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RESEARCH ARTICLE

MOST COMMON CONGENITAL HEART DISEASE AND AWARENESS OF PARENTS IN CHILDREN IN KSA

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Abstract

Objective: The aim of the research is to determine the most common forms of congenital heart disease in Saudi Arabian children and to gauge parents' awareness and understanding of congenital heart disease in their offspring. Conversely, the study will also assess indicators of parental awareness, like as consanguinity, socioeconomic position, and education.

Methods: A cross-sectional descriptive study approach will be used in this investigation, which is especially well-suited for determining the prevalence of congenital heart disorders (CHDs) in children as well as the awareness levels of their parents or guardians at a given moment in time. Ideal for real-world healthcare settings, this approach enables researchers to gather and examine data from a wide range of people without changing the study environment.

Results: The study included 722 participants. The study included 722 participants. The most frequent respondent among them was the mother (n=598, 82.8%) and the father (n=124, 17.2%). The most frequent age group among

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study participants was 40-49 years (n=204, 28.3%), followed by 30-39 years (n=195, 27%), and then 18-29 years (n=145, 20.1%). The most frequent nationality among study participants was Saudi (n=664, 92%) and non-Saudi (n=58, 8%). Region status among study participants, with most from the western region (n=478, 66.2%), followed by the eastern (n=168, 23.3%), and then the central (n=49, 6.8%). Employment among study participants, most of them were employed (n=324, 44.9%), followed by housewives (n=210, 29.1%), then retired (n=70, 9.7%). The most frequent respondents who have children in the study (n=568, 78.7%), followed by don't have children (n=154, 21.3%). The most frequent distribution of the number of children was 3-4 children (n=237, 41.7%), followed by 1-2 children (n=202, 35.6%), then (n=98, 17.3%). Participants were asked. Has your child ever been diagnosed with a congenital heart disease (CHD)? Most of them answered no (n=515, 90.7%). And yes (n=53, 9.3%). Participants were asked. Have you ever heard about congenital heart diseases before today? Most of them answered yes (n=591, 81.9%). And no (n=131, 18.1%). Participants were asked Have you ever been informed about CHD through? The most frequent were Media (n=219, 30.3%), followed by None of the above (n=210, 29.1%), then Family of Friends (n=183, 25.3%), and Healthcare professional (n=110, 15.2%).

Conclusion: The findings indicate that awareness of congenital heart diseases (CHD) is significantly influenced by key demographic and experiential factors. Higher educational attainment and previous exposure to information about CHD were the strongest predictors of being aware of CHD. Employment status also showed a meaningful association with awareness levels. In contrast, age, nationality, region of residence, and having a child diagnosed with CHD did not show a significant impact on awareness. Overall, the results highlight the importance of education and accessible health information in improving public awareness of CHD.

Introduction:-

The term "congenital heart disease" (CHD) describes a collection of birth-related anatomical or functional cardiac abnormalities. The severity of these abnormalities varies, ranging from straightforward problems like minor septal errors to more intricate ones like transposition of the major arteries or Tetralogy of Fallot. CHDs are thought to occur 8–12 times out of every 1,000 live births, making them the most prevalent congenital abnormalities in the world. **[1], [2]** Although improvements in pediatric cardiology have led to better early detection and therapy of congenital heart diseases, parental awareness is still below ideal, particularly in areas with uneven access to healthcare.**[5]**As one of the primary causes of birth defect-related deaths in the first year of life and impacting about 1% of live births each year, congenital heart disorders (CHDs) present a serious threat to world health. Although the frequency of congenital heart diseases is largely determined by genetic predispositions, recent research highlights the crucial role that non-genetic environmental risk factors play in the development of cardiac conditions. **[3], [11]** Although there is increasing evidence of genetic risk factors for congenital heart diseases in Saudi Arabia, there is still a dearth of understanding and identification of non-inherited risk factors in the general population. Pregnancy-related lifestyle choices, such as smoking and drinking alcohol, as well as maternal conditions like diabetes and obesity, have been linked to a higher chance of congenital heart defects in babies. **[4]**

The effectiveness of public health campaigns and educational activities aimed at addressing these modifiable risk factors has also varied among other demographic groups, highlighting the need for localized research to guide customized health promotion measures. **[6]** The goal of the current study is to close the current knowledge gap by assessing mothers in Al-Baha's awareness, attitudes, and practices regarding non-inherited risk factors for CHDs. Developing focused educational initiatives and interventions that can dramatically lower the prevalence of these serious health outcomes depends on this assessment. By emphasizing non-inherited risk factors, this study aims to provide the groundwork for culturally relevant and location-specific preventative health interventions that could lessen the prevalence of CHDs in this area. **[7], [8], [13]**Congenital defects such congenital heart defects (CHDs) place a heavy strain on pediatric and public health services in the Kingdom of Saudi Arabia (KSA). Parental ignorance frequently results in delayed diagnosis and problems, even though many congenital heart diseases can today be treated with surgery or other medical interventions. **[9], [13]** Despite investments in the screening and treatment of children cardiovascular problems, parent-focused educational initiatives and preventative awareness programs have not expanded at the same rate as Saudi Arabia's quickly evolving healthcare system. **[10]** In a lot of ways, congenital heart diseases (CHD) are regarded as chronic. Even though efforts to cure the disease may often leave some residual deficiencies, a full corrective operation is not feasible. Palliative surgery, also known as partial repair of the lesion, is therefore performed on such children in order to enhance their quality of life. **[12], [14]** These kids also have long-term risks of developing issues such infected endocarditis, pulmonary artery disease, heart failure, growth retardation, and heart rhythm disorders (arrhythmias). When a mother and father learn that their child has congenital heart disease (CHD), they experience intense worry that sets up a new, severe crisis in their

