Sarcouncil Journal of Internal Medicine and Public Health

ISSN(Online): 2945-3674

Volume- 02| Issue- 05| 2023

Research Article **Received:** 14-07-2023| **Accepted:** 11-08-2023 | **Published:** 03-09-2023

Diagnosis and Knowledge of the Impact of Rheumatic Heart Disease on Iraqi Adults and Adolescents

Dr. Zainab Jamal Naji[1], Dr. Noor Abbas Almahdawy[2], Dr. Hussein Ezzulddin Mansoor[3] and Dr. Ali Qais Abdulkafi[4]

[1]M.B.Ch.B., B.D.M., Internist, Iraqi Ministry of Health, Najaf Health Department, Al-Forat Al-Awsat Teaching Hospital, Najaf, Iraq

[2]M.B.Ch.B., H.D.R.MR. (Rheumatology and Medical Rehabilitation), Iraqi Ministry of Health, Baghdad, Al Rusafa Health Department Ibn Al-Kuf Hospital for Spinal Cord Injury Rehabilitation, Baghdad, Iraq

[3]M.B.Ch.B., D.I.M., C.A.B.M. (Internal Medicine), Iraqi Ministry of Health, Kirkuk Health Department, Azadi Teaching Hospital, Kirkuk, Iraq

[4]M.B.Ch.B., D.C.H. (Pediatrics), Iraqi Ministry of Health, Kirkuk Health Department, Kirkuk Teaching Hospital, Kirkuk, Iraq

Abstract: Background: RHD presents as the major factor who acquired valvular heart disease for adults and adolescents. Almost of children with RHD they had got of complications of the disease. **Aim**: This paper aims to Diagnosis and gain knowledge of the impact of rheumatic heart disease on Iraqi adults and adolescents. **Patients and method:** This study was conducted in different hospitals in Iraq from 5th July 2021- 8th October 2022 as a cross-sectional to diagnosis and knowledge of the impact of rheumatic heart disease on Iraqi adults and adolescents. This study was collected data from databases of 50 cases with RHD for children who Over 11 years old. This study was analysed and designed databases outcomes by the SPSS program. **Results and discussion**: Mitral valve involvement was found to be the most prevalent in both children, followed by aortic and pulmonary valve involvement. Our results indicated that the mitral valve was the most prevalent in children, which included (17) 34%, followed by the bilateral valve, which appeared on the formation of aortic regurgitation (11) 22%. **Conclusion**: In summary, our results found that the Mitral valve was the most predominant lesion who effect on the children then, followed by Aortic regurgitations. As a result, aortic and pulmonary valves are involved in the commonly advanced stage of the disease. Also, On the contrary, our study found a preponderance of girls over boys, where boys occupied (62%) and females (38%). Furthermore, malnourished people are at a greater risk of mortality than those with appropriate nutritional conditions.

Keywords: Rheumatic heart disease (RHD); Mitral regurgitations; Aortic regurgitations (AR); Aortic stenosis (AS); Mitral stenosis (MS).

INTRODUCTION

Children and young adults continue to suffer from rheumatic heart disease (RHD) at top rates, and low-resource areas of the world are disproportionately affected. In 2019, it was predicted that there were over 40 million instances of RHD worldwide and 306,000 RHD-related fatalities. RHD patients of all ages from 12 African nations, plus India and Yemen, were assessed as part of the Global Rheumatic Heart Disease Registry (REMEDY) trial, a multicenter worldwide investigation, and it was discovered that relatively few patients were given any kind of intervention. Only 11% of patients, specifically, underwent surgery in low-income nations. [Myint, N. *et al*., 2018-Faheem, M. *et al*., 2007]

At a 2-year follow-up, the mortality rate in patients with nations with low incomes was 20.8%. Prior investigations using echocardiographic screening revealed a significant frequency of RHD in the general population in Uganda, ranging from 2.5 to 3%. In 2010, Italy established a national RHD registry to better the care and follow-up of both kids and adults with RHD. In the last ten years, there have been significant advancements in access to treatment and interventions. In comparison with many other low-income nations that lack interventional services, Italy maintains an active cardiac catheterization laboratory as well as a heart surgery program. Despite these advancements, a lack of resources continues to limit the capacity to perform vital and life-saving operations for all RHD patients in need. [Animasahun, B. A. *et al*., 2018-Gewitz, M. *et al*., 2015]

