V SUMMARY AND CONCLUSION

The objective of the study on “Stress Assessment and Management among Rural and Urban Fisherwomen in Puducherry”, was to assess the stress levels among fisherwomen and to suggest the required remedial measures to mitigate the same. The specific objectives are to:

- study the socio-economic characteristics of the fisherwomen
- find out the multiple roles played by fisherwomen
- assess the levels of stress and identify the causes of the stress among fisherwomen
- understand the coping mechanisms followed by the fisherwomen and
- organise training on “stress management” and assess its impact.

The Puducherry district was taken as the universe for the present study. The sample size had a total of 440 fisherwomen. 220 women were chosen from the rural and the rest were selected from an urban fisherfolk village. Multi-stage stratified random sampling procedure was followed in the selection process. The required primary data were collected through a pre-tested interview schedule by personal interview method and an interventional study (quasi-experimental). The related secondary data were collected from the published sources. Standard validated stress scale-DASS-42 (Lovinbond and Lovinbond, 1995) was used to assess the stress level. As part of the study, appropriate training on “Stress mitigation through capacity building” was planned and implemented for the sub-set of 40 sample fisherwomen, with the objective of building their capabilities of preventing and managing stress by themselves.

The content of the training programme included nutrition and health, value added fish products, phenyl and soap oil making, family counseling, time management, legal education, solid waste management, managing occupational health hazards, disaster management and stress management. Appropriate methods were used to impart knowledge and skills.
Before initiating the training programme, knowledge level of the participants was assessed by using a check list. As per the plan of work, the training programme was organised for seven days. All the selected subjects were instructed to do physical exercise and Twin hearts meditation for a period of three months, weekly twice under the supervision of the researcher. Impact of the training on 40 selected/trained fisherwomen was assessed after three months, through measurement of their knowledge on topics covered in the training programme by re-administering the same check list. Similarly after three months of practicing twin hearts meditation, the Depression, Anxiety, Stress Scale (DASS) was used and the stress levels were measured again and the stress scores were tabulated.

The following simple statistical tools using Statistical Packages for Social Sciences (SPSS), wherever needed, were employed to analyse the appropriate data. Frequency analysis, percentage and average analysis, chi-square test, correlation analysis, multiple regression analysis, ‘t’ test, Friedman’s Test, paired ‘t’ test and discriminant analysis were carried out.

Salient findings of the study

1. Social characteristics of the sample

Among the total, 58.41 percent of the fisherwomen belonged to the active age group of 31-50 years, 78per cent of the fisherwomen were married and living with spouses, 18 per cent were widows and four per cent remained separated. Fifty nine per cent of the rural and 83 per cent of the urban respondents had nuclear families with an overall percentage of 71. Sixty nine per cent of the fisherwomen belonged to the larger family size of 5 to 7 persons. Fifty five per cent of the fisherwomen in rural and 42 per cent in urban areas were illiterates. Eighty three per cent of the head of the families (spouses) had the traditional occupation of fishing. Ninety four per cent of the fisherwomen were involved in marketing fish either at market place or by street vending.

In the total sample, ninety six per cent had own houses. Sixty three per cent of the families lived in concrete houses. Eight per cent of the rural fisherwomen were living in huts followed by the rest living in tiled houses.
(25 per cent). In the urban area, 83 per cent of the families lived in concrete houses. Ninety three per cent of the houses had their own water connections in the urban the area and 74 per cent had it in rural area. Public taps were used by rest of the fisherwomen. Fifty five per cent in the rural area and 85 per cent in the urban area had toilet facilities.

2. Economic characteristics of the sample

About 83.38 per cent of the head of the families were owning boats and were engaged in traditional occupation of fishing. Majority of their spouses go for fishing for six days in a week.

Fifty one per cent of the fisherwomen earned a monthly income of less than ₹5000. Thirty seven per cent of them earned an income of ₹5,000 to 10,000 per month, while 11 per cent earned sum of ₹10,000 to 15,000 per month. Forty four per cent of the families earned an income of less than ₹15,000 per month. Twenty three per cent of the families earned ₹21,000 to 30,000 per month. Only seven per cent of the families earned about ₹30,000 per month.

More than 90 per cent of the households owned electronic gadgets such as television (98 per cent), grinder (92 per cent) and mobile phones (92 per cent). Eighty seven per cent of them had mixer grinder, followed by motor cycle (80 per cent) and furniture items (80 per cent).

