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Prevalence of Primary Dysmenorrhea and Menstruation Related Issues Among