A previous prospective cohort research in Italy monitored participants with a median age of 30 years for one year and discovered a roughly 18% 1-year death rate, as well as very high rates of overall morbidity, with 35% having heart failure and 63.7% acquiring atrial fibrillation. Many studies are focused on short-term results and, especially on adults with RHD, while data on the outcomes that affect kids with RHD in endemic locations is scarce. [Boyarchuk, O. *et al*., 2019; Kadir, I. S. *et al*., 2004]

A previous prospective cohort research in Spain monitored participants with a median age of 30 years for one year and discovered a roughly 18% 1-year death rate, as well as very high rates of overall morbidity, with 35% having heart failure

***Corresponding Author:** Dr. Zainab Jamal Naji

DOI- https://doi.org/10.5281/zenodo.8312681

and 63.7% acquiring atrial fibrillation. Many studies are focused on short-term results and, especially on adults with RHD, while data on the outcomes that affect kids with RHD in endemic locations is scarce [WHO, 2001-Manjunath, C. N. *et al*., 2014]. This paper aims to diagnosis and knowledge of the impact of rheumatic heart disease on Iraqi adults and adolescents.

PATIENTS AND METHODS

This study was conducted in different hospitals in Iraq from 5th July 2021- 8th October 2022 as a cross-sectional to diagnosis and gain knowledge of the impact of rheumatic heart disease on Iraqi adults and adolescents. This study was collected data from databases of 50 cases with RHD for children who Over 11 years old. This study was analysed and designed databases outcomes by the SPSS program.

This study was conducted in different hospitals in Iraq from 5th July 2021- 8th October 2022 as a cross-sectional to diagnosis and gain knowledge of the impact of rheumatic heart disease on Iraqi adults and adolescents. This study was collected data from databases of 50 cases with RHD for children who Over 11 years old. This study was analysed and designed databases outcomes by the SPSS program.

This study was acquired clinical, demographic databases examinations through the distribution of rheumatic heart disease patients based on age cases who are Over 11 years, which can be expressed in Table 1; sex with boys and girls that it can be clarified in Table 2. Moreover, this study was examined clinical and laboratory findings for RHD children's patients, which include clinical basics: Pulmonary hypertension, congestive heart failure, Atrial fibrillation, Pericardial effusion, and Pneumonia, Major indicators; Carditis, Arthritis, and Erythema marginatum, and minor indicators; fever, elevated C-reactive protein, and elevated erythrocyte, where these indicators have defined in Table 3.

In addition, this study was identified the symptoms of RHD children's patients, which are trouble breathing, chest pain, heart murmur, swelling, fever, fatigue, bloody nose, and dizziness, that can be determined in Figure 1. Also, outcomes were presented in the identification of the surgery types for RHD children's patients' Valve replacement, valve repairment, valve replacement, and repairment, and Balloon mitral valvuloplasty that can be seen in Figure 2. Furthermore, this study was determined the complications for RHD children's patients, which are arrhythmia, cardiogenic shock (CS), embolic stroke (ES), heart failure (HF), infective endocarditis (IE), malnutrition, and pulmonary hypertension (PH) which these outcomes can summarized in Table 4. The databases of outcomes were defined through the types of valvular types used with RHD children's patients, which have MR, MS, AR, isolated mitral valve, isolated aortic valve, MR+AR, MR+MS+AR, MR+MS, MR+AR+AS, and MR+MS+AR+AS these parameters have shown in Table 5. This study was conducted, as well as the correlation between the clinical status of RHD children's patients and independent parameters that can be found in Table 6.

RESULTS

Table 1: Distribution of rheumatic heart disease patients based on age

N	**V**	65
	Mi	0
M		7.0000
SES		.46771
M		7.0000
Mo		1.00[a]
SD		3.77078
Var		14.219
Ra		12.00
Min		1.00
Max		13.00
S		455.00

Publisher: SARC Publisher

Table 2: Distribution of rheumatic heart disease for children patients based on sexx

		F, 50	*P (%)*	*VP (%)*	*CP (%)*
V	**Girls**	19	38.0	38.0	38.0
	Boys	31	62.0	62.0	100.0
	T	50	100.0	100.0	

