

**EFFECTIVENESS OF PELVIC BRIDGE EXERCISE ON  
DYSMENORRHEA AMONG ADOLESCENT GIRLS AT  
SELECTED GOVERNMENT GIRLS HIGHER  
SECONDARY SCHOOL, MADURAI**

**M.Sc., (NURSING) DEGREE EXAMINATION  
BRANCH – III OBSTETRICS AND GYNECOLOGICAL NURSING  
COLLEGE OF NURSING  
MADURAI MEDICAL COLLEGE, MADURAI -20.**



*A Dissertation submitted to*  
**THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY  
CHENNAI – 600 032.**

*In partial fulfillment of the requirement for the degree of*  
**MASTER OF SCIENCE IN NURSING**

**APRIL – 2016**

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SECONDARY SCHOOL, MADURAI**

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## **CERTIFICATE**

This is to certify that this dissertation titled, **“EFFECTIVENESS OF PELVIC BRIDGE EXERCISE ON DYSMENORRHEA AMONG ADOLESCENT GIRLS AT SELECTED GOVERNMENT GIRLS HIGHER SECONDARY SCHOOL, MADURAI”** is a bonafide work done by **Mrs. PALANICHAMY VELAMMAL, M.Sc(N)** student, College of Nursing, Madurai Medical College, Madurai - 20, submitted to THE TAMIL NADU Dr.M.G.R MEDICAL UNIVERSITY, CHENNAI in partial fulfillment of the university rules and regulations towards the award of the degree of **MASTER OF SCIENCE IN NURSING, Branch III, Obstetrics and Gynaecological Nursing**, under our guidance and supervision during the academic period from 2014 – 2016.

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## ABSTRACT

**Title** - Effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls at selected Government Girls Higher Secondary School Madurai.

**Objectives:** To assess the level of dysmenorrhea among adolescent girls, To evaluate the effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls. To associate the level of dysmenorrhea among adolescent girls with selected Socio demographic variable. **Hypotheses:** There is a significant difference between the pretest and posttest level of dysmenorrhea among adolescent girls studying in selected Government girls higher secondary school, Madurai. There is a significant association between the level of dysmenorrhea among adolescent girls with their selected socio demographic variables. **Conceptual Frame work:** The conceptual frame of this study is based on modified kings Goal Attainment Model.

**Methodology:** Quantitative approach and Pre experimental-One group pretest posttest design was adopted for this study. **Setting:** The study was conducted at selected Government Girls Higher Secondary School, Madurai. **Sample Size:** The sample size was 60. **Sampling Technique:** The Purposive sampling technique was used to select the subjects. **Intervention:** The intervention applied in this study was Pelvic bridge exercise, daily 2 times per day for 6 days per week up to next period. **Conclusion:** This study concludes that the Pelvic bridge exercise significantly reduced the level of dysmenorrhea among the Adolescent girls.



## TABLE OF CONTENTS

CHAPTER NO	TITLE	PAGE NO
<b>I</b>	<b>INTRODUCTION</b>	1
	1.1 Need for the study	8
	1.2 Statement of the problem	12
	1.3 Objectives	12
	1.4 Hypotheses	12
	1.5 Operational definitions	12
	1.6 Assumptions	13
	1.7 Delimitations	14
	1.8 Projected outcome	14
<b>II</b>	<b>REVIEW OF LITERATURE</b>	
	2.1 Review of literature related to prevalence of dysmenorrhea	16
	2.2 Review of literature related to the effectiveness of pelvic bridge exercise	20
	2.3 Review of literature related to the effectiveness of pelvic bridge exercise on dysmenorrhea	24
	2.4 Conceptual framework	31
	<b>RESEARCH METHODOLOGY</b>	
	3.1 Research approach	35
	3.2 Research design	35
	3.3 Variable	36
	3.4 Setting of the study	36
	3.5 Population	36
	3.6 Sample	37
	3.7 Sample size	37
	3.8 Sampling technique	37
	3.9 Criteria for sample selection	37
	3.10 Research tool	38
3.11 Content validity	39	

<b>III</b>	3.12 Reliability of the tool	39
	3.13 Pilot study	39
	3.14 Procedure for data collection	40
	3.15 Plan for data analysis	40
	3.16 Production of human rights	41
	3.17 Schematic representation of the study	43
<b>IV</b>	<b>DATA ANALYSIS AND INTERPRETATION</b>	44
<b>V</b>	<b>DISCUSSION</b>	74
<b>VI</b>	<b>SUMMARY, CONCLUSION, IMPLICATIONS RECOMMENDATIOS</b>	
	6.1 Summary of the study	81
	6.2 Major findings of the study	83
	6.3 Conclusion	84
	6.4 Implications	85
	6.5 Recommendations	86
	<b>BIBLIOGRAPHY</b>	87
	<b>APPENDICES</b>	97

## LIST OF TABLES

<b>TABLE. NO</b>	<b>TITLE</b>	<b>PAGE NO</b>
1.	Frequency and percentage distribution of adolescent girls according to their demographic variables	45
2.	Distribution of pretest level of dysmenorrhea among adolescent girls	59
3.	Distribution of posttest level of dysmenorrhea among adolescent girls	61
4.	Effectiveness of the study	63
5.	Comparison of pretest and posttest mean, standard deviation, dysmenorrhea	65
6.	Association between posttest level of dysmenorrhea and selected socio demographic variables	67

## LIST OF FIGURES

FIG.NO	TITLE	PAGE NO
1.	Conceptual frame work based on Kings goal attainment theory	34
2.	Schematic representation of the study	43
3.	Distribution of subjects according to age	49
4.	Distribution of subjects according to age at menarche	50
5.	Distribution of subjects according to family type	51
6.	Distribution of subjects according to family income	52
7.	Distribution of subjects according to birth order	53
8.	Distribution of subjects according to mother's education status	54
9.	Distribution of subjects according to father's education status	55
10.	Distribution of subjects according to food habits	56
11.	Distribution of subjects according to place of staying	57
12.	Distribution of subjects according to source of information	58
13.	Distribution of pretest level of dysmenorrhea	60
14.	Distribution of posttest level of dysmenorrhea	62
15.	Distribution of effectiveness of the study	64
16.	Comparison of the pretest and posttest level of dysmenorrhea	66
17.	Association between the level of dysmenorrhea and age of adolescent girls	70
18.	Association between the level of dysmenorrhea and type of family	71
19.	Association between the level of dysmenorrhea and adolescent girls mothers educational status	72
20.	Association between the level of dysmenorrhea and adolescent girls fathers educational status	73

## LIST OF APPENDICES

<b>APPENDIX NO</b>	<b>TITLE</b>	<b>PAGE NO</b>
1.	Ethical committee approval letter	97
2.	Letter seeking permission for validation of content and tool	99
3.	Content validity certificate	101
4.	Informed consent form	105
5.	Letter seeking and granting permission to conduct to the pilot study at government girls higher secondary school	106
6.	Letter seeking and granting permission to conduct the study at government girls higher secondary school	107
7.	Socio demographic data – English	109
8.	Research Tool – English	112
9.	Socio demographic data – Tamil	113
10.	Research Tool – Tamil	114
11.	English Editing certificate	117
12.	Tamil Editing certificate	118
13.	Certificate for training in Pelvic bridge exercise	119
14.	Procedure of pelvic bridge exercise - Photographs	120

# *INTRODUCTION*

# CHAPTER -I

## INTRODUCTION

*“Pain is inevitable in life but suffering is optional”*

*- Jon Wickham*

Adolescent is the phase, usually between 10 to 20 years, in which children undergo rapid changes in body size, physiologic and psychological and social functioning. All body dimensions, development and maturation are completed. This is the net result of hormones and social structures designed to foster the transition from childhood to adulthood. Menstrual pain has always been such a big problem for girls everywhere, dysmenorrhea occurs without pelvic pathology affecting about 50% of women. It occurs more frequently in unmarried women.

According to the World Health Organization [WHO], Adolescent is the period of life that extends from 10 years to 19 years. The IAP [Indian Academy of Paediatrics] define adolescent is the period of life between 10 years to 18 years. Arbitrarily, adolescent is divided in to three phases, early, middle and late adolescence. Early adolescence refers to age 10 to 13 years, middle adolescence 14 to 16 years and late adolescence 17 to 20 years. According to the UNICEF [United Nations international Children’s Emergency Fund], Adolescence is the sequence of events in which the individual is transformed into a young adult by a series of biological changes.

According to the American academy of family physicians as many as 90% of menstruating women experience this disorder on some level, usually in adolescence. The

term adolescence refers to the psychological maturation of the individual where as puberty refers to the point when reproduction is possible. This period is characterized by a steady progression of physical, social, cognitive, psychological and moral changes.

Adolescence is a transition phase passing through which a child becomes an adult. During this period rapid physical growth and physiological as well as psychological changes occurs. Apart from the general issues faced by the adolescents at this stage, health acquires a major role.

The period of adolescence for a girl is a period of physical and psychological preparation for safe motherhood. As the direct reproducers of future generations, the health of adolescent girls influences not only their own health, but also the health of the future population. Almost a quarter of India's population comprises of girls below 20 years.

Adolescents comprise nearly one-fifth of the total population. Among the total adolescent population 47 percent comprise of female adolescents. Adolescent is considered to be from puberty until 18 years of age. The major physiological change that takes place in adolescent girls is the onset of menarche, which is often associated with dysmenorrhea .Dysmenorrhea involves menstrual periods that are accompanied by either sharp, intermittent pain or dull, aching pain, usually in the pelvis or lower abdomen. Other symptoms include nausea, vomiting, diarrhea, and body ache.

Menstruation is the uterine bleeding that begins approximately 14 days after ovulation. Dysmenorrhea can also be defined as pain during or shortly before



menstruation. Dysmenorrhea is very common problem among adolescent girls and they experience of a physical and emotional symptoms associated with dysmenorrhea and with the increased intensity of pain in occurrence of dysmenorrhea the probability of experiencing these symptoms is also increased.

The term dysmenorrhea is derived from the greek words dys (difficult, painful or abnormal), meno (month) and rrhea (flow). It refers to severe, painful cramping sensation in the lower abdomen often accompanied by other biological symptoms including sweating, tachycardia, headache, nausea, vomiting, diarrhea occurring just before or during the menses. It is a common gynaecological problem among adolescent girls which is severe enough to keep them from functioning at home, college or work place for every month. Dysmenorrhea is of two types- primary and secondary. Primary refers to pain with no obvious pathologic pelvic disease which occurs in women younger than 20 years of age. Secondary is painful menses resulting from pelvic pathology like endometriosis, pelvic inflammatory disease, adenomyosis, fibroids and polyps. It is mostly seen in women older than 20 years of age. Dysmenorrhea is caused by the release of prostaglandins in the menstrual fluid, which cause uterine contractions responsible for the pain

Dysmenorrhea is a medical condition of pain during menstruation that interferes with daily activities. Dysmenorrhea is often defined simply as menstrual pain, or at least menstrual pain that is excessive. Dysmenorrhea can feature different kinds of pain, including sharp, throbbing, dull, nauseating, burning, or shooting pain.

The term dysmenorrhea means painful menstruation -the occurrence of painful cramps during menstruation. Primary dysmenorrhea refers to complex symptoms that may encompass nausea, vomiting, headache, nervousness, fatigue, diarrhea, syncope, lower abdominal cramping, bloating, breast tenderness, mood changes, backache and dizziness. These symptoms often appear just before (24-48 hours) or at the onset of menstruation and are maximal during the first 48 hours.

Primary dysmenorrhea is also known as primary spasmodic dysmenorrhea. Primary dysmenorrhea is one where there is no identifiable pelvic pathology. This is a useful descriptive term for a condition of dull throbbing, cramping lower abdomen pain that may radiate to the lower back and thighs, often associated with gastrointestinal and neurological symptoms. During severe exacerbation, the patient may look drawn as well pale and may vomit or have diarrhea, rectal pain. It typically starts few hours, before or after the onset of menstruation and lasts between 8 and 72 hours. Secondary dysmenorrhea is normally considered to be menstruation, associated pain occurring in the presence of pelvic pathology.

Dysmenorrhea is the commonest gynaecological symptoms, more than half of girls and women suffer from dysmenorrhea. Primary dysmenorrhea occurs in the absence of any significant pelvic pathology. It usually develops within the first 2 years of the menarche. The pain is often intense and cramping and can be crippling and severely incapacitating so that it causes a major disruption of social activities.

The dysmenorrhea incidence of 33.5% was reported by Nag (1982), among adolescent girls in India. A study done in Sweden showed that more than 50% of all

menstruating women experience some discomfort. It has also been reported by a senior obstetrician that probably 5 to 10% of girls in their late teens suffer from severe spasmodic dysmenorrhea interrupting their educational and social life.

The true incidence and prevalence of dysmenorrhea are not clearly established in India. In recent times, George and Bhaduri. Concluded that dysmenorrhea (87.87%) is a common problem in India. In Sweden the prevalence was >2–4%. Dysmenorrhea has been estimated to be the greatest cause of time lost from work and school in the United States.

Pain during menstruation or dysmenorrhea occurs in 50% of menstruating women and about 10% are incapacitated for 1-3 days each month. Some degree of discomfort is usually experienced by over half of all girls after menarche i.e. onset of menstruation. It has been estimated to be the greatest cause of lost time from work and school.

Dysmenorrhea occurs in 50% of menstruating women and about 10% are incapacitated for 1 to 3 days each month. In the first year after menarche 38% of girls develop dysmenorrheal pain. In the second and third year after menarche - 20% experience pains related to menstruation. About 80% of women who develop dysmenorrhea do so within three years of menarche. Over the age of 25 years the cause of dysmenorrhea is usually secondary to other pelvic problems.

Dysmenorrhea, or painful menstruation is one of the most important causes of school absenteeism amongst adolescent girls, because it affects their academic performance, school and sports activities. Dysmenorrhea is the most common

gynaecologic disorder among female adolescents, with a prevalence of 60% to 93%. Affected women experience sharp, intermittent spasm of pain usually concentrated in the supra pubic area. Pain may radiate to the back of the legs or the lower back. Systemic symptoms of nausea, vomiting, diarrhea, fatigue, mild fever and headache are fairly common. Pain usually develops within hours of the start of the menstruation and peaks as the flow becomes heaviest during the first day or two of the cycle. The most common effect of menstrual problems on daily routine, reported by unmarried undergraduate medical students was in the form of prolonged resting hours followed by inability to study. Physical activity is also an important behavioral cofactor, people who describe themselves as active have lower levels of inflammatory biomarkers than their sedentary counterparts.

Several evidence-based treatments are available for dysmenorrhea. Exercise is one of the best remedial measures to overcome this pain. It helps by stretching the lower back muscles and maintaining good abdominal muscle tone. Women with dysmenorrhea have contracted ligamentous bands in the abdomen and a series of exercises could have a high rate of symptom relief for about 41 percent.

Dysmenorrhea can feature different kinds of pain, including sharp, throbbing, dull, burning, or shooting pain. Dysmenorrhea may precede menstruation by several days or may accompany it, and usually subsides as menstruation tapers off. Dysmenorrhea may coexist with excessively heavy blood loss. Secondary dysmenorrhea is diagnosed when symptoms are attributable to an underlying disease, disorder structural abnormality

either within or outside the uterus. Primary dysmenorrhea is diagnosed when none of these are detected.

Pelvic rocking exercise has a vital role in the reducing dysmenorrhea and can contribute positively in maintaining a healthy body. Exercise helps to relieve menstrual discomfort through increased vasodilatation and subsequent decreased ischemia, release of endogenous opiates and suppression of prostaglandins. So there is need to teach exercise to adolescents in order to decrease pain, fatigue, weakness, and nausea, strengthen abdominal muscles and help in physical as well as emotional recovery.

The pelvic bridge exercise is an easy to do, it is highly useful in maintaining strength in the low back and useful to reduce low back pain. Pelvic bridging exercise is also a great exercise that strengthens the para spinal muscles, the quadriceps muscles at the top of thighs, the hamstring muscles in the back of the thighs, the abdominals and gluteal muscles.

It refers to the exercise for reducing dysmenorrhea which consist of bridge, pelvic tilt, Bridge leg lift, Advanced bridging, back stretch, pelvic lift. Pelvic bridge exercise is given for 2 times per day, six days per week for 4 weeks. In this study, it refers to the exercise which helps to contract deep abdominal muscle and buttocks by taking deep breath.so that small movement takes place inside the uterus, which helps to relieve dysmenorrhea.

## **Need for the study**

A national survey conducted among adolescent girls showed that 40 percent of the students frequently missed their school and college because of severe menstrual cramps. Dysmenorrhea is responsible for significant absenteeism from work and it is the most common reason for school absence among adolescent girls.

Studies revealed that pharmacological measure will cause unwanted side effects. Approximately 30% adolescents use medications to manage dysmenorrhea and about 80% do not use prescription of medication. Pelvic bridge exercise helps to relieve menstrual discomfort through increased vasodilatation and subsequent decreased ischemia release of endogenous opiate.

In India 75 percent of adolescents experience pain with menstruation. In recent times about 88% of adolescents suffered from dysmenorrhea. Dysmenorrhea is a very common gynecological problem in menstruation women and reported prevalence rate is 90 percent.

A community-based survey in the United Kingdom found about 80percent of women with chronic pelvic pain reporting dysmenorrhea. A cohort study conducted among Swedish women found that 90 percent of the adolescents suffered due to dysmenorrhea.

In recent times, a study conducted in Uthrapradesh concluded that about 88 percent of adolescents suffered from dysmenorrhea. A study conducted in Madras city revealed that 42 percent of the college and 34 percent of the school-going students

reported problems during menstruation. The previous facts reveal that adolescents face some health problems due to dysmenorrhea. As a nurse it is our responsibility to give education on the importance of regular exercise in maintaining healthy reproductive life.

Many adolescents report limitations on daily activities, such as missing school, sporting events, and other social activities because of dysmenorrhea. During this phase they experience marked feeling of anxiety and eagerness to know about this natural phenomenon. However, they do not get appropriate knowledge due to lack of proper health educational programmes in schools.

Dysmenorrhea refers to the occurrence of painful menstrual cramps of uterine origin. It is a common gynecological condition with considerable morbidity. The etiology of primary dysmenorrhea has been the source of debate. Primary dysmenorrhea refers to dysmenorrhea without evident of pelvic pathologies. The initial onset of primary dysmenorrhea is usually at or shortly after 6 to 12 months of menarche, when ovulatory cycles are established. Duration of the pain is usually 8 to 72 hours and is usually associated with menstruation. Identification of dysmenorrhea and associated features like vomiting, giddiness, mood changes was done around middle of 19th century. The true incidence and prevalence of primary dysmenorrhea are not clearly established in India. A dysmenorrhea incidence of 33.5% among adolescent girls in India was reported by George and Bhaduri found dysmenorrhea to be a common problem in India with prevalence health line 87.87%. Prevalence of dysmenorrhea among the students in a college in western Turkey was found to be 72.7%. Thus we conducted the study to find

out prevalence rate of primary dysmenorrhea in young females and to study associated clinical markers of dysmenorrhea.

Various studies in India revealed that prevalence of dysmenorrhea is 33%. National Journal of the true incidence and prevalence of dysmenorrhea are not clearly established in India.

Dysmenorrhea is interrupting their educational and social life. Due to dysmenorrhea sickness absenteeism (28- 48%) and perceived quality of life losses are prevalent among adolescent girls. In the United States dysmenorrhea has been estimated to be the greatest cause of time lost from work and school. The present study was carried out to estimate the prevalence of dysmenorrhea and its common symptoms as well as to determine the sickness absenteeism due to dysmenorrhea and to assess the quality of life among the dysmenorrhic girls. This would provide evidence of the severity of the problem in this area.

Exercise is widely accepted as a mean of moderating stress and biochemical changes in the immune system. A mechanism by which exercise may improve the symptoms of dysmenorrhea has been articulated by Golomb et al. Menstrual pain probably stems from increased contraction of the uterine muscle, which is innervated by the sympathetic nervous system. Stress tends to enhance sympathetic activity, and may therefore increase menstrual pain by exacerbating uterine contraction. By relieving stress, exercise may decrease this sympathetic activity, thereby alleviating symptoms. In fact, exercise is known to release of endorphin substances produced by the brain that raise the pain threshold.



