CHAPTER – VI

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

6.1 Summary

Premenstrual syndrome is a set of physical psycho – emotional and behavioral symptoms that start during the week before menstruation and are alleviate when the menstruation flow begin. Those kinds of symptoms interfere with daily routine at work, home, social activity or relationships, however, unawareness about PMS lead to the problem in indentifying PMS symptoms and determining the appropriate management. PMS is a common problem among young girls which adversely affects their educational performance and emotional well-being. PMS had a moderate but significant negative impact on the quality of life of adolescent girls.

The detected rate of PMS was more and untreated cases may lead to poor academic performance and acute psychiatric problems. So there is a dire need to learn skills and methods that are simple, rational, and practical, which can give a person the self - empowerment to rise to the occasion and make appropriate decision at the right time. Interventions including cognitive and behavioral domains are considered the most effective in reducing PMS symptoms among adolescent girls. Hence the researcher intended to determine the effectiveness of Cognitive Behavioral Nursing Strategies on premenstrual syndrome (premenstrual distress, anxiety, depression, knowledge on PMS) among adolescent girls.

The objectives of the study were to:

- Evaluate the effectiveness of cognitive behavioral nursing strategies on premenstrual syndrome among adolescent girls.
- Identify the relationship among premenstrual distress, anxiety, depression of adolescent girls.
• Associate selected background variables (age, BMI, class performance, exercise, menarche age, days of bleeding, heaviness of bleeding) with premenstrual syndrome of adolescent girls.

The formulated study hypotheses were:

**H1**: There is a significant difference in the premenstrual distress among adolescent girls who participate in the Cognitive Behavioral Nursing Strategies than who do not

**H2**: There is a significant difference in the anxiety among adolescent girls who participate in the Cognitive Behavioral Nursing Strategies than who do not

**H3**: There is a significant difference in the depression among adolescent girls who participate in the Cognitive Behavioral Nursing Strategies than who do not.

**H4**: There is a significant difference in the knowledge on PMS among adolescent girls who participate in the Cognitive Behavioral Nursing Strategies than who do not.

Related literature were reviewed and grouped. Conceptual framework was based on symptom management model (Dodd et al., 2001).

The research design adopted was pretest posttest control group design. Manipulation included the Cognitive Nursing Strategies refers to the interactive teaching learning- sessions that imparted knowledge on menstrual hygiene, health and PMS using a information booklet along with practice sessions. There were a total of three teaching sessions and each session lasted for 40 minutes. Behavioral Nursing Strategies included demonstration of yoga relaxation techniques for one hour and 30 minutes practice every day for 40 school days. The adolescent girls in the control group received same intervention after completion of study period.

The study was conducted in selected schools at Thiruvallur district, schools were assigned randomly to study and control group using simple random sampling technique (lottery method) and the population included adolescent girls with PMS.
Adolescent girls were screened for premenstrual distress and depression. Adolescent girls who were diagnosed to have mild, moderate or strong premenstrual distress and mild or borderline depression and those who fulfilled inclusion criteria during the period of study were selected as samples. Estimated sample size was 320 with 160 subjects in each of the groups.

The instruments used had 7 parts:

Part I - Demographic, personal and gynaecological variables

Part II - Standardized Menstrual Distress Questionnaire constructed by Rudolf H. Moss

Part III - Standardized State Trait Anxiety Inventory (STAI) constructed by Speilberger

Part IV - The Beck Depression inventory created by Aaran T. Beck.

Part V - Premenstrual syndrome knowledge questionnaire.

Part VI - Yoga relaxation technique performance check list.

Part VII - Daily Symptom Diary.

The instruments were validated by experts and reliability was checked using test – retest and interrater observation methods. The data were collected four times; during survey, pretest, 38th day after pretest, 68th day after pretest, except the knowledge assessment on PMS that was estimated at the end of 16th day and 38th day after pretest.

A pilot study was conducted with 10% of the proposed sample size helped to assess the reliability and feasibility of the instruments. Modifications were done based on the pilot study results and experts recommendations.
Findings of the study

Comparison of knowledge on PMS

There was a gross inadequacy (93% of the adolescent girls in the study group and 92.5% of the adolescent girls in the control group) of knowledge on PMS. All the adolescent girls in the study and control groups were unaware of yoga relaxation technique. After CBNS most of the adolescent girls in the study group (96% during Posttest I and 84% during posttest II) had satisfactory practice as well as adequate knowledge (72% during posttest I and 71% during posttest II). There was no change in knowledge among adolescent girls in the control group (92.5% had inadequate knowledge in the pretest, Posttest I (90%) and posttest II (91%)).