Table 3: Clinical and laboratory findings for RHD children's patients

Parameters	Number of Children Patents, 50	Number of Children Patents, Percentage (%)
Clinical basics		
Pulmonary hypertension	20	40%
Congestive heart failure	16	32%
Atrial fibrillation	6	12%
Pericardial effusion	4	8%
Pneumonia	4	8%
Major indicators		
Carditis	25	50%
Arthritis	20	40%
Erythema marginatum	5	10%
Minor indicators		
Fever	17	34%
Elevated C-reactive protein	20	40%
Elevated erythrocyte	13	26%

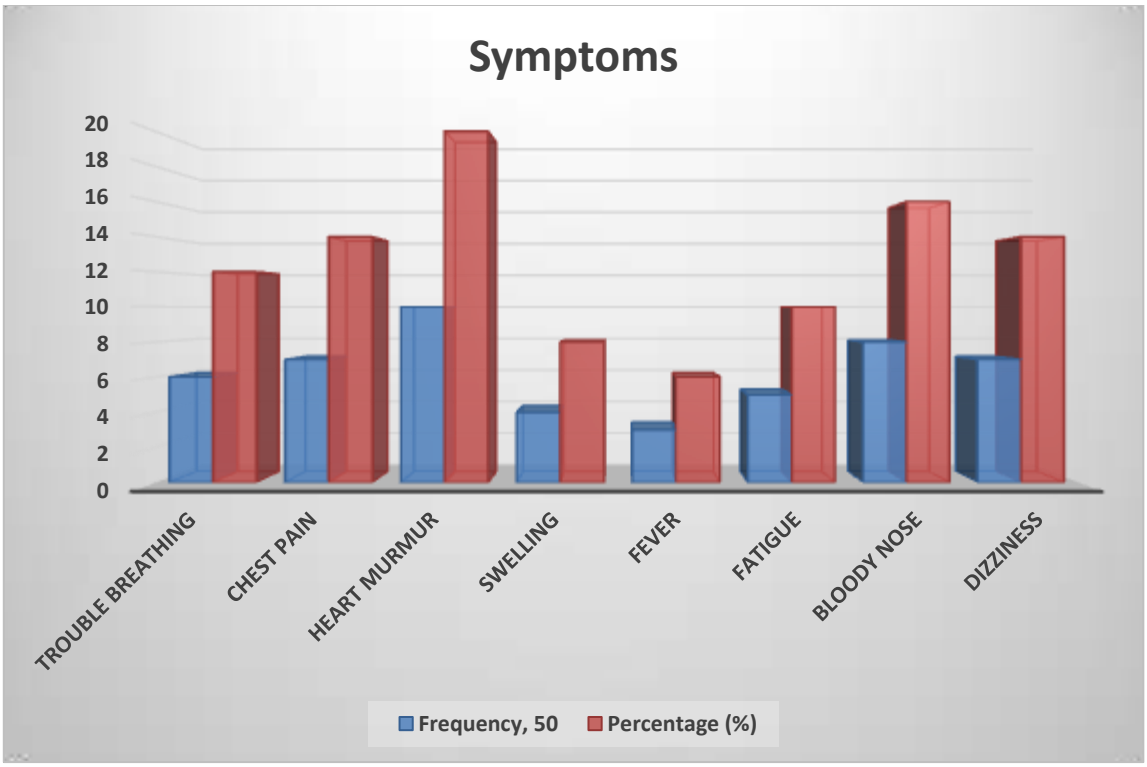

Figure 1: Identify the symptoms of RHD children's patients

Publisher: SARC Publisher

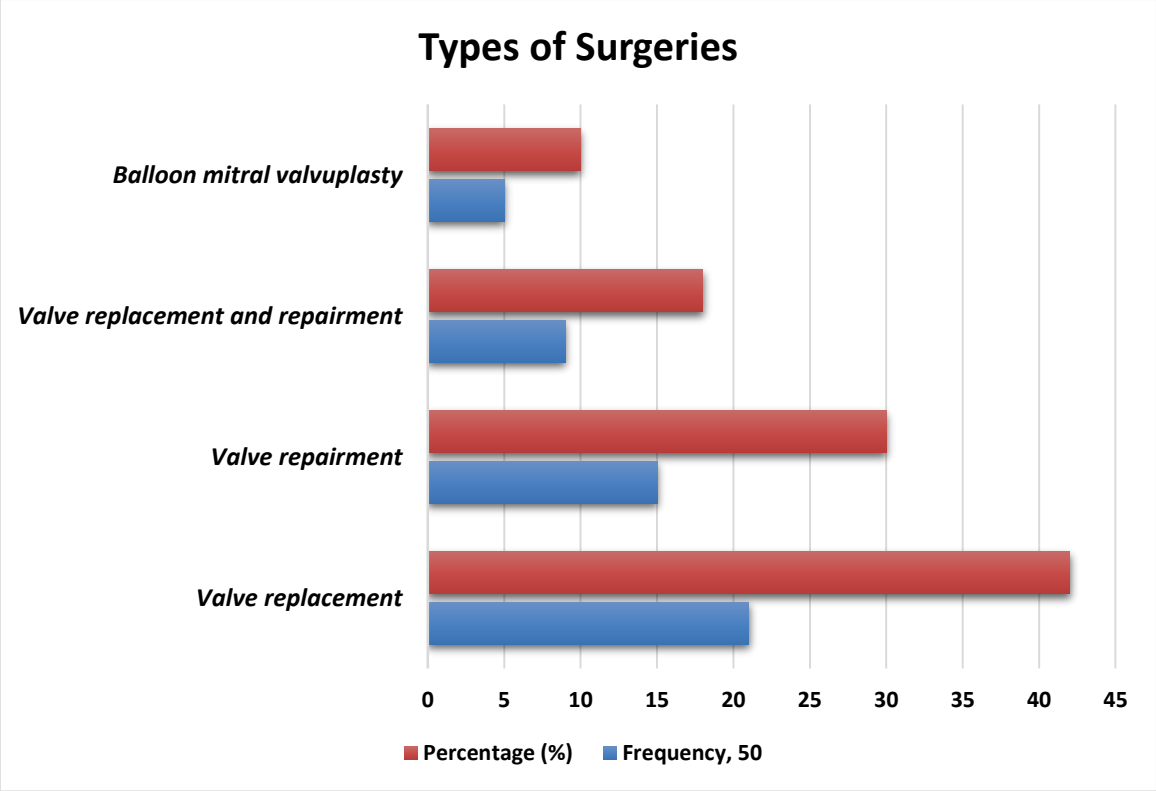

Figure 2: Identification of the surgery types for RHD children's patients.

Table 4: Determination of the complications for RHD children's patients

Types of surgeries	RHD children's patients F, 50	RHD children's patients Percentage (%)
Arrhythmia	2	4%
Cardiogenic shock (CS)	3	6%
Embolic stroke (ES)	2	4%
Heart failure (HF)	12	24%
