subjects (n=126)

Variable	Categories	N (%)
Bread earner in the family	Husband	113 (89.7%)
	Children	1 (0.8%)
	Self	2 (1.6%)
	In-laws	1 (0.8%)
	Multiple persons	9 (7.1%)
Profession of bread earner	Domestic helper	3 (2.4%)
	Transporter	18 (14.3%)
	Trader	21 (16.7%)
	Office worker	52 (41.3%)
	Laborer	31 (24.6%)
Area of residence	Islamabad	24 (19.0%)
	Rawalpindi	60 (47.6%)
	Rural	19 (15.1%)
	Others	23 (18.3%)
Type of residence	Rented	45 (35.7%)
	Government	11 (8.7%)
	Own house	70 (55.6%)
Patients’ addictive habits	Paan/chaalia beetle nut)	24 (19.0%)
	Cigarette	4 (3.2%)
	None	98 (77.8%)
Patients' diet	Balanced (protein, fats carbohydrates, fruits)	61 (48.4%)
	Vegetables/bread	65 (51.6%)
No. of past abortions	Nor	15 (12%)
	1	78 (62%)
	>1	33 (26.2%)
Any other child with birth defect	Yes	27 (21.4%)
	No	99 (78.6%)
Any child with birth defect in close	Yes	55 (43.7%)
	No	71 (56.3%)

Out of the total of 126 participants, only 46% had a good knowledge level about congenital anomalies, while 54% had an estimated poor knowledge level about congenital anomalies. 64.3%, had a poor attitude towards congenital disabilities and 35.7% had a good attitude towards congenital disabilities. Out of 126 participants, self-efficacy behavior about congenital disabilities showed self-efficacy. Poor self-efficacy, contains respondents with no or one answer 44.6.%, fair segment, 49.6.% contained those respondents who were given at least two to seven answers, while the good segment, 5.8%, contained those respondents who were given at least eight to nine answer. (Table II)

Socio-demographic variables like family income, age, and residence were not significantly related to knowledge. The educational level of participants was statistically significant with knowledge. However, congenital anomalies, whether present [12(9.5%)] or not [114 (90.5%)], were also statistically significant with knowledge. Test results were calculated using one-way ANOVA, which showed no statistical significance with history of past abortions, any child with a congenital disability, addictive habits of the patient, and patient's diet. None of the variables is statistically significant. (Table III)

Table II: Overall knowledge and attitude regarding congenital anomalies of the study subjects (n=126)

Variable			N (%)
Overall knowledge		Good	58(46%)
		Poor	68 (54%)
Overall attitude		Good	45(35.)
		Poor	81(64.3%)
Self-efficacy		Good	7(5.8%)
		Fair	60(49.6%)
		Poor	54(44.6%)
Prevention	Do you know that it is possible to prevent congenital anomalies?	Yes	41.3%
		No	13.5%
		Don’t know	45.2%
Treatment	Do you know that birth defects can be medically treated after birth to a certain extent?	Yes	54.8%
		No	16.7%
		Don’t know	28.6%

Table III: Relationship of Knowledge with demographic clinical, health assessment characteristics and attitude (n=126)

Variable	Categories	F (df)	P values
Family Income (PKR/month)	10,000 – 20,000	(2,113) = 2.94	0.056
	21,000 – 30,000		
	31,000 – 50,000		
Education level	Primary	(4,192.6) = 5.6	0.000*
	Middle		
	High		
	University		
	None		
Age (years)	18 – 20	(2,4.3) = 0.108	0.897
	21 – 30		
	31 – 45		
Residence	Islamabad	(3,28.7) = 0.724	0.540
	Rawalpindi		
	Rural		
	Others		
Congenital anomalies	Yes	(1,210.1) = 5.51	0.020*
	No		
Past abortions	None	(2, 12.2) = 0.305	0.737
	Once		
	More than one		
Any child with birth defects	Yes	(1 , 128.5) = 3.31	0.071
	No		
Addictive habits	Pan/chaalia (beetle nut)	(2 , 40.1) = 1.01	0.365
	Hukkah		
	Cigarette		
	None		
Diet	Balanced	(1,51.594) = 1.31	0.255
	Vegetables/bread		
Who is responsible for birth defects?	Supernatural things Too many children Tension / stress None of the above	(3, 11.4) = 0.28	0.836

Would you prefer to do genetic testing?	Yes No Maybe Do not know	(3, 42.8) = 1.08	0.358
Mothers' feelings after thinking about birth defects during pregnancy	Worried Sad More hungry More sleepy Angry None of the above	(6, 121.0) = 3.42	0.004*

Discussion

Congenital anomalies are a significant concern for expecting women, and early detection through ultrasound scanning can be vital for the health of the fetus. However, the knowledge, attitude, and practice of expecting women regarding congenital anomalies after ultrasound scanning are crucial factors that can influence their behavior and decision-making. This study aims to determine if there is any relationship between congenital anomaly knowledge and socio-demographic status and the knowledge's influence on attitude and practices regarding congenital anomalies. This study's prevalence of congenital anomalies comes out to be 9.5%. These findings were also consistent with another study done in Mardan, Pakistan, which revealed a range from 6% to 9% in different areas of Pakistan.[5] Other studies conducted in India showed a 9% prevalence.[14] In countries like the USA and Canada, this prevalence turns out to be 1 in 33, about 3%.[15] 1 in 25 Canadian babies is diagnosed with congenital anomalies.[16] In contrast, the prevalence in Africa is 22%, showing an extremely high occurrence.[17] A more significant portion of participants (63.5%) were confined to 21-30 years of adulthood. It would be pertinent to note that Pakistan's median childbearing age is 28 years.[18] Another study on congenital disabilities in Ghana[8] had a similar maternal age group of 21-30 years. Altogether, our study showed that the proportion of university education was 23%, whereas the highest proportion was in middle school, 27.8%. The education level of expecting mothers in this study had an established relationship with their knowledge of congenital disability. Hence, women with education till middle or higher education had better knowledge about congenital disabilities than women with lower education or no education. Another study also mentioned that slower fetal growth is related to less educated women.[19]

