Chapter-6

SUMMARY, CONCLUSIONS AND SUGGESTIONS
6.1 Study in brief

Ageing is a universal and natural process which is irreversible. Twenty first century poses a major demographic change to India as well as developed and developing nations due to population ageing. Currently India has around 90 million elderly people 12.6% of which is contributed by Kerala State. Due to various economic and social reasons coupled with degenerative physiological changes makes the elderly become a vulnerable group for poor physical and mental health. These reasons may force a helpless elderly to an old age home against his/her own wish and will. We need measures to keep our elderly living in the families as well as old age homes to have happy, healthy and active ageing. Laughter is one such measure which is traditionally known to have many health benefits.

Laughter Yoga is a simulated laughter technique which can offer both physiological and psychological benefits even to very old and disabled elderly who cannot practice other forms of physical exercises due to their physical and physiological limitations. Studies on ageing are not many and there is paucity of research about the elderly living in old age homes. Kottayam the land of lakes latex and letters is also one of the highest in the number of old age homes. Thus the present study is on the effect of Laughter yoga on selected psycho physiological variables among the elderly clients residing in the old age homes of Kottayam district.
6.2 Objectives

The study is carried out with the following objectives.

1. To evaluate the effects of “Laughter Yoga” on morale of the elderly clients living in old age homes of Kottayam District.

2. To evaluate the effect of Laughter Yoga” on depression among the study subjects.

3. To determine the effect of “Laughter Yoga” on subjective well-being among the study subjects.

4. To measure the effect of “Laughter Yoga” on selected physiological variables among the study subjects.

5. To study the relationship between selected demographic variables and psychological study variables.

6.3 Hypotheses

The following hypotheses are tested by the current study.

1. There is significant difference in morale of the elderly clients living in old age homes undergoing Laughter Yoga (experimental group) and not undergoing the same (control group).

2. There is significant difference in depression among the experimental group compared to the control group during the post intervention measurements.

3. There is significant difference in subjective well-being in the post test scores of the control group and experimental group.
4. There is significant post test difference in the respiratory rate between the control group and experimental group.

5. There is significant post test difference in the resting heart rate between the control group and experimental group.

6. There is significant post test difference in Blood pressure between the control group and experimental group.

7. There is significant post test difference in Oxygen saturation between the experimental group and the control group.

8. There is significant difference in post test values of peripheral skin temperature between the experimental group and control group.

9. There is significant post test difference in Electro Cardiogram between the experimental group and the control group.

10. There is no significant association between the selected baseline variables and the psychological study variables.

6.4 Methodology in brief

The research approach used for the present study is quantitative experimental approach and the design is basic pre test post test experimental design with repeated measurements in between the intervention at specific time intervals. The study setting was randomly selected old age homes of Kottayam district, Kerala and the target population is elderly clients living in old age homes of Kerala. Cluster sampling was used and the sample size was 62 for the control group and 91 for the experimental group.
The independent variable is Laughter Yoga intervention which is a simulated technique of laughter developed by Dr. Madan Kataria from Mumbai, India. The dependent variables were psycho physiological. Physiological variables studied are the heart rate, blood pressure, respiratory rate, blood oxygen saturation, body surface temperature and ECG. The psychological variables studied are morale, depression and subjective well-being. The effect of continuous practice of Laughter Yoga for 30 minutes a day for 6 days a week for 2 months were studied on the selected psycho physiological variables. Pre test was done for both experimental and control group prior to the intervention. The measurements were repeated at the end of 2nd, 4th, 6th, and 8th weeks of Laughter Yoga practice. The instruments used for the study are base line data sheet, the Philadelphia Geriatric Centre Morale Scale (PGCMS), the Geriatric Depression Scale (GDS), Hamilton Rating Scale for Depression (HRS), WHO – 5 well-being index and the BPL Excello/Ultima patient monitor Model No. Ultima Prime DNTA2C1653. The data were collected through physiological measurement, Interview and by self report. Ethical considerations were fulfilled. A pilot study was carried out to check the feasibility. Data were analysed using SPSS version 20. Descriptive statistics like frequency, percentage, skewness and kurtosis were calculated, Kolmogorov-Smirnov and Shapiro-Wilk tests for normality were calculated. Inferential techniques like Mann- Whitney test, Friedman test and Chi-square were applied.
6.5 Major findings

The major findings of the study include the following:-

1. Majority of the participants are between the age group of 60-70 years (43.1%).
   70-80 years old and 80 and above (excluding the upper age limit) were found to be 28.1% and 28.8% respectively.

