There is a rising burden of non-communicable diseases such as diabetes and hypertension in developing countries like Nigeria. Prediabetes is a borderline glycemic state associated with increased risk of developing overt diabetes. Additionally, prediabetes is independently associated with higher risk of cardiovascular events compared to normal blood sugar state. An effective public health intervention strategy to stem the tide of rising diabetes burden relies on identifying high-risk groups to enable targeted interventions. This study is the first attempt to systematically review and meta-analyze the burden of prediabetes in the country. Prediabetes was found to be almost twice the International Diabetes Federation (IDF) 7.3% estimate in 2003; as many as 13.2% of adult Nigerians have this borderline glycemic status. Equal prevalence rates between males and females and between rural and urban residents points towards future diabetes epidemic to be driven probably by rising rates among females and rural residents. This study reveals a high burden of prediabetes in the country and necessitates development of public health measures with renewed emphasis on groups that appear to have lower diabetes incidence currently i.e females and rural residents.