The pelvic bridge exercises is an easy to do, it is highly useful in maintaining strength in the low back and strengthens the para spinal muscles, the hamstring muscles in the back of the thighs, the abdominals and the gluteal muscles. The mothers benefit from bridging exercises as it helps to strengthen the muscles of the pelvic floor. Older adults suffering from urinary incontinence due to weak pelvic floor muscles significant improvement in function with the bridging exercises.

During the stress of menstruation, weak core musculature creates an inability for the body to handle the forces required for normal movement and function, thus leaving the female body vulnerable to the pain associated with improper biochemical function of the structures adjacent to the lumbar spine. Training of the core musculature has been proven very important in both the reduction and prevention of low back pain. A major objective of core training is to exercise the abdominal and lower back muscles in unison. Increasing the strength and flexibility of the core to increase trunk flexion and extension has also shown to decrease the amount of pain that chronic low back sufferers report the core muscles must function synergistically in order to stabilize the lumbar spine of an individual. Research confirms that in healthy individuals, activation of the core muscles occurs before any movement of the body or a body segment.

Most of the adolescent population in the school are suffering from dysmenorrhea and this also impact the day to day life of the adolescent girls for the particular days. Thus the researcher was very much interested to take this study, with the aim to reduce the dysmenorrhea by using pelvic bridge exercise as an intervention among adolescent girls at selected Government girls higher secondary school, Madurai.

## **Statement of the problem**

“A study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoea among adolescent girls at selected Government Girls Higher Secondary School, Madurai”

## **Objectives**

1. To assess the level of dysmenorrhea among adolescent girls studying in selected Government girls higher secondary school, Madurai.
2. To evaluate the effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls studying in selected Government girls higher secondary school, Madurai.
3. To associate the level of dysmenorrhea among adolescent girls studying in selected Government girls higher secondary school, Madurai with their selected Socio demographic variables.

## **Hypothesis**

- H<sub>1</sub>**; There is a significant difference between the pretest and posttest level of dysmenorrhea among adolescent girls studying in selected Government girls higher secondary school, Madurai.
- H<sub>2</sub>**: There is a significant association between the level of dysmenorrhea among adolescent girls with their selected socio demographic variables.

## **Operational definitions**

### **Effectiveness**

In this study, Effectiveness refers to the outcome of pelvic bridge exercise which will be validated by Numerical pain scale.

### **Pelvic bridge exercise**

In this study, pelvic bridge exercise refers to the exercise, which includes 10 minutes of warm up, 40 minutes of pelvic bridge exercises consist of Pelvic tilt, bridge leg lift, advanced bridging, back stretch, pelvic lift and 10 minutes cool down exercise, which will be demonstrated and followed by adolescent girls for 2 times per day, 6 days per week for 4 weeks.

### **Dysmenorrhea**

In this study dysmenorrhea refers to the pain in the lower abdomen among adolescent girls during their menstrual period.

### **Adolescent girls**

In this study, adolescent girls are refers to girls studying in 9<sup>th</sup> to 11<sup>th</sup> standard in selected Government girls higher secondary school, Madurai.

### **Assumption**

- Adolescent girls may have different level of dysmenorrhea.
- Adolescent girls suffer from dysmenorrhea which will interfere with their academic activities.

### **Delimitations**

- ❖ Study is limited for 6 weeks only.
- ❖ Study is limited to 60 samples only.
- ❖ Study is limited to adolescent girls studying in selected school only.

**Projected outcome**

- Pelvic bridge exercise will reduce the dysmenorrhea among adolescent girls.
- The findings of the study will help the teachers and other health care professionals to motivate the adolescent girls to practice pelvic bridge exercise.

## *CHAPTER-II*

# *REVIEW OF LITERATURE*

## **CHAPTER-II**

### **REVIEW OF LITERATURE**

A Critical review of literature refers to the process in which the investigator or reader examines the strength and weakness of the appropriate literature related to or on the chosen field of an investigator, to have an assessment of the aspects touched upon, those left untouched as well as the range and intensity of the field of study.

A literature review is a body of text that aims to review the critical points of knowledge on a particular topic of research [ANA, 2000]

A literature review is an account of what has been already established or published on a particular research topic by accredited scholars and researchers [University of Toronto, 2000].

This chapter deals with two parts.

**Section A:** Review of literature

**Section B:** Conceptual Frameworks

The literature has been organized under the following section.

**PART-1 – Literature related to prevalence of dysmenorrhea among adolescent girls.**

**PART-2 – Literature related to effectiveness of pelvic bridge exercise.**

**PART-3–Literature related to effectiveness of pelvic bridge exercise on dysmenorrhea**

## **2.1. Literature related to prevalence of dysmenorrhea**

**Gumanga S.K and Kwame-Arye [2012]** Conducted a cross sectional study on prevalence and severity of dysmenorrhea among 453 adolescent girls in Ghana. The sampling technique used in this study was simple random sampling technique. The findings of the study showed that the percentage distribution for the various degrees of severity of dysmenorrhea among 453 adolescent girls was 18.1% ,37.5% and 18.8% for mild, moderate and severe dysmenorrhea [ $p < 0.0001$ ].

**Dambhare,D.GWagh and Dudhe, J.Y [2012]** worked out a cross sectional study among 1100 school adolescent girls in district wardha, central India about menstrual cyclic pattern. Self-administered structure questionnaire was used and it was found that abnormal cycle length was common and affected 30.48%. The results of the study revealed that the majority 56.15% experienced dysmenorrhea and 56.16% had premenstrual syndrome. Majority of the girls 75.58% had menstrual problems.

**Yaron, M and Ambresin, A F, [2011]** Analyzed the cross sectional study on prevalence of dysmenorrhea among adolescent girls in Switzerland. The sample size of the study was 3340. The tool used in the study was multiple type questionnaires. Among 3340 girls 86.6%, suffered from dysmenorrhea.

**Anil K.AgarwalaandAnjuAgarwal. [2010]** Performed an descriptive study on prevalence of dysmenorrhea among 970 adolescent girls at high school of Gwalior. The multi stage cluster sampling technique was used in this study The tool used in the study was semi structured dysmenorrhea status questionnaire with a total of 14 items having a

maximum score of 126 and minimum score of 3. The results revealed that the prevalence of dysmenorrhea among adolescent girls was found to be 79.67%. Most of them 37.96% suffered regularly from dysmenorrhea and it was highly significant [ $p < 0.001$ ]

**Ozerdogan N. [2009]** A descriptive study was conducted to identify the prevalence of dysmenorrhea and its associated symptoms among adolescent girls at pre-university colleges in the Gwalior district. A visual analogue scale was used for measuring the pain intensity. The results showed that majority of adolescent girls under study had experienced dysmenorrhea that is (71.96%). The maximum number of girls that is (33.95%) experienced dysmenorrhea every month, and (16.90%) experienced it in most of the months and it was statistically highly significant.

**Jen P, Chen p [2009]** A cross sectional study was conducted among nursing students in Western turkey school of nursing to determine the prevalence of dysmenorrhea. The sample size was 857. The simple random sampling method was used. Data was collected by questionnaires consisted of two parts. The intensity of the pain was assessed by visual Analogue pain scale. The prevalence of dysmenorrhea among the students was 50%. The results showed that 32.2% students had severe pain, 62.6% had moderate pain and 5.2% had mild pain.

**Liping Wong [2009]** Conducted a cross sectional study on attitude towards dysmenorrhea and treatment seeking among 1295 adolescent girls at rural districts in Malaysia. The study to determine the prevalence of dysmenorrhea, its impact and treatment, seeking behavior of rural adolescent girls in Malaysia. The results of the study



showed that dysmenorrhea was reported in 76.0% of the participants. Concentration at school 59.9% and participation in social events 58.6% have been most affected

**Amita et al., (2008)** A descriptive study was conducted on dysmenorrhea among 107 female medical students at Gujarat. A structured questionnaire was used in this study. The prevalence of dysmenorrhea was 73.83%. Prevalence of other menstrual disorders like irregularity, prolonged menstrual bleeding, heavy menstrual bleeding and PCOD were 7.47%, 10.28%, 23.36% and 3.73% respectively. Dysmenorrhea and PMS is highly prevalent among female medical students, it is related to college or class absenteeism, limitation of social, academic, sports and daily activities.

**Liliwat et al (2006)** Conducted a cross sectional study to determine the prevalence of dysmenorrhea among adolescent girls at secondary school, Selangor. The prevalence of dysmenorrhea was 62.3%. It was highly significant in the middle adolescence [15 to 17 years old age group girls]. There was no significant association with mean age of menarche and duration of menstruation. The number of school and class absences increased with increasing severity of dysmenorrhea. It had significant negative impact in their school performance and activities.

**EL.Gilany.AH.,et.at [2005]** Conducted a epidemiological study on dysmenorrhea among adolescent girls at mansouura. 664 female students in secondary schools in urban and rural areas were studied. Data was collected though a self-administer questionnaire. About 75% of the students experienced dysmenorrhea [mild- 55.3% moderate 30.0% and severe 14.8%]. Most did not seek medical although 34.7% treated themselves.

**Juhasz-AG., et. Al [2005]** Conducted a cross sectional study on dysmenorrhea among 2337 adolescent girls were interviewed in this study about their menstrual cycle. The overall prevalence of dysmenorrhea in this population was 79.2%, Altogether 67.0% described their pain and cramp as severe, 61.2% of the girls were found to use some kind of medicine due to dysmenorrhea. Despite these data, only 1.2% of them had previous medical counseling because of their complaints.

**Wang et al., (2004)** A comparative study was conducted by Wang to examine the possible link between stress and dysmenorrhea. The analysis included 1160 prospectively observed menstrual cycles from 388 healthy nulliparous newly married women who intended to conceive. The perception of stress and the occurrence of dysmenorrhea in each menstrual cycle were determined from daily diaries recorded by the women. The risk of dysmenorrhea was more than twice as great among women with high stress compared to those with low stress in the preceding cycle. The risk of dysmenorrhea was greatest among women with both high stress and a history of dysmenorrhea compared to women with low stress and no history of dysmenorrhea. This study shows a significant association between stress and the incidence of dysmenorrhea, which is even stronger among women with a history of dysmenorrhea.

**Jamieson D J.[2000]** performed an descriptive study on prevalence of dysmenorrhea, pelvic pain and irritable syndrome in primary care practices among reproductive age women in USA. Consecutive sampling technique was used in this study

and the sample size of the study was 700. The results of the study showed that prevalence of dysmenorrhea 90% dysmenorrhea 46% and irritable syndrome 12% respectively.

## **2.2 Literature related to effectiveness of pelvic bridge exercise**

**Gong [2015]** A experimental study was conducted to investigate the influence on static and dynamic lumbar stability of bridge exercise accompanied by an abdominal drawing-in maneuver (ADIM) performed on an uneven support surface. A total of 30 participants were divided into an experimental group (15 participants) and a control group (15 participants). The experimental group performed bridge exercise on an unstable surface, whereas the control group performed bridge exercise on a stable surface. The respective bridge exercises were performed for 30 minutes, 3 times per week, for 6 weeks. The static lumbar stability (SLS) and dynamic lumbar stability (DLS) of both the experimental group and the control group were measured using a pressure biofeedback unit. The results of the present study show that when using bridge exercise to improve SLS and DLS.

**DaanVandebrielSheik Abdul Khadir [2015]** Performed an Electromyographic Studies in Abdominal Exercises. Bridging exercise is an exercise which increases muscular strength of the hip extensors and promotes trunk stability. It is often prescribed for patients with back pain, and increases the activities of trunk stabilization muscles such as the internal oblique, external oblique, and erector spine muscles. Individuals with back and hip pathologies are often taught to perform the bridging exercise in the crook-lying position, elevating the pelvis off the floor. This exercise is particularly useful for facilitating pelvic motions and strengthening the low back and hip extensors, and it enhances motor control of the lumbo pelvic region.

**Kong YS et al., [2015]** Studied the effective method of enhancing trunk muscle activities during bridging exercise. The authors concluded that Bridging exercise in the prone position may be a more effective method of enhancing trunk muscle activities. The authors evaluated the trunk muscle activities in Supine bridging exercise, Supine bridging on balance pads, Unilateral bridging ,prone bridging Studied the effects of changes in the activities of the Trunk Muscles in Different Kinds of Bridging Exercises on the elbows and toes. Changes in the activities of the trunk muscles in different kinds of bridging exercises.

**Wontae Gong, PhD, PT [2015]** A comparative study was conducted to evaluate the effectiveness of pelvic bridge exercise. The experimental group performed bridge exercise on an unstable surface, whereas the control group performed bridge exercise on a stable surface. The respective bridge exercises were performed for 30 minutes, 3 times per week, for 6 weeks. The static lumbar stability (SLS) and dynamic lumbar stability (DLS) of both the experimental group and the control group were measured using a pressure biofeedback unit. Results of the study was the comparison of the initial and final results of the experimental and control groups, only the SLS and DLS of the experimental group were found to be statistically significant. ( $p>0.05$ )

**Eom MY, Chung SH, Ko TS [2013]** Conducted a experimental study to evaluate the effectiveness of bridging exercise among school students at H University . The experimental group (n=18) performed bridging exercise on the sling support surface, and the control group (n=17) performed bridging exercise on a general support surface.

Results of the study was thickness changes in the musculustransversus abdominis were 0.35 cm in the experimental group, and 0.17 cm in the control group, suggesting that the experimental group showed a more significant change. For the lower extremity muscular activity, there was a significant difference between the experimental group and the control group only in the biceps femoris muscle.

**Misuk Cho, PT [2013 ]** A experimental study was conducted to evaluated the effectiveness of bridge exercise on an unstable base of support on lumbar stability and the thickness of the transversu sabdominis. Thirty healthy young adults (2 males, 28 females) took part in this study. The subjects were randomly and equally assigned to a stable bridge exercise group and an unstable bridge exercise group. The subjects performed bridge exercises using an abdominal drawing-in method on a stable base and on an unstable base, and changes in their abdominal muscle thickness and on the stable and on unstable bases lumbar stability were evaluated. Results of the study was after the intervention, the stable bridge exercise group showed a statistically significantly increased muscle thickness in the transversusabdominis, and the unstable bridge exercise group showed significantly increased muscle thicknesses of the transversusabdominis and internal obliques in static and dynamic lumbar stability ( $p < 0.05$ ).

**Bjorn Frandsen [2013]** Conducted a observational study to Hip and Trunk muscle electromyography differences between bilateral and unilateral body weight resistance exercise. 14 healthy young adults participated in a single session, single group, observational study. Manual muscle testing was used for each specific muscle [gluteus medius, gluteus maximus, rectus abdominis and erector spinae and performed exercise

were squat, bridge and plank, both performed in a bilateral and unilateral stance. Results of the study was all three exercise there was a significant increase in trunk muscles [ $p < 0.05$ ] in unilateral stance compared to the bilateral stance .In squat and bridge, no differences were identified in EMG activity for the trunk muscles between the bilateral and the unilateral stance. No correlation was found [ $r = 0.34$ ] in the drop-jump screening analysis.

**Joshua Johnson (2012)** A observational study was conducted to evaluate the effectiveness of bridging exercise as a treatment for low back pain with a specific emphasis on core stabilization and provide an outline of exercises and progression to help guide clinicians in treating the athlete with low back pain . The study seems to establish a need for total core muscle recruitment to stabilize the spine and does not identify one specific muscle as being critical for spinal stability. The program designed is based on firing of the entire core muscular to stabilize the spine with an emphasis to functional movements that imitate sport-like situations. The exercises chosen were based on how effectively they challenge the muscle groups without causing loads that may be detrimental to recovery and pain free movement. Due to the demands placed on the athlete's lumbar vertebrae, spinal instability may be a significant source of pain in athlete not diagnosed with other pathologies. While at this time there is insufficient evidence to support or refuse the use of stabilization exercise in the treatment of low back pain in athlete's.

**Veerle K Stevens., et al (2006)** A comparative study was conducted to effectiveness of bridging exercises are used for lumbo pelvic stabilization The purpose of

this study was to investigate both relative (as a percentage of maximal voluntary isometric contraction) muscle activity levels and ratios of local to global muscle activity, during bridging stabilization exercises. Thirty healthy university students (15 men, 15 women) with a mean age of 19.6 year volunteered to perform 3 bridging exercises (single bridging, ball bridge and unilateral bridging). The surface electromyographic activity of different trunk muscles was evaluated on both sides. During all bridging exercises, the ratio of the internal oblique to the rectus abdominis was very high due to minimal relative activity of the rectus abdominis.

**The American College of Obstetrician and Gynecologist and the NHS in the UK** has provided recommendation to women about the role of exercise as a treatment for menstrual cycle related disorders, it is clear that high quality randomized controlled trials are needed before women are advised that exercise is an effective treatment.

### **2.3. Literature related to effectiveness of pelvic bridge exercise on dysmenorrhea**

**AnjuVerma [2014]** A randomized control trial to assess the effectiveness of pelvic rocking exercises in reducing dysmenorrhea among girls in Laxmi Bai college of nursing new delhi among the menstrual disorders .systematic random sampling was used, 30 were assigned in experimental group and 30 in control group. The results showed that the intensity of the pain in the exercise group declined from 8.59 to 4.63 in the third period and 2.84 in the fourth period ( $P<0.01$ ). The average of using sedative tablets also decreased from 1.13 to 0.35 in the third period [ $P<0.01$ ]

**Kristina S Gamit, Megha S sheth, [2014]** Conducted a experimental study to evaluate the effectiveness of stretching exercise on primary dysmenorrhea in adult girls. The study was conducted at SBB college of physiotherapy. A convenience sample was taken consisting of 30 participants 15 in each group. Group A received stretching exercise. Group B was control group. The results of Group A-VAS showed significant improvement in pain. Pain intensity was reduced from 6 to 3.They were concluded the stretching exercise are effective in reducing pain in young females with primary dysmenorrhea.

**Iran J [2013]** A Quasi-experimental study was conducted on dysmenorrhea among 40 non athletic girls aged 18-25 years. Data gathering tools were evaluation form of primary dysmenorrhea and the pain evaluation tool based on the McGill standard pain questionnaire completed before and after the intervention in 3 months. Then, 20 subjects were assigned to aquatic exercise group and the other 20 to control group. The subjects in experimental group did aquatic exercise for three sessions a week for 60 minutes for 12 weeks between two menstruations. One way analysis of variance (ANOVA) tests were used to analyze the data. The results of this research indicated that severity and duration of pain decreased after 12 weeks of aquatic exercises. Comparison of the two groups showed a significant difference in pain intensity based on visual analogue scale (VAS) scale after these exercises. Comparison of the two groups showed a significant difference in length of pain after these exercises.

**Brown J.[2010]** A semi experimental study was conducted to determine the effectiveness of pelvic rocking exercise on dysmenorrhea among adolescent girls. A



study of 179 students, 15-17 aged, volunteer bachelor girls with moderate or severe dysmenorrhea were selected from 6 high school girls in two different city zones in Tamil Nadu. Total number of the students were 519. Selected high school were randomly divided into two groups. Experimental group [4 high school, 124 persons] and control group [2 high school 55 persons]. The result of the study showed that pelvic rocking exercise was effective in reduction of pain severity, pain duration and also in reduction of using sedative tablets in girls students with dysmenorrhea.

**AnuAntok [2010]** A experimental study was Conducted to find out the effectiveness of pelvic rocking exercise on dysmenorrhea among nursing students. The investigator will administered semi structured questionnaire to identify the prevalence of dysmenorrhea. Subjects will be rated for dysmenorrhea through pain rating scale. The investigator demonstrated the pelvic rocking exercise and supervise them to practice pelvic rocking exercise 3 weeks .She find out the pelvic rocking exercise was effective on dysmenorrhea.

