

ORIGINAL ARTICLE

## PREVALENCE OF RHEUMATIC HEART DISEASE AMONG SCHOOL-GOING CHILDREN IN NORTHERN AND SOUTHERN REGIONS OF SARAWAK, MALAYSIA

Rudy Ngau Ajeng, Md Mizanur Rahman\*, Asri bin Said, Mohamed Ameenudeen, Greta Miranda Goh Kim Choo, Muhammad Siddiq Bin Daud and Mohd Faiz Gahamat

Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, 94300, Kota Samarahan, Sarawak, Malaysia

\*Correspondence author: Md Mizanur Rahman

Email: [rmmizanur@unimas.my](mailto:rmmizanur@unimas.my) ; [aniqu@hotmail.com](mailto:aniqu@hotmail.com)

### ABSTRACT

*Rheumatic Heart Disease (RHD) is a preventable chronic heart disease caused by rheumatic fever. RHD can result in complications and can even conclude in unexpected death at a young age. This study aimed to estimate the prevalence of RHD among the school-going age group in the Northern and Southern regions of Sarawak. This research was conducted as a cross-sectional study in Samarahan and Kuching of the Southern Region and Miri of the Northern Region of Sarawak. The study population comprised school-going children within the divisions. The data on sociodemographic characteristics were collected through a questionnaire. At the same time, echocardiographic parameters were collected through a portable echocardiographic device. Cardiologists confirmed the abnormal cardiac findings. The overall prevalence of RHD was 14 per 1000 persons or 1.4%. Borderline RHD prevalence was 9 per 1000 persons or 0.9%, while the Definite RHD prevalence was 5 per 1000 persons or 0.5%. With the prevalence obtained, more attention should be given to preventing this silent disease.*

**Keywords:** Rheumatic heart disease, Prevalence, Echocardiography, World Heart Federation Criteria

### INTRODUCTION

Rheumatic Heart Disease (RHD) is a preventable chronic heart disease caused by rheumatic fever<sup>1</sup>. Chronic inflammation following rheumatic fever may result in narrowing heart valves, resulting in decreased blood circulation through the heart. RHD may also cause valve leakage, causing blood to flow in the opposite direction, which may lead to more heart complications. RHD develops due to a prolonged inflammatory process in the cardiac tissue as a result of acute or recurrent attacks of rheumatic fever, a condition characterised by widespread inflammation affecting several body organs, including the heart. This inflammation typically occurs following a throat infection due to bacteria Group A Streptococcus infecting the throat<sup>2</sup>. It is most commonly found in the heart valves, mitral and aortic valves<sup>3</sup>. RHD is not exceptional of the distress and difficulties experienced by the patient and their family, particularly the community in general, as a result of the disease and its complications. Once a diagnosis of RHD is made, the patient's and family's financial situation will be affected. The severity of the burden will vary according to the disease's stages and progression. While the disease is easily preventable, adhering to preventive antibiotic treatments is challenging<sup>4</sup>. As a result, the risk of mortality and morbidity increases proportionately with the severity of the disease<sup>5</sup>. RHD can occur in both developed and industrialised countries as well as developing countries, particularly among the socioeconomically disadvantaged<sup>6</sup>.

Additionally, RHD can result in complications and even unexpected death at a young age<sup>7</sup>. Recent reports from developed countries on RHD indicated that the disease is here to stay and will create serious health problems in the community if left unaddressed<sup>8</sup>. As a result of economic loss, 2010 global burden of disease estimated that the number of people suffering from RHD was approximately 34 million, as measured by 10.1 million disability-adjusted life years lost<sup>9</sup>. It was reported that the repair of rheumatic mitral valvular disease accounted for nearly half of all mitral valve surgeries performed in Malaysia's major heart centres<sup>10</sup>. Additionally, one may face job loss due to RHD<sup>11</sup>. RHD is a silent progressive autoimmune heart disease that disproportionately affects young people in developing regions, affecting their health as well as their economic and social well-being<sup>12</sup>.

The United Nations and the World Health Assembly in May 2012 agreed to adopt a global target to reduce premature non-communicable diseases (NCD) deaths by 25% by 2025<sup>13</sup>. RHD is a disease that may achieve this target as the disease management is relatively inexpensive, proven, and effective control and prevention strategies can lead to a decrease in mortalities, especially among young people<sup>14</sup>. However, a systematic review of RHD in Malaysia reported that there were no population-based studies on the incidence or prevalence of RHD or even Acute Rheumatic Fever in Malaysia. Therefore, the objective of this study was to estimate the