family life. In the meanwhile, they must look for additional facts and precise understanding to better comprehend their child's illness and select the most appropriate course of treatment. **[8], [13]** Most parents lack a basic understanding of medical information, which causes them to feel helpless and frustrated. They also become restless and irritable because they don't understand the diagnosis and treatment procedures and don't pay enough attention to what doctors are saying. On the other hand, a lot of doctors believe that it is a waste of time and become weary of constant explanations. Additionally, research shows that parents who are better equipped to diagnose and manage their child's illness experience less stress and are more willing to assist with the patient's treatment. **[15], [16]**

When it comes to the prompt identification of symptoms, early medical consultation, treatment compliance, and long-term care of children with congenital heart disease, parental education is essential. **[17]** The prevalence of CHD in the area is known to be influenced by a number of factors, including maternal health during pregnancy, consanguinity, family history of heart abnormalities, and insufficient prenatal treatment. Delays in obtaining medical attention are also frequently caused by cultural attitudes and a lack of information. **[18], [21]** Even though congenital heart defects (CHDs) are clinically significant, there is a dearth of published information in Saudi Arabia about the most prevalent forms of CHD in children and how parental awareness relates to this. **[19]** Recognizing the gaps in knowledge can help guide focused educational initiatives that improve early detection, lower morbidity and mortality, and enhance the lives of impacted children.The purpose of this study is to determine the most prevalent forms of congenital heart illnesses that are detected in Saudi Arabian children and to evaluate the parents' knowledge, comprehension, and attitude regarding these conditions. The results will help create awareness campaigns and early screening initiatives that are suited to the healthcare requirements of local communities.

Rationale of the Study:-

The most prevalent birth defect globally, congenital heart disease (CHD) has a substantial impact on infant morbidity and mortality. **[20]** The prevalence of CHD continues to rise despite advances in detection and treatment technology, especially in areas like the Kingdom of Saudi Arabia (KSA) that have distinct socioeconomic, genetic, and cultural characteristics. **[21]**Because of risk factors such genetic predisposition, low awareness of prenatal screening, and high rates of consanguineous marriages, the prevalence of congenital heart disease (CHD) is particularly high in Saudi Arabia. **[6], [22]** According to studies, children born with congenital heart disease have significantly better results when early detection and prompt therapies are implemented. Nevertheless, a lot of kids in Saudi Arabia continue to have delayed diagnoses, which results in issues that could have been avoided with prompt medical care. The awareness and knowledge of parents, who are frequently the first to notice symptoms like poor feeding, exhaustion, cyanosis, or delayed growth in their infants, is a major element in this delay. **[23]** Initiating timely care requires parents to be aware of the symptoms, risk factors, available treatments, and significance of early screening for congenital heart disease. However, a substantial knowledge gap still remains, particularly in the nation's neglected and rural areas. Furthermore, no recent, thorough national study has been carried out to assess the prevalence of congenital heart defects in Saudi Arabian children as well as the level of parental knowledge about these conditions.

Without this crucial information, health officials and healthcare professionals have few resources to organize successful interventions or outreach initiatives. Therefore, there are two primary reasons why this study is important:
- In order to provide useful epidemiological data, it will first determine which congenital heart diseases are most common in Saudi Arabia's pediatric population.
- Second, it will evaluate parents of children with congenital heart disease (CHD) in order to close a significant research vacuum that presently hinders public health initiatives for early detection and prevention.

Healthcare stakeholders can create focused awareness campaigns by knowing the degree of parental awareness. Encourage early prenatal screening initiatives.
- Improve pediatricians' and primary care providers' training to better assist parents.
- Cut down on the number of delayed or missing diagnoses
- Improve the children's long-term results at the end.

To sum up, this study supports the larger objectives of the Saudi Vision 2030 healthcare reforms, which place a strong emphasis on early diagnosis, community health education, preventative care, and lowering the burden of chronic diseases. Evidence-based tactics that empower parents, lower preventable health issues, and encourage a healthier next generation will be supported by the findings.

Methods:-

Study design:-

A cross-sectional descriptive study approach will be used in this investigation, which is especially well-suited for determining the prevalence of congenital heart disorders (CHDs) in children as well as the awareness levels of their parents or guardians at a given moment in time. Ideal for real-world healthcare settings, this approach enables researchers to gather and examine data from a wide range of people without changing the study environment.