**Jithap Thomas [2010]** Performed an experimental study to evaluate the effectiveness of pelvic rocking exercise on dysmenorrhea among adolescent girls at Mangalore. The sample for this study consists of 50 students. Pelvic rocking exercise will be taught only to the sample in the experimental group by demonstration. Posttest will be conducted after 3 weeks of pelvic rocking exercise by the same numeric pain scale. Mean, standard deviation and mean percent is used to evaluate the effectiveness of pelvic rocking exercise. She find out the pelvic rocking exercise was effective on dysmenorrhea.

**Julie Brown 1, Stephen Brown [2010]** A Experimental study was conducted to assess the effectiveness of pelvic rocking exercise in the treatment of dysmenorrhea. Randomized controlled trials comparing exercise with a control or no intervention in women with dysmenorrhoea. Trials were independently selected and data extracted by two review authors. Main results of the study showed four potential trials were identified of which one was included in the review. The available data could only be included as a narrative description. There appeared to be some evidence from the trial that exercise reduced the moos, menstrual distress questionnaire (MDQ) score during the menstrual phase ( $P < 0.05$ ) and resulted in a sustained decrease in symptoms over the three observed cycles ( $P < 0.05$ )

**BibiAugustin [2010]** Worked out a cross sectional study to evaluate the effectiveness of pelvic rocking exercise among school students. Self-administered questionnaire will be given to those students with dysmenorrhea that need to be filled. The verbal multidimensional scoring system for dysmenorrhea and visual analogue scale will also be included to assess the severity of pain. Those students who have completed their menstruation one week prior to the data collection will be randomly allocated to the first group. Demonstration of exercise using Video CD will be done and then demonstrated by investigator. The subjects will be provided a log to mark their daily practice of exercise till the onset of next menstrual cycle. Posttest will be conducted next menstruation cycles. The second group of students will be provided with packets containing 1.5 gram ginger powder. The subjects are advised to consume the provided ginger powder in three divided doses each day after having food. The subjects are instructed to practice this for three days from the start of their menstrual period. The total

daily intake of ginger powder is 1.5 grams. Posttest will be conducted next menstrual cycles. The maximum duration for data collection is 11 weeks. She find out the pelvic rocking exercise is likely to be effective in reducing primary dysmenorrhea and related menstrual symptoms.

**Lakshmi. S. [2009]** Evaluated the effectiveness of pelvic rocking exercise on dysmenorrhea among adolescent girls. The design was pre experimental design, one group pretest and posttest design. Subjects were selected by simple random technique .After 3 weeks, posttest on dysmenorrhea was done to determine the effect of the treatment. The sample size of this study was 30 school girls. A self-administered visual analogue scale was used to assess the level of dysmenorrhea among school girls. Subjects were given pretest questionnaire and pelvic rocking exercise was taught to all the samples for 20 minutes using the VCD .They were advised to practice for a period of 3 weeks. The results showed dysmenorrhea pretest score as 8.23 and post test score 4.23.The obtained mean difference between pretest and post test scores was 4.0.The obtained ‘t’ value  $t=8.26$  was significant. Therefore pelvic rocking exercise was effective on dysmenorrhea.

**RostamiM. [2007 ]** Conducted a study to determine effectiveness of exercise on dysmenorrhea among school girls at Pakistan. Sample of this study was 50 high school girls. The method of selection was simple random sampling. All samples divided into exercise and non-exercise group. Both Groups recorded the character, severity and duration of bleeding. Visual analogue scale was used to measure the severity of pain. The samples four cycles were observed for severity of pain. After 2 cycle’s observation,

exercise group was educated about 4 activities including pelvic rocking exercises .The result of this study showed that severity of pain was lower in exercise group. The intensity of pain in exercise groups declined from 8.59 to 4.63 in the third period and 2.84 in the fourth period. The exercise will decrease duration and severity of pain and also decrease the use of analgesics.

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**Maryam, et at., [2007]** Evaluated the effect of pelvic rocking exercise on primary dysmenorrhea in the high school girls at Iran. This study was randomized clinical trials of 150 students suffering from severe dysmenorrhea .They were separated in experimental and control group. The results showed that duration and severity of dysmenorrhea was significantly reduced in 83% girls who practiced pelvic rocking exercise as a routine exercise prior to menstruation.

**In 1943 Billing** proposed that women with dysmenorrhea had contracted ligamentous bands in the abdomen and subsequently developed a series of stretching exercise for which he claimed a high rate of symptom relief. The belief that exercise was effective seems to have prevailed and led to anecdotal beliefs among health agencies and women that exercise is beneficial.

**Delay A.J [2007]** conducted an observational study on exercise and its effect on dysmenorrhea among school girls. The observational studies reported that physical exercise was reduced prevalence of dysmenorrhea. Evidence from controlled suggests that exercise can reduce primary dysmenorrhea. There are, however, several plausible mechanisms by which exercise might be effective in the management of primary dysmenorrhea. A large randomized controlled trial is required before women and clinicians are advised that exercise is likely to be effective in reducing primary dysmenorrhea and related menstrual symptoms.

## **CONCEPTUAL FRAME WORK**

A frame work is a belief of theory or those portion of a theory which are to be tested in quantitative study .A conceptual framework is one that present typically constructed to provide general explanation of relationship between the concepts of research study ,they are usually constructed by using researchers own experience ,previous research finding, or several theories or models. Conceptual framework facilitate communication and provides for a systemic approach to Nursing research, education administration and practice. The conceptual framework selected for this study was based on Imogene Kings Goal attainment theory.

Theory focus on interpersonal system reflects Kings belief that the practice of nursing is differentiated from that of other health profession by what nurses do with and for individual. The major elements of the theory are in the interpersonal systems in which two people, who are usually strangers, come together in a health care organization to help and be helped to maintain a state of health that permits functioning in roles.

The concept of the theory are perception, action, interaction and transaction. These concepts are interrelated in every nursing situation. These concepts are interrelated in every nursing situation. These terms are defined as concept in the conceptual framework.

## **Perception**

Perception is each person representation of reality the elements of perception are importing of energy from the environmental and organizing it. By information transforming energy processing information storing information and exporting information in form of overt behavior.

In this study, investigator perceives that the level of dysmenorrhea among Adolescent girls. The adolescent girls perceived that they need some intervention to reduce dysmenorrhea.

## **Communication**

The vehicle by which human relations are developed and maintained encompasses intrapersonal, interpersonal, verbal and nonverbal communication.

In this study, the investigator maintains good rapport with adolescent girls. Also develops mutual understanding through good communication. Then mutual goal was set.

## **Action**

Action refers to the activity to achieve goal what the individual perceives .In this study it is a mutual goal setting for to reduce the level of dysmenorrhea Investigator to assess the level of dysmenorrhea with numerical pain scale and demonstrated pelvic bridge exercise, to the adolescent girls.

## **Interaction**

Interaction refers to the perception and communication between a person and the environment or between two or more persons. In this study the investigator to assess the

dysmenorrhea with numerical pain scale and demonstrated the pelvic bridge exercise to reduce the level of dysmenorrhea.

### **Transaction**

Transaction is a process of interaction in which human beings communicate with environment to achieve the goals that are evaluated and directs human behavior. In this study there is reduced the level of dysmenorrhea after pelvic bridge exercise.



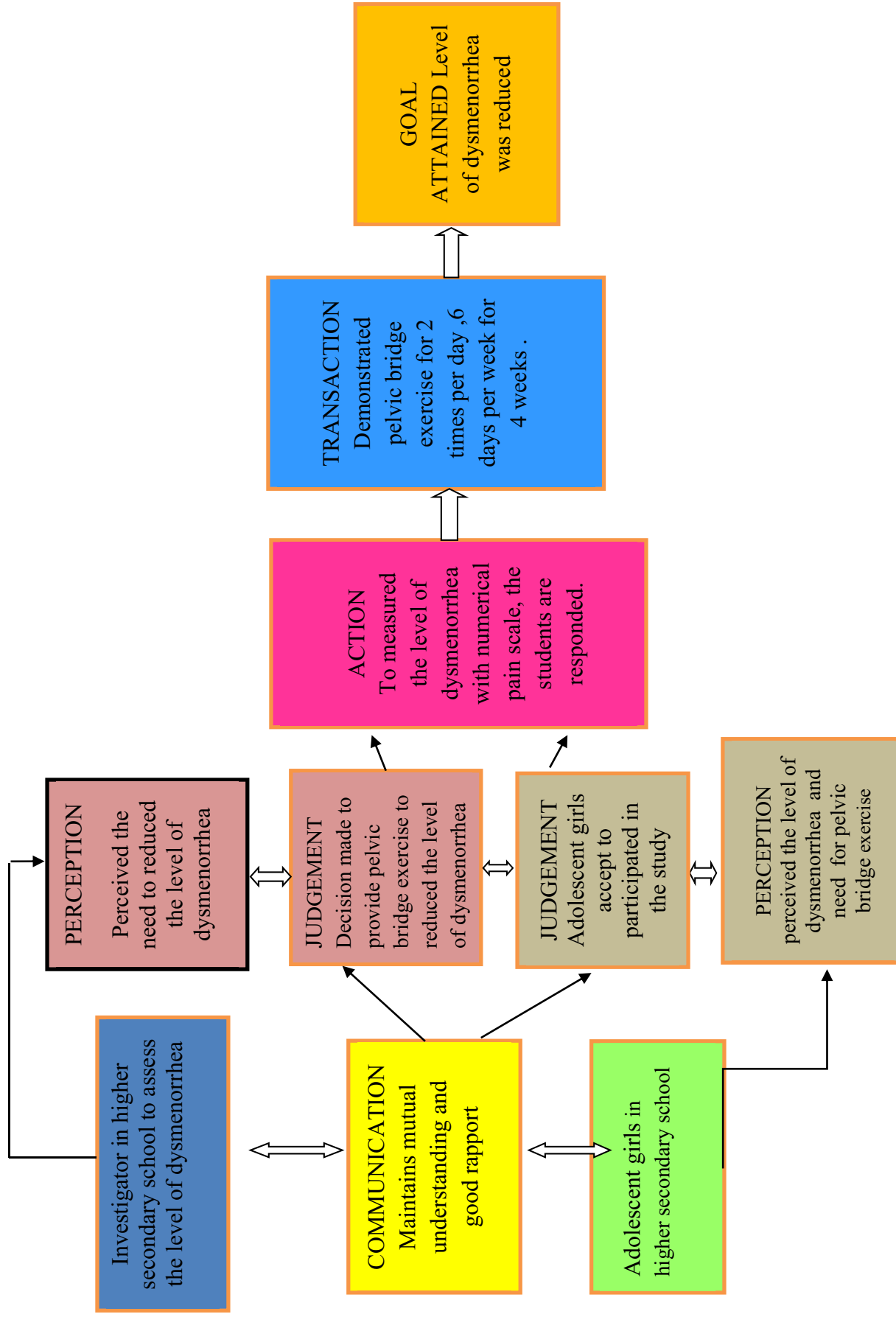


Fig.1. Conceptual Framework based on modified Imogene King's Goal Attainment theory [1981]

*CHAPTER-III*

*RESEARCH*

*METHODOLOGY*

## CHAPTER-III

### RESEARCH MEETHODOLOGY

This chapter deals with the Methodology followed to assess the effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls at Government Girls Higher Secondary School, Madurai.

Research methodology includes the Research design, Variables of the study, Setting, Population, Sample, and Criteria for Sample selection, Sampling technique, Sample size. Description of the tool and Scoring method, Content validity, Pilot study, Procedure for Data collection, Plan for Statistical analysis, Protection of Human Rights and Schematic Representation of the study.

#### 3.1 Research approach

Quantitative approach was used in this study.

#### 3.2 Research design

Pre experimental - one group pretest and posttest design



- O1 - Pretest assessment of level of dysmenorrhoea
- X - Intervention (pelvic bridge exercise)
- O2 - Posttest assessment of level of dysmenorrhoea

### **3.3 variables**

#### **Independent variable**

Pelvic bridge exercise.

#### **Dependent variable**

Dysmenorrhea among adolescent girls.

#### **Socio demographic variable**

Age in years, Age at menarche, Family type, Family Income, Birth order, Mother's educational status, Father's educational status, Food habits , Place of staying, previous source of information etc.

### **3.4 Setting of the study**

The study was conducted at selected Government Girls Higher Secondary School Madurai.

### **3.5 Population**

#### **Target population**

The target population for the study was the all adolescent girls with dysmenorrhea.

#### **Accessible population**

The accessible population of the study was the adolescent girls with dysmenorrhea studying in selected Government girls higher secondary school, Madurai.

### **3.6 Sample**

The sample was adolescent girls with dysmenorrhea studying in selected Government girls higher secondary school, Madurai who met the inclusion criteria.

### **3.7 Sample size**

It consist of 60 adolescent girls.

### **3.8 Sampling technique**

Non probability **purposive sampling** technique was used for this study .

### **3.9 criteria for sample selection**

The sample was selected based on the following inclusion and exclusion criteria.

#### **Inclusion Criteria**

- Adolescent girls who completed their menstruation just before the data collection.
- Adolescent girls who were experiencing Moderate, severe dysmenorrhea for every menstruation.
- Adolescent girls who can understand Tamil language.

#### **Exclusion Criteria**

- Adolescent girls who were in irregular menstrual period.
- Who were not moving their upper and lower limbs.
- Adolescent girls who were not willing to participate

### 3.10 Research tool

The tool was developed and standardized from extensive review of literature and discussion with experts in the field.

#### Description of the tool

The tool consists of two sections.

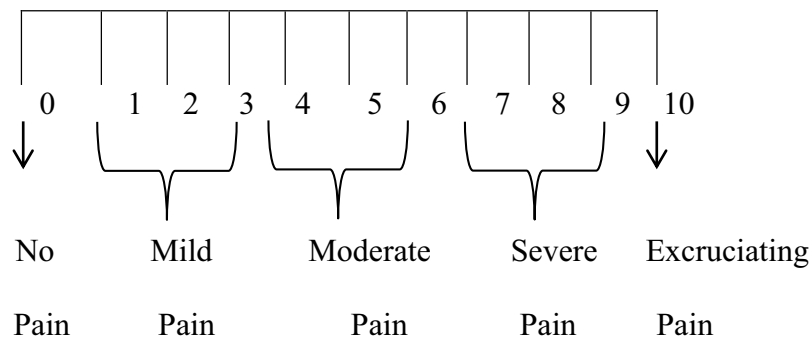
##### Section A

It consist of socio demographic variables such as Age in years, Age at menarche, Family type, Family Income, Birth order, Mother's educational status, Father's educational status, Food habits , , Place of staying, previous source of information etc.

##### Section B

Numerical pain scale to assess the level of dysmenorrhea among adolescent girls.

### 3.11 Scoring procedure



#### Data Description

- 0 - No pain
- 1-3 - Mild pain
- 4-6 - Moderate pain
- 7-9 - Severe pain
- 10 - Excruciating pain.

### **3.12. Testing of the tool**

#### **Validity**

The tool used in this study was Numerical pain scale and socio demographic profile proforma which were validated by 5 experts including 3 Nursing experts in the field of Obstetrics and Gynecological Nursing and 2 professor of Obstetrics and Gynecological department. The experts were requested to the relevance, sequence and adequacy of the items in the interview schedule. The tool was first drafted in English .Tool was translated to Tamil by an expert. Language validity was established by retranslation of tool in to English.

#### **Reliability**

The reliability of an instrument is the degree of consistency with which it measures the attribute and it is supposed to be measuring over a period of time. The tool was a standardized one which underwent test retest for reliability. The reliability has been estimated using the Karl pearson's correlation coefficient formula  $r = 0.45$ . Hence the tool was considered as reliable and used in this study.

### **3.10 Pilot study**

A pilot study was conducted at Government girls higher secondary school, Madurai among 10 adolescent girls [who were not included in the main study] who fulfilled the inclusion criteria. Cooperation of the adolescent girls and the availability of the sample, in a manner in which the final study was done. It was carried over for the period of 7 days from 01.06.2015 to 07.06.2015. First the adolescent girls were screened for dysmenorrhea. Pretest was conducted using numerical pain scale among the

adolescent girls. Pelvic bridge exercise was demonstrated to them for 2 times per day and continue for 6 days .The researcher found no difficulties and the adolescent girls were co-operative, Hence the researcher found that the study setting was feasible and practicable.

### **3.11 Data collection procedure**

Formal permission was obtained from the Professor and Head of the Department, Department of Obstetrics and Gynecology, Government Rajaji Hospital, Madurai, Principal and Head of the Department in college of nursing, Chief Educational Officer and Head mistress of school to conduct the study in Government girls higher secondary school, Madurai. 60 Adolescent girls who are having dysmenorrhea and meeting the inclusive criteria were selected by using purposive sampling technique. Written and oral consent was obtained from the parents of all the subjects before conducting the study a brief self-introduction and explanation regarding the nature and purpose of intervention was given to the students. First the adolescent girls were screened for the level of dysmenorrhea by using numerical pain scale. Pelvic bridge exercise was demonstrated to the Adolescent girls 2 times per day and 6 days per week with the duration of 60 minutes for 4 weeks. The post test was conducted to adolescent girls on the next menstruation.

### **3.12 Plan for data analysis**

The data analysis involved the translation of information collected during the course of research project into an interpretable and managerial form. It involved the use of statistical procedures to give an organization and meaning to the data. To compute the



data, a master sheet was prepared by the investigator. Descriptive and inferential statistics used for data analysis.

### **Descriptive statistics**

1. Frequency and percentage distribution was used to analysis the socio demographic variables of adolescent girls studying in Government girls higher secondary school, Madurai.
2. Mean and standard deviation was used for assessing the pretest and posttest level of dysmenorrhea among adolescent girls studying in Government girls higher secondary school, Madurai.

### **Inferential statistics;**

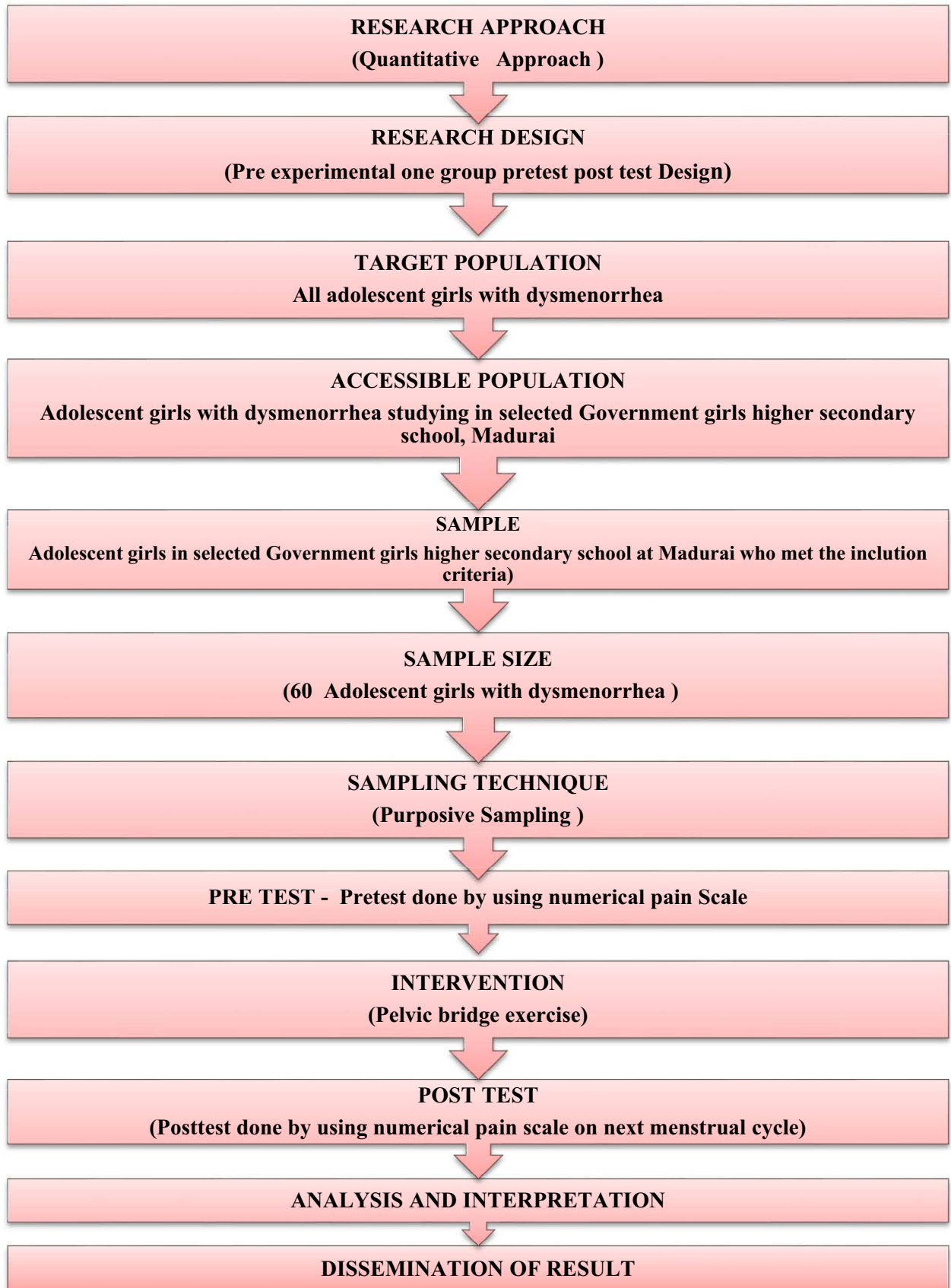
1. Paired t-test was used to examine the pretest and posttest level of dysmenorrhea among adolescent girls studying in Government girls higher secondary school, Madurai.
2. Chi-square analysis was used to find out the association between level of dysmenorrhea among adolescent girls studying in Government girls higher secondary school, Madurai.