Infective endocarditis (IE)	3	6%
Pulmonary hypertension (PH)	6	12%
Malnutrition	7	14%

Table 5: The types of valvular types used with RHD children's patients

Types of lesions	Frequency, n	Percentage, %
MR	17	34%
MS	4	8%
AR	11	22%
Isolated mitral valve	3	6%
Isolated aortic valve	2	4%
MR+AR	6	12%
MR+MS+AR	2	4%
MR+MS	1	2%
MR+AR+AS	2	4%
MR+MS+AR+AS	2	4%

Abbreviations: *MR, Mitral regurgitations; AR, Aortic regurgitations; AS, Aortic stenosis; MS, Mitral stenosis.*

Publisher: SARC Publisher

Table 6: Correlation between the clinical status of RHD children's patients and independent parameters

Parameters	COR 95% CI	P-value
Age	1.86 (0.64-3.527)	0.0146
Sex		
Males	1.857 (0.443-4.56)	0.0463
Females	1.566 (0.438-2.859)	0.385
Types of lesions		
MR	1.776 (0.114-3.946)	0.5822
AR	2.757 (1.034-9.846)	0.0658
Complications		
Heart failure (HF)	1.735 (0.253-5.44)	0.546
Pulmonary hypertension (PH)	1.594 (0.577-8.84)	0.0359
Malnutrition	1.878 (0.6221-11.75)	0.06433

