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# *Frequency Of Fetal Congenital Abdominal Anomalies Diagnosed On Ultrasound In Gujrat Pakistan: A Cross-sectional Study*

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## ABSTRACT

***Introduction:*** *A congenital abnormality is referred to as a congenital illness or deformity. In the first four weeks of life, 276,000 newborns die from congenital impairments, giving birth to a total of around 3 million fetuses and babies; these fetuses and infants are affected by abdominal fetal deformities. Each demographic has a different prevalence of birth defects.*

*Using standard ultrasonography, we set out to find out how often it is to see congenital fetal abdominal abnormalities in Gujrat District of Pakistan.*

***Methods:*** *From January 2022 to June 2022, researchers will conduct cross-sectional study at the Azeem Diagnostic Center Gujrat. 397 This research included pregnant women in the first, second, and third trimesters. Statistical analysis of prenatal ultrasound findings was carried out via the use of a structured questionnaire. A p-value of less than 0.05 was considered significant when using the Chi-square test to look for a relationship. Odds Ratio was used to calculate illness risk.*

***Results:*** *Twenty separate pregnant women who had ultrasounds had fetal congenital impairments discovered. Patients with Atresia or Renal Agenesis are nine times more likely to have an Omphalocele than those without (odds ratio = 0.994, 95 percent confidence range = 0.986-1.002).*

***Conclusion:*** *It is a noninvasive imaging technique that is incredibly sensitive and accurate while also being quite affordable in the hands of a skilled professional. At least during the second trimester, obstetricians should encourage their patients to get regular ultrasounds.*

***Keywords: Congenital anomalies, Prenatal, Ultrasonography, frequency.***

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## INTRODUCTION

A congenital abnormality is referred to as a congenital illness or deformity. In the first four weeks of life, 276,000 newborns die from congenital impairments, giving birth to a total of around 3 million fetuses and babies; these fetuses and infants are affected by abdominal fetal deformities. Each demographic has a different prevalence of birth defects [1-3]. Abdominal congenital abnormalities have been closely monitored using a comprehensive surveillance program [4]. Congenital diseases affect 2 to 3 percent of the world's population, according to this research. Each country has a different prevalence of these abdominal anomalies [5]. Some sources claim that Japan has a 0.1% rate while Taiwan has 4.3% [6]. Only 2 percent of babies in England, 1.49 percent of South Africans, and 3.65 percent of Indians were born with abdominal abnormalities [7]. Congenital abdominal anomalies are more common in certain regions than others for a variety of reasons. A wide


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range of variables may be involved, including environmental stressors and racial and economic disparities, as well as maternal risk factors [8-10]. An ultrasound from the 18th to the 22nd week of pregnancy is recommended by the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG) [11-13].

Only 22.3% of the time may structural problems in the abdominal wall, intestines, stomach, and bladder be detected with a first-trimester scan performed at 11-14 weeks of pregnancy, according to recent research. Thus, a second-trimester anomaly scan has been advised as part of standard prenatal care to increase the detection of fetal abnormalities; some studies have shown that the capacity to identify abdominal anomalies before 24 weeks of gestation is sensitive. S's digestive and urinary systems were both 85.2 and 85.7 percent. Most congenital impairments are best diagnosed between the 20th and 22nd weeks of pregnancy by an ultrasound [13-14]. When it comes to parenting children with physical and mental problems, parents and children in the northeastern United States have a significant deal of responsibility. In terms of prenatal diagnosis, ultrasound scanning comes in a close second. When primary prevention isn't an option [13]. As a result, parents and relatives have more information to help them make informed decisions about their own health and that of their unborn child [4-11].

A lot has changed in the realm of prenatal screening and diagnosis. Chromosome abnormality detection will soon be easier and more accurate thanks to advances in genetics and biomedical research in the next several years. In spite of this, the problem The goal of primary prevention in Europe is to address environmental risk factors and improve the well-being and quality of life of children and their families who have been impacted by the disease. increase. There will be fewer women compelled to consider abortion as an option because of this [1].