### **3.13 Protection of human rights**

The investigator obtained approval from dissertation committee of College of Nursing, Government Rajaji Hospital, IRB [Institutional Review Board] and Professor and Head of the Department of Obstetrics and Gynecology, Government Rajaji Hospital, Madurai. To conduct the study in Government girls higher secondary school, Madurai. Each individual was informed about the purpose of the study and confidentiality was

promised and ensured. An oral and written consent was obtained from all the study subjects and data collected was kept confidential. The subjects were informed that they can withdraw from the study at any time if they are not willing. Confidentiality and privacy was maintained throughout the study.

**Figure 2 Schematic representation of the study**



*CHAPTER IV*  
*DATA ANALYSIS*  
*AND*  
*INTERPRETATION*

## CHAPTER IV

### DATA ANALYSIS AND INTERPRETATION

The chapter deals with the analysis and interpretation of the data collected from 60 adolescent girls to assess the effectiveness of pelvic bridge exercise on dysmenorrhea among the adolescent girls studying in Government Girls Higher Secondary School, Madurai. The analysis used for this study was descriptive and inferential statistics.

#### **Organization of the data**

The analysis and interpretation of data was organized under the following section

- Section I**      Distribution of adolescent girls according to their socio demographic variables.
- Section II**     Description of adolescent girls according to the level of dysmenorrhea.
- Section III**    Effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls.
- Section IV**    Association between level of dysmenorrhea among adolescent girls with selected socio demographic variables.

## Section I

**Distribution of adolescent girls according to their socio demographic variables**

**Table 1 Frequency and percentage distribution of socio demographic variables**

<b>n=60</b>			
<b>S. No</b>	<b>Socio Demographic variables</b>	<b>Frequency</b>	<b>percentage</b>
1.	<b>Age In Years</b>		
	b -14 years	26	43.3%
	c - 15 years	10	16.6%
	d -16 years	4	6.7%
	f -17 years	1	1.7%
2	<b>Age at Menarche</b>		
	a - 9-10 years	4	6.7%
	b- 11-12 years	20	33.3%
	c -13-14 years	34	56.7%
	d- 15 years &above	2	3.3%
3.	<b>Family Type</b>		
	Nuclear family	43	71.7%
	Joint family	17	28.3%
4.	<b>Family Income</b>		
	< Rs.3000	41	68.3%
	Rs. 3001 –4000	9	15.0%
	Rs. 4001 – 5000	3	5.0%
	> Rs.5000	7	11.7%
5.	<b>Birth Order</b>		
	First	23	38.3%
	Middle	21	35.0%
	Last	16	26.7%

6.	<b>Mother's Education</b>		
	No formal education	12	20.0%
	Primary education	20	33.3%
	Secondary education	19	31.7%
7.	<b>Father's Education</b>		
	No formal education	8	13.3%
	Primary education	20	33.4%
	Secondary education	21	35.0%
8.	<b>Food Habits</b>		
	Vegetarian	11	18.3%
	Non-vegetarian	49	81.7%
	<b>Where do you stay?</b>		
9.	Hostel	1	1.7%
	Day scholar	59	98.3%
10	<b>Previous Source Of Information</b>		
	Teacher	2	3.3%
	Peer group	58	96.7%

**The above table shows the distribution of the subjects according to the Demographic variables.**

Regarding the age, majority of the adolescent girls 26[43.3%] were in the age group of 14 years, 19[31.7%] were in the age group of 13 years and 10[16.6%] were in the age group of 15 years and 4[6.7%] were in the age group of 16 years and the least population 1[1.7%] belonged to the age group of 17 years.

While considering the age at menarche, maximum adolescent girls 34 [56.7%] were attained menarche at the age of 13 to 14 years, 20 [33.3%] were attained menarche at the age of 11 to 12 years, 4 [6.7%] were attained menarche at the age of 9 to 10 years, The least of the adolescent girls 2 [3.3%] were attained menarche at the age of 15 years and above.

While comparing the type of family, majority of the adolescent girls 43 [71.7%] were living in nuclear family, 17 [28.3%] girls belong to joint family.

In relation to family income most of them were under Rs. > 3000 per month, 41 [68.3%] and 9 [15%] were fall under the category of Rs. 3001-4000 per month and 3 [5%] adolescent were under Rs 4001-5000] per month, 7 [11.7%] adolescent girls family income is >Rs. 5000 per month.

Birth order [38.3%] majority of the adolescent girls are the first child of the family. About 35% of the adolescent girls are the middle child and 26.7% of them are the last child in their family.

Based on their mother's educational status about 20% of mothers of adolescent girls had no formal education, most of the mothers of adolescent girls had primary education [ 33.3%] and 31.7% of them had secondary education, 15% of the mothers had higher secondary education

Regarding fathers educational status about 13.3% of fathers of adolescent girls had no formal education, 33.4% of the fathers of adolescent girls had primary education

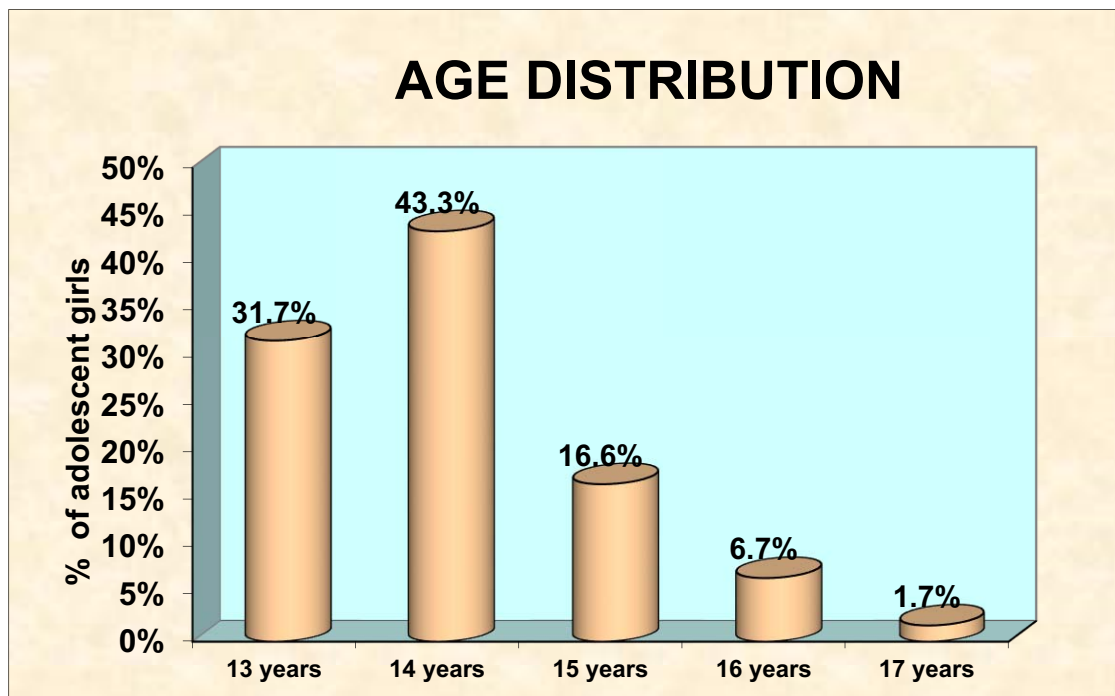


and 31.7% of them had secondary education and 18.3% of the fathers had higher secondary education

Food habits majority of the adolescent girls 81.7% were non vegetarian and 18.3% were vegetarian.

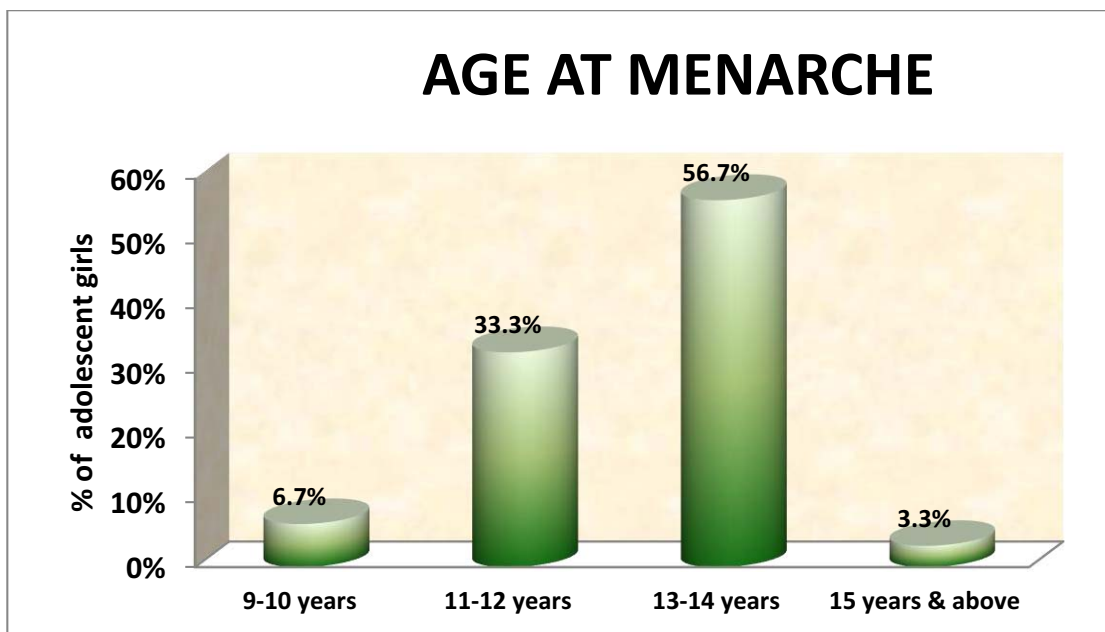
Regarding place of staying, Most of the adolescent girls 59[98.3%] were day scholar, and1 [1.7%] were hostel.

While comparing previous source of information, Most of the adolescent girls 58[96.7%] received the previous information from peer group, 2 [3.3%] adolescent girls were received the previous information from teacher.



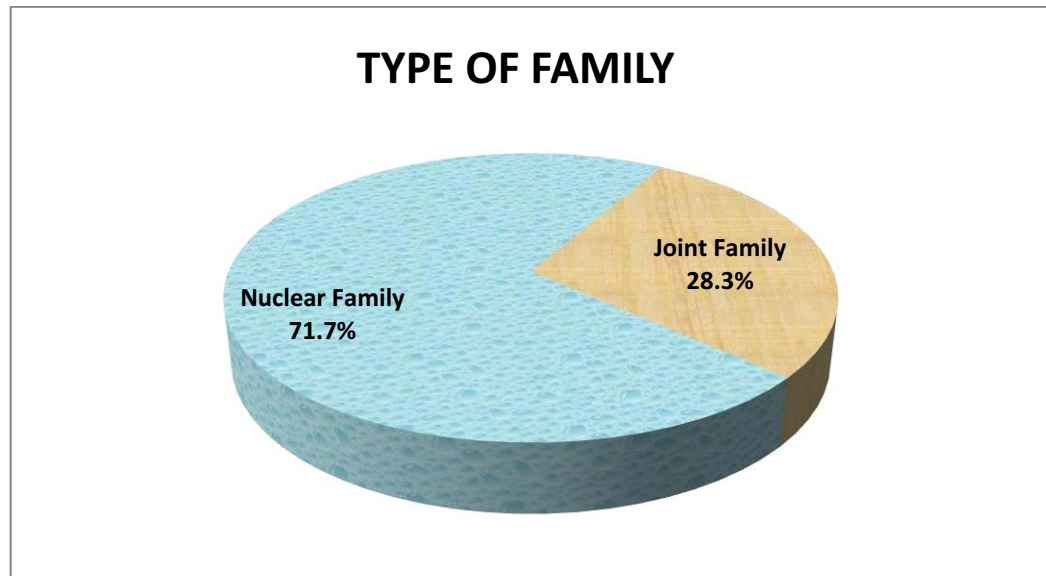
**Figure : 3 Percentage distribution of age among adolescent girls.**

The above bar diagram shows that the age of the adolescent girls 19 [31.7%] were belongs to 13 years of age. Majority of the adolescent girls 26 [43.3%] were from the age group of 14 years, 10 [16.6%] were in 15 years of age and 4 [6.7%] were in 16 years and remaining 1 [1.7%] were in 17 years of age.



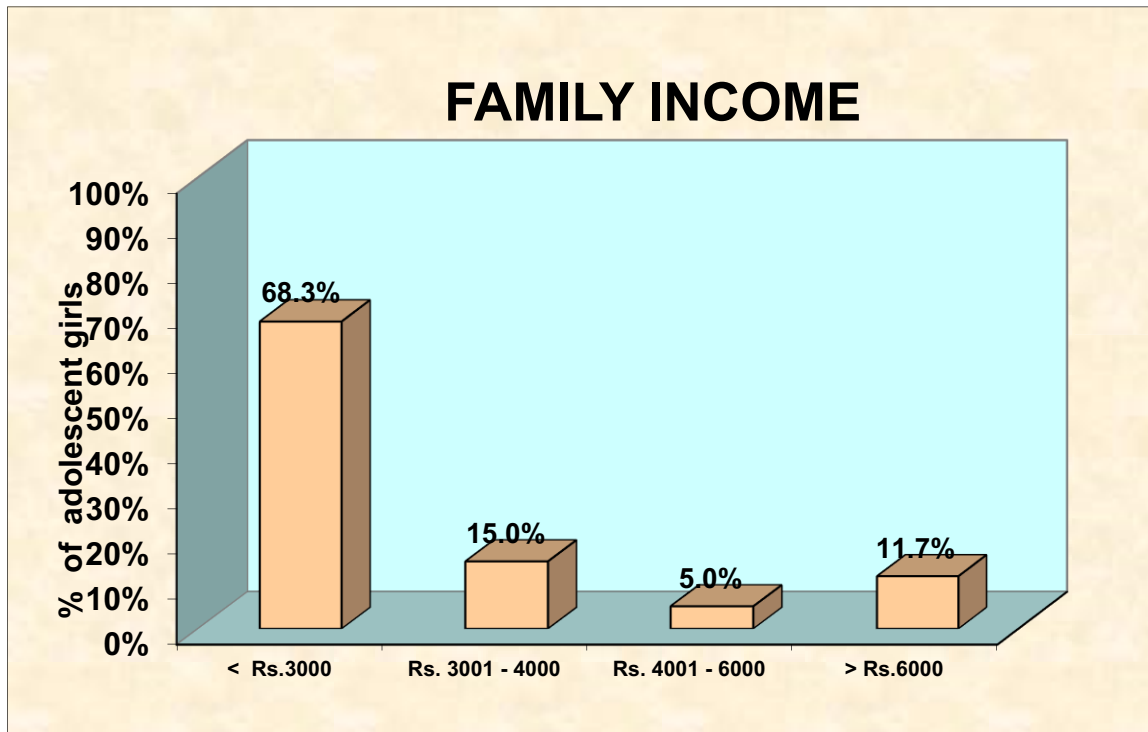
**Figure: 4 Percentage distribution of age at menarche among adolescent girls.**

The above bar diagram reveals that the age at menarche, 4[6.7%] were attained menarche at the age of 9-10 years, 20 [33.3%] were attained menarche at the age of 11-12 years. Majority of the adolescent girls 34[56.7%] were attained menarche at the age of 13-14 years, the least of age is 15 years and above 2[3.3%].



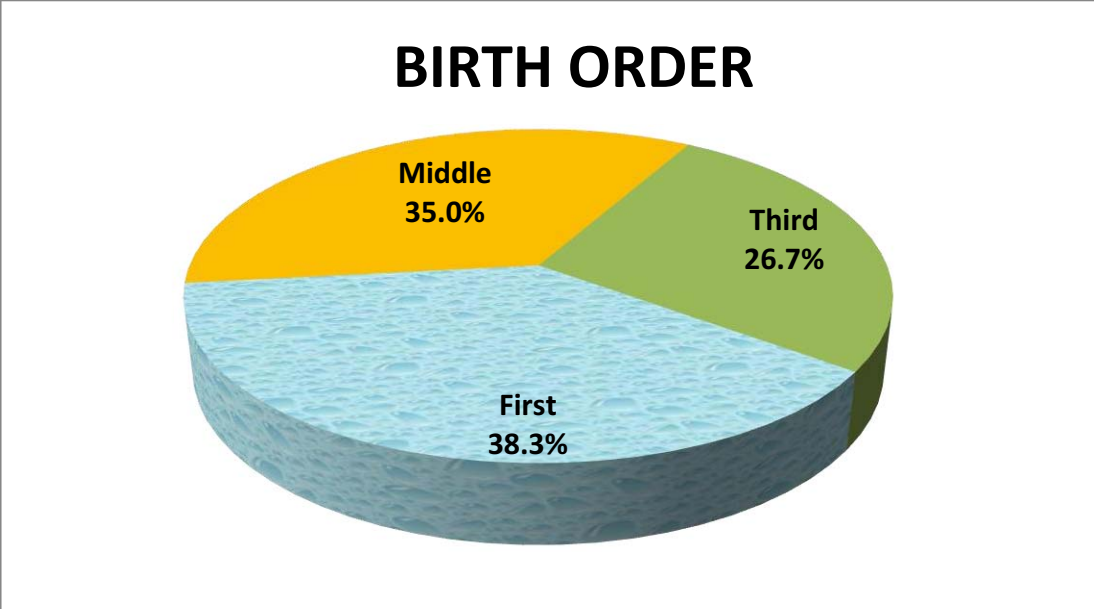
**Figure : 5 Percentage distribution of family type among adolescent girls.**

The above pie chart reveals that the type of family, Great part of the adolescent girls 43 [71.7%] were living in nuclear family. 17[28.3%] subjects belongs to joint family.