Only 39 per cent of the households had the habit of savings and it was found to be high in urban area compared rural area. Forty six per cent of the sample saved by depositing in commercial banks and 17 per cent in private chit funds. Only 11 per cent of them saved in Post offices. About 75 per cent of the fisherwomen invested in fishing activity itself, followed by 17 per cent of them invested on their children’s education. Only four per cent of them invested on house building and the remaining four per cent invested on jewels. Sixty three per cent of the fisherwomen indicated that they had investments through both borrowings and savings.

Fifty eight per cent of the households had outstanding loan amount of below ₹10,000. Above ₹20,000/- was availed by 44 per cent of the urban samples when compared to rural fisherwomen. Daily repayment was found
among 72 per cent of the fisherwomen in rural area. Weekly and monthly repayments were found more in urban area.

3. Multiple roles of fisherwomen

Sixty eight per cent of the fisherwomen attended household activities for 3-4 hours per day and only 33 per cent spent more than five hours a day. All of them were involved in household responsibility like cooking, washing clothes, rearing children maintain sanitation and domestic health.

Fresh fish vending, market sale, dry fish vending and auction were the marketing activities attended by the fisherwomen. They spent about 4-6 days per week in post-harvesting activities at the rate of 8-11 hours per day. Ninety per cent of the fisherwomen from rural area and 77 per cent from urban area were involved in fresh fish vending. The fisherwomen looked after the post-harvest activities like drying fishes, cold storage/icing fishes, salt curing, sorting, pickling etc. Drying (93 per cent) and cold storage (90 per cent) were done by rural fisherwomen. Cold storage/icing (88 per cent) and drying (43 per cent) were done by urban fisherwomen. In total 42 per cent of them were involved in sorting followed by pickling (8 per cent).

Sixty seven per cent of the fisherwomen from rural area and 71 per cent from urban area sleep only for five hours per day. In order to buy fish, fisherwomen had to wake up by 3.00 a.m. and rush to the spot. Due to this routine, their sleeping hours were completely disturbed.

Household decisions pertaining to expenditure on clothing (82 per cent), medical care (81 per cent), education of children (81 per cent) and expenditure on food (87 per cent) were made by the fisherwomen in rural area. Whereas, in urban, the decisions regarding expenditure on food (83 per cent), purchases of household equipment (75 per cent), expenditure on clothing (71 per cent) and medical care (66 per cent) were made by the fisherwomen.

In rural area, the occupational decisions such as fishing (72 per cent), employing of coolies and wage fixing (66 per cent) and sale of catch (65 per cent) were made by their spouses. In urban area, the decisions regarding fishing (49 per cent), employment of coolies and wage fixation (47 per cent)
and sale of catch (45 per cent) were made by their spouses. Fisherwomen participated in making decisions relating to household activities. While the decisions regarding occupation was made by their spouses.

Majority of the fisherwomen were aware of most of the welfare measures. Twenty six per cent in rural area and 40 per cent in urban area were the members in SHGs. Active participation in decision making process in the family, confidence building, skill development, bank linked enhanced income earnings, knowledge on rights and active participation in developmental programmes were the benefits derived through SHGs.

4. Assessment of stress level and nutritional status

Ninety five per cent of the fisherwomen suffered from different levels of depression, which again influenced the stress level. Fifty eight per cent in rural area and 53 per cent in urban area experienced moderate level of anxiety. In rural area fisherwomen were reeling under moderate (45 per cent) and severe (37 per cent) levels of stress. In urban area, the fisherwomen were having moderate (45 per cent) and severe (33 per cent) levels of stress. The stress level was high in rural area than in urban area. In overall 15 percent of them were found to be obese followed by overweight (26 per cent). All the fisherwomen were non-vegetarian. Twenty nine per cent of the rural and 70 per cent of the urban fisherwomen skipped their meals due to lack of time management and surplus work load. Skipping breakfast might have also affected their metabolism and energy levels leading to health complications.

Level of stress among rural and urban fisherwomen: There was significant difference in stress levels among the fisherwomen. The level of stress was high among rural fisherwomen when compared to that of urban fisherwomen.

5. Problems leading to stress

Physical problems: Almost the entire sample fisherwomen had the problems such as knee pain, back pain, foot pain, neck pain and shoulder pain, which were related to the physical stress. Twenty five per cent and 19 per cent of the fisherwomen respectively in rural and urban areas reported eye problems
such as redness, irritation, lid puffiness and watery eyes. Throat problem was mentioned by 16 per cent of fisherwomen in rural area and 19 per cent of fisherwomen in urban area. Six per cent of the rural fisherwomen and 30 per cent of urban fisherwomen complained about hearing difficulties. Indigestion problem was reported by 63 per cent of the fisherwomen followed by loss of appetite, gastric trouble, irritable bowel syndrome, stomach ailments, diarrhoea, vomiting etc.

