**Introduction** : Atrial fibrillation (AF), the most common sustained arrhythmia often goes undetected. Patients frequently present with complications such as stroke as the first manifestation. The problem could be worse in countries such as India, especially in rural areas where healthcare accessibility, and human resources in healthcare are issues. The epidemiology of AF in a community setting is largely unknown in India. The aim of the study is to estimate the prevalence of AF and its clinical profile in a rural population.

**Methods** : This is a community-based cross-sectional study conducted in 20 villages in West Godavari district of Andhra Pradesh, India. Multistage random sampling applying probability proportionate to population size method was employed. The study was conducted between April 2018 – March 2019. Trained healthcare workers in each village visited the houses of the participants for consent. The healthcare workers administered a questionnaire to collect information on demographics and medical history, took ECGs using smart phone-based Alivecor device. The recorded ECGs were transferred via internet to the base-center in Hyderabad where they were read by cardiologists. Participants diagnosed to have AF were called for an echocardiographic assessment and a detailed medical history including stroke prophylaxis.

**Result** : Fourteen of the 5400 individuals screened had AF (0.25%). The mean age of the population was 44 ±16.54 years; 56% were women. The mean age of participants diagnosed to have AF was 71 ±7.8 years and males were predominant (71.4%). Hypertension was the predominant risk factor (43%) followed by smoking (20%), diabetes mellitus, rheumatic heart disease and peripheral vascular disease (7% each). The median CHADS2-VASc score was 3 (Range 2-5). Two of the fourteen participants were on anticoagulant therapy without INR monitoring. Three participants with AF had a history of stroke.

**Conclusion** : The prevalence of AF is lower in this study compared to studies from the developed countries. Like in the western countries, non-rheumatic cardiovascular risk factors were the causes for AF. Stroke prophylaxis is poor necessitating increased awareness in the rural communities both among healthcare professionals and the patients.