Parents of children with verified congenital heart diseases will be given structured questionnaires to complete during routine visits to pediatric cardiology clinics or via secure online platforms in order to gather data for this study. By doing this, participants from both urban and semi-urban areas are guaranteed to be included. Cross-sectional designs can show associations but cannot prove causation; they cannot ascertain whether a lack of awareness directly causes a delayed diagnosis or unfavorable health outcomes. Nevertheless, it offers a solid basis for organizing future intervention or longitudinal research.

Study approach:-

Geographical and demographic diversity will be ensured by the study's implementation in a few chosen pediatric cardiology outpatient departments, primary healthcare facilities, and general hospitals spread throughout Saudi Arabia's Riyadh, Jeddah, Dammam, and Abha regions.

Study population:-

The target population consists of parents or key caregivers of children with congenital cardiac disease of any kind, ages 0 to 14.

Inclusion Requirements:-

CHD-confirmed children's parents or legal guardians.living in Saudi Arabia for a minimum of a year.readiness to take part and give their informed consent.

Conditions for Exclusion:-

parents of kids with cardiac issues they've acquired.medical personnel (to eliminate bias).respondents who didn't finish their answers.

Study sample:-

We will employ a multistage sampling procedure:

Step 1: Use purposive sampling to choose four important cities in Saudi Arabia.

Step 2: Pick two to three medical facilities at random from each city.

Step 3: The third stage involves recruiting every nth eligible participant who visits the pediatric cardiology clinic using systematic random sampling.

Study tool:-

For the current study, the questionnaire was adopted for data collection, which was also categorized as a study tool.

Data collection

For follow-up, trained research assistants will conduct the questionnaire via secure online surveys or in-person interviews in hospital waiting rooms. Prior to the collection of data, parental consent will be sought.

Data analysis:-

- SPSS v26 will be used to enter and evaluate the data.
- Using descriptive statistics (frequencies and percentages), demographic information and awareness levels will be compiled.
- Inferential statistics:
- To evaluate correlations between awareness and demographic factors, use chi-square tests.
- Logistic regression for determining high- or low-awareness predictors.
- $p < 0.05$ is the significance level.

Pilot Study:-

It will be carried out on 10% of the total respondents (may be 30-40), and the results will be checked thereof. Further, any type of discrepancy will be removed, and the questionnaire or data sheet will be revised. A pilot study may also be conducted to state the precision level of the statistical tools and even the selection criteria of the

respondents. The above-stated process will be followed throughout the pilot study, and the outcomes will be analyzed. The duration, manner, and viability will also be evaluated.

Results:-

The study included 722 participants. The most frequent respondent among them was the mother (n=598, 82.8%) and the father (n=124, 17.2%). Figure 1 shows the respondent distribution among study participants. The most frequent age group among study participants was 40-49 years (n=204, 28.3%), followed by 30-39 years (n=195, 27%), and then 18-29 years (n=145, 20.1%). Figure 2 shows the age distribution among study participants. The most frequent nationality among study participants was Saudi (n=664, 92%) and non-Saudi (n=58, 8%). Figure 3 shows the distribution of nationality among study participants.