The pretest mean knowledge score was 7.36 with SD 1.98 in the study group and it was 6.92 with SD 2.037 in the control group, the mean difference knowledge score between the study and control group was 0.44 with t value of 1.83, which was statistically not significant.

In the posttest I, the mean knowledge score was 15.44 with the SD of 1.58 in the study group and 6.95 with the SD of 2.02 in the control group, the mean difference knowledge score between the study and the control group was 8.49 with t value of 40.95 (p<0.001), which was highly significant at p<0.001 level. In the posttest II, a highly significant statistical difference existed between the groups at p<0.001 level. In the posttest I and posttest II knowledge scores showed a significant improvement among adolescent girls in the study group.

Comparison of premenstrual distress

The pretest premenstrual distress mean score was 57.08 with the SD of 20.69 for the study group and 58.01 with the SD of 22.07 for the control group and independent t test value was 0.383, which was statistically not significant. No
difference existed between the groups. In the posttest I the premenstrual distress mean score was 34.92 with the SD of 14.68 in the study group and 64.54 with the SD of 22.12 in the control group, a highly significant reduction in the premenstrual distress was noted in the study group than the control group at p<0.001.

In the posttest II the premenstrual distress mean score was 40.92 with the SD of 17.48 in the study group and 63.26 with the SD of 20.51 in the control group and obtained t value was 10.383 (p<0.001), which was highly significant at one percent level. In the study group 80%, 19.4% and 0.6% had mild, moderate and strong premenstrual distress whereas 19%, 70% and 11% had mild, moderate and strong premenstrual distress in the control group.

**Comparison of depression and anxiety**

The pretest depression mean scores were 17.12 ±2.27 for the study group and 17.87± 2.19 for the adolescent girls of the control group. No significant difference was observed. Posttest I depression scores between the study group and the control group showed a highly significant statistical difference existing at p< 0.001 level. In the study group, 36%, 52% and 12% had normal, mild and borderline depression whereas 32%, 42% and 26% had mild, borderline and moderate depression in the control group during posttest I.

In posttest II the depression mean score was 12.68 with the SD of 3.26 in the study group and 18.07 with the SD of 2.57 in the control group. A significant reduction in the level of depression was noted among study group than the control group at p<0.001.

The pretest state anxiety mean score were 52.33 and 47.83 for the study and control group with no significant difference noted between the groups. In the posttest I the state anxiety mean scores were 25.08 and 53.65 for the study and the control
groups. In posttest II, the state anxiety mean scores were 32.24 and 49.02 in the study and the control groups. Comparison between the groups showed a reduction in the state anxiety at p<0.001 among study group.

The pretest trait anxiety mean score were 52.67 and 51.43 for the study and control group with no significant difference noted between the groups. In the posttest I the trait anxiety mean scores were 29.64 and 50.62 for the study and the control groups. In posttest II, the trait anxiety mean scores were 33.52 and 52.29 in the study and the control group. Comparison between the groups showed a reduction in the trait anxiety at p<0.001 among study group.

The pretest assessment revealed that there was no significant statistical difference existed between the study group and the control group on premenstrual distress sub scale score. Highly significant statistical difference existed on pain, negative affect, impaired concentration, behavioral changes and control and there was no significant statistical difference existing on water retention, autonomic reaction and arousal between the study group and the control group during the posttest I. A highly significant statistical difference existed between the groups at p<0.01 in pain, negative affect and at p<0.001 on impaired concentration, behavioral changes, arousal and control during posttest II.

RMANOVA revealed statistically significant difference between the groups as well as between the observations (p<0.001) in knowledge on PMS, F (2,616) =1806.59, p= 0.000; premenstrual distress, F (2,616) =800.49, p= 0.000; state anxiety, F (2,616) =802.82, p= 0.000; trait anxiety, F (2,616) =1193.52, p= 0.000; depression, F (2,616) =546.73, p= 0.000. The RM ANOVA results further substantiate the ‘t’ test findings.
Relationship among premenstrual distress, anxiety and depression

During the pretest of the study group, there were significant moderate positive correlation between the premenstrual distress - depression and state-anxiety - trait anxiety. There were negligible correlation between premenstrual distress -state anxiety, premenstrual distress - trait anxiety and depression - state anxiety. In the control group there was a significant strong positive correlation between the state-anxiety - trait anxiety. There were significant weak correlations between premenstrual distress - trait anxiety, depression - state anxiety and depression - trait anxiety.