2. 58.2% of participants were females.

3. 58.2% of subjects were Christians, 41.2% Hindus and 0.7% were Muslims.

4. 61.4% of people were just literate and having primary level of education only.
   19.6% of subjects were illiterate.

5. 33.3% of subjects were single, 41.17% were widowed, 10.5% were separated,
   9.2% were married and 5.9% were divorced.

6. 51% of the participants (including single Individuals) were without children.

7. 26.14% of female subjects were house wives. 31.40% were coolies and 8.5% had no jobs. Subjects were surviving on daily wages jobs or jobs with no retirement benefits or pension.

8. 89.33% of the children of the study subjects were working in Kerala.

9. 81.05% of the subjects were totally dependent on old age home for their survival since they had no source of income.

10. 69.94% of the subjects were having multiple health problems. 26.14% had one chronic health problem and only 3.92% had no illness.
11. Hypertension was the major health problem among the study subjects (47.71%) followed by reduced vision (24.20%), Arthritis (24.19%), Diabetics Mellitus (21.57%), Pain symptoms (20.97%) and Asthma (17.65%).

12. Only 3.92% of current study subjects had regular visitors. 32.03% had visitors rarely and 64.05% of subjects reported that they had no visitors.

13. 43.1% of the subjects had a voluntary admission to old age home and the majority 48.4% were placed by relatives or others. 8.5% were found to be forcefully placed by own children in old age homes.

14. 46.1% of subjects were staying in the old age home for more than four years. 23.7% were having less than one year of stay.

15. 80.4% of subjects were suffering from chronic ailments.

16. 79.1% of subjects were independent regarding activities of daily living. 17% were partially dependent and 3.9% were using assistive devices like walker, wheelchair, crutches, cane etc.

17. Subjects in the experimental group and control group were statistically similar regarding the baseline variables except in the nature of admission to old age home (p= 0.045). (There found a difference in the number of subjects forced by their children for old age home placement higher in control group).

18. There was no difference between the control group and experimental group during pre test regarding subjective well-being (z =-1.450, p= 0.147). But the groups were found to be different regarding morale (z= -1.963, p=0.050), depression score on GDS (z= -2.621, p=0.009), depression score on Hamilton Rating Scale (z= -2.600, p=0.009).
19. The mean rank of morale of the experimental group from pre test to post test for 2\textsuperscript{nd}, 4\textsuperscript{th}, 6\textsuperscript{th} and 8\textsuperscript{th} weeks were significantly different. ($\chi^2 = 30.218$, df = 4, p= 0.000) showing improved morale of the elderly who underwent laughter yoga.

20. 80.60\% of the control group subjects and 64.80\% of the experimental group showed low morale scores on PGCMS.

21. The mean rank of morale of the control group from pre test to post tests at 2\textsuperscript{nd} week, 4\textsuperscript{th} week, 6\textsuperscript{th} week and 8\textsuperscript{th} week were not statistically significant ($\chi^2 = 3.520$, df= 4, p= 0.475). This shows that there was no change in morale among the control group.

22. 33.80\% of the experimental group and 78.70\% of the control group subjects remained with low morale after 8 weeks.

23. 48.40\% of the control group and 30.80\% of the experimental group showed severe depression scores on GDS. 35.50\% of the control group subjects and 36.30\% of the experimental group subjects showed mild depression on GDS.

24. Within group comparison of subjects on Geriatric Depression Scale showed a reduction in level of depression from pre test to post tests ($\chi^2 = 38.099$, df=4, p= 0.000) for the experimental group.