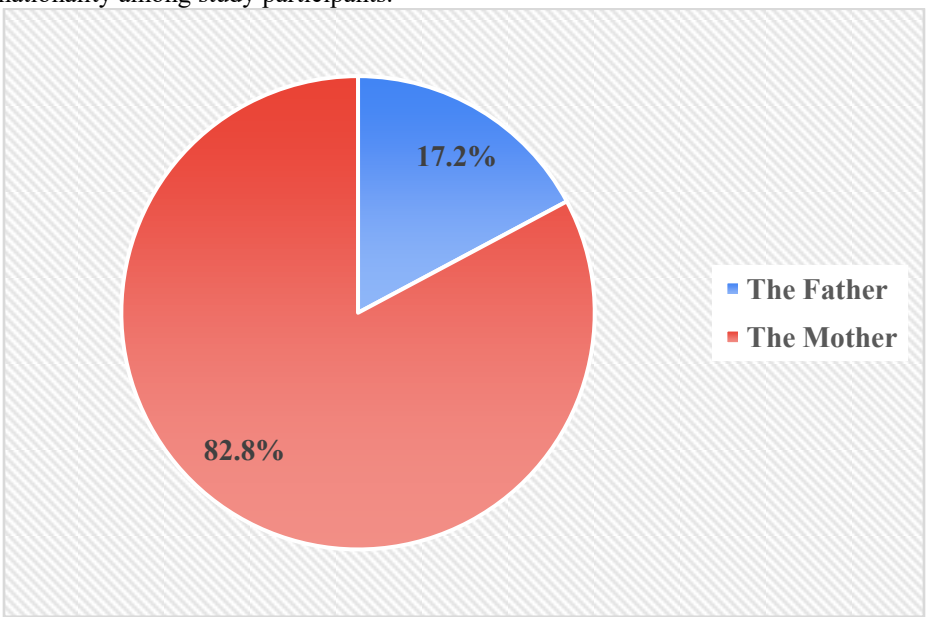

Figure 1: Respondent distribution among study participants

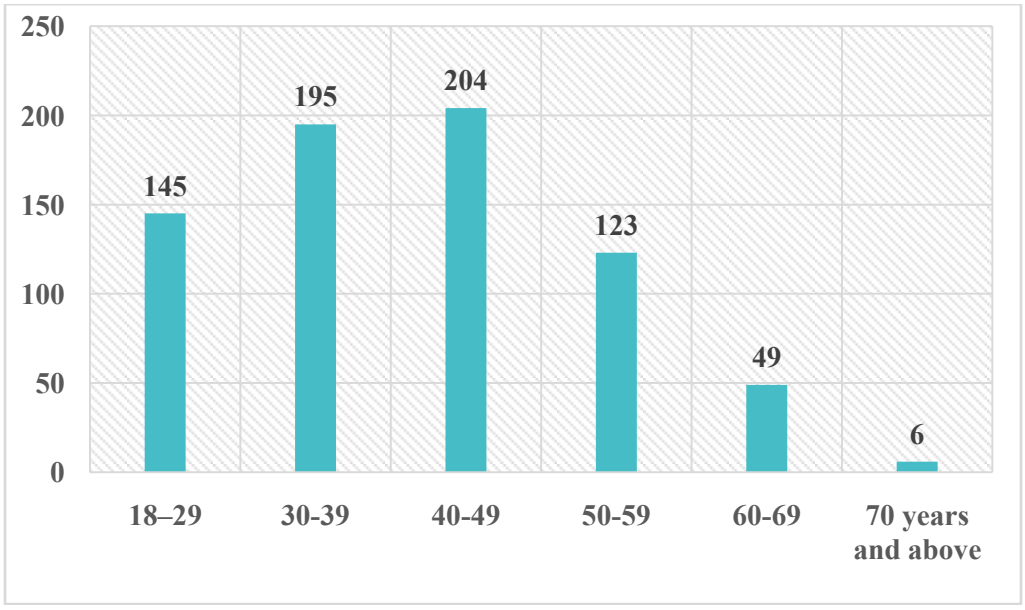

Figure 2: Age distribution among study participants

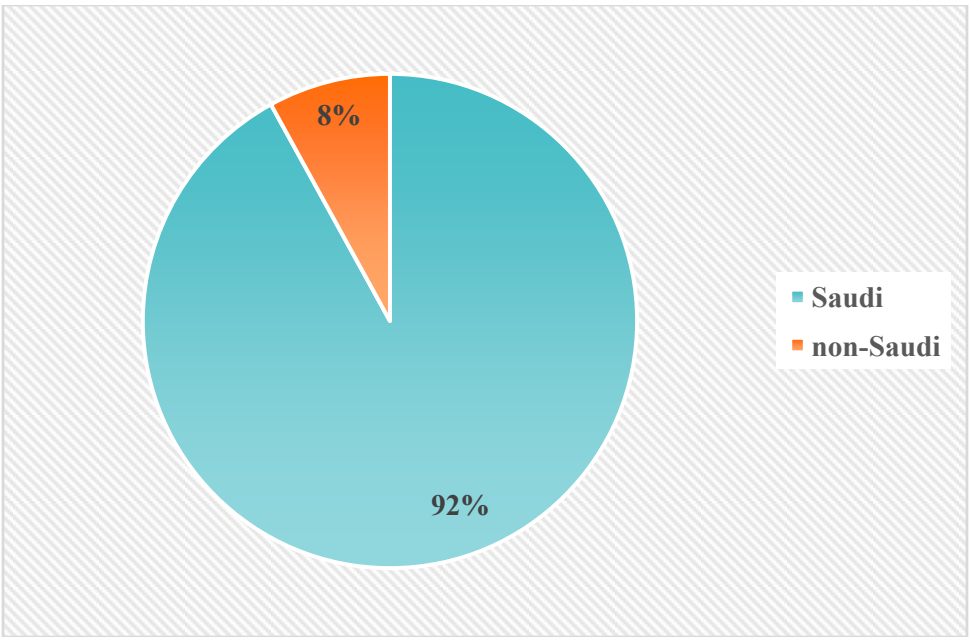

Figure 3: Nationality distribution among study participants

Region status among study participants, with most from the western region (n=478, 66.2%), followed by the eastern (n=168, 23.3%), and then the central (n=49, 6.8%). Employment among study participants, most of them were employed (n=324, 44.9%), followed by housewives (n=210, 29.1%), then retired (n=70, 9.7%). Employment is presented in Figure 4.