We aimed to assess the *(Frequency Of Fetal Congenital Abdominal Anomalies Diagnosed On Ultrasound In District Gujrat*) of Pakistan. This initiative intends to enhance public awareness of prenatal ultrasounds and establish the incidence and characteristics of such anomalies in real pregnancies as a basis for future pregnancies in which congenital problems may be anticipated and controlled.

## METHODS

This cross-sectional. from January 2022 to June 2022 at the Azeem Diagnostic Center Gujrat. Rao soft Sample size calculator was used to generate a sample size of 397 with a 95% confidence interval and a 5% margin of error. Non-probability sequential sampling was utilized.

Our research included expectant women of various ages in the first, second, and third trimesters. Patients who came to the research for anything other than obstetric ultrasonography were not allowed to participate.

Once the University of Lahore's ethics committee had approved the study with reference number REG/GRT/22/AHS-71, dated 01-01-2022, a questionnaire was used to gather the following information about the patient. Pregnancy, childbirth, and the like are all factors in determining one's age. Results of transabdominal USG examinations, such as the number of babies present (single or multiple), gestational age, and the presence or absence of congenital abnormalities, were also included in the questionnaire An ultrasound machine with a 2-5 convex array transducer was used by the radiology technician to do all of the abdominal ultrasonography.

Our study is fully compliant with the STROCSS 2021 guidelines [15]. A complete STROCSS , 2021 checklist has been provided as a supplementary file. Our study has been registered on Research Registry with the following UIN: researchregistry8131 [16]. Our study is in accordance with the Declaration of Helsinki.

SPSS version 25 was used to examine data from a database having all of the aforementioned features. Anatomical and demographic aspects such as the woman's gestational age are taken into consideration throughout the scan's full anatomical

 

evaluation. Tables and graphs portray the data in a clear and understandable manner. There are three ways to describe quantitative data: frequency, mean, and standard deviation. Chi square test was used to determine the significance of the connection at a p value less than 0.05. The risk of sickness was estimated using the Odds Ratio.

## RESULTS

A total of 397 first, second, and third trimester prenatal ultrasounds were done. Twenty separate pregnant women were revealed to have fetal birth abnormalities by ultrasonography, the majority of whom were between the ages of 22 and 35. At the time of diagnosis, the average gestational age was 28 weeks and the average mother age was 26 years. A total of 48 persons (12.09 percent) had diabetes, whereas 41 people (10.3 percent) had PIH. There were 17 occurrences of hypertension (4.3 percent) among 397 patients, and 62 cases of gestational diabetes mellitus (15.6 percent). Epilepsy affected 16 (4.03 percent) and TB affected 27 (6.8 percent). As stated in Table I, there were a total of 30 (7.6 percent) who tested positive for Hepatitis.

**“Table I: Patients with Co-Morbidities”**.

| | **“Frequency”** | **“Percent”** |
|---|---|---|
| **“DM”** | | |
| **“Positive”** | **48** | **12.O9** |
| **“Negative”** | **348** | **87.91** |
| **“PIH”** | | |
| **“Positive”** | **41** | **1O.3** |
| **“Negative”** | **356** | **89.7** |
| **“HTN”** | | |
| **“Positive”** | **17** | **4.3** |
| **“Negative”** | **38O** | **95.7** |
| **“GDM”** | | |
| **“Positive”** | **62** | **15.6** |
| **“Negative”** | **335** | **84.4** |
| **“Epilepsy”** | | |
| **“Positive”** | **16** | **4.O** |
| **“Negative”** | **381** | **96.O** |
| **“T. B”** | | |
| **“Positive”** | **27** | **6.8** |
| **“Negative”** | **37O** | **93.2** |
| **“Hepatitis”** | | |
| **“Positive”** | **3O** | **7.6** |
| **“Negative”** | **367** | **92.4** |

