CHAPTER 9

APPRAISALS

Key Messages

- The method of teaching yoga practices could inspire more instructors to disseminate their domain knowledge effectively and enjoyably to visually challenged children.
- The positive results of the study would pave the way to include yoga in the regular curriculum.
- This is the first research study with adequate duration of intervention and sample size to accurately assess physical and psychological health in children with visual impairment.
- This was not a randomized controlled trial with higher age range. An active control group could not be used.
- A rigorous investigation covering different age groups of adults and young people with visual impairment for a longer follow-up period could be considered.

9.0 APPRAISAL

To assess the study's limitations as well as to generate new ideas for future research, the work is critically reviewed under following headings.

a) Summary of Findings

b) Conclusion

c) Observation

d) Strength of the Study

e) Delimitations

f) Limitations of the Study

g) Suggestions for Future Research

h) Study Implications

9.1 SUMMARY OF FINDINGS

This thesis recounts the development of a yoga teaching protocol for children with VI, and investigated their preferred mode of learning. The yoga module was validated and its feasibility evaluated. A controlled study was then conducted over 16 weeks on 83 visually impaired students aged 9 to 16 years, whose physical and psychological health status was assessed before and after the intervention. Study results showed that yoga programs can produce beneficial changes in physical and psychological health levels of children with VI. Although most participants reported difficulty with some of the yoga postures at the start of the intervention, class attendance remained high. No adverse events occurred. Findings show that yoga practice is practicable as a training modality for children with VI.

9.2 CONCLUSION

The study successfully implemented a new method of teaching yoga to those with VI. It may inspire other yoga instructors to impart yoga effectively and enjoyably to specially challenged

children. The newly developed yoga module proved feasible and beneficial for the children whose enthusiastic participation and positive response helped establish its effectiveness. The efficacy recorded depended partly on its content, partly on the quality of training imparted, and partly on participant adherence. Study results indicated a powerful potential to enhance physical and psychological skills in special needs groups like those with VI. It offers a safe, well-accepted intervention option for children with VI for addition to their regular school curricula, or for use at community level. As an adjunct to conventional treatment, it could improve health levels, and as a preventative measure.

9.3 OBSERVATIONS

i) Patience is the prime need for a yoga instructor, especially when dealing with children for whom more time and energy are required to communicate each practice.

ii) Awareness of what motivates children, and strategies to use such motivation is most important to conduct classes for them successfully.

iii) Students become enthusiastic when given positive feedback with phrases like ‘Great job’, ‘Nice performance’, and ‘Absolutely right!’; all more effective when given individually.

iv) Other useful principles are to: encourage active learning; use intrinsically motivating/ rewarding stimuli; recognize student feedback when they give it; respect their feelings both verbally and nonverbally; select stimuli of interest to children; and motivate their active participation.

v) VI is often accompanied by other physical and psychological disabilities. Each child has unique requirements. Adjust schedules to children’s needs taking into account factors like acuteness of need, tolerance of each practice, etc.

vi) Instructors must be aware of each student’s problems; yoga practice should be arranged to be maximally effective for each one.

vii) Duration and frequency of yoga practice should be personalized, as personal tolerance tends to vary from student to student. Practices require modification to meet individual needs, goals, initial fitness levels, and health status.

viii) Fear of the unknown often makes children hesitant to explore. When faced by strangers, girls are more self-protective than boys. The trainer's responsibility is to make both the practices and the atmosphere easy to accept.

ix) Given time and opportunity, students with VI can execute gross motor skills as well as their sighted peers, but to remain physically active throughout life they need to learn and retain the necessary motor skills.