25. Within group comparison of subjects on Geriatric Depression scale showed an increase in level of depression among the control group ($\chi^2 = 17.191$, df=4, p= 0.002)
26. After eight weeks of laughter yoga only 2.60% of experimental subjects reported severe depression on GDS while 62.30% of the control group reported severe depression.

27. 40.30% of the control group subjects and 24.20% of the experimental group were found severely depressed on Hamilton Rating Scale for depression scores.

28. Experimental group showed a reduction in depression on Hamilton Rating Scale from pre test to post tests ($\chi^2 = 62.290$, df=4, p= 0.000).

29. Within group scores of depression on HRS for the control group showed no difference up to 4th week but the 6th week and 8th week depression scores were high for the control group. This show control group subjects remained depressed ($\chi^2 = 5.875$, df = 4, p= 0.208).

30. 50% of the control group remained severely depressed whereas none of the experimental group were found severely depressed on HRS after eight weeks of laughter yoga intervention.

31. 67.70% of the control group and 56% of the experimental group showed poor well-being on WHO-(5) Well-being index.

32. The experimental group and control group differed significantly in the well-being scores in all post tests showing improvement in well-being among the experimental group ($z= -5.730$, p= 0.000 for 2nd week) $\chi^2 = -5.732$, p= 0.000 (4th week), $z= -7.806$, p= 0.000 (6th week) $z = - 8.464$, p= 0.000 for (8th week).
33. After eight weeks of laughter yoga intervention, 93.50% of the experimental group reported good well-being whereas 77.00% of the control group reported poor well-being.

34. There was no statistically significant difference between the control group and experimental group on physiological variables at the time of pre-test.

35. There was no statistically significant difference in respiratory rate between the control & experimental group, up to the 6th week (z=-1.129, p=0.259 (pre test), z=-.453, p=0.651 (2nd week), z=-.269, p=0.788 (4th week), z=-.782, p=0.434 (6th wk)). But there was statistically significant difference between the experimental group and control group at 8th week (z=-2.111, p=0.035).

36. Within group comparison of respiratory rate among the control group using Friedman test showed no significant difference ($\chi^2=9.041$, df=4, p=0.060) while experimental group showed significant within group difference ($\chi^2=10.063$, df=4, p=0.039).

37. The resting heart rate showed no statistically significant difference between the experimental and control group, except for the second week. (z=-2.809, p=0.005 (2nd wk), z=-1.198, p=0.231 (pretest), z=-1.472, p=0.141 (4th wk), z=-.685, p=0.0493 (8th wk)).

38. Within group comparison of heart rate showed significant change in the control group compared to the pretest level showing fluctuations in the heart rate for the second and fourth week ($\chi^2=10.750$, df=3, p=0.013).

39. Within group comparison of experimental group on resting heart rate showed no statistically significant change ($\chi^2=1.320$, df=3, p=0.724).
There was no statistically significant difference between the experimental group and control group in pre test blood pressure measurements \((z = -0.909, p = 0.364)\), and during the \(1^{st}\) post test \((z= -1.306, p = 0.191)\). The mean rank of blood pressure measurement was different for the experimental group between pre test and post test \((67.56\) and \(77.62\) respectively) showing an improvement in BP within 2 weeks of Laughter Yoga.

The mean rank of Blood pressure for the experimental group remained more or less the same during \(4^{th}\) week, \(6^{th}\) week and \(8^{th}\) week \((77.74, 77.51, 77.25\) respectively) showing sustained improvement in Blood pressure among experimental group showing they were related physiologically.

The mean rank of Blood pressure for the control group reduced progressively showing increased blood pressure readings and stressed state for control group members \((66.48, 64.60, 59.72\) respectively for \(4^{th}, 6^{th}\) and \(8^{th}\) weeks).

There was statistically significant difference between the experimental group and control group in blood pressure measurements \((z = -2.156, p = 0.031 \text{ (4}^{th}\text{ week)}, z = -2.451, p = 0.014 \text{ (6}^{th}\text{ week)} z = -3.197, p = 0.001 \text{ (8}^{th}\text{ week)})\).