Fetal abdominal congenital abnormality fetuses were found in 20 instances, 8 of which were detected in the second trimester and the bulk of 12 in the third trimester, respectively; Five instances of hydrops fetalis (1.3 percent) were discovered in the fetal abdominal congenital anomaly. Polycystic kidneys were seen in five individuals (about 1.3 percent). Two instances (0.5 percent) were found to be positive for omphalocele, while atresia was found in four (1 percent). There were two (0.5%) cases of renal agenesis and two (0.5%) cases of diaphragmatic hernia in our study (Table II).

**"Table II: Abdominal Congenital Anomalies".**

| | "Frequency" | "Percent" |
|---|---|---|
| "Hydrops Fetalis" | | |
| "Positive" | 5 | 1.3 |
| "Negative" | 392 | 98.7 |
| "Polycystic Kidneys" | | |
| "Positive" | 5 | 1.3 |
| "Negative" | 392 | 98.7 |
| "Omphalocele" | | |
| "Positive" | 2 | .5 |
| "Negative" | 395 | 99.5 |
| "Atresia" | | |
| "Positive" | 4 | 1.0 |
| "Negative" | 393 | 99.0 |
| "Renal Agenesis" | | |
| "Positive" | 2 | .5 |
| "Negative" | 395 | 99.5 |
| "Diaphragmatic Hernia" | | |
| "Positive" | 2 | .5 |
| "Negative" | 395 | 99.5 |

According to Figure I, there were 248 (62.46 percent) third-trimester patients, 115 (28.96 percent) second-trimester patients, and 34 (8.58%) first-trimester patients.

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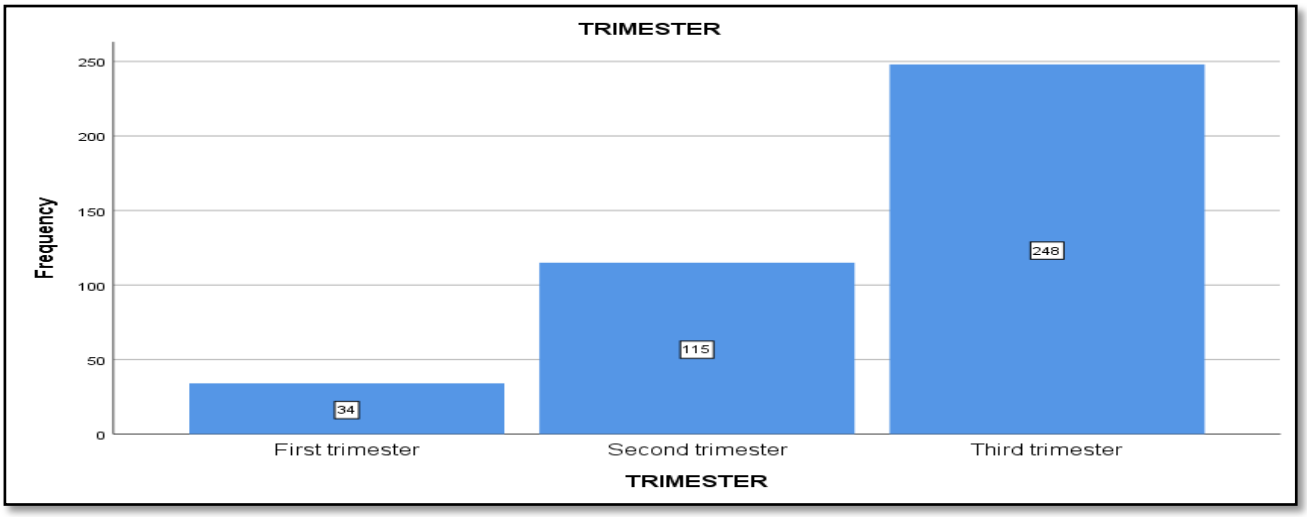
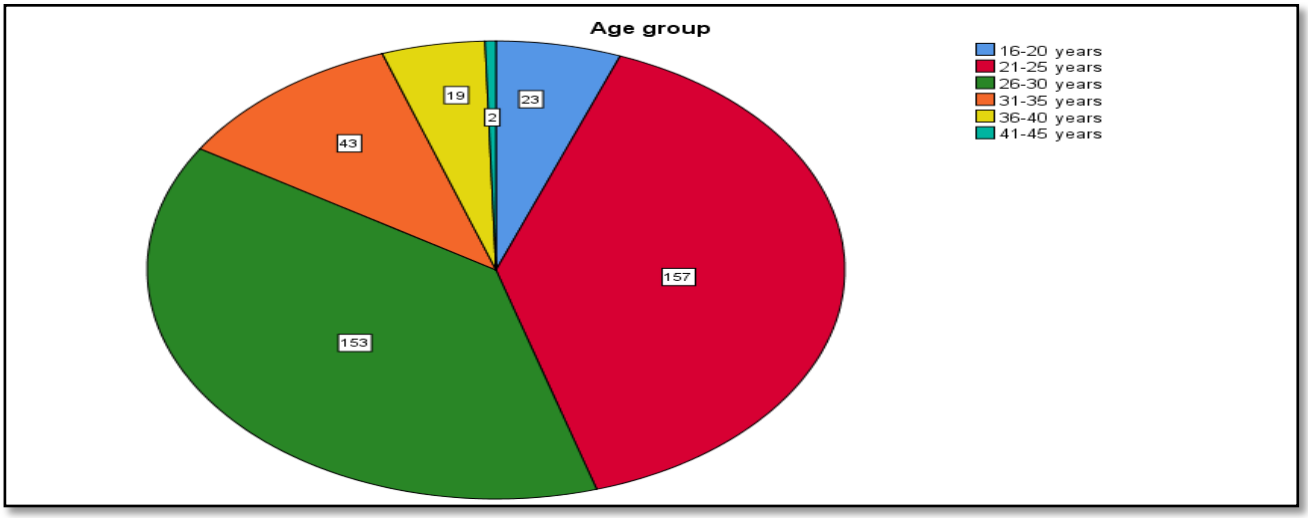