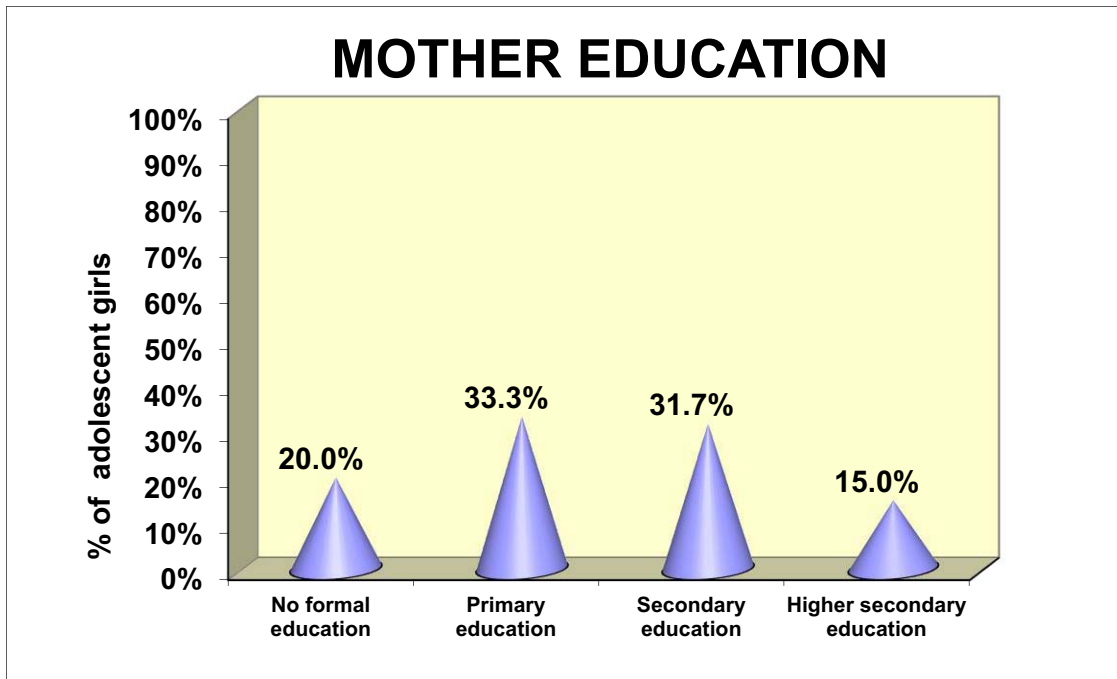
**Figure: 6 Percentage distribution of family income of the adolescent girls**

The above diagram explains that the Family income, Most of the adolescent girls were under < Rs.3000 per month 41 [68.3%] and 9[15%] were fall under the category of Rs.3001 to 4000 per month and 3[5%] were earned between Rs.4001 to 5000.7[11.7%] adolescent girls family income is Rs.> 5000 per month



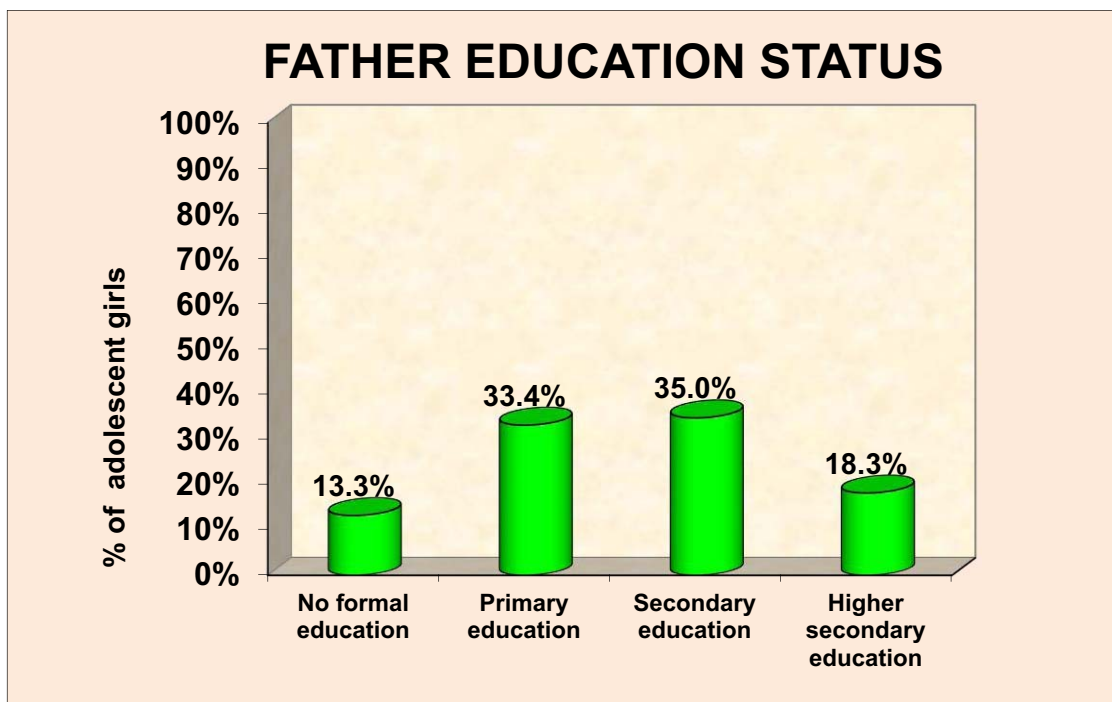
**Figure: 7 Percentage distribution of birth order among adolescent girls.**

The above pie chart shows that the birth order, Most of the adolescent girls 23 [38.3%] were the first child of the family. About 21 [35%] of the adolescent girls were the middle child of their family and 16 [26.7%] of them were the last child of their family.



**Figure : 8 Percentage distribution of educational status of mother's of the adolescent girls.**

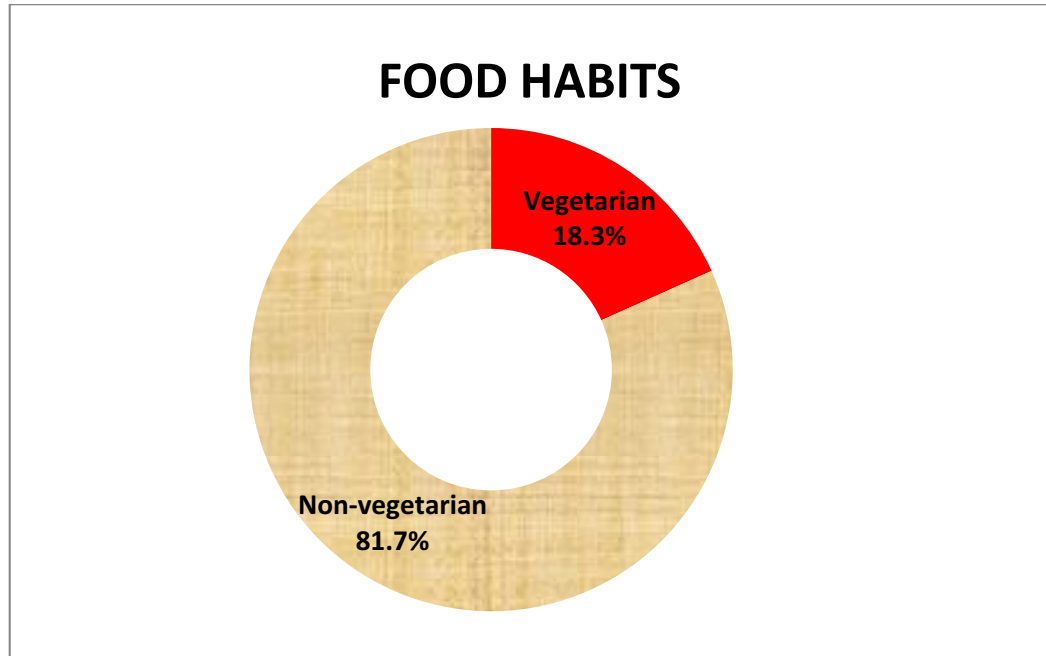
The above cone diagram reveals that the mother's educational status, About 12[20%] of mothers of adolescent girls had no formal education, most of the mothers of adolescent girls 20 [33.3%] had primary education and 19 [31.7%] of them had secondary education and the least of 9 [15%] had higher secondary education.



**Figure: 9 Percentage distribution of educational status of father's of the adolescent girls.**

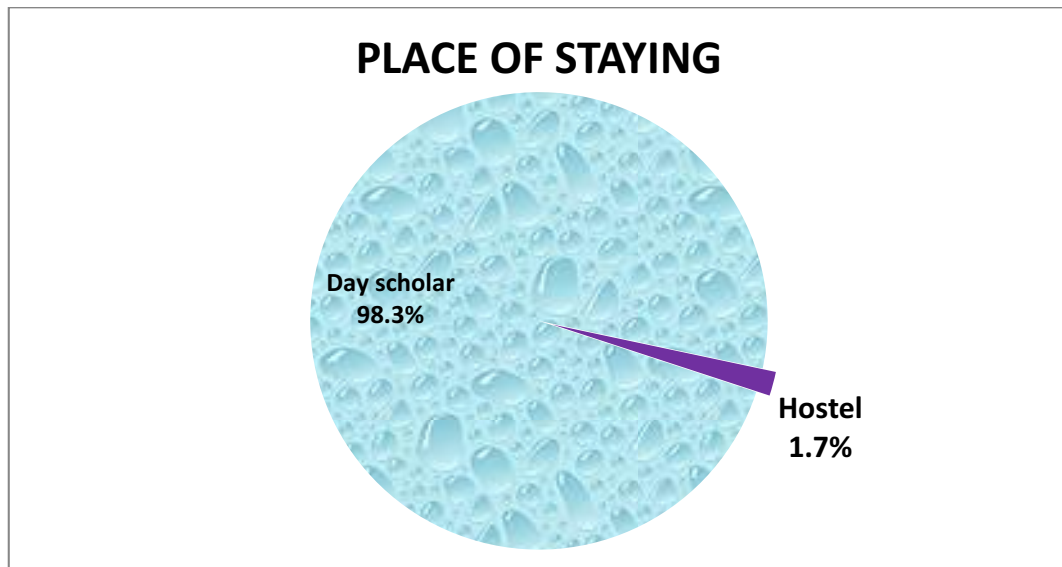
The above cylindrical diagram explains that the Father's educational status, About 8[13.3%] of fathers of adolescent girls had no formal education, 20 [33.4%] of the father of adolescent girls had primary education and Most of the fathers of adolescent girls 21 [35%] had secondary education, 11[18.3%] of father had higher secondary education.





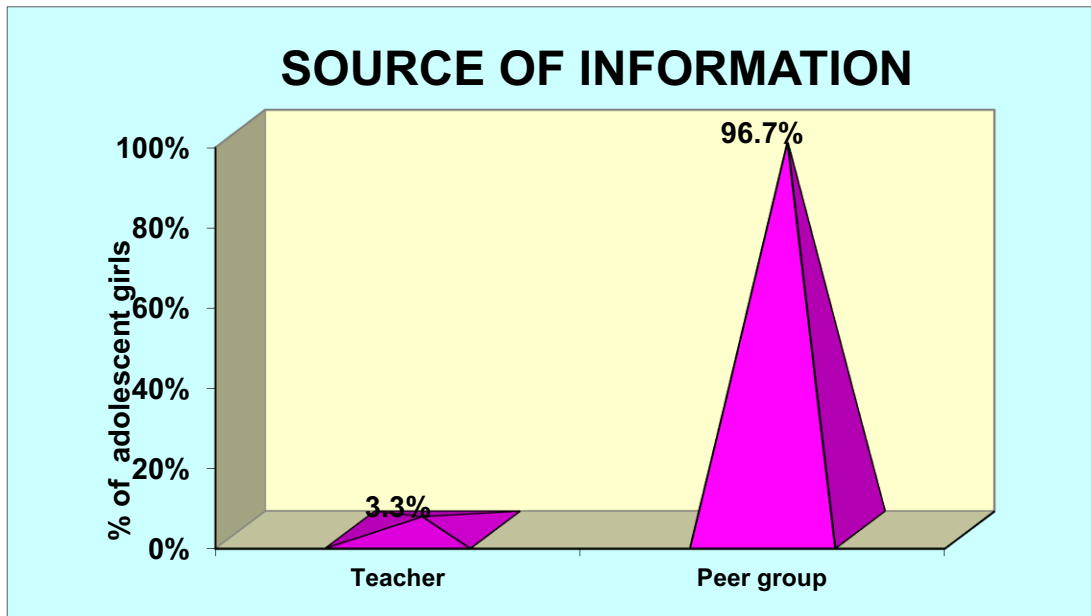
**Figure: 10 Percentage distribution of food habits among adolescent girls**

The above diagram shows that the food habits, the maximum number of adolescent girls 49 [81.7%] were taking non vegetarian food and 11 [18.3%] of the adolescent girls were taking vegetarian food.



**Figure: 11 Percentage distribution of place of staying**

The above pie chart explains that 59 [98.3%] of the subjects were days scholar, and the least 1 [1.7%] subjects were come from hostel.



**Figure : 12 Percentage distribution of source of information about pelvic bridge exercise among adolescent girls.**

The above cone diagram reveals that the source of information, Majority of the adolescent girls had information from peer group 58 [96.7%] and 2 [3.3%] of the adolescent girls had information from teacher.

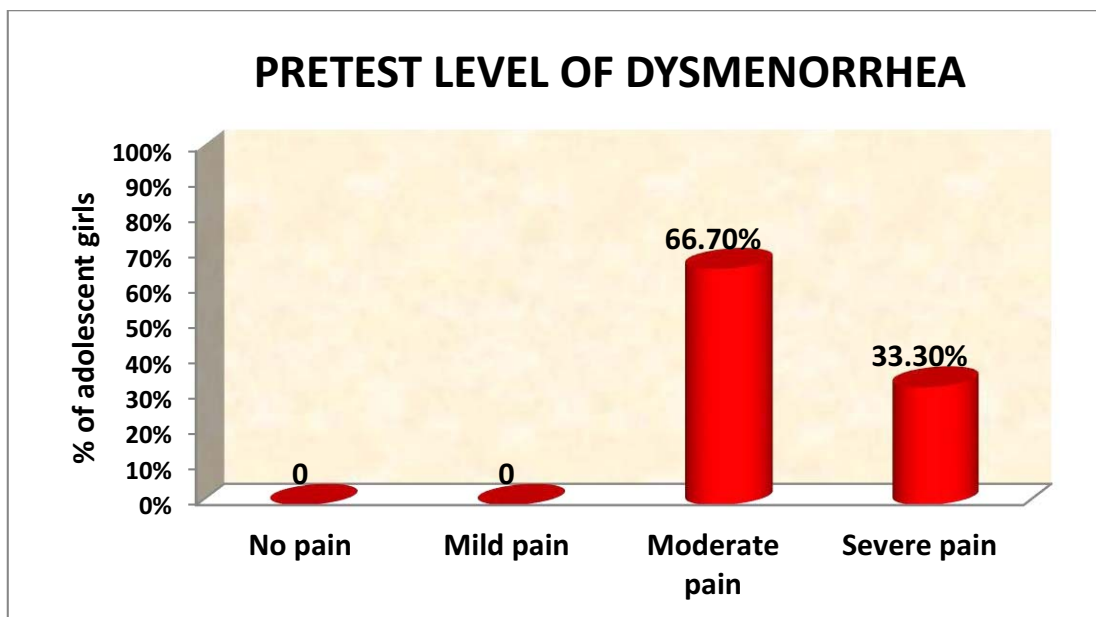
## Section II

### Description of adolescent girls according to the level of dysmenorrhea.

**Table 2: Frequency and percentage distribution of pretest level of dysmenorrhea among adolescent girls**

Level of dysmenorrhea	PRETEST	
	[f]	[%]
No pain	0	0
Mild pain	0	0
Moderate pain	40	66.7%
Severe pain	20	33.3%
Total	60	100.0%

The above table describes that majority of the subjects 40 [66.7%] had moderate pain, 20 [33.3%] had severe pain and none of them had mild pain in pretest on dysmenorrhea among adolescent girls.



**Figure: 13 Percentage distribution of pretest level of dysmenorrhea among adolescent girls**

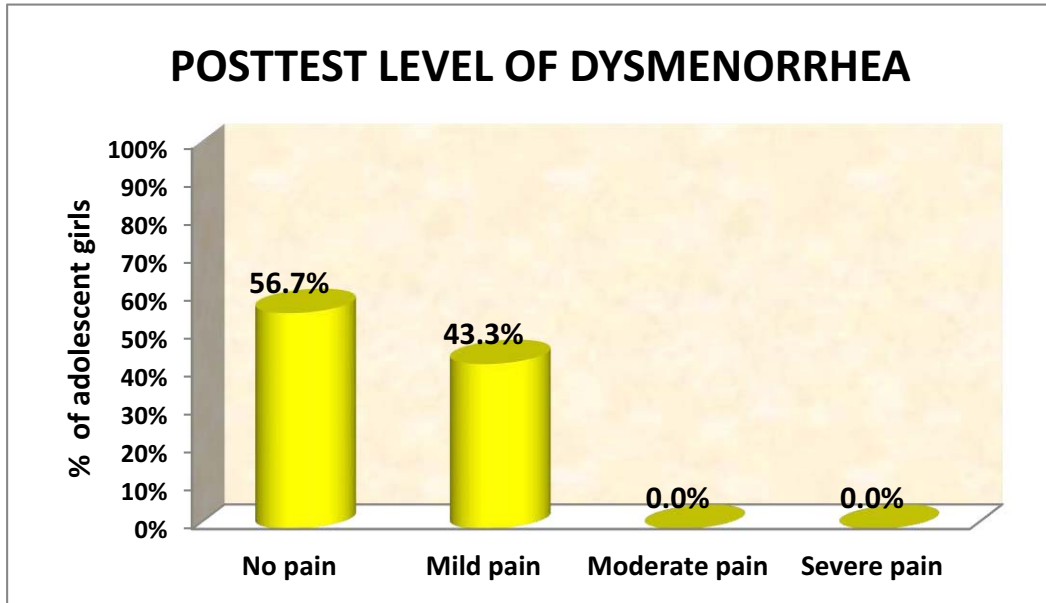
The above cylindrical diagram shows that most of the adolescent girls 40 [66.70%] had moderate pain, 20[33.30%] had severe pain and none of them had mild pain in pretest on dysmenorrhea among adolescent girls.

**Table- 3**

**Frequency and percentage distribution of posttest level of dysmenorrhea among adolescent girls**

<b>Level of dysmenorrhea</b>	<b>Post test</b>	
	<b>[f]</b>	<b>[%]</b>
No pain	34	56.7%
Mild pain	26	43.3%
Moderate pain	0	0.0%
Severe pain	0	0.0%
Total	100	100.0%

Above table reveals that 34 [56.7%] subjects had no dysmenorrhea, 26 [43.3%] had mild dysmenorrhea, and none of them had moderate dysmenorrhea and severe dysmenorrhea.



**Figure: 14 Percentage distribution of posttest level of dysmenorrhea among adolescent girls.**

The above cylindrical diagram reveals that posttest result shows that most of the adolescent girls 34 [56.7%] had no dysmenorrhea and 26 [43.3%] experienced mild dysmenorrhea and none of them had moderate , severe dysmenorrhea.

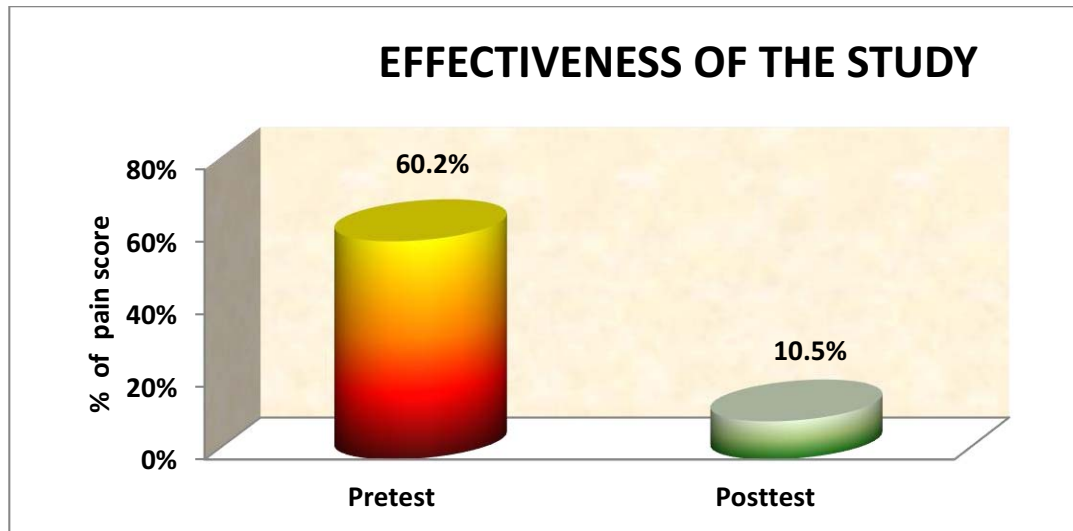
### Section III

**Table-4 Effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls**

<b>Pain score</b>	<b>Maximum score</b>	<b>Symptom score</b>	<b>Mean difference</b>	<b>Mean difference with 95% confidence interval</b>	<b>Percentage difference with 95% confidence interval</b>
Pretest	10	6.02	4.97	4.97(4.67 – 5.27)	49.7% (46.7% - 52.7%)
posttest	10	1.05			

The above table shows that the level of dysmenorrhea on pretest and posttest mean score is 6.02 and 1.05 .Mean difference between the pretest and posttest is 4.97. The Adolescent girls are reduced 49.7% of the pain score after having pelvic bridge exercise on dysmenorrhea Thus pelvic bridge exercise was effective to reduce dysmenorrhea among adolescent girls.





