

**Prevalence of Alpha(α)-Thalassemia in Southeast Asia (2010–2020): A
Meta-Analysis Involving 83,674 Subjects**

ABSTRACT

Alpha(α)-thalassemia is a blood disorder caused by many types of inheritable α -globin gene mutations which causes no-to-severe clinical symptoms, such as Hb Bart's hydrops fetalis that leads to early foetal death. Therefore, the aim of this meta-analysis was to provide an update from year 2010 to 2020 on the prevalence of α -thalassemia in Southeast Asia. A systematic literature search was performed using PubMed and SCOPUS databases for related studies published from 2010 to 2020, based on specified inclusion and exclusion criteria. Heterogeneity of included studies was examined with the I² index and Q-test. Funnel plots and Egger's tests were performed in order to determine publication bias in this meta-analysis. Twenty-nine studies with 83,674 subjects were included and pooled prevalence rates in this meta-analysis were calculated using random effect models based on high observed heterogeneity (I² > 99.5, p-value < 0.1). Overall, the prevalence of α -thalassemia is 22.6%. The highest α -thalassemia prevalence was observed in Vietnam (51.5%) followed by Cambodia (39.5%), Laos (26.8%), Thailand (20.1%), and Malaysia (17.3%). No publication bias was detected. Conclusions: This meta-analysis suggested that a high prevalence of α -thalassemia occurred in selected Southeast Asia countries. This meta-analysis data are useful for designing thalassemia screening programs and improve the disease management.