**"Figure I: Frequency of patients in 1st, 2nd& 3rd Trimester".**

It was found that 39.54% of the patients who sought treatment came from a younger age range (21-35), whereas 38.53% of the patients who came from a younger age range (26-30) attended. 43 patients (10.83 percent) were between the ages of 31 and 35, while 19 patients (4.78 percent) were between the ages of 36 and 40, and 23 patients (5.79 percent) were between the ages of 16 and 20, according to the findings. According to Figure II, there were two patients (or 0.53%) who were above the age of 41 and in the 41-45 age range when they first came in.




**"Figure II: Frequency of Pregnant Females According to Age Group".**

Polycystic Kidneys (OR = 0.985, 95 percent CI = 0.9972-0.998) and Hydrops Fetalis are more prevalent in individuals aged 18 to 30 years old. Occurrence rates of Omphalocele are 0.985 times higher in people between the ages of 18 and 30 (odds ratio = 0.994, 95% confidence range = 986-1.002). An atresia diagnosis is nine times more likely to occur in individuals between the ages of 18 and 30 than in any other age group. Patients aged 18-30 had a 95 percent confidence interval of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0.12-2.903 for Renal Agenesis and 0.994 for Diaphragmatic Hernia development, as shown in Table III, which is based on the prevalence of these conditions.