But both groups showed no within group differences on Friedman test for the blood pressure variable.\((\chi^2=6.069, df=4, p=0.194\) for the experimental group and \(\chi^2=4.917, df=4, p=0.296\) for the control group).

There is no significant difference between the experimental group and control group in Oxygen saturation \((z=-0.318, p=0.750 \text{ (wk.2)}, z= -0.231, p=0.817 \text{ (wk.4)}, z= -0.942, p= 0.346 \text{ (wk.6)}, z= -1.603, p=0.109 \text{ (wk.8)})\).
46. Friedman test showed no statistically significant difference in oxygen saturation within the experimental and control group ($\chi^2 = 2.211$, df=4, p=0.697 (control), $\chi^2 = 5.223$, df=4, p=0.265 (experimental)). But the trend shows a favourable change for the experimental group.

47. There is no significant difference in peripheral skin temperature between the experimental group and control group up to 6th week and there was a difference in 8th week where experimental group showed a reduction in skin temperature ($z= -2.521$, p=0.012).

48. A significant within group difference in peripheral skin temperature was found in the control group ($\chi^2 = 16.214$, df=4, p=0.003) while there was no significant within group difference for the experimental group ($\chi^2 = 9.176$, df=4, p=0.057).

49. There is no significant within group change in the control group ($\chi^2 = 5.231$, df=4, p=0.264) and experimental group ($\chi^2 = 5.103$, df=4, p=0.277) on Friedman test regarding ECG recordings.

50. There is no significant difference between the ECG recordings of the experimental group and the control group ($z= -0.048$, p= 0.962 (pre test), $z= -1.501$, p=0.133 (wk.2), $z= -1.563$, p=0.118 (wk.4), $z= 0.709$, p= 0.479 (wk.6), $z= -1.129$, p= 0.259 (wk.8)).

51. There is no significant association between age and morale of the elderly residing in old age homes of Kottayam district (Likelihood Ratio= 5.877, df= 4, p=0.209).
52. There is significant association between age and depression among the elderly subjects ($\chi^2 = 10.493$, df=4, p= 0.033) and as age advances proportion of subjects in severe depression group increases.

53. There is no significant association between age and subjective well-being ($\chi^2 =5.746$, df= 2, p=0.057).

54. There is no significant association between gender and morale ($\chi^2 =4.562$, df= 2, p= 0.102).

55. There is significant association between gender and depression. Severe depression was proportionately high among males ($\chi^2 = 9.462$, df = 2, p= 0.009).

56. There is significant association between gender and subjective well-being. Male subjects are having poor well-being compared to females ($\chi^2 = 13.879$, df = 1 p= 0.000).

57. There is no association between religion and morale (likelihood ratio=5.239, df=4, p=0.264), depression (likelihood ratio= 5.322,df=4, p=0.256) and subjective well-being (likelihood Ratio= 0.651, df=2, p=0.606).

58. There is no significant association between level of education and morale (likelihood Ratio=10.608, df=10, p=0.389), depression (likelihood Ratio =6.875, df=10, p=0.737) and subjective well-being (likelihood ratio = 3.668, df=5, p=0.598).

59. There is no significant association between marital status and morale ($\chi^2 =10.776$, df=8, p=0.215).
60. There is significant association between marital status and depression among the elderly clients living in old age homes. Compared to single subjects married subjects reported more depression (likelihood ratio = 22.904, df = 8, p = 0.003).

61. There is no significant association between number of children and morale (likelihood ratio = 15.497, df = 16, p = 0.410), depression (likelihood ratio = 23.474, df = 16, p = 0.102) and subjective well-being (likelihood ratio = 6.782, df = 8, p = 0.751).

62. There is significant association between nature of old age home placement and morale and depression. Those who were forced by children to stay in old age homes had significantly low morale (likelihood ratio = 24.592, df = 1, p = 0.000) and high level of severe depression and placed by relatives and others showed mild to moderate level of depression. (Likelihood ratio = 17.699, df = 4, p = 0.001) Same observation is found with scores of Hamilton Rating Scale for depression (likelihood ratio = 18.601, df = 6, p = 0.005).