During the posttest of the study group, there were significant weak positive correlation between the premenstrual distress -state anxiety, premenstrual distress - depression and depression – state anxiety. There was significant moderate positive correlation between the state-anxiety - trait anxiety. There were negligible correlations between premenstrual distress - trait anxiety and depression – trait anxiety. In the control group there were significant weak positive correlation between the premenstrual distress - state anxiety, premenstrual distress - trait anxiety and depression - trait anxiety. There was a highly significant moderate positive correlation between the state anxiety - trait anxiety.

During the posttest I of the study group, there were highly significant (p <0.001) moderate negative correlations between the YRT-state-anxiety, YRT - trait anxiety, YRT- premenstrual distress. There was a significant weak negative correlation between the YRT - depression. In the posttest II, there were significant (p <0.01) weak negative correlations between the YRT-state-anxiety, YRT - trait anxiety. There were highly significant moderate negative correlations between the YRT – depression and YRT- premenstrual distress.
Association between selected background variables and premenstrual syndrome

Significant association existed between the posttest I knowledge on PMS and class performance, menstrual duration, place of residence and menstrual flow at p< 0.01 among adolescent girls in the study group. Significant association was found between posttest I knowledge on PMS with frequent class missing during menstruation, habit of exercise, pain during menstruation at p< 0.05, BMI, menstrual flow at p< 0.01 and menstrual duration, at p< 0.001 among adolescent girls in the control group.

Significant association existed between BMI, class performance, place of residence at p< 0.01 level and menstrual duration at p< 0.05 with posttest I premenstrual distress among adolescent girls in the study group. Significant association was shown between the posttest I premenstrual distress and BMI, menstrual duration, frequent class missing during menstruation, age at menarche at P< 0.001 level, class performance at p< 0.01 level, place of residence, pain during menstruation and menstrual flow at p< 0.05 among adolescent girls in the control group.

The state anxiety had association with BMI, menstrual duration at p< 0.01 level and age at p< 0.001 level in the study group and had association with place of residence at p< 0.01 level and pain during menstruation at p< 0.05 level in the control group.

Significant association existed between posttest I trait anxiety with BMI and habit of exercise at p< 0.001 level, menstrual flow, age at menarche, frequent class missing during menstruation and age at p< 0.01 level among adolescent girls in the study group. The trait anxiety had association with age, BMI, class performance, pain
during menstruation and place of residence at p< 0.01 among adolescent girls in the
control group.

The post depression had association with menstrual duration and habit of
exercise at p< 0.01 among adolescent girls in the study group. In the control group
post depression had association with BMI, habit of exercise at p< 0.01 and frequent
class missing during menstruation at p< 0.05.

Regression analysis of post premenstrual distress with background variables
indicated that BMI, class missing during menstruation, pain during menstruation were
the most powerful predictor in the control group. Predictors for post depression were
habit of exercise and pain during menstruation in the study group. Combined
variables accounted for 41.8% of variance with the post premenstrual distress in the
control group and 30.7% variance in the post state anxiety in the study group could be
accounted for the linear combination of predictors age, BMI, class performance, class
missing during menstruation, habit of exercise and pain during menstruation.

6.2 Conclusion

The study results indicated that adolescent girls obtained an overall positive
influence from CBNS. The premenstrual distress, anxiety and depression experienced
by adolescent girls reduced significantly during post intervention. Pretest assessment
revealed that majority of them had mild, moderate premenstrual distress, mild,
borderline depression and poor knowledge regarding PMS.

The results also indicated a weak positive relationship between the
premenstrual distress, state anxiety and depression. In the study group, highly
significant moderate negative correlations existed between YRT and state anxiety,
trait anxiety, premenstrual distress and depression which indicated that YRT practice
facilitated reduction of PMS symptoms.
The result highlighted CBNS to be an effective method to increase the knowledge and to promote satisfactory YRT practice towards effective management of PMS among adolescent girls. CBNS for adolescent girls with PMS can be implemented in the schools or community centers to effectively create a change in the three domains knowledge, attitude and practice among adolescent girls.

The findings of the study were consistent with the literature and supported by the studies conducted around the world. Based on the method of selection, sample size and support from many studies conducted throughout the world, the findings could be generalized to the 9th and 11th standard adolescent girls.