| AGE | Positive | Negative | P-Value | Odds Ratio | 95% Confidence Interval |
|---|---|---|---|---|---|
| **Hydrops Fetalis** | | | | | |
| 18-3O years | 5 | 331 | O.338 | O.985 | O.972-O.998 |
| 31-45 years | O | 61 | | | |
| **Polycystic Kidneys** | | | | | |
| 18-3O years | 5 | 331 | O.338 | O.985 | O.972-O.998 |
| 31-45 years | O | 61 | | | |
| **Omphalocele** | | | | | |
| 18-3O years | 2 | 334 | O.546 | O.994 | O.986-1.OO2 |
| 31-45 years | O | 61 | | | |
| **Atresia** | | | | | |
| 18-3O years | 4 | 332 | O.392 | O.988 | O.977-1.OO |
| 31-45 years | O | 61 | | | |
| **Renal Agenesis** | | | | | |
| 18-3O years | 1 | 335 | O.173 | O.179 | O.11-2.9O3 |
| 31-45 years | 1 | 6O | | | |
| **Diaphragmatic Hernia** | | | | | |
| 18-3O years | 2 | 334 | O.546 | O.994 | O.986-1.OO2 |
| 31-45 years | O | 61 | | | |

**"Table III: Abdominal Congenital Anomalies in association with Age"**


**"Figure III: Omphalocele Shown During Obstetric Ultrasound"**

**"Figure IV: Renal agenesis Shown During Obstetric Ultrasound"**

## DISCUSSION

As diagnostic technology progress, particularly ultrasound scanning (USG), it is now possible to detect a higher proportion of babies born with congenital impairments throughout pregnancy and the neonatal period. The older the mother, the more likely she is to give birth to a child with a congenital deformity. Women over 35 should have more thorough screenings because of the increased likelihood of having a baby with a congenital disability. The observer's variability, the equipment's quality, the observer's race, the social factor, or a geographic or sociological element might all contribute to this variation. The hydrops fetalis and polycystic kidneys were the most prevalent malformations found in this investigation, occurring in 1.3% and 1.3% of babies, respectively [17].

Prenatal diagnosis is essential for the prognosis of babies since it may lead to miscarriages, stillbirths, and other birth defects, according to a research done in Baluchistan. Ultrasound imaging of the fetus during pregnancy is an essential diagnostic tool [18]. Although it is illegal to terminate a pregnancy at this stage, doctors are still diagnosing many individuals with severe congenital abnormalities (20 weeks). In other cases, individuals experienced abnormal scans at a later gestation, while others were unable to submit for prognostication due of inadequate counselling. A routine anomaly scan may overlook certain abnormalities if they are identified too late. The earlier a pregnancy may be discovered and sent for help, the greater the chances of successful delivery. Patients in an Indian research had 38 malformations, whereas in our study, patients had 20 anomalies [19]. Research in Abbottabad found that for every 1,000 individuals, there were 12 congenital anomalies. A Neural Tube Defect was the most common form of congenital abnormality. Most of the patients had some kind of risk factor [20].

Congenital abnormalities have been linked to environmental risk factors like as smoking, pesticide and chemical exposure, and drinking surface water while pregnant in Ethiopian case-control studies. In order to prevent and minimize disease-causing risk factors, the community must be provided with continual health information [18]. Compared to our research, pregnant women in the Brazilian Midwest had a prevalence of 64.27 percent of fetuses with structural abnormalities [21]. Many fetal anomalies, including a prevalence of malformations of the head, have been seen at Kenyatta National Hospital. Perinatal mortality is a crucial factor in the development of birth defects. As a result, routine obstetric sonographic screening for the detection of birth defects is an important part of maternal and infant health care [22].

## CONCLUSION

Congenital abnormalities are one of the primary causes of fetal mortality and must be tracked. According to this research, hydrops fetalis and polycystic kidneys were the most prevalent abdominal fetal abnormalities analyzed. Reduced prenatal mortality and morbidity and disability may be prevented by raising awareness of the need of routine prenatal care, including ultrasounds, among expectant mothers and their health care providers. Good and prompt prenatal care, as well as counselling, are critical. Preventing serious birth defects in future pregnancies is easier when folate is included in a woman's diet early in her pregnancy.

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