Chapter 6

Summary and Conclusions
SUMMARY AND CONCLUSIONS

6.1 Summary

1. The study confirmed that the prevalence of T2DM was indeed high, with a prevalence rate of 22.2 per cent among ITes employees in Hyderabad.

2. The current study has shown that the occurrence of diabetes is advancing as this study found that prevalence is high amongst those whose age is more than or equal to 40.

3. The present study did not find any case of KRDY i.e., lean diabetes among the IT/ITes employees of Hyderabad.

4. Neither the genotypic frequencies nor the allelic frequencies of any of the 4 SNPs were found to be associated with T2DM. This result is in agreement with the findings of Bodhini and associates but is in disagreement with several other studies. The difference in the association between CAPN10 variants with increased risk of T2D between populations (Mexican Americans, northern Europeans, Pima Indians) may be attributed to the presence of multiple susceptibility alleles at CAPN10 locus, to different linkage disequilibrium patterns of between these variants (and hence haplo types and haplo type combinations), racial/ethnic differences in the distribution of CAPN10 variants, multiple hypothesis testing, and to inadequate statistical power in a number of these studies, which has likely overestimated this genetic association. However, the association of SNP-19 genotypes with increased T2DM risk was confirmed by regression analysis.

5. In the Hyderabad resident IT/ITes employees studied herein, the most frequent haplo types were 1121 in patients, while haplo type 2121 was detected at low frequencies among controls and patients. Haplo type combination 2111/1121 was the most common among both control and T2DM subjects, while the combinations 2111/2221 and 2111/1112 were found with very low frequencies.

6. There was a significant difference in the proportion of the 2111 haplo type of the -44, -43, -19, and -63 SNPs between control and T2DM groups. This result is compatible with the findings of Bodhini and associates.

7. The levels of triglycerides and cholesterol were higher in T2DM patients than in control subjects.

8. There is association between the heterozygosity of SNP-43 in T2DM patients and cholesterol levels. T2DM patients with G/A genotype have higher cholesterol levels in comparison to those homozygous for allele 1 (G/G).
9. There is no association between the four studied variants genotypes and the level of triglycerides.

10. T2DM patients who are homozygous for del/ins-19 allele 2 (3 repeats of 32 bp) have higher cholesterol levels than those heterozygous or homozygous for allele 1 (2 repeats of 32 bp).

11. Genuine diabetes susceptibility genes can be found/replicated, but their effects are modest, and convincing evidence is only forthcoming from studies involving several thousands of individuals.
6.2 Conclusions

1. A larger sample size may confirm our results. A larger sample size could account for geographic and other differences among the ITeS employees in Hyderabad could help in improving the power of the study.

2. A stratified sample selection which includes diabetes candidates could be helpful.

3. A similar study across the other established ITeS clusters in India namely Bangalore, Chennai, Delhi-NCR, Kolkata, Mumbai, and Pune could be carried out. A similar study across the other tier-2 ITeS clusters in Seemandhra (Vizag, Vijayawada and Kakinada) and India (Ahmedabad, Chandigarh, Coimbatore, Jaipur, Nagpur, Vadodara, and Trivandrum) could also be carried out.

4. Since minor allele frequency (MAF) of SNP-43, and SNP-63 obtained in the present study were less than 5%, exome sequencing approach may be better suited.

5. Searching for correlation between T2DM and other genes e.g. PPAR, KCNJ11, and HNF4A which were proved to be related to T2DM by other studies.

6. Investigation of the correlation between CAPN10 polymorphism and levels of other diabetic variables such as Insulin and glucose.

7. Study the correlation between CAPN10 polymorphism and other diseases such as Polycystic ovary syndrome.