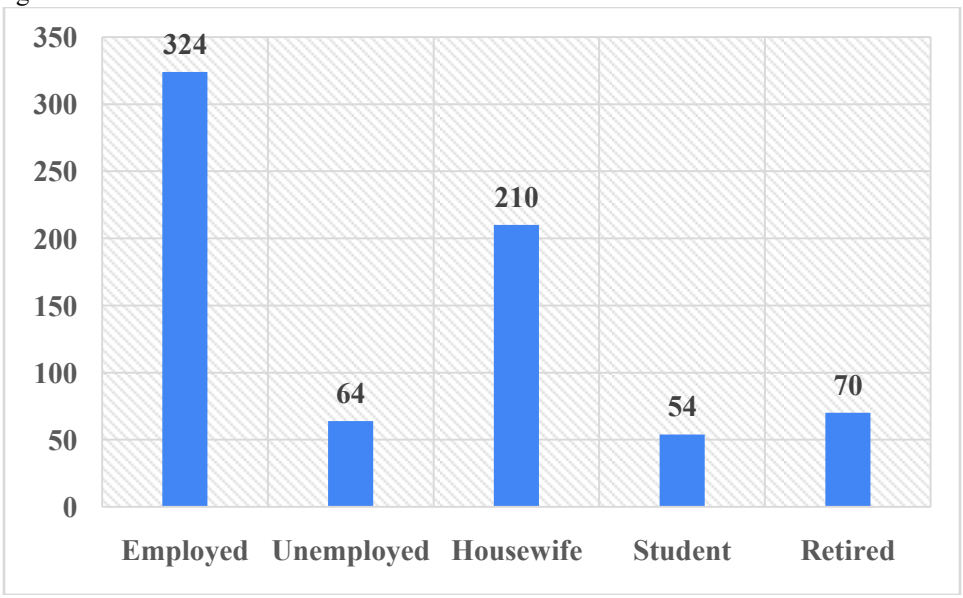

Figure 4: Employment distribution among study participants

The most frequent respondents who have children in the study (n=568, 78.7%), followed by don't have children (n=154, 21.3%). The most frequent distribution of the number of children was 3-4 children (n=237, 41.7%), followed by 1-2 children (n=202, 35.6%), then (n=98, 17.3%). Figure 5 shows the distribution of the Respondents who have children among the study participants.

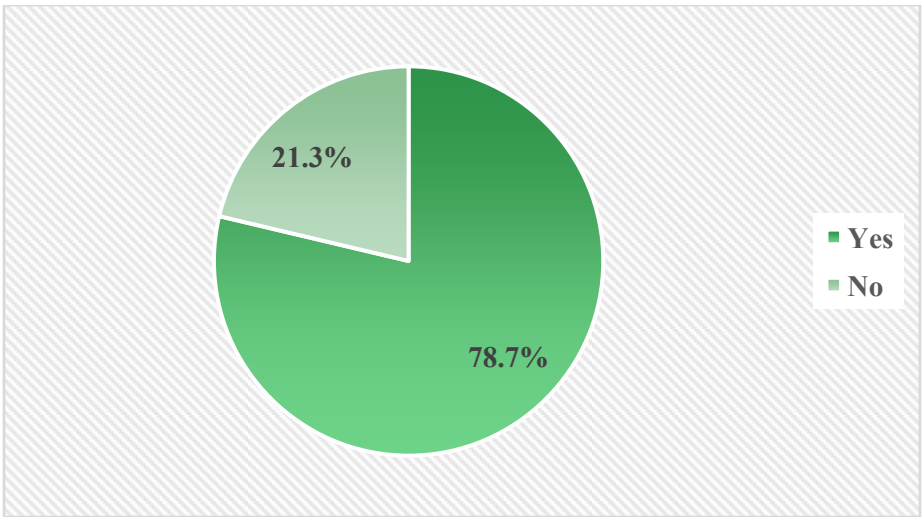

Figure 5: Respondents who have children among study participants

Participants were asked. Has your child ever been diagnosed with a congenital heart disease (CHD)? Most of them answered no (n=515, 90.7%). And yes (n=53, 9.3%). Figure 6 shows the distribution of children diagnosed with CHD among the study participants.