DISCUSSION

RHD is still the major factor a valvular heart disease with children. Patients with chronic RHD frequently reported with health complications. Mitral valve involvement was found to be the most prevalent in both children, followed by aortic and pulmonary valve involvement [Laudari, S. *et al*., 2017]. Our results indicated that the mitral valve was the most prevalent in children, which included (17) 34%, followed by the bilateral valve, which appeared on the formation of aortic regurgitation (11) 22%. The majority of previous studies showed that females were superior to males or similar in the incidence of rheumatic heart disease. On the contrary, our study found a preponderance of girls over boys, where boys occupied (62%) and females (38%). Moreover, each of the three most prevalent complications (heart failure, pulmonary hypertension, and malnutrition) is more likely to occur in older age groups (4-9 years), men, valve defects affecting both mitral and aortic valves, and those with moderate to severe MR and AR [Laudari, S. *et al*., 2017]. On the contrary, French studies confirmed that rheumatic heart disease is the leading factor that causes death in children with exacerbation of symptoms, which included heart murmur (20%), chest pain (14%), and bloody nose (16%). Furthermore, American studies indicated to pulmonary hypertension occurs early and is common in individuals with valvular heart disease, notably mitral and aortic valve defects, in which the left ventricle (LV) becomes hypertrophic as well as less distensible, resulting in higher LV end-diastolic pressure. As a consequence, the left atrium (LA) gets hypertrophic and enlarged, decreasing its output and eventually leading to pulmonary hypertension [Alkhalifa, M. S. *et al*., 2008 - Jai Shankar, K. *et al*., 2005]. Malnutrition is one of the factors that influence mortality in CHF patients. Malnourished people are at a greater risk of mortality than those with appropriate nutritional condition.17 The majority of the studies in this spectrum to measure nutritional status in cardiac patients are from industrialized countries wherein rheumatic heart disease is no longer an issue, and even in those undertaken in impoverished countries such as India, Bangladesh, and Africa, less attention is placed than would be ideal. In comparison to Iraq, our study discovered a prevalence of malnutrition of 14% of 50 cases, which is a significant statistic that deserves appropriate attention as it will be beneficial to the prognosis for these patients [Bandin, M. A. *et al*., 1990].

CONCLUSIONS

In summary, our results found that the Mitral valve was the most predominant lesion who effect on the children then, followed by Aortic regurgitations. As a results, aortic and pulmonary valves are involved in the commonly advanced stage of the disease. Also, On the contrary, our study found a preponderance of girls over boys, where boys occupied (62%) and females (38%). Furthermore, malnourished people are at a greater risk of mortality than those with appropriate nutritional condition.

REFERENCES

1. Myint, N., Aung, N., Win, M., Htut, T., Ralph, A. and Cooper, D, *et al*. "The clinical characteristics of adults with rheumatic heart disease in Yangon, Myanmar: an observational study." *PLoS ONE* 13 (2018): e0192880.
2. Joseph, N., Madi, D., Kumar, G., Nelliyanil, M., Saralaya, V. & Rai, S. "Clinical spectrum of rheumatic fever and rheumatic heart disease: a 10-year experience in an urban area of south." *North American Journal of Medical Sciences* 5 (2013): 647.