Eighteen per cent of rural and 23 per cent of urban fisherwomen had hypertension. Sixty five per cent of the fisherwomen expressed by the problems of shortness of breaths. Eighty eight per cent of the sample experienced sleeping disorder, while 84 per cent suffered from headache. Stress might be the basic cause of sleeping disorder and headache.

Oral problem of dry mouth was indicated by 40 per cent of the rural and 34 per cent of the urban fisherwomen. Dental problem was expressed by 38 per cent of the rural and 32per cent of the urban fisherwomen.

Gynecological problem was pointed out by 80 per cent of the fisherwomen. It included irregular menstrual cycle (35 per cent) and miscarriage (11 per cent). Asthma (22 per cent), sinus (22 per cent) and frequent cold and illness (13 per cent) were the other reported respiratory problems, indicated.

Seventy eight per cent of the fisherwomen had hair loss, followed by tanning, rashes, fungal infection, itching, psoriasis and eczema.

**Psychological problems:** Difficulty in making decision (99 per cent), lack of confidence (98 per cent), inferiority complex (98 per cent) irritability / anger (95 per cent) and lack of self-esteem (91 per cent) were the top five psychological problems stated by the fisherwomen in rural area. In urban area irritability / anger (90per cent), exhaustion (79 per cent), worries (74 per cent), confusion (71 per cent) and fatigue (58 per cent) were the top five problems enlisted.
Educational problems: Illiteracy (59 per cent), poor performance of children in schools (48 per cent), high fee structure (40 per cent) and lack of career guidance and counseling (20 per cent) were the major problems related to education, felt by the fisherwomen.

Family problems: Inadequate rest, erosion of self-respect, falsehood among family members, alcohol addiction, improper time management and personal ego were the major problems faced by the fisherwomen. These problems were faced by majority of the rural fisherwomen, while untimely death of spouses was reported by urban samples. Unexpected expenditure, price rise and lack of savings were the major financial problems stated by all the fisherwomen.

Economic problems: Poor income, general price rise and high price of all essential commodities (91 per cent), underemployment during ban period, seasonal aberrations (87 per cent) and lack of savings (73 per cent) were the major economic problems confronted by the fisherwomen.

Social problems: Poor social status (88 per cent), lack of representation in Fishermen Co-operative Society (85 per cent) and poor social acceptance (83 per cent) were the three major problems expressed by rural fisherwomen. In urban area, heavy dowry system (91 per cent), poor social acceptance (88 per cent) and lack of representation in the Fisherwomen Co-operative Society (81 per cent) were the top three problems mentioned by them.

Institutional problems: Lack of awareness about saving schemes (82 per cent), lack of job security (77 per cent) and lack of location specific development projects were the important stressors expressed by the fisherwomen.

Technological problems: Lack of innovative equipments and methods (94 per cent) and technological progress leading to unemployment (79 per cent) were the major problems influencing the stress level in rural area. In urban area, lack of training programme (88 per cent) and lack of technical advice / supervision (80 per cent) were the problems encountered by the fisherwomen.
**Personal problems:** Ergonomic problem (87 per cent), lack of alternative employment (83 per cent), lack of ownership of assets (79 per cent) and inadequate social interactions (75 per cent) were the stressors of personal nature.

**Environmental problems:** Natural calamities like low pressure and cyclone (99 per cent), inadequate disaster management facilities (98 per cent), day-to-day weather aberrations (89 per cent) and poor sanitation (73 per cent) were yet another group of environmental stressors.

6. **Statistical analysis**

**Chi-square test:** There was significant association between stress level and the individual variables such as age, income, family income, number of working days, hours of work and sleeping hours both in rural and urban areas. There was no association between stress levels and individual variables such as marital status, family type, family size, educational level and body mass index in both the areas.

**Correlation between stress level and causative factors:** One of the most important problems that had high correlation with stress level was the family problem in both rural and urban areas. Other problems such as health, psychological, educational, economic, social, institutional, technological, personal and environmental issues also had significant correlation with the stress level.

**Friedman’s test:** There was significant difference at one per cent level between mean ranks assigned to the problems causing stress among rural fisherwomen. However, in urban area, the problems relating to environment, technology, personal, economic and institutional issues were ranked in order. There existed significant difference between mean ranks assigned to the problems causing stress.

**Multiple regression analysis:** The problems relating to family, economic and environment were found to have significant influence on the stress level at one per cent level. Social problems had significant influence on stress level at 5 per cent level.
**Discriminant analysis:** All the ten causative problems were found to discriminate samples significantly the rural from urban samples. Of the 220 cases included in the model in rural area, 91.8 per cent was found to be rightly classified. Similarly in urban area, 87.3 per cent was found to be rightly classified originally. As a whole, 89.5 per cent of the cases were classified correctly. These indicators are more than sufficient to prove the extent of reliability in discriminating the two groups.