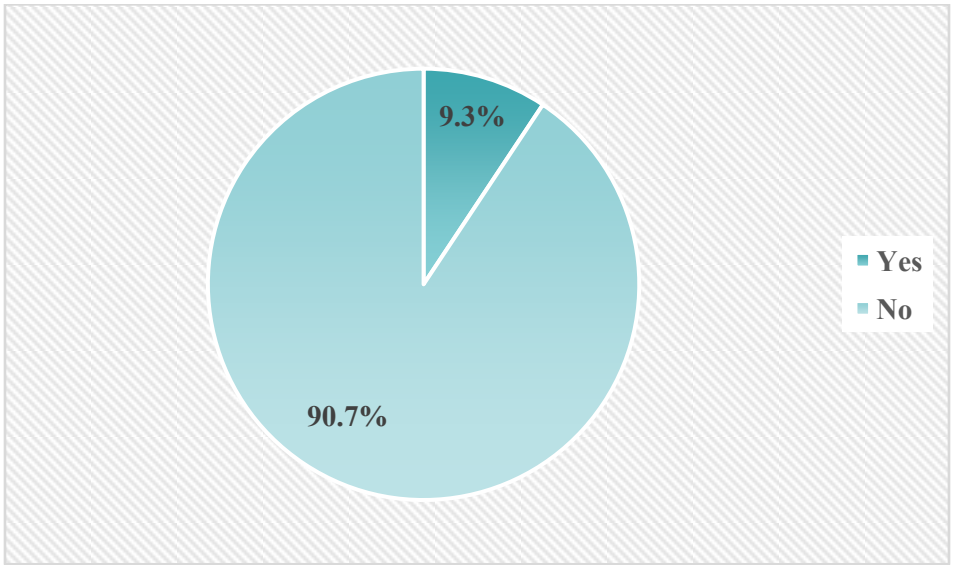

Figure 6: Children diagnosed with CHD among the study participants

Participants were asked. Have you ever heard about congenital heart diseases before today? Most of them answered yes (n=591, 81.9%). And no (n=131, 18.1%). Participants were asked about their thoughts on the following statements. The responses and results are presented in

Table 1:-

Table 1: Participants' perceptions regarding CHD					
statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I believe that regular antenatal care helps in reducing the risk of congenital diseases.	362 (50.1%)	221 (30.6%)	107 (14.8%)	26 (3.6%)	6 (0.8%)
I am confident that I would recognize signs of heart problems in my child.	267 (37%)	251 (34.8%)	150 (20.8%)	47 (6.5%)	7 (1%)

It is important to screen every newborn for heart disease.	536 (74.2%)	131 (18.1%)	44 (6.1%)	10 (1.4%)	1 (0.1%)
I feel that public awareness campaigns about CHD are needed in Saudi Arabia.	496 (68.7%)	171 (23.7%)	48 (6.6%)	7 (1%)	0 (0%)
I would support a national CHD screening program in schools	452 (62.6%)	187 (25.9%)	71 (9.8%)	11 (1.5%)	1 (0.1%)

Participants were asked Have you ever been informed about CHD through? The most frequent were Media (n=219, 30.3%), followed by None of the above (n=210, 29.1%), then Family of Friends (n=183, 25.3%), and Healthcare professional (n=110, 15.2%). Figure 7 shows the information about the CHD of participants.

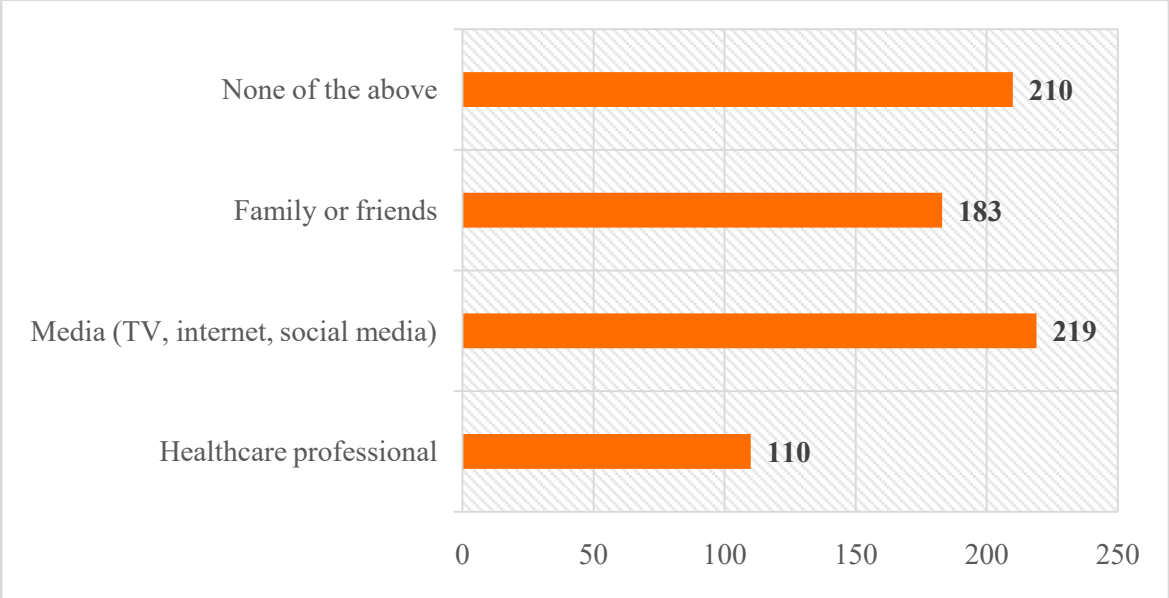

Figure 7: Informed about CHD distribution among study participants

Discussion:-

Annex 1: Data Collection Tool:-

1. Me?
a. The Father
b. The Mother
2. What is your age group?
a. 18–29
b. 30-39
c. 40-49
d. 50-59
e. 60-69
f. 70 years and above
3. Nationality:
a. Saudi
b. non-Saudi
4. Region of Residence in KSA:
a. Central
b. Western
c. Eastern
d. Northern
e. Southern
f. Outside Saudi Arabia