This study revealed that the more significant proportion, 58%, belonged to the low monthly income segment, whereas 73.8% of households had more than five persons living in the same house. However, 89.7% of these households depended on a single bread earner, which could be a reason for their overall low-income status. The result is aligned with the WHO research, which showed that 94% of severe congenital anomalies were in low- and middle-income countries.[20] This study's maternal health assessment showed that 84.1% of the mothers were not taking any medication for diseases with a high risk of fetal anomalies. In another study, only 32% of unmarried women in Pakistan had heard about sexually transmitted diseases.[21] This study showed that 77.8% did not have addictive habits, while another study showed that tobacco use is 5.1% which is highest in the South Asian region.[22] According to this study, 36.5% had at least one child with a congenital anomaly. This study showed that 62% did not have an abortion in the past.

The difference between families that could afford a balanced diet, 48.4%, is relatively low compared to those with an unbalanced diet 51.6%. Hence showed that despite low income, their nutritional status was relatively better. There was a general concept that a good diet for mothers will positively affect a child's health, although it was not specific to the avoidance of congenital disabilities; perhaps that is why 28% of women were anemic in Pakistan.[23] Only 59% of women take iron supplements during pregnancy.[21] Assortment in the diet was remarked in 89% of expecting women, which is a good measure of micronutrient status, but still, folic acid deficiency is remarkable among expecting women in Pakistan because it is not present in the diet; supplements are the only source. Neural tube defects are caused by folic acid deficiency.[23] Meanwhile, the total utilization of antenatal folic acid supplements is low; only 44% of urban Pakistani women receive it.[24] This study showed that 78.6% did not have children with congenital disabilities, whereas 56.3% did not have any child with a congenital disability in a close family. Concerning the statistics from this study, the general health status of these mothers manifested in good overall health. Maternal health is estimated globally with a maternal mortality rate (MMR). 15% of over five million expecting women died in Pakistan due to obstetrical and medical issues.[25] Nevertheless, this study did not establish any link between knowledge about congenital disabilities and the health status of the mothers (history of past abortions, P=0.787, a child with congenital disability, P=0.071, addictive habits P=0.365, diet P=0.255). A low proportion of women, 27%, did not think they were vulnerable to congenital disabilities, but their fear of bearing a child with congenital abnormality was 21.4%. Hence, they thought it was an extremely severe disease, but the dilemma was that they were confident that it would not occur to them. The majority, 62%, realized the danger and impact of congenital disabilities on their lives as extremely high.

As per this study, the overall knowledge level was somewhat balanced (54% poor, 46% good), but the attitude towards congenital disabilities was majorly poor (64.3% poor, 35.7% good). This study shows a good self-efficacy (5.8%) indicative of motivational behaviour towards preventing congenital disabilities. This behavior is linked to demotivation to acquire knowledge about preventive measures to avoid congenital disabilities, as evidenced by 45.2% showing confusion about any preventive steps. However, early spotting and treatment of congenital anomalies can lower the lifelong effect of the diseases. However, 54.8% of these women are somehow more confident about treating children with congenital disabilities. This confidence is due to their knowledge of congenital disability treatments, P=0.000.

Although 50% think that somehow supernatural things were responsible for congenital disabilities, it did not show any relationship with the knowledge of congenital disabilities. Another study mentioned that knowledge of congenital anomalies is affected by their conventional beliefs.[9] This study showed that their knowledge about specific risk factors existed (smoking P=0.001, advancing maternal age P=0.000, using unprescribed medication P=0.030, having STD P=0.000 and intermarriages in close relatives P=0.003). Another similar study showed that maternal smoking is a moderate risk of congenital disabilities.[6] There was a lack of knowledge about smoking during pregnancy.[26]

Similarly, a general understanding of the need for regular medical checkups for expecting mothers (P=0.023) indicated sufficient knowledge about diagnosing congenital disabilities during pregnancy. In a health survey, half of the women, i.e. 55%, had their antenatal visit in the first trimester, and the other half of women, 51%, did four or more visits to the hospital for a checkup during pregnancy.[21]

Conclusion

Based on the study findings, there was no significant knowledge and attitude towards the congenital anomalies after ultrasound scanning. Only 46% of the participants had good knowledge, and 35.7% had a good attitude towards congenital disabilities. The socio-demographic variables of family income, age, and residence were not significantly impacted to knowledge, while the educational level was statistically significant. Therefore, efforts are needed to improve maternal knowledge and attitude through education and awareness-raising initiatives. This would enable expectant mothers to make informed decisions about the health of their unborn child and seek appropriate medical care in a timely manner. Moreover, to improve their traditional beliefs about congenital anomalies. In contrast, knowledge of congenital disabilities has no impact on the health status of pregnant women; it is more due to their general concepts related to a good diet for the sake of mother and child's health. Efforts to improve the situation would require a multi-dimensional approach towards designing a public health program involving communities, health care workers, local authorities, and social media platforms to approach these areas of change in attitude, confusion behind prevention, and misconceptions.

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