63. Placement by children in old age home showed an association with poor well-being at 0.10 level (likelihood ratio = 5.401, df = 2, p = 0.067).

64. There is no significant association between duration of stay in the old age home and depression (likelihood ratio = 10.410, df = 8, p = 0.237), and well-being (Likelihood Ratio 4.439, df = 4, p = 0.350).

65. There is significant association between duration of stay in the old age home and morale (likelihood ratio = 16.221, df = 8, p = 0.39). Subjects who were in the category 2-3 years of stay in old age home had better morale than others.
66. Present study shows no significant association between chronic illness and morale (likelihood ratio = 0.728, df = 2, p = 0.685), depression ($\chi^2 = 1.396$, df = 2, $p = 0.498$) and subjective well-being ($\chi^2 = 0.869$, df = 1, $p = 0.351$).

67. There is significant association between physical dependence morale (likelihood ratio = 16.992, df = 4, $p = 0.002$) and depression (likelihood ratio = 12.211, df = 4, $P = 0.016$). Elderly who are dependent on others for activities of daily living had low morale and high level of depression.

68. Present study shows no significant association between subjective well-being and physical dependence (Likelihood ratio = 5.101, df = 2, $p = 0.078$).

69. No significant association is observed between number of visitors to morale (Likelihood ratio = 4.846, df = 4, $p = 0.237$), depression (likelihood ratio = 2.466, df = 4, $p = 0.651$) and subjective well-being (likelihood ratio = 2.343, df = 2, $p = 0.307$).

6.6 **Tenability of hypothesis**

1. There is significant difference in morale of the elderly clients living in old age homes undergoing Laughter Yoga (experimental group) and not undergoing the same (control group).

   **Accepted**

2. There is significant difference in depression of the elderly who underwent Laughter Yoga compared to the control group.

   **Accepted**
3. There is significant difference in pre and post test scores of subjective well-being between the control group and experimental group.

   Accepted

4. There is significant post test difference in the respiratory rate between the control group and experimental group.

   Accepted

5. There is significant post test difference in the resting heart rate between the experimental group and control group.

   Rejected

6. There is significant post test difference in blood pressure between the experimental group and control group.

   Accepted

7. There is significant post test difference in oxygen saturation between the experimental group and control group.

   Rejected

8. There is significant post test difference in peripheral skin temperature between the experimental group and control group.

   Accepted

9. There is significant post test difference in Electro Cardiogram between the experimental group and the control group.

   Rejected
6.7 Conclusions

The following conclusions have been drawn keeping in mind the findings of the present study.

The elderly clients residing in old age homes have low morale and poor subjective well-being. Depression is a major problem of the elderly clients living in old age homes. Depression was found to be associated with advanced age, and male gender; married elderly who could not stay with their spouse due to forced placement in old age home by children were found to be more depressed than others. The elderly who were forced by own children for old age home placement was having increased severity of depression and very low morale. Morale of subjects who are staying in the old age home for 2-3 years were found to be better than others who are having less than 2 years or more than 3 years of stay. Dependency on others for activities of daily living caused low morale and increased severity of depression among the elderly residing in old age homes.

Base line variables give clear evidence for the demographic transitions happening among the elderly. Though majority of the subjects are young old while combining the old and oldest old they equal the young old confirming increased longevity among the elderly living in old age homes. The reasons for old age home placement emerges as poor economic conditions (low level of education and poor employment status prior to old age home placement and most elderly dependent on old age home for their daily expenses) chronic diseases (most of the elderly were suffering from multiple diseases) physical dependency on others and loneliness (a good number were single, widowed and divorced, having no visitors, forced by children relatives or others for old age home placement). Elderly who took voluntary
admission to old age home were found to be comparatively high in morale, subjective well-being and were not much depressed.

Gender distribution gives evidence to feminization of the elderly.