5. What is your highest educational qualification?
a. No formal education
b. Primary
c. Secondary
d. Bachelor's Degree
e. Master's or higher
6. Employment Status:
a. Employed
b. Unemployed
c. Housewife
d. Student
e. Retired
7. Do you have children?
a. Yes
b. No (If no, skip to Section E)
8. How many children do you have? _____
9. Has your child ever been diagnosed with a congenital heart disease (CHD)?
a. Yes
b. No
10. If yes, which type of CHD was diagnosed? (Select all that apply)
a. Ventricular Septal Defect (VSD)
b. Atrial Septal Defect (ASD)
c. Tetralogy of Fallot (TOF)
d. Patent Ductus Arteriosus (PDA)
e. Transposition of the Great Arteries (TGA)
f. Other (please specify): _____
11. At what age was your child diagnosed?
a. At birth
b. Within the first year
c. After 1 year
d. Not applicable
12. Was your child treated for CHD?
a. Yes
b. No
c. Treatment ongoing
13. Have you ever heard about congenital heart diseases before today?
a. Yes
b. No
14. What do you think are possible causes of CHD? (Select all that apply)
a. Genetic factors
b. Maternal illness during pregnancy
c. Poor nutrition
d. Smoking/drug use during pregnancy
e. I don't know
f. In vitro fertilization (IVF)
g. Intracytoplasmic sperm injection (ICSI)
h. Diseases or issues related to the father's sperm
i. Other: _____
15. How is CHD commonly detected?
a. Through physical examination
b. Through echocardiography
c. Through blood tests
d. I don't know
16. Do you think CHDs are treatable?
a. Yes
b. No

c. Not sure
17. Have you ever been informed about CHD through:
a. Healthcare professional
b. Media (TV, internet, social media)
c. Family or friends
d. None of the above
18. What do you think of the following statements
a. I believe that regular antenatal care helps in reducing the risk of congenital diseases. (-----)
b. I am confident that I would recognize signs of heart problems in my child. (-----)
c. It is important to screen every newborn for heart disease. (-----)
d. I feel that public awareness campaigns about CHD are needed in Saudi Arabia. (-----)
e. I would support a national CHD screening program in schools. (-----)
(Use a 5-point Likert scale: Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree)

Appendix 2: Participants' responses to scale items:-

ME	Frequency	Percent
The Father	124	17.2%
The Mother	598	82.8%
Total	722	100.0

Age	Frequency	Percent
18–29	145	20.1%
30-39	195	27.0%
40-49	204	28.3%
50-59	123	17.0%
60-69	49	6.8%
70 years and above	6	0.8%
Total	722	100%

Nationality	Frequency	Percent
Saudi	664	92%
non-Saudi	58	8%
Total	722	100.0
Region	**Frequency**	**Percent**
Central	49	6.8
Western	478	66.2
Eastern	168	23.3
Northern	12	1.7
Southern	6	0.8
Outside Saudi Arabia	9	1.2
Total	722	100.0

educational	**Frequency**	**Percent**
No formal education	3	0.4
Primary	14	1.9
Secondary	159	22.0
Bachelor's Degree	474	65.7
Master's or higher	72	10.0
Total	722	100.0

Employment	**Frequency**	**Percent**
Employed	324	44.9
Unemployed	64	8.9
Housewife	210	29.1
Student	54	7.5
Retired	70	9.7
Total	722	100.0

Have children	**Frequency**	**Percent**
Yes	568	78.7%
No	154	21.3%
Total	722	100.0

Many children	**Frequency**	**Percent**
1 - 2 children	202	35.6%
3 - 4 children	237	41.7%
5 - 6 children	98	17.3%
7 children and more	31	5.5%
Total	568	100%

Diagnosed CHD	Frequency	Percent
Yes	53	9.3%
No	515	90.7%
Total	568	100.0

Age child diagnosed	Frequency	Percent
At birth	35	66.0%

Within the first year	15	28.3%
After 1 year	3	5.7%
Total	53	100.0

Child treated CHD	Frequency	Percent
Yes	8	6%
No	126	94%
Total	134	22.4

If yes, which type of CHD was diagnosed? (Select all that apply)	Frequency	Percent
Ventricular Septal Defect (VSD)	27	42.2%
Atrial Septal Defect (ASD)	20	31.3%
Tetralogy of Fallot (TOF)	6	9.4%
Patent Ductus Arteriosus (PDA)	2	3.1%
Transposition of the Great Arteries (TGA)	2	3.1%
Other	7	10.9%

What do you think are possible causes of CHD? (Select all that apply)	Frequency	Percent
Genetic factors	297	34.5%
Maternal illness during pregnancy	141	16.4%
Poor nutrition	45	5.2%
Smoking/drug use during pregnancy	160	18.6%
I don't know	109	12.7%
In vitro fertilization (IVF)	17	2.0%
intracytoplasmic sperm injection (ICSI)	16	1.9%
Diseases or issues related to the father's sperm	68	7.9%
Other: _____	7	0.8%