Publisher: SARC Publisher

3. Sharma, P., Shakya, U., KC, S. & Shrestha, M. "Clinical profile and management in children with rheumatic heart disease in a tertiary cardiac care center of Nepal." *Nepalese Heart Journal* 13 (2016): 33–36.
4. Jacques Cabral, T., Tantchou Tchoumi, J. & Butera, G. "Profile of cardiac disease in Cameroon and impact on health care services." *Cardiovascular Diagnosis and Therapy* 3 (2013): 236–243.
5. Koirala, P., Sah, R. & Sharma, D. "Pattern of rheumatic heart disease in patients admitted at the tertiary care centre of Nepal." *Nepalese Heart Journal* 15 (2018): 29–33.
6. Faheem, M., Hafizullah, M., Gul, A., Jan, H. & Khan, M. "Pattern of valvular lesions in rheumatic heart disease." *Journal of Medical and Pharmaceutical Innovation* 21 (2007): 99–103.
7. Animasahun, B. A., Madise Wobo, A. D., Itiola, A. Y., Adekunle, M. O., Kusimo, O. Y. & Thomas, F. B. "The burden of rheumatic heart disease among children in Lagos: How are we fairing?" *Pan African Medical Journal* 14 (2018): 150.
8. Sani, M. U., Karaye, K. M. & Borodo, M. M. "Prevalence and pattern of rheumatic heart disease in the Nigerian savannah: an echocardiographic study." *Cardiovascular Journal of Africa* 18 (2007): 295–299.
9. Bernal, J., Pontón, A., Diaz, B., Llorca, J., García, I., Sarralde, J., *et al*. "Combined mitral and tricuspid valve repair in rheumatic valve disease." *Circulation* 121 (2010): 1934–1940.
10. Watkins, D., Beaton, A., Carapetis, J., Karthikeyan, G., Mayosi, B., Wyber, R., *et al*. "Rheumatic heart disease worldwide." *Journal of the American College of Cardiology* 72 (2018): 1397–1416.
11. Carapetis, J. "Rheumatic heart disease in Asia." *Circulation* 118 (2008): 2748–2753.
12. Zühlke, L., Beaton, A., Engel, M., Hugo-Hamman, C., Karthikeyan, G., Katzenellenbogen, J., *et al*. "Group A Streptococcus, acute rheumatic fever, and rheumatic heart disease: epidemiology and clinical considerations." *Current Treatment Options in Cardiovascular Medicine* 19 (2017): 15.
13. Gewitz, M., Baltimore, R., Tani, L., Sable, C., Shulman, S., Carapetis, J., *et al*. "Revision of the Jones criteria for the diagnosis of acute Rheumatic fever in the era of Doppler echocardiography." *Circulation* 131 (2015): 1806–1818.
14. Boyarchuk, O., Hariyan, T. & Kovalchuk, T. "Clinical features of rheumatic heart disease in children and adults in Western Ukraine." *Bangladesh Journal of Medical Science* 18 (2019): 87–93.
15. Kadir, I. S., Barker, T. A., Clarke, B., Denley, H. & Grotte, G. J. "Recurrent acute rheumatic fever: a forgotten diagnosis?" *Annals of Thoracic Surgery* 78 (2004): 699–701.
16. World Health Organization. Rheumatic Fever and Rheumatic Heart Disease: Report of a WHO Expert Consultation. Geneva: World Health Organization, 2001.
17. Rayamajhi, A., Sharma, D. & Shakya, U. "Clinical, laboratory and echocardiographic profile of acute rheumatic fever in Nepali children." *Annals of Tropical Paediatrics* 27 (2007): 169–177.
18. Manjunath, C. N., Srinivas, P., Ravindranath, K. S. & Dhanalakshmi, C., *et al*. "Incidence and patterns of valvular heart disease in a tertiary care high-volume cardiac center: a single center experience." *Indian Heart Journal* 66 (2014): 320–326.
19. Laudari, S. & Subramanyam, G. "A study of the spectrum of rheumatic heart disease in a tertiary care hospital in Central Nepal." *International Journal of Cardiology and Heart Vessels* 15 (2017): 26–30.
20. Alkhalifa, M. S., Ibrahim, S. A. & Osman, S. H. "Pattern and severity of rheumatic valvular lesions in children in Khartoum, Sudan." *Eastern Mediterranean Health Journal* 14 (2008): 1015–1021.
21. Reményi, B., Wilson, N., Steer, A., Ferreira, B., Kado, J., Kumar, K., *et al*. "World Heart Federation criteria for echocardiographic diagnosis of rheumatic heart disease–an evidence-based guideline." *Nature Reviews Cardiology* 9 (2012): 297–309.
22. Shiran, A. & Sagie, A. "Tricuspid regurgitation in mitral valve disease." *Journal of the American College of Cardiology* 53 (2009): 401–408.
23. Jai Shankar, K., Jaiswal, P. K. & Cherian, K. M. "Rheumatic involvement of all four cardiac valves." *Heart* 91 (2005): e50.
24. Bandin, M. A., Vargas Barron, J., Keirns, C., Romero-Cardenas, A., Villegas, M. & Buendia, A. "Echocardiographic diagnosis of rheumatic cardiopathy affecting all four cardiac valves." *American Heart Journal* 120 (1990): 1004–1007.

Publisher: SARC Publisher

Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Naji, Z.J., Almahdawy, N.A., Mansoor, H.E. and Abdulkafi, A.Q. "Diagnosis and Knowledge of the Impact of Rheumatic Heart Disease on Iraqi Adults and Adolescents." *Sarcouncil Journal of Internal Medicine and Public Health* 2.5 (2023): pp 1-7.

***Corresponding Author:** Dr. Zainab Jamal Naji

DOI- https://doi.org/10.5281/zenodo.8312681