Laughter Yoga was found to be effective in improving morale, subjective well-being and depression among elderly clients who are residing in old age homes. Laughter Yoga is observed as a good exercise programme acceptable to the elderly and having a positive effect in improving respiratory rate, in normalizing blood pressure and for relaxing the elderly. Laughter Yoga did not cause any abnormal deviations in respiratory rate, heart rate, oxygen saturation, surface skin temperature and ECG among the elderly. This technique did not cause instability in hemodynamic functioning of the elderly and it has helped in improving cardio respiratory parameters stability. This low intensity aerobic exercise also did not disturb thermo regulation. Thus the study shows evidence for laughter yoga as an effective intervention for the elderly in improving psycho physiological variables leading to positive health benefits physically and mentally.

**Implications of the study**

Based on the findings of the study the following are the implications for Nursing and other health care professions dealing with the elderly clients in general and elderly living in old age homes in specific.

The normal ageing process inevitably brings physical and psychological changes in the elderly. Depression is not a part of ageing though the study results showed a good number of subjects suffering from depression. The study shows evidence of undetected depression even when the study subjects were in contact
with health care professionals- doctors as well as nurses many times in an year. Use of short and simple instruments periodically to detect depression among the institutionalized elderly is therefore a strong implication.

A careful intake interview and subsequent watchfulness from the part of Nurses and other care takers are implied since the study shows evidence for severe depression among the elderly who are forcefully placed by their children in old age homes and moderate depression among elderly who are placed by relatives or others compared to the elderly who took voluntary admission. The elderly in advanced age group, the elderly who are married but not able to live with the spouse and the elderly males are also in need of special assessment and attention since they tend to suffer from depression, poor well-being and low morale as evidenced by the present study. The inmates who are newly placed and who are staying for more than three years need special attention from the care givers of old age homes since these people were found to be suffering from low morale. Another group who deserves special attention are the inmates who were dependent on others for activities of daily living when compared to elderly who were independent or using assistive devices since they were found to be suffering from severe depression and low morale.

The study results show evidence for the effectiveness of laughter yoga as a therapeutic intervention in reducing or ameliorating symptoms of depression, in improving the morale and subjective well-being of the old age home residents. Moreover the evidence supports the use of this intervention as a safe method of physical activity which helps in improving the physiological balance mainly the haemo-dynamic stability. The study results further show the acceptance of this therapy by the elderly and the care givers. Therefore the therapeutic use of Laughter
Yoga for the benefit of the elderly on a regular basis in old age homes is implied. The other benefits noticed by the researcher for this therapy are positive rapport, improved inter-personal relationships, reduction in power struggles, arguments and conflicts, between the elderly themselves and also between the elderly and care givers. The spirit of Laughter Yoga seemed to help for the development of a more positive, joyful, forgiving and peaceful atmosphere where the staff and the inmates were found to be relaxed. Nurses can give attention to their elderly clients within a short time through this technique and it is found identical to group psychotherapy in its approach, methods, and benefits. Improved eye contact, physical proximity, playfulness, gestures of sharing, making fun without offending each other etc. were attained through this simple therapeutic technique that also promoted group identity and we feeling. Elderly started looking for their fellow group mates for organizing the sessions. Appreciation laughter was found to be enjoyed by everyone, which simply acknowledged the presence and participation of every group member. Appreciation seems to be a very rare thing happening in day to day activities of the old age homes and when it was given in a subtle manner through this therapy it touched the elderly. Why do the care givers or authorities fail to identify the need for appreciation in everyday living of an elderly individual? Is the lack of appreciation a major factor like loneliness in producing low morale, poor well-being and depression among the elderly? Probably appreciation of the elderly may emerge as an antedote to depression.

The therapeutic benefits reaped by the elderly had its marks on the care givers too. Hence it is implied as an antedote for stress and burn out among Nurses and other care givers working in old age homes and similar settings with chronically
ill clients. Another implication of the study is the need for organizing continuing education programmes/training programmes for Nurses and other care givers working in old age homes regarding geriatric depression, its early detection and effective management. The study results show that depression goes unnoticed by the care givers. Empathy was found missing in several interactions among care givers and awareness programmes may help to sensitize the care givers in understanding the problems of the elderly in a better way. This may help in improving communication and care giver – elderly interaction. Therefore organizing regular programmes for improving the emotional milieu of the old age homes are implied in the study results. This also poses another research question- Why do the care givers fail in empathising with the elderly old age home inmates? Is it related to the factors within the system? or the elderly themselves? or within the care givers?