**Figure : 15 Percentage distribution of effectiveness of the pelvic bridge exercise**

The cylindrical diagram reveals that effectiveness of the pelvic bridge exercise, pretest percentage mean score was 60.2% and posttest mean score was 10.5%. Study result shows adolescent girls are reduced 49.7% of the mean score after having pelvic bridge exercise.

**Table-5 Comparison of pretest and posttest mean dysmenorrhea score**

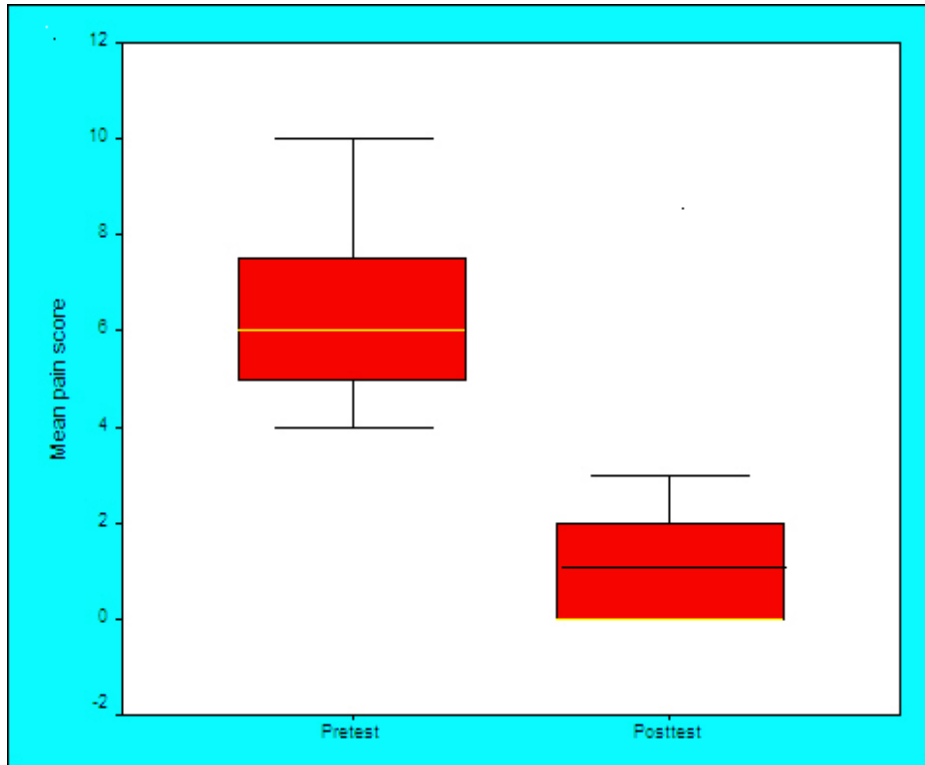
<b>Pain score</b>	<b>No. of adolescent girls</b>	<b>Mean</b>	<b>Standard. Deviation</b>	<b>Mean difference</b>	<b>Paired t-test</b>
Pretest	60	6.02	1.66		<b>t=32.25 p=0.001***</b>
Posttest	60	1.05	1.26	4.97	<b>DF=59 significant</b>

\* significant at  $P \leq 0.05$  \*\* highly significant at  $P \leq 0.01$  \*\*\* very high significant at  $P \leq 0.001$ .

The above table depicts comparisons of mean dysmenorrhea score between pretest and posttest. The pretest mean dysmenorrhea score was 6.02 with the standard deviation 1.66 where as posttest mean dysmenorrhea score was 1.05 with the standard deviation 1.26, Mean difference is 4.97.

The student paired 't'test was done to find out the difference between the pretest and posttest score 't' value 32.25 was lesser than table value which was significant at 0.001 level. This shows that the difference in the score was due the intervention [Pelvic bridge exercise] and also this proves that the pelvic bridge exercise was effective in reducing the dysmenorrhea among adolescent girls studying in Government Girls Higher Secondary School, Madurai.

### Comparison of pretest and posttest pain score among adolescent girls



**Figure :16 comparison of the pretest and posttest pain score among adolescent girls**

The above box plot reveals that the comparison of pretest and posttest pain score. In pretest, adolescent girls are having 6.02 pain score and in posttest they are having 1.05 pain score. Difference is 4.97. This difference is statistically significant. It was confirmed by using paired t-test.

## Section IV

**Table- 6 Association between the level of dysmenorrhea among adolescent girls with selected socio demographic variables**

**n=60**

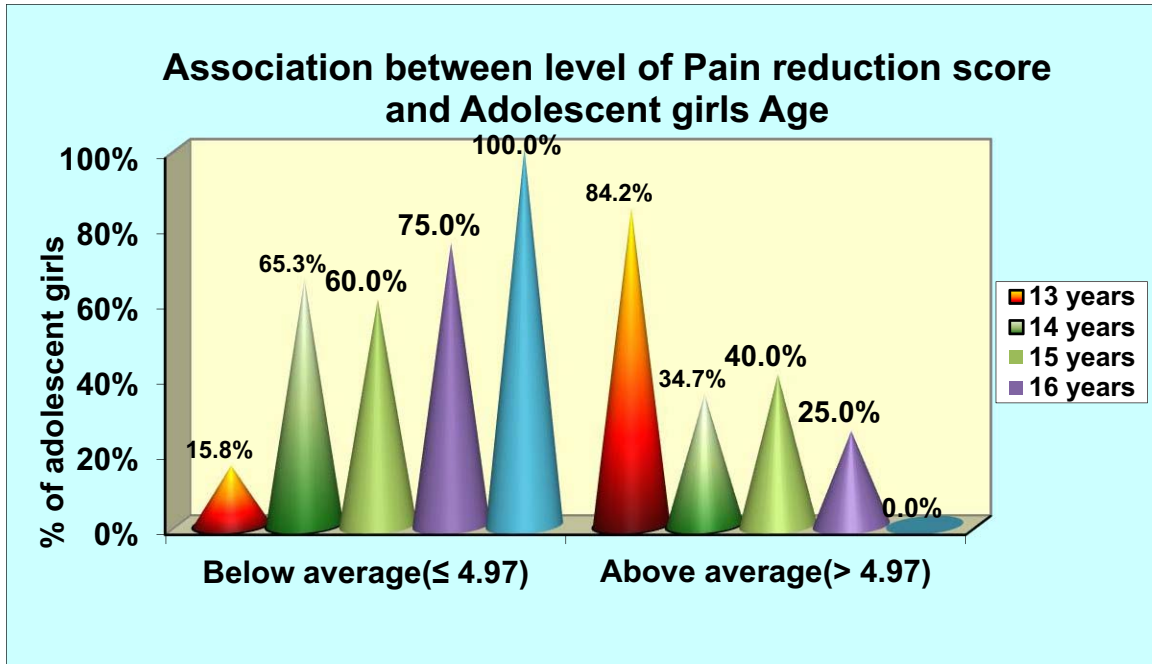
S. No	Demographic variables	Level of pain reduction score				Total	$\chi^2$	'p' Value
		Below average ( $\leq 4.97$ )		Above average ( $> 4.97$ )				
		f	%	f	%			
1.	<b>Age in years</b>							
	13 years	3	15.8%	16	84.2%	19	<b>DF=4</b> <b>0.001</b>	
	14 years	17	65.3%	9	34.7%	26		
	15 years	6	60.0%	4	40.0%	10		
	16 years	3	75.0%	1	25.0%	4		
17 years	1	100.0%	0	0.0%	1			
2.	<b>Age at menarche</b>						DF=3 t 0.41	
	9-10 years	1	25.0%	3	75.0%			
	11-12 years	8	40.0%	12	60.0%	20		
	13-14 years	20	58.8%	14	41.2%	34		
	15 years & above	1	50.0%	1	50.0%	2		
3.	<b>Family type</b>						<b>0.05*</b>	
	Nuclear family	25	58.1%	18	41.9%	43		
	Joint family	5	29.4%	12	70.6%	17		
4.	<b>Family income</b>						2.34 DF=3 0.51	
	< Rs.3000	18	43.9%	23	56.1%	41		
	Rs. 3001 – 4000	5	55.6%	4	44.4%	9		
	Rs. 4001 – 6000	2	66.7%	1	33.3%	3		
	> Rs.6000	5	71.4%	2	28.6%	7		

5.	<b>Birth order</b>							
	First	12	52.2%	11	47.8%	23	0.72 DF=2	0.69
	Middle	9	42.9%	12	57.1%	21		
Last	9	56.3%	7	43.8%	16			
6.	<b>Mother Education</b>						10.5	0.02*
	No formal education	9	75.0%	3	25.0%	12		
	Primary education	13	65.0%	7	35.0%	20		
	Secondary education	6	31.6%	13	68.4%	19		
	Higher secondary Education	2	22.2%	7	77.8%	9		
7.	<b>Father education</b>						8.05	0.05
	No formal education	7	87.5%	1	12.5%	8		
	Primary education	11	55.0%	9	45.0%	20		
	Secondary education	9	42.9%	12	57.1%	21		
	Higher secondary Education	3	27.3%	8	72.7%	11		
8.	<b>Food habits</b>							0.37
	Vegetarian	4	36.4%	7	63.6%	11		
	Non-vegetarian	26	53.1%	23	46.9%	49		
9.	<b>Where do you stay?</b>							0.31
	Hostel	1	100.0%	0	0%	1		
	Day scholar	29	49.2%	30	50.8%	59		
10.	<b>Previous source of information</b>							1.00
	Teacher	1	50.0%	1	50.0%	2		
	Peer group	29	50.0%	29	50.0%	58		

Significant at  $p < 0.005$ , \*\* highly significant at  $p < 0.005$ , \*\*\* very high significant

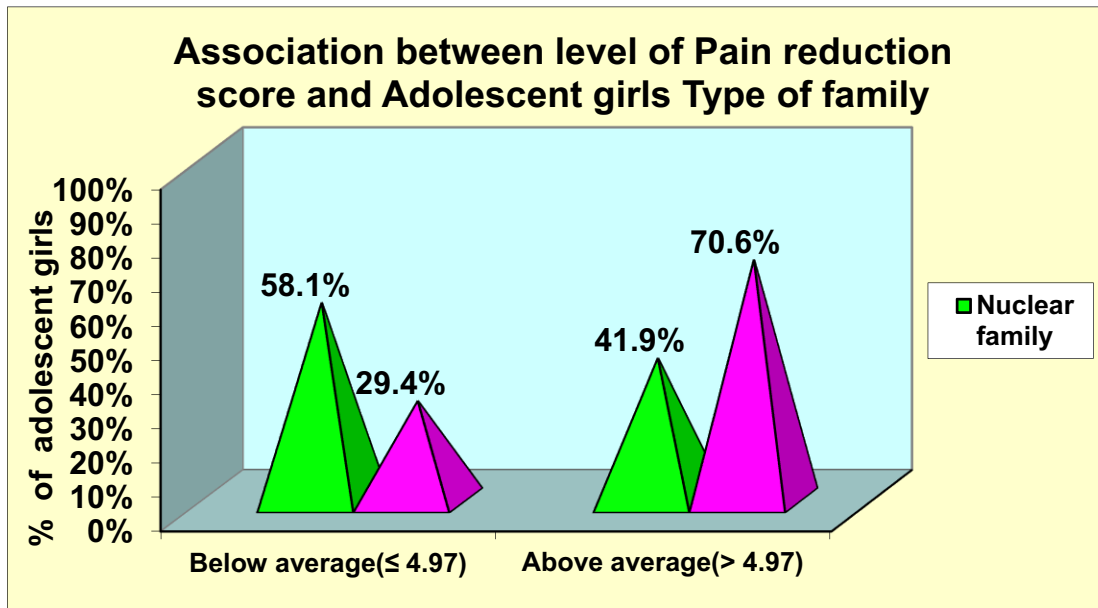
at 0.001.

The above table shows that there is a significant association between the posttest score of dysmenorrhea and selected socio demographic variables such as age in years, family type, mother's educational status, father's educational status and there is no significant association between the posttest level of dysmenorrhea and other socio demographic variables like, age at menarche, family income, birth order, food habits, place of staying, previous source of information



**Figure : 17 Association between the posttest level of dysmenorrhea and age of adolescent girls**

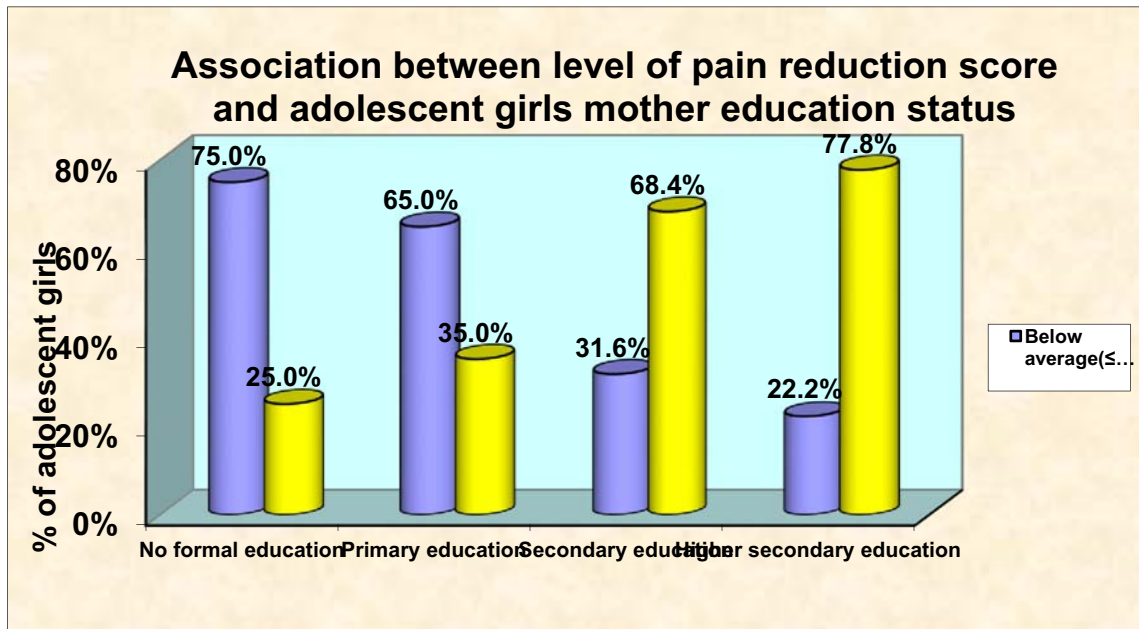
The above multiple cone diagram depicts that there is association between the level of dysmenorrhea and adolescent girls demographic variable such as age in years. Younger and lesser age group at menarche girls is significantly associated with the dysmenorrhea among adolescent girls.



**Figure : 18 Association between the posttest level of dysmenorrhea and type of family**

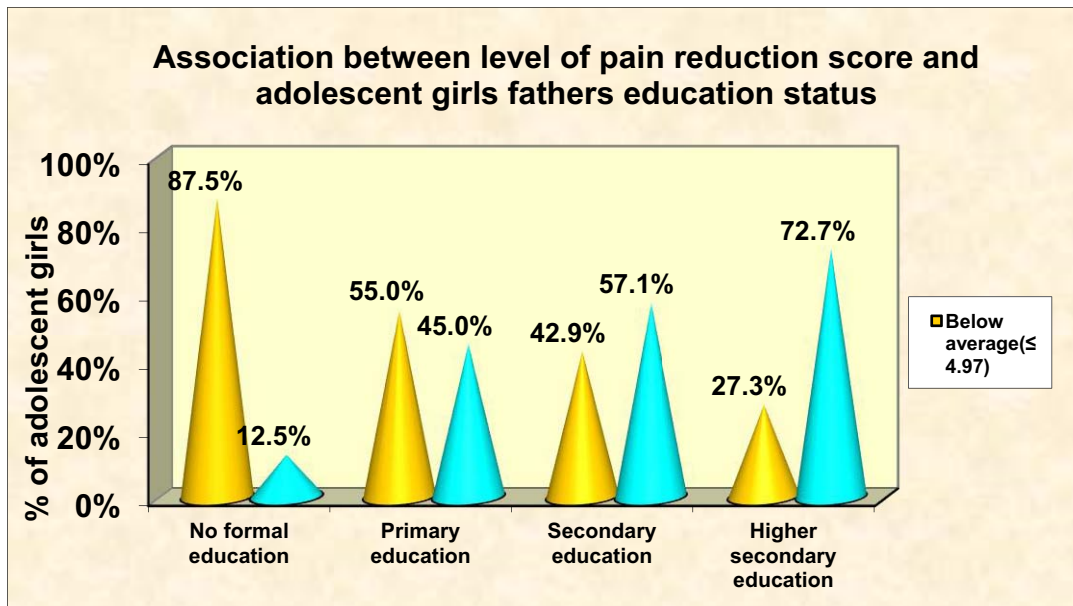
Multiple cone diagram depicts there is association between the level of dysmenorrhea and adolescent girls demographic variables such as type of family. In type of family, those who are falls under the category of nuclear family is significantly associated with the dysmenorrhea among adolescent girls.





**Figure : 19 Association between the level of dysmenorrhea and mother’s educational status.**

The above multiple cylindrical diagram reveals that there is association between the level of dysmenorrhea and adolescent girl’s mother educational status. In educational status of the mother those who are completed Higher secondary education is significantly associated with the dysmenorrhea among adolescent girls.



**Figure : 20 Association between the level of dysmenorrhea and father's educational status.**

The above multiple cone diagram reveals that there is association between the level of dysmenorrhea and adolescent girl's father educational status. In educational status of the father those who are completed Higher secondary education is significantly associated with the dysmenorrhea among adolescent girls.

*CHAPTER – V*

*DISCUSSION*

## **CHAPTER V**

### **DISCUSSION**

This chapter deals with the detailed discussion of the results of the data interpreted through statistical analysis. The focus of the study was to assess the effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls who are studying in Government Girls Higher Secondary School, Madurai.

The Investigator adopted pre experimental design. 60 adolescent girls were selected from the age group of 14- 16 years and having moderate to severe dysmenorrhea by purposive sampling technique. The level of dysmenorrhea by the adolescent girls were assessed by numerical pain scale. Modified King's goal attainment model was used to explain the effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls. The results are discussed according to the objectives with supportive studies.

#### **Distribution of adolescent girls with their socio**

##### **Demographic variables**

Regarding the age, majority of the adolescent girls 26[43.3%] were in the age group of 14 years, 19[31.7%] were in the age group of 13 years and 10[ 16.6%] were in the age group of 15 years and 4[6.7%] were in the age group of 16 years and the least population 1[1.7%] belonged to the age group of 17 years.

While considering the age at menarche, maximum adolescent girls 34 [56.7%] were attained menarche at the age of 13 to14 years, 20[33.3%] were attained menarche at

the age of 11 to 12 years, 4 [[6.7%] were attained menarche at the age of 9 to 10 years, The least of the adolescent girls 2[3.3%] were attained menarche at the age of 15 years and above.

While comparing the type of family, majority of the adolescent girls 43[71.7%] were living in nuclear family, 17 [28.3%] girls belong to joint family.

In relation to family income most of them were under Rs. < 3000 per month, 41[68.3%] and 9 [15%] were fall under the category of Rs.3001-4000 per month and 3 [5%] adolescent were under Rs 4001-5000] per month, 7[11.7%] adolescent girls family income is >Rs. 5000 per month.