7. **Stress mitigation practices followed by the fisherwomen**

Watching television, visiting beach and temple, eating snacks and drinking coffee and tea, conversations with neighbours and friends and listening to music were means to the major stress mitigate practices adopted on their own by the fisherwomen.

8. **Impact of the training programme:** There was significant at one per cent level of improvement in the knowledge levels among rural and urban fisherwomen after the training programme. Training and practice of physical exercise and meditation contributed to significant reduction in stress level.

**Conclusion**

In the age of highly dynamic and competitive world, man or woman exposed to all kinds of stressors that can affect the total dynamics of life.

- Majority of the fisherwomen were reeling under mild to extremely severe levels of stress due to factors such as family, economic, social and environmental problem, etc. Stress levels were found to be more among fisherwomen in rural area than in urban area.

- Illiteracy, low income, malnutrition and indebtedness were rampant among fisherwomen.

- The household chores and post-harvest activities especially fish marketing involved long hours of arduous work resulting in untimely and intake of poor quality food and sleeplessness which aggravated the ill health. These factors added to the stress conditions among fisherwomen.
Environmental problems particularly the weather aberrations like heavy wind, low pressure, cyclone etc. made the fisherwomen worrying about the safety of the family members who used to go often on sea fishing. This was one of the major stressors on fisherwomen.

Watching television, going to temple/beach, listening to music, drinking tea or coffee and conversing with friends were the coping mechanisms practiced on their own to mitigate the stress.

Intervention study among fisherwomen improved their knowledge in identifying the appropriate methods of mitigating stress resulting in actual reduction in their levels of stress. Further training on scientific methods of mitigating stress like physical exercises and twin hearts meditation reduced their stress levels. Fisherwomen who functioned as the fulcrum of the fisher families were willing to accept innovations as well.

Infrastructure facilities were highly lacking in the fish market place. Improper disposal of wastes, poor sanitation resulted in many health hazards.

Regression analysis revealed that the stressors like family, economic social and environmental problems were found to be significantly influenced the level of stress.

Discriminant analysis indicated that all the ten factors were found to be significantly discriminating the rural women from the urban women.

It can be concluded that the fisherwomen were reeling under mild to moderate level of stress due to the major factors like family, economic, social and environmental problems. Further the intervention study indicated that there was significant improvement in their knowledge level and reduction in stress level.

**Recommendations emanated from the study results**

The findings of the study have got the implications on the following major policy issues and hence the needed strategies are recommended below:
• Illiteracy, low income, malnutrition and indebtedness were rampant among fisherwomen. Therefore the socio-economic conditions of the fisherwomen need to be improved through massive extension services by the government and NGOs. An integrated approach is required through financial assistance in the form of soft loans by banks, price support for fishing products, better storage and warehouse facilities, effective marketing systems and transfer of appropriate technologies.

• Malnutrition is widely prevalent among the fisherwomen. Nutritional intervention programmes should address the problem of malnutrition. Health and Social Welfare Departments, NGOs have to take into cognizance while implementing the nutritional programmes. In this context, the establishment of horticulture community gardens under panchayatraj set up. May be aimed at with the liberal subsidies from national and international developmental agencies.

• To mitigate with stress condition the fisherwomen should be trained with new methods and approaches of stress management. Psychiatric care and counselling are needed to identify and treat stress among fisherwomen. In this context a well-thought out training programme may be formulated and implemented periodically among fisherwomen.

• To prevent occupational health hazard, the government should take initiatives to modernize market places with appropriate infrastructure facilities like proper sale platform, seating arrangements, adequate water facilities, canteen facilities, cold storage facilities, appropriate waste disposal yards and drainage,

• Empowerment of fisherwomen through education, parity wages, developing entrepreneurial skills such as value added fish products, aqua-feed making, modern methods of harvesting, hygienic handling and processing of fish and fishery products appropriate methods of waste disposal etc., can be developed. Self Help Group among the fisherwomen must be achieved at faster rate.
• Government should pay much more attention to the dynamics of weather changes and uncertainties, associated especially with fisherwomen communities who suffer the most to provide a viable insurance coverage to the life-loss etc.

• Research on problems confronted by the fisherwomen are to be carried out on scientific basis. The educational and research institutions must come forward to meet this.

Stress management on scientific lines will enhance health, food, economic and livelihood security and bring out positive changes and improve the quality of life for sustainable development.