ACKNOWLEDGEMENT

I with an intelligence of profound gratitude, honesty thank my supervisor and guide Dr. K. SETHAMARAI KANNAN, Professor, Department of Statistics, Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu for giving me the opportunity of being his student. I am thanking him without adequate vocabulary, for unconditional moral support, inspiration, advice and only high-quality work and not less? has inspired me in one and many ways throughout the period of my PhD. I owe his gratitude for showing me what real research means.

I express my sincerely gratitude to Dr. P. VENKATESAN, Scientist E? and Head, Department of Statistics, National Institute for Research in Tuberculosis (ICMR) has inspired me in one, particularly advised and guided me on doing critical statistical analysis, interpretations and in many ways throughout and the necessary support provided me to complete my thesis work effectively.

My very special thanks goes to Dr. C. Ponnuraja, Scientist C? Department of Statistics, National Institute for Research in Tuberculosis (ICMR) who helped me in the analysis using software WinBUGS, STATA along with the different forms of methods which contributed much to my thesis. Also I thank Mr. L. Sekar, Mr. R. Srinivasan and Mr. M. Tamilselvan staff of Department of Statistics, National Institute for Research in Tuberculosis (ICMR) for their timely help in collecting literatures and technical support.
I thank the ALMIGHTY for giving me this excellent opportunity in my life to work all the people around me especially with my guide and for leading me gently in all moments of trials.

Last but not least I would like to thank all staff, Department of Statistics, Manonmaniam Sundaranar University for their support in various aspects with friendly manner. Finally I thank my family members, specially my father Mr. C. Bala Krishnan, my mother Mrs. B. Rukmani, my wife Mrs. S. Vinothini also my thanks goes to my brothers Mr. B. Prabhu, Mr. B. Karthick and my daughter S.Sasmitha for their support and sacrifice for carrying out my work. I am grateful for their love and support which has helped me even in the hardest part of my academic career.

B.SENTHIL KUMAR