Heard CHD	Frequency	Percent
Yes	591	81.9%
No	131	18.1%
Total	722	100.0

CHD detected	Frequency	Percent
Through physical examination	80	11.1
Through echocardiography	423	58.6
Through blood tests	25	3.5
I don't know	194	26.9
Total	722	100.0

Think CHDs treatable	Frequency	Percent
Yes	416	57.6
No	42	5.8
Not sure	264	36.6
Total	722	100.0

Informed CHD	Frequency	Percent
Healthcare professional	110	15.2
Media (TV, internet, social media)	219	30.3
Family or friends	183	25.3
None of the above	210	29.1
Total	722	100.0

statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I believe that regular antenatal care helps in reducing the risk of congenital diseases.	362 (50.1%)	221 (30.6%)	107 (14.8%)	26 (3.6%)	6 (0.8%)
I am confident that I would recognize signs of heart problems in my child.	267 (37%)	251 (34.8%)	150 (20.8%)	47 (6.5%)	7 (1%)

It is important to screen every newborn for heart disease.	536 (74.2%)	131 (18.1%)	44 (6.1%)	10 (1.4%)	1 (0.1%)
I feel that public awareness campaigns about CHD are needed in Saudi Arabia.	496 (68.7%)	171 (23.7%)	48 (6.6%)	7 (1%)	0 (0%)
I would support a national CHD screening program in schools	452 (62.6%)	187 (25.9%)	71 (9.8%)	11 (1.5%)	1 (0.1%)

Chi-square:

Test Statistics								
	Age	Nationality	Region	educational	Employment	Have children	Many children	Heard CHD
Chi-Square	260.537[a]	508.637[b]	1433.429[a]	1046.324[c]	392.875[c]	237.391[b]	591.152[d]	293.075[b]
df	5	1	5	4	4	1	11	1
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000	.000
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 120.3.								
b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 361.0.								
c. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 144.4.								
d. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 60.2.								

The Chi-Square test revealed statistically significant associations between awareness level and all examined demographic variables, including age, nationality, region of residence, educational level, employment status, having children, number of children, and prior knowledge about CHD.

Logistic Regression:

Case Processing Summary			
Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	722	100.0
	Missing Cases	0	.0
	Total	722	100.0
Unselected Cases		0	.0
Total		722	100.0
a. If weight is in effect, see classification table for the total number of cases.			

Dependent Variable Encoding	
Original Value	Internal Value
Yes	0
No	1

Block 0: Beginning Block

Classification Table[a,b]			
	Predicted		
	heard.CHD		
Observed	Yes	No	Percentage Correct

Step 0	heard.CHD	Yes	591	0	100.0
		No	131	0	.0
	Overall Percentage				81.9
a. Constant is included in the model.					
b. The cut value is .500					

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.507	.097	243.404	1	.000	.222

Variables not in the Equation					
			Score	df	Sig.
Step 0	Variables	Age	.072	1	.789
		Nationality	1.526	1	.217
		Region	.001	1	.974
		educational	14.959	1	.000
		Employment	1.652	1	.199
		diagnosed.CHD	.775	1	.379
		informed.CHD	50.847	1	.000
	Overall Statistics		73.574	7	.000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	77.589	7	.000
	Block	77.589	7	.000
	Model	77.589	7	.000

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	606.247[a]	.102	.166
a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.			

Classification Table[a]					
			Predicted		
			heard.CHD		Percentage Correct
Observed			Yes	No	
Step 1	heard.CHD	Yes	588	3	99.5
		No	123	8	6.1
	Overall Percentage				82.5
a. The cut value is .500					

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	.009	.097	.009	1	.926	1.009
	Nationality	.237	.352	.455	1	.500	1.268
	Region	-.022	.141	.024	1	.876	.978
	educational	-.683	.169	16.287	1	.000	.505
	Employment	-.201	.087	5.320	1	.021	.818

	diagnosed.CHD	-.196	.130	2.296	1	.130	.822
	informed.CHD	.766	.111	47.644	1	.000	2.152
	Constant	-.676	.991	.466	1	.495	.509
a. Variable(s) entered on step 1: Age, Nationality, Region, educational, Employment, diagnosed.CHD, informed.CHD.							

"Binary logistic regression demonstrated that educational level ($p < 0.001$), employment status ($p = 0.021$), and prior exposure to CHD information ($p < 0.001$) were significant predictors of CHD awareness. Participants who had received information about CHD were more than twice as likely to be aware (OR = 2.152). Other factors, such as age, nationality, region, and having a child diagnosed with CHD, were not significant predictors."

Conclusion:-

The findings indicate that awareness of congenital heart diseases (CHD) is significantly influenced by key demographic and experiential factors. Higher educational attainment and previous exposure to information about CHD were the strongest predictors of being aware of CHD. Employment status also showed a meaningful association with awareness levels. In contrast, age, nationality, region of residence, and having a child diagnosed with CHD did not show a significant impact on awareness. Overall, the results highlight the importance of education and accessible health information in improving public awareness of CHD.

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