The elderly were more than thankful about the shelter, food, clothing and essential medical aid they receive in old age homes. But the study results show evidence for the depth of hopelessness and worthlessness the old age home inmates were suffering from. The low morale and poor well being are the indicators of this state which may ultimately lead to severe feelings of depression. In spite of religious services and spiritual activities organized in old age homes the essential human touch was found to be missing in several instances. Therefore movements to improve the attitude towards institutionalized elderly among the care givers are strongly implied. Psychiatric Nurses by virtue of their training will be able to take up the initiative and leadership in organizing such activities for the old age home authorities and care givers. A collaborative client advocacy role of mental health Nurses with special training in geriatric care is therefore implied for further career
development, course development and human resource development in general in the field of geriatric Nursing for a Nurse educator. Policies that will help in materializing the above mentioned points are a strong implication for the Nurse administrator. Independent Nurse Practitioners in Geriatric Care is implied as the need of the hour in India.

Development of tools to assess the gender specific issues in depression among institutionalized elderly is another implication for future research which may help to understand the nuances of geriatric depression in a culture specific way.

- Use of simple research tools to detect geriatric depression can be introduced to the syllabi of all Nursing Courses starting from multipurpose health workers course to post-graduate courses in Nursing. The study findings support this implication.

- Alternative therapies are gaining momentum in geriatric care and the present study support the introduction of Laughter Yoga as an alternative therapy in the syllabi for Nursing Courses.

Though Laughter Yoga is a simulated technique which claims to laugh for no reason, unlike using jokes that can go old and therefore ineffective after some time, the elderly expressed the need for newer techniques of laughter when they were practicing laughter yoga on a continuous basis. Therefore development of newer techniques that are user friendly and safe for the elderly clients by the practitioners of Laughter Yoga is another implication of the study.
Further research in the area of Laughter Yoga can produce evidences to strengthen this method which is inexpensive and without many side effects is another implication of this research.

6.9 Limitations of the study

1. The study is limited to old age homes of Kottayam district and the study findings therefore have limitations in generalisability.

2. The measurements could not be done on the same day or time for the control group and experimental group since the randomly selected clusters of old age homes were scattered in different parts of Kottayam district.

3. Double blinding technique which safe guards an experimental study from measurement bias could not be applied in this study due to the very unique nature of the study itself.

6.10 Suggestions for further research

Based on the findings of the present study the following are the suggestions for further research in this area.

1. Similar study can be planned for a longer duration like one year follow up.

2. Laughter yoga can be compared with any other method of group therapy and with a control group.

3. Laughter yoga can be compared with cognitive behaviour therapy and group psychotherapy in treating clients with depression in hospital settings, old age home settings and in community settings.
4. Similar study can be planned for elderly people living in their own homes with the help of residents’ associations, senior citizens’ forums, religious organizations or social clubs.

5. The physiological effect of laughter yoga on elderly clients can be studied in a laboratory setting with continuous monitoring of physiological variables throughout the therapy.

6. Effect of laughter yoga on cardiac ejection function among the elderly and the healthy subjects can be studied.

7. The effect of laughter yoga on psychoneuroimmunology can be studied among the elderly and clients from different age groups.

8. Effects of laughter yoga on other variables like glycaemic level, hyperlipidaemia and cortisol level for the elderly and other subjects can be studied.

9. Effect of laughter yoga on sleep, appetite, drug taking behaviour, and complaints of pain can be studied among the elderly.

10. Effect of laughter yoga for specific conditions like asthma, obesity, depression, cancer and rheumatoid arthritis can be studied among different age groups.

11. Effect of laughter yoga on work place stress, anxiety, insomnia, chronic fatigue and anger can be studied in various subjects.

12. The experience of laughter yoga among the elderly and their care givers can be studied using qualitative research methodology.

**Summary**

This chapter has presented the study in brief with objectives, hypotheses, methodology, major findings, conclusions, implications and limitations. Further suggestions for future research in laughter yoga are also listed.