6.3 Implications of the study

Some of the implications derived from the present study in various practice and educational settings of nursing are as follows

6.3.1 Nursing Practice

The present study shows that premenstrual distress, anxiety and depression among adolescent girls at schools are quite predominant. To reduce this burden community health nurses working in the primary health centre and urban health center should try various theory based behavioral change strategies such as complimentary alternative therapy along with information education communication strategies.

The study reveals that CBNS has a definite impact in reducing premenstrual distress, anxiety and depression as well as in increasing knowledge about menstruation and PMS. To spread this message it is essential for community health nurses to create awareness, organize yoga classes with teaching programme on PMS for both women and adolescents. Such interventions performed either in groups or on one to one basis at schools and in the community setting can reduce PMS symptoms and also bring positive life style changes that can reduce depression, anger, eating
disorders as well as help the adolescent girls to achieve their personal goals. Nurses in the community play a vital role in disseminating evidence based behavioral change strategies to help adolescent girls with PMS to reduce troublesome symptoms. Nurses and midwives working in primary health care service could offer CBNS programme and support the adolescent girls during scheduled school visits. YRT can be integrated into clinic-based and home based models of care to enhance the health outcomes of adolescent girls with PMS. The CBNS using symptom management model is feasible, safe and worth implementing by community health nurse and is well accepted by adolescent girls.

6.3.2 Nursing Education

The general education in the school curricula has already integrated yoga practice from the Year 2007 for the school students under the Chennai Corporation and also has plan to implement the same in other rural and sub urban schools. Hence nursing education has ample opportunities to spread the knowledge of YRT to the nursing students as a continuation of the general education curricula. This can help not only the community but also help individual students to modify their life style to achieve optimum health.

In – service and continuing nursing education courses should aim at orienting community health nurses on practice of effective complimentary therapies based on strong research evidence.

Nurse educators should plan for ample opportunities for their students to practice and spread the message of goodness about yoga along with ITLS. Multipurpose health workers are the grass root level primary care providers in the rural areas. The health care delivery system of India in the rural area depends on these workers for their health needs hence nurse educators should organize classes for
these workers on complementary and alternative medicine (CAM) practices especially with simple YRT steps. This not only can benefit the adolescent girls in the schools or the women in the community but also it takes care of themselves too.

Nursing curriculum in India already incorporated PMS concept from the year 2005. Indian nursing council can establish post certificate diploma courses on complementary and alternative therapy. The booklet prepared for the present study on menstrual health, hygiene and PMS can form an important guideline to nursing students to plan for health education to adolescent girls with PMS in the community and school setting as well as to other reproductive women.

6.3.3 Nursing administration

Maternal and Child Health officers as administrators should formulate policies and protocols on YRT and other time tested CAM practices with added research evidence. Nurse administrators should use appropriate integration of CAM practices in managing psychological and mood disorders at different levels of prevention in various areas of health care delivery system. Such management practices should be regulated as policies and protocols to ensure informed practice by all the health care team members.

Administrators with their capacities can propagate through mass media the goodness of yoga relaxation and other relevant CAM practices to the community. This would increase creativity, interest and motivation among the community members for a healthy living.

6.3.4 Nursing research

Adequate support, motivation and encouragement by the management and authorities of organization can enable various research activities, this could be the quest of many novice nurses. Motivation to indulge in research activities could
improve the body of knowledge of the profession. Such new empirical knowledge can improve health among adolescent girls

- Incidence and prevalence of PMS among adolescent girls can be identified through community surveys as there are no existing data on these areas.
- Qualitative and lived in experience of adolescent girls with PMS, relating to the demographic characteristics, yoga practice and its effects and hindrances encountered by adolescent girls can be researched to have a better understanding of the problem.

**6.4 Recommendations for further study**

- A similar study can be conducted with the use of video assisted or computer assisted teaching
- Studies may be replicated in other settings especially community areas.
- The study can be replicated among women in different occupations.
- Value and belief about menstruation should be studied in Tamil Culture.
- Long term follow up studies for a period of 1-3 years can be conducted
- Cognitive Behavioral Nursing strategies can be extended to adolescent girls with dysmenorrhea
- A study to explore the knowledge, attitude and behavior of boys about menstruation and reproductive health of young girls can be conducted
- Study to explore prevalence of PMS and to describe PMS experience in various criteria such as ICD -10, ACOG, and DSM – IV can be conducted.