9.4 STRENGTHS OF THE STUDY

i) To the best of our knowledge, the study was the first with adequate sample size and duration of intervention to accurately assess physical and psychological health in children with VI before and after yoga training.

ii) It was the first time that a yoga teaching protocol children with VI had been developed.

iii) A specific yoga module addressing needs of children with VI was developed and validated at two levels. Experts selected for the validation process were from different schools of yoga, some with exposure to multiple schools of yoga, ensuring that the module was not confined to any one school of yoga.

iv) Inclusion of physical trainers of disabled children as experts in the validation process provided strong input and support for it.

v) The strength of the positive results despite the short intervention time underlined the new module's effectiveness.

vi) Good validation of measures like STAI, CDI, Self-Esteem, GHQ strengthened results.

vii) Use of both Kannada and English versions of questionnaires.

viii) Significance of findings was excellent; power was satisfactory.

ix) Compliance was good, with most participants reporting home practice of yoga as well.

9.5 DELIMITATIONS

The study's delimitations were:

i) A single school; its residential setting; its selection for being only for children with VI.

ii) Most study participants were from South India, especially Bangalore.

iii) Being only for lifelong blind children, and no late blind children.

iv) The yoga intervention was a mode of residential services, and was limited: 60 minute sessions Monday to Friday, 5 days per week for 16 weeks; no other mode of exercise or yoga practice was offered, either then, or at weekends, or at home.

v) Data collection periods were from 7:00 a.m. to 9:00 a.m.

vi) Measurements were restricted to those named, selected for relevance to problems of children with VI, availability of instruments, and safety concerns for participants.

9.6 LIMITATIONS OF THE STUDY

i) During protocol development, the trial's sample size was too small to determine which of the five yoga teaching methods each gender might prefer.

ii) During assessment of the module's feasibility: short session times prevented instructors from fully implementing the validated module as prescribed; psychological variable post data could not be collected, possibly colouring some results; numbers were limited *a priori* to a small sample of nine.

iii) The study's limitations were: not being a randomized controlled trial; no active control group; age range, which might have been smaller. But younger subjects were no problem.

iv) The fact that all participants had volunteered to join the yoga group, even those who ended in the control group, may have made the yoga group more motivated and led to greater improvements in yoga group outcomes.

v) Some students may not have participated in testing to their best ability, so further careful study is required to confirm causal relationships between yoga training and outcomes.

vi) Despite specific criteria to minimize heterogeneity in our VI population, possible residual individual differences in participants' visual function in terms of duration and severity of VI may limit generalization of results.

9.7 SUGGESTIONS FOR FUTURE RESEARCH

i) A multicentric RCT should be done; the scope of the application should be extended to rural settings and those of lower economic status.

ii) Tracking a one year program for children with VI would be worthwhile.

iii) Further investigation with longer follow-up for different age groups, including adults young and old with VI should be considered. Such programs would offer insights into long-term benefits of yoga practice.

iv) Yoga could be compared with physical exercise interventions like aerobics, goal ball etc.

v) Further studies may assess yoga for children with VI for: neuromuscular dynamics; psycho-social stresses; clinical applications; other sensory functions; and gender differences.

v) A yoga module could be developed for those not totally blind, but only legally blind.

vi) The present yoga module could undergo further rigorous validation by administering it to varied populations with VI, especially across cultures.

vii) Reasons for these differences need further investigation. Most important is the need for fully randomized controlled trials.

viii) The yoga module could be modified and applied to assess parameters in physically challenged individuals of other kinds like those who are deaf and dumb.

9.8 IMPLICATIONS OF THE STUDY

i) Both physical and psychological health of children with VI can be improved by yoga.

ii) More yoga instructors may be inspired to apply the newly adapted yoga-teaching method.

iii) Parents and teachers may encourage children with VI to engage in yoga to improve fitness, reduce stress, and cope with their many needs and challenges.

iv) The scientific evidence for the safety and benefits of the yoga module for children and adolescents with VI may apply more widely.

v) The evidence may encourage adoption of yoga as a regular activity by young people with VI; it could be incorporated into their mobility training and other similar programs.

vi) Many further potential applications of yoga are revealed.

vii) Determining which yogic practices are most effective in helping improve particular physical and psychological health parameters in those with VI would be valuable.