Birth order [38.3%] majority of the adolescent girls are the first child of the family About 35% of the adolescent girls are the middle child and 26.7% of them are the last child in their family.

Based on their mother's educational status about 20% of mothers of adolescent girls had no formal education, most of the mothers of adolescent girls had primary education [33.3%] and 31.7% of them had secondary education, 15% of the mothers had higher secondary education.

Regarding fathers educational status about 13.3% of fathers of adolescent girls had no formal education, 33.4% of the fathers of adolescent girls had primary education and 31.7% of them had secondary education and 18.3% of the fathers had higher secondary education

Food habits majority of the adolescent girls 81.7% were non vegetarian and 18.3% were vegetarian.

Regarding place of staying, Most of the adolescent girls 59[98.3%] were dayscholar, and 1 [1.7%] were hostel.

While comparing previous source of information, Most of the adolescent girls 58[ 96.7%] received the previous information from peer group, 2 [3.3%] adolescent girls were received the previous information from teacher.

### **Discussion of the study based on its objectives**

**The first objective of the study was to assess the level of dysmenorrhea among the adolescent girls studying in selected Government girls higher secondary school, Madurai.**

In the pretest majority of the adolescent girls, 40[66.7%] had moderate pain, 20[33.3%] had severe pain and none of them had mild pain. In the posttest [After intervention of pelvic bridge exercise] majority of the adolescent girls 34[56.7%] had no pain, 26 [43.3%] had mild pain

**The present study findings was consistent with the study conducted by Jen P, Chen p [ 2009 ] among nursing students in Western turkey school of nursing who met the inclusion criteria. The sample size was 857. The simple random sampling method was used. Data was collected by questionnaires consisted of two parts. The intensity of the pain was assessed by visual Analogue pain scale. The prevalence of dysmenorrhea**

among the students was 50%. The results showed that 32.2% students had severe dysmenorrhea, 62.6% had moderate dysmenorrhea and 5.2% had mild dysmenorrhea.

It was also supported by **the experimental study conducted by Dambhare, D.GWagh and Dudhe, J.Y et al...[2012]** .to evaluate the occurrence of dysmenorrhea among 1100 school adolescent girls in district wardha. Self-administered structure questionnaire was used and it was found that abnormal cycle length was common and affected 30.48%. They concluded that the study findings that the majority of the adolescent girls 56.5% experienced severe dysmenorrhea and 26.3% had moderate dysmenorrhea 16.2%.

**The second objective of the study was to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls studying in selected Government Girls Higher Secondary School, Madurai.**

After the pretest, pelvic bridge exercise were demonstrated to the adolescent girls 6 days in a week for 4 weeks. The duration of the intervention was 1 hour and it is done between 10- 11 am for one group 3-4pm for another group. After the intervention the mean post test score was 1.05. In the posttest 34[56.7%] adolescent girls had no dysmenorrhea, 26[43.3%] had mild dysmenorrhea and none of them had moderate and severe dysmenorrhea. The difference in the mean percentage is about 49.7%. The calculated 't' value is 32.25 which is highly significant  $p < 0.001$  level and it indicates that the intervention is very much effect.

This findings of the study was consistent with a study done by **Brown J.[ 2010]** to determine the effectiveness of pelvic rocking exercise on dysmenorrhea among adolescent girls. A study of 179 students, 15-17 aged, volunteer bachelor girls with moderate or severe dysmenorrhea were selected from 6 high school girls in two different city zones in Tamil Nadu. Total number of the students were 519. Selected high school were randomly divided into two groups. Experimental group [4 high school, 124 persons] and control group [2 high school 55 persons]. The result of the study showed that pelvic rocking exercise was effective in reduction of pain severity.

It was also supported by the study conducted by SaeidehRezvani, [2013] A quasi-experimental was conducted on 40 nonathletic girls aged 18-25 years. Data gathering tools were: Evaluation form of primary dysmenorrhea and the pain evaluation tool based on the McGill standard pain questionnaire completed before and after the intervention in 3 months (first, second, and third run). Then, 20 subjects were assigned to aquatic exercise group and the other 20 to control group. The subjects in experimental group did aquatic exercise for three sessions a week for 60 minutes for 12 weeks between two menstruations. The results of this research indicated that severity and duration of pain decreased after 12 weeks of aquatic exercises. Comparison of the two groups showed a significant difference in pain intensity based on visual analogue scale (VAS) scale after these exercises. Present pain intensity (PPI) scale after these exercises showed a significant difference. Comparison of the two groups showed a significant difference in length of pain after these exercises.



**Hence the Hypothesis - [H<sub>1</sub>] : There is a significant difference between the pretest and posttest level of dysmenorrhea among adolescent girls studying in selected Government Girls Higher Secondary School at Madurai was accepted.**

**The third objective is to find the association between level of dysmenorrhea among adolescent girls with selected socio demographic variable**

In order to find out the association between the posttest score of dysmenorrhea and selected socio demographic variables were calculated using chi-square test. The results showed the association between the posttest level of dysmenorrhea and selected socio demographic variables , there was a significant association between the level of dysmenorrhea and selected socio demographic variables such as age in years [ $\chi^2=13.75$  **p-0.001**], family type, [ $\chi^2=4.02$  **p-0.05**] , father's educational status [ $\chi^2=8.05$  **p-0.05**] , mothers educational status [ $\chi^2=10.5$  **p-0.02**] of adolescent girls.

There was no significant association between the posttest level of dysmenorrhea and other socio demographic variables such as age at menarche, family income, birth order, food pattern, place of staying, previous source of information about pelvic bridge exercises.

Findings of the study was congruent with a study done by **Min Yong Eom [2013]** to identify the effects of bridging exercise on different support surfaces on the thickness of the musculus transversus abdominis and lower extremity muscle activities among adolescent girls. Thirty-five students of H University. The experimental group (n=18) performed bridging exercise on the sling support surface, and the control group (n=17) performed bridging exercise on a general support surface. The thickness of the transverse abdominis changed from 0.35 to 0.70 cm in the experimental group, and from

0.36 to 0.52 cm in the control group, both significant differences ( $p < 0.05$ ). The variation of transverse abdominis thickness was 0.35 cm in the experimental group and 0.17 cm in the control group, a significant difference ( $p < 0.05$ ). This findings revealed that there was association between the posttest score and the adolescent girl's age, educational status, type of family, family income, all other variables were not associated.

It was also supported by the study done by **Julie Brown 1, Stephen Brown [2010]** to assess the effectiveness of pelvic rocking exercise in the treatment of dysmenorrhea. Randomized controlled trials comparing exercise with a control or no intervention in women with dysmenorrhea. Trials were independently selected and data extracted by two review authors. Main results of the study showed four potential trials were identified of which one was included in the review. The available data could only be included as a narrative description. There appeared to be some evidence from the trial that exercise reduced the moos, menstrual distress questionnaire (MDQ) score during the menstrual phase ( $P < 0.05$ ) and resulted in a sustained decrease dysmenorrhea over the three observed cycles ( $P < 0.05$ ). Dysmenorrhea scores in posttest were lower than the pre test scores among the groups. It reveals that there was an association between post test score and educational status, family type. Other socio demographic variables had no association with post test scores.

**Hence the stated Hypothesis - [H<sub>2</sub>] : There is a significant association between posttest level of dysmenorrhea among adolescent girls with selected socio demographic variables studying in Government Girls Higher Secondary School at Madurai with their selected demographic variables was accepted.**

*CHAPTER VI*

*SUMMARY, CONCLUSION,*

*IMPLICATIONS AND*

*RECOMMENDATIONS*

## **CHAPTER VI**

### **SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENTATIONS**

This chapter deals with the summary of the study and conclusions drawn out of it. It also clarifies the own limitations of the study and in what way the study can be implicated in different areas of nursing. It states about the recommendations for the future researchers who are interested in this area.

#### **6.1 Summary**

The present study was aimed at assessing the effectiveness of pelvic bridge exercise on dysmenorrhea among the adolescent girls studying in selected Government Girls Higher Secondary School, Madurai.

#### **The objectives of the study were,**

The objective of the study was to assess the level of dysmenorrhea among adolescent girls studying at selected Government Girls Higher Secondary School, Madurai. A pre experimental one group pretest posttest design was used undertaken to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls at Government Girls Higher Secondary School, Madurai.

The researcher adopted Imogene Kings goal attainment theory [1981] for conceptual frame work and Quantative approach. One group pretest posttest design for the study. The samples collected through purposive sampling. Based on the inclusion and exclusion criteria, 60 adolescent girls were selected for the study.

**The following hypotheses were tested in the study at  $p < 0.05$  level**

**H<sub>1</sub>:** There is a significant difference between the pretest and posttest level of dysmenorrhea among adolescent girls.

**H<sub>2</sub>:** There is a significant association between the level of dysmenorrhea among adolescent girls with selected socio demographic variables.

The tool used in this study consists of two sections.

**Section A:** Socio demographic variables.

**Section B:** Numerical pain scale.

It comprised of demographic variables such as age in years, age at menarche, birth order, family type, family income, father's educational status, mother's educational status, place of staying, previous source of information about pelvic bridge exercise. The tool was validated by 5 experts including 3 Nursing experts and Head of the Department of obstetrics and Gynecology, Government, Rajaji Hospital, Madurai. The reliability of the tool is checked by Karlpearson's correlation coefficient method and the obtained 'r' value is 0.45

Data collection was carried out for 4 weeks from 3.8.15 to 13.9.15 in selected Government Girls Higher Secondary School, Madurai. Before that pilot study was conducted to check out the feasibility and possibility of the study. Pretest was done on day 1 followed pelvic bridge exercises demonstrate to the participants. posttest was conducted on next menstruation using numerical pain scale. The collected data was analyzed by using descriptive and inferential statistics.

### **Major finding of the study**

Regarding the age, 13 years[31.75%], majority of the adolescent girls belong to the age group 14 years [43.3%],15 years [16.6%], 16 years [6.7%] and the least population 1 [1.7% ] belonged to the age group of 17 years.

While considering the age at menarche, 9-10 years [6.75], 11-12 years [33.3%], maximum adolescent girls attained menarche at the age of 13-14 years [56.7%] The least of the age is 15 years 2[3.3%].

Majority of the adolescent girls 43[71.7%] are living in nuclear family, 17 [28.3%] girls belong to joint family.

In relation to family income most of them were under Rs. < 3000per month, 41[68.3%] and 9 [15%] were fall under the category of Rs.3001-4000 per month and 3 [5%] adolescent were under Rs 4001-5000] per month, 7[11.7%] adolescent girls family income is >Rs. 5000 per month.

While looking at the birth order [38.3%] majority of the adolescent girls are the first child of the family. About 35% of the adolescent girls are the middle child and 26.7% of them are the last child in their family.

Based on their mother's educational status about 20% of mothers of adolescent girls had no formal education, most of the mothers of adolescent girls had primary education [33.3%] and 31.7% of them had secondary education, 15% of the mothers had higher secondary education

Regarding fathers educational status about 13.3% of fathers of adolescent girls had no formal education, 33.4% of the fathers of adolescent girls had primary education and 31.7% of them had secondary education and 18.3% of the fathers had higher secondary education.

Findings related to their food habits majority of the adolescent girls 81.7% were non vegetarian and 18.3% were vegetarian.

According to their stay most of the adolescent girls were day scholar, and 1.7% were hostel.

Regarding previous source of information about pelvic bridge exercise 96.7% adolescent girls from peer group, 3.3% adolescent girls from teacher.

The mean pretest score of dysmenorrhea was 6.02 and the posttest mean was 1.05. There was a reduction in the level of dysmenorrhea after the intervention pelvic bridge exercise. This was statistically tested using paired 't' test and it was [t= 32.25] highly significant at 0.0001 level.

## **6.2 Conclusion**

It is statistically evidence proved that pelvic bridge exercise was effective in reduction of dysmenorrhea among adolescent girls. This is noninvasive, non pharmacological complimentary and alternative therapy to reduce the dysmenorrhea among adolescent girls. It can be done for any settings.

### **6.3 Nursing implications**

The findings of the study have several implications on nursing practice, nursing administration, nursing education, and nursing research that can be used in the following areas of profession.

#### **Nursing practice**

- The nurse can learn accurate assessment of dysmenorrhea with use of numerical pain scale among adolescent girls in the ward.
- The nurse will reinforced to practice pelvic bridge exercise in personal and professional interactions with family members.
- The nurse can teach the benefits of pelvic bridge exercise to reduce dysmenorrhea among adolescent girls in clinical settings and community settings.

#### **Nursing education**

- Nursing colleges can educate the students to learn about the women health specific issues and problems related to women to be included in nursing curriculum.
- Periodically can be published on the newer paradigm of women health services issues related to dysmenorrhea.
- Teaching personnel's can arrange training programme for students to participate pelvic bridge exercise training.
- Students will periodically evaluated for their level of dysmenorrhea in personal and professional interactions by nursing educators.



### **Nursing administration**

- Nurse administrators can provide an opportunity for nurses to attend pelvic bridge exercise training programme to reduce dysmenorrhea among adolescent girls.
- Nurse administrators can conduct in-service education on pelvic bridge exercise training to reduce dysmenorrhea among nurses.

### **Nursing research**

- Nurse researchers have to develop newer tools to determine dysmenorrhea levels among adolescent girls.
- The study findings will encourage, further research studies on the effectiveness of pelvic bridge exercise to reduce dysmenorrhea among adolescent girls.
- Based on the same study, more research can be conducted on the effectiveness of pelvic bridge exercise to reduce dysmenorrhea.

## **6.4 Recommendations**

Based on the findings of the study, the recommendations offered for future research were

- A similar study can be conducted, replicated on a large sample to generalize the study findings.
- A similar study can be conducted as comparative study between students studying in Government schools and private schools.
- A similar study can be conducted in the same setting by using post test only design.
- A similar study can be conducted with experimental research design having control group and experimental group.

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# *APPENDICES*

## APPENDIX-I

### Ethical Committee Approval Letter

Ref.No.10189/E1/5/2014

Madurai Medical College,  
Madurai -20. Dated: 13.10.2014.

Institutional Review Board/Independent Ethics Committee  
Capt.Dr.B.Santhakumar,MD (FM). [deanmdu@gmail.com](mailto:deanmdu@gmail.com)  
Dean, Madurai Medical College &  
Government Rajaji Hospital, Madurai 625 020 . Convenor

Sub: Establishment – Madurai Medical College, Madurai-20 –  
Ethics Committee Meeting – Meeting Minutes - for October 2014 –  
Approved list – reg.

The Ethics Committee meeting of the Madurai Medical College, Madurai was held on October 15th 2014 at 10.00 Am to 12.00 Noon at Anaesthesia Seminar Hall at Govt. Rajaji Hospital, Madurai . The following members of the Ethics Committee have attended the meeting.

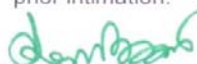
1.Dr.V.Nagarajan,M.D.,D.M(Neuro) Ph: 0452-2629629 Cell No.9843052029 <a href="mailto:nag9999@gmail.com">nag9999@gmail.com</a> .	Professor of Neurology (Retired) D.No.72, Vakkil New Street, Simmakkal, Madurai -1	Chairman
2.Dr.Mohan Prasad, MS.M.Ch. Cell.No.9843050822 (Oncology) <a href="mailto:drbkemp@gmail.com">drbkemp@gmail.com</a>	Professor & H.O.D of Surgical Oncology (Retired) D.No.32, West Avani Moola Street, Madurai-1	Member Secretary
3. Dr.L.Santhanalakshmi, MD (Physiology) Cell No.9842593412 <a href="mailto:dr.l.santhanalakshmi@gmail.com">dr.l.santhanalakshmi@gmail.com</a> .	Vice Principal, Prof. & H.O.D. Institute of Physiology Madurai Medical College	Member
4.Dr.K.Parameswari, MD(Pharmacology) Cell No.9994026056 <a href="mailto:drparameswari@yahoo.com">drparameswari@yahoo.com</a> .	Director of Pharmacology Madurai Medical College.	Member
5.Dr.S.Vadivel Murugan, MD., (Gen.Medicine) Cell No.9566543048 <a href="mailto:svadivelmurugan_2007@rediffmail.com">svadivelmurugan_2007@rediffmail.com</a> .	Professor & H.O.D of Medicine Madurai Medical College	Member
6.Dr.A.Sankaramahalingam, MS., (Gen. Surgery) Cell.No.9443367312 <a href="mailto:chandrahospitalmdu@gmail.com">chandrahospitalmdu@gmail.com</a>	Professor & H.O.D. Surgery Madurai Medical College.	Member
7.Mrs.Mercy Immaculate Rubalatha, M.A., Med., Cell.No.9367792650 <a href="mailto:lathadevadoss86@gmail.com">lathadevadoss86@gmail.com</a>	50/5, Corporation Officer's Quarters, Gandhi Museum Road, Thamukam, Madurai-20.	Member
8.Thiru.Pala.Ramasamy, B.A.,B.L., Cell.No.9842165127 <a href="mailto:palaramasamy2011@gmail.com">palaramasamy2011@gmail.com</a>	Advocate, D.No.72,Palam Station Road, Sellur, Madurai-20.	Member
9.Thiru.P.K.M.Chelliah, B.A., Cell No.9894349599 <a href="mailto:pkmandeo@gmail.com">pkmandeo@gmail.com</a>	Businessman, 21 Jawahar Street, Gandhi Nagar, Madurai-20.	Member

The following Project was approved by the Ethical Committee

Name of P.G.	Course	Name of the Project	Remarks
P.Velammal	M.Sc (Nursing) 1 <sup>st</sup> year Obstetrics and Gynecology, Madurai Medical College, Madurai.	"A study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoea among adolescent girls at Government Girls Higher secondary school, Madurai.	Approved

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain it Confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution or to Government.
2. She/He should inform the institution Ethical Committee, in case of any change of study procedure, site and investigation or guide.
3. She/He should not deviate the area of the work for which applied for Ethical clearance. She/He should inform the IEC immediately, in case of any adverse events or Serious adverse reactions.
4. She/He should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and if any Extension of time is required He/She should apply for permission again and do the work.
6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.
7. She/He should not claim any funds from the institution while doing the work or on completion.
8. She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

  
Member Secretary  
Ethical Committee

  
Chairman  
Ethical Committee

  
DEAN/Convenor  
Madurai Medical College &  
Govt. Rajaji Hospital, Madurai.

To  
The above Applicant  
-thro. Head of the Department concerned

**APPENDIX-II**

**Letter Seeking Permission for validation of Content and Tool**

**From**

P. Velammal,  
1 Year M.Sc (N),  
College of Nursing,  
Madurai Medical College,  
Madurai.



**To**

The Head of the Department,  
Department of Obstetrics Gynaecology,  
Madurai Medical College,  
Madurai.

**Through Proper Channel**

**Respected Sir,**

**Sub :** College of Nursing, Madurai Medical College, Madurai M.Sc (N) I year  
Obstetrics Gynaecology Nursing Student – Permission for conducting  
Study in Velli Vethiyar Girls Hr. Sec. School, Madurai – requested  
regarding.

I Mrs. P.Velammal, M.Sc (N) I year student, College of Nursing, Madurai Medical  
College, Madurai in partial fulfillment of M.Sc Nursing Course, have a plan to conduct a  
dissertation study topic is “A study to evaluate the effectiveness of Pelvic Bridge  
Exercise on Dysmenorrhea among adolescent girls at Govt. Girls Hr. Sec. School,  
Madurai”. I assure that I will not interfere with the routine activity of the department.

Kindly consider my request and permit me to conduct the study.

Thanking you,

Place : Madurai

Date 18.09.14

yours faithfully

*P. Velammal*

*Permission granted*  
*J. Uma Rani*  
18/9/14  
HOD  
D.O.G  
College  
Madurai

*Forwarded*  
*S.P.*  
15/9/14  
Principal  
COLLEGE OF NURSING  
Madurai Medical College  
Madurai-20.



From

Mrs.P.Velammal  
M.sc(N)-II year  
College of nursing,  
Madurai medical college,  
Madurai-20.

To

Mrs. Jayasankari.S  
Addl vice dean,  
College of Nursing,  
PIMS  
Pondicherry - 14.  
Through the proper channel,

Respected madam,


Sub: requesting opinion and suggestion for content validity of tool to **“To evaluate the Effectiveness of pelvic bridge exercise on dysmenorrhoeamong Adolescent Girls at Selected at Velli vethiyar Govt. Girls Higher Secondary School, Madurai”**.

I am second year M.sc(Nursing) student of college of nursing, Madurai medical college, Madurai. In partial fulfillment of master degree in nursing, I have selected the above topic for the dissertation to submit to the Dr.MGR Medical University, Chennai. I request you to kindly validate the tool and give your expert opinion for secondary modification and also I would be very grateful if you could refine problem statement and objectives.

Thanking you,

Madurai  
01-06-15

yours sincerely,

  
(P.Velammal)

**APPENDIX- III**  
**Content Validity Certificate**

**CERTIFICATE OF VALIDATION**

This is to certify that the tool,

Section A : demographic data

Section B : NUMERICAL PAIN SCALE

Prepared By Mrs.P.VELAAMMAL II year M.Sc(Nursing) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of **"A Study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoea among adolescent girls at Government Girls Higher secondary School, Madurai"** has been validated by me.

SIGNATURE OF THE EXPERT

NAME: DR. C. SHANMUGAM  
PROF. & HOD,  
DEPT. OF PHYSIOTHERAPY,  
Madurai Medical College,  
Madurai

DESIGNATION:

DATE: 05-08-15

**CERTIFICATE OF VALIDATION**

This is to certify that the tool,

Section A : demographic data

Section B : NUMERICAL PAIN SCALE

Prepared By Mrs.P.VELAAMMAL II year M.Sc(Nursing) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of **“A Study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoea among adolescent girls at Government Girls Higher secondary School, Madurai”** has been validated by me.

SIGNATURE OF THE EXPERT

NAME: **Dr. K.S. CHITRA MD DGO DNB**

Professor  
Dept. of O&G  
DESIGNATION: Govt. Rajaji Hospital  
Madurai.

DATE: **05/08/15**

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A : demographic data

Section B : NUMERICAL PAIN SCALE

Prepared By Mrs.P.VELAAMMAL II year M.Sc(Nursing) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of "A Study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoea among adolescent girls at Government Girls Higher secondary School, Madurai" has been validated by me.

  
SIGNATURE OF THE EXPERT

NAME: Mrs. Jayasankari

DESIGNATION: Assoc. Prof & HOD  
Dept of OBG. Nsc

DATE: 18/6/15

**CERTIFICATE OF VALIDATION**

This is to certify that the tool,

Section A : demographic data

Section B : NUMERICAL PAIN SCALE

Prepared By Mrs.P.VELAAMMAL II year M.Sc(Nursing) student of Government Rajaji Hospital, Madurai who has undertaken the study field titled of “A Study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoea among adolescent girls at Government Girls Higher secondary School, Madurai” has been validated by me.

**SIGNATURE OF THE EXPERT**

NAME: *S. Reeta*  
Prof. S. REETA JEBAKUMARI, M.Sc.(N)  
H.O.D. OBSTETRICS AND GYNAECOLOGICAL NURSING  
SACRED HEART NURSING COLLEGE,  
MADURAI 29  
DESIGNATION: *H.O.D & Professor*  
*Department of OBG Nursing*  
DATE: *15/6/15*

## APPENDIX- IV

### Informed Consent Form

#### ஓப்புதல் அறிக்கை

பெயர்

நாள்

வயது

பாலினம்

எனக்கு இந்த செவிலிய ஆய்வினை பற்றிய முழுவிபரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் என் மகன்/மகள் பங்கு கொள்வதினால் ஏற்படும் நன்மைகள் பற்றி முழுமையாக புரிந்து கொண்டேன். இந்த ஆய்வில் என் மகன்/மகள் தானாக முன் வந்து பங்கு பெற சம்மதிக்கிறேன். மேலும் என் மகன்/மகள் இந்த ஆய்வில் இருந்து எந்த சமயத்திலும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய மகன்/மகள் விவரங்களை பார்வையிட்டு அதை ஆய்வில் பயன்படுத்தி கொள்ள முழு அனுமதி அளிக்கிறேன். என்னுடைய மகன்/மகள் பெயர் மற்றும் அடையாளங்களை ரகசியமாக வைத்து கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

இப்படிக்கு

## APPENDIX- V

### Letter seeking and granting permission to conduct to the Pilot Study at Government Girls Higher Secondary School

From

Mrs.P.Velammal  
II year M.Sc (N)  
College of Nursing,  
Madurai Medical College,  
Madurai - 20.

To

The Headmaster,  
Velliveethiyar Girls Hr.Sec.School,  
Aarapalayam,  
Madurai.

Through proper channel

Respected sir,

Sub: Requesting permission to conduct pilot study - regarding.

As per the curriculum recommended by the INC and the Tamilnadu Dr.MGR Medical University all the M.Sc (N) students are required the conduct a study for the partial fulfillment of the course.

I have selected a topic on "A study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoeal among adolescent girls at Velliveethiyar Girls Higher Secondary School, Madurai". I would like to conduct the pilot study from 01.06.15 to 07.06.15. I assure that I will not interfere with the routine activity of the department.

So kindly I request you to consider, and permit me to conduct the pilot study.

Thanking you,

Madurai - 20

27.05.2015

yours sincerely,

*P. Velammal*  
(P.Velammal)

*Forwarded  
for S. Rajamoni  
27/5/15*  
Principal  
COLLEGE OF NURSING  
Madurai Medical College  
Madurai-20.



*Permission granted  
P. Mani  
3.8.15*  
HEADMISTRESS  
Velliveethiyar Corporation  
Girls Hr. Sec. School  
Ponnagaram, Madurai.16.

APPENDIX- VI

Letter Seeking and granting permission to conduct the study at Government  
Girls Higher Secondary School

From  
**P.Velammal**  
I Year M.Sc (N),  
College of Nursing,  
Madurai Medical College,  
Madurai.

To *CORPN*  
Chief Educational officer  
Tallakulam.  
Madurai.

Through proper channel

Respected Sir,

Sub: College of Nursing, Madurai Medical College, Madurai-  
M.Sc (N) I year Obstetrics and Gynecological Nursing  
student - Permission to conduct the research study at Velli  
veethiyar Girls Hr.Sec.School, Madurai request - reg.

I, Mrs.P.Velammal, M.Sc (N) I year student, College of Nursing,  
Madurai Medical College, Madurai for the partial fulfillment of M.Sc Nursing  
Course, have a plan to conduct a dissertation study on "**A study to evaluate  
the effectiveness of pelvic bridge exercise on dysmenorrhoea among  
adolescent girls at Velliveethiyar Girls Higher Secondary School,  
Madurai**". I assure that I will not interfere with the routine activity of the  
department.

Kindly consider my request and permit me to conduct the study.

Thanking you,

Place: Madurai

yours faithfully,

Date:

*P. Velammal*

P.VELAMMAL

*missi granted*  
*05/08/14*  
*3/7/14*  
மாநகராட்சி கல்வி அலுவலர்  
மதுரை

*Forwarded*  
*S.P.*  
*3/7/14*  
Principal  
COLLEGE OF NURSING  
Madurai Medical College



From

Mrs.P.Velammal  
M.sc(N)-II year  
Obstetrics & Gynaecological Nursing  
College of Nursing  
Madurai Medical College  
Madurai-20

To

Head Mistress,  
Government girls higher secondary school,  
Madurai

Through the proper channel

Respected Madam,

Sub: College of nursing, Madurai medical college, Madurai- M.sc(N) II year obstetrics and gynaecological nursing student- permission to conduct the study at Government girls higher secondary school, Madurai request-reg

I Mrs.P.Velammal, M.sc(N) II year student, college of nursing, Madurai Medical college, Madurai for the partial fulfillment of M.sc(Nursing) course, have a plan to conduct a study on " **A study to evaluate the effectiveness of pelvic bridge exercise on dysmenorrhoea among adolescent girls at Government girls higher secondary school Madurai**". I assure that I will not interfere with the routine activity of the department.

Kindly consider my request and permit me to conduct the study.

Thanking you,

Place: Madurai

Date:

yours faithfully,

*P. Velammal*



*Permission granted*

*P. Mani*  
*3.8.15*  
**HEADMISTRESS**  
Velliveethiyar Corporation  
Girls Hr. Sec. School  
Ponnagaram, Madurai.16.

*Forwarded*  
*S.P.*  
*3/7/14*  
**Principal**  
**COLLEGE OF NURSING**  
Madurai Medical College

**APPENDIX – VII**

**Socio Demographic Data**

**Instruction**

Please give a tick mark against the appropriate response in box provided

1. Age in years
  - a. 13 years
  - b. 14 years
  - c. 15 years
  - d. 16 years
  - e. 17years
  
2. Age at menarche
  - a. 9-10 years
  - b. 11-12 years
  - c. 13-14 years
  - d. 15 years and above
  
3. Family type
  - a. Nuclear
  - b. Joint
  - c. Extended
  - d. others

4. Family Income

- a. < Rs.3000
- b. Rs. 3001 - 4000
- c. Rs. 4001 - 6000
- d. Above Rs.6000

5. Birth order

- a. First
- b. Second
- c. Third

6. Mother's educational status

- a. No formal education
- b. Primary education
- c. Secondary education
- d. Higher secondary education

7. Father's educational status

- a. No formal education
- b. Primary education
- c. Secondary education
- d. Higher secondary education

8. Food pattern

a. Vegetarian

b. Non-vegetarian

9. Where do you stay?

a. Hostel

b. Day scholar

10. Do you have previous source of information on pelvic bridge exercise ?

a. Yes

b. No

if yes, spicify the source.

a. Teacher

b. Peer group

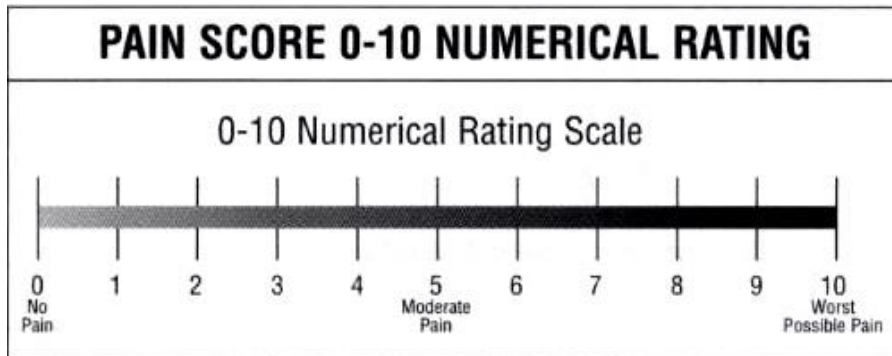
c. Health professionals

d. Family Members

**APPENDIX - VIII**

**Research Tool**

**Numerical pain scale**



**Score Interpretation**

0	-	No Pain
1 – 3	-	Mild Pain
4 – 6	-	Moderate pain
7-10	-	Severe Pain

APPENDIX - IX

சுய விவரக் குறிப்பு

1. வயது ஆண்டுகளில்

அ.13ஆண்டுகள்

ஆ.14 ஆண்டுகள்

இ.15 ஆண்டுகள்

ஈ. 16 ஆண்டுகள்

2. பருவமடையும் போது வயது

அ.9-10ஆண்டுகள்

ஆ.11-12 ஆண்டுகள்

இ.13-14 ஆண்டுகள்

ஈ. 15 ஆண்டுகள்

3. குடும்ப வகை

அ. தனிக் குடும்பம்

ஆ. கூட்டுக் குடும்பம்

இ.விரிவான குடும்பம்

ஈ.மற்றவை

4. குடும்ப வருமானம்

அ. ரூ.3000-க்கு குறைவாக

ஆ. ரூ.3001 - ரூ.4000

இ.ரூ.4001 - ரூ.6000

ஈ.ரூ.6000-க்கு மேல்

5. பிறப்பு வரிசை

அ. முதலாவது

ஆ. இரண்டாவது

இ.மூன்றாவது

6. தாயின் கல்வித்தகுதி

அ. அனுபவக் கல்வி

ஆ. ஆரம்பக் கல்வி

இ.உயர்நிலைக் கல்வி

ஈ.மேல்நிலைக்கல்வி

உ. பட்டப்படிப்பு மற்றும் அதற்கு மேல்

7. தந்தையின் கல்வித்தகுதி

அ. அனுபவக் கல்வி

ஆ. ஆரம்பக் கல்வி

இ.உயர்நிலைக் கல்வி

ஈ.மேல்நிலைக்கல்வி

உ. பட்டப்படிப்பு மற்றும் அதற்கு மேல்

8. உணவுப் பழக்கம்

அ. சைவம்

ஆ. அசைவம்

9. எங்கே தங்கியிருக்கிறீர்கள்?

அ. விடுதி

ஆ. வீடு

10. இந்த உடற்பயிற்சியைப் பற்றி நீங்கள் முன்னரே அறிந்திருந்தீர்களா?

அ. ஆம்

ஆ. இல்லை

ஆம் எனில் யாரிடமிருந்து அறிந்து கொண்டீர்கள்?

அ. செய்தித் தொடர்பு

ஆ. ஆசிரியர்கள்

இ.சகநண்பர்கள்

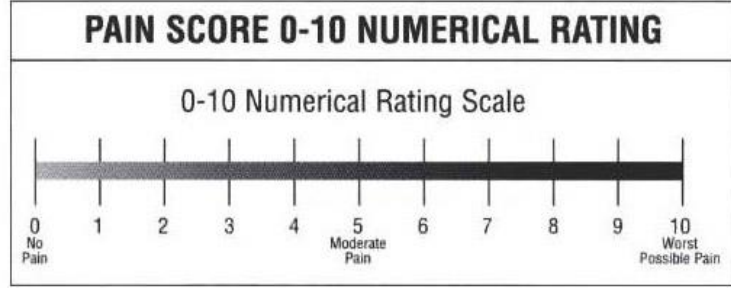
ஈ.சுகாதார பணியாளர்கள்

உ. பெற்றோர்கள்



## APPENDIX - X

எண் வலி மதிப்பு அளவீடு




விளக்கம் :

- 0 - வலியின்மை
- 1-3 - குறைந்த வலி
- 4-6 - நடுநிலையான வலி
- 7-10 - மிகவும் அதிகமான வலி

## APPENDIX - XI

**CERTIFICATE OF ENGLISH EDITING**  
**TO WHOM SO EVER IT MAY CONCERN**

This is to certify that the dissertation by VELAMMAL. P II year M.Sc(N) student, College of nursing, Madurai medical college, Madurai, who has undertaken the study field on dissertation entitled "A STUDY EVALUATE THE EFFECTIVENESS OF PELVIC BRIDGE EXERCISE ON DYSMENORRHOEA AMONG ADOLESCENT GIRLS AT GOVERNMENT GIRLS HIGHER SECONDARY SCHOOL, MADURAI". Has been edited for English language appropriateness.

SIGNATURE:   
NAME: N. SHANTHI. M.A. B.ED.  
DESIGNATION: B.T. Asst.  
INSTITUTION:



## APPENDIX - XII

**CERTIFICATE OF TAMIL EDITING**  
**TO WHOM SO EVER IT MAY CONCERN**

This is to certify that the dissertation by VELAMMAL. P II year M.Sc(N) student, College of nursing, Madurai medical college, Madurai, who has undertaken the study field on dissertation entitled "A STUDY EVALUATE THE EFFECTIVENESS OF PELVIC BRIDGE EXERCISE ON DYSMENORRHOEA AMONG ADOLESCENT GIRLS AT GOVERNMENT GIRLS HIGHER SECONDARY SCHOOL, MADURAI" Has been edited for Tamil language appropriateness.

SIGNATURE:



NAME: P. SATHIYA BAMA

M.A., M.Ed., M.Phil

DESIGNATION:

Head Mistress,

INSTITUTION:

Panchayat Union Middle School,  
Vadakkuvaiyapatti,  
Melur (Tk), Madurai-625 109.

APPENDIX - XIII

Certificate for training in pelvic bridge exercise



## APPENDIX – XIV

### **Procedure of pelvic bridge exercise**

#### **Definition**

The pelvic bridge exercise is an easy to do exercise, it is highly useful to strengthens the guatriceps, hamstrings, abdominal and buttocks. It also helps stabilize.

pelvic bridge exercise refers to the exercise consist of 10 mts warm up, 40 mts of exercise and 10 mts cool down. The exercise duration was for 1 hour and being carried out for 6 days per week for 4 weeks.

#### **Benefits of pelvic bridge exercise**

- Maintain Hormonal balance of body
- Keeps you fresh
- Alleviate stress
- Improves your concentration
- Boost up your confident
- Stengthens the paraspinal muscles, the quadriceps muscles abdomen and gluteal muscles
- Useful in a low back pain.

#### **Specific recommendations**

- While starting it should done only for a less time, then the time and intensity can be increased based the person's ability.
- It should not be done during menstruation
- It should be done on the mat not on empty ground

### **Steps of pelvic bridge exercises**

It consists of the following exercises.

1. Warm up
2. Pelvic bridge exercises [ pelvic tilt, bridge leg lift, Advanced bridging, back stretch , Pelvic lift]
3. Cool down exercises

### **Warm up**

Warm up means we are preparing the body to do exercise.

### **Step-1**



Stand straight and rotate the right hand in a clockwise direction for 10 times, then rotate anticlockwise direction for the same number of times. Repeat the same in the left hand.

**Step- 2**



Lift the right leg and rotate in an clockwise direction for 10 times and rotate anticlockwise direction for same times repeated the same in left leg.

**Step-3**



Keep your hands in an hip and rotate the neck clockwise direction for 10 times and anticlockwise direction for same times.

#### Step-4



Rotate the hip and wings the hands simultaneously in left and right side for 10 times.

#### **Pelvic bridge exercise**

##### **Step-1 [pelvic tilt]**

Lie on a flat surface such as a carpeted floor. Bend your knees place your feet flat on the floor and arms at side.



Tighten the abdominal muscles and slightly squeeze the buttocks. Then tilt the pelvis into a neutral position and raise pelvis off the floor. Hold this position for a count of 30 seconds, then return to the starting position. Perform 14 repetitions, allowing to 60 seconds rest between three sets. .



### **Step-2 [Bridge leg lift]**

Lie on a flat surface such as a carpeted floor. Bend your knees place your feet flat on the floor and arms at side.



Raise one leg bringing the foot approximately 6 inches off the floor. Hold this position for a count of 30 seconds, then return the foot to the floor. Repeat this movement with the opposite leg. Perform 14 repetitions, allowing to 60 seconds rest between three sets. .

### **Step-3 [Advanced bridging]**



Once in the bridge position, with one leg extended outwards until the knee is fully extended and raise your buttocks and tighten the abdomen . bringing the extended leg up so that thighs are parallel to the ground . Hold this position for a count of 30 seconds and then return the leg to the floor. Repeat this movement with the opposite leg. Perform 14 repetitions, allowing to 60 seconds rest between three sets. .

#### **Step 4 [Back stretch]**



Once in the bridge position, should keep moving upwards until middle and upper back are at the height of knees and then press into the inner edges of feet to make sure that knees and legs are parallel and so that legs don't flop open. As move your hands up under back, interlock them and use the pressure of hands to help get a lift, and press down and back toward hands to get that deep stretch in back. . Remain this position for 30 seconds, then return to the starting position. Perform 14 repetitions, allowing to 60 seconds rest between three sets. .

#### **Step-5 [Pelvic lift]**



Once in bridge position raise the hip towards the ceiling and hold the ankle with the hand behind. Remain this position for 30 seconds, then return to the starting position. Perform 14 repetitions, allowing to 60 seconds rest between three sets. .

## Cool down exercises

### Step- 1



Start with both legs up. Alternate lowering each leg close to floor without allowing back or pelvis to rock. . Remain this position for 30 seconds, then come to normal position. Repeat for 10 times.

### Step-2



Start flat on back with knees slightly bend, then crunch up slightly to lift shoulder blades off the floor. . Remain this position for 30 seconds, then come to normal position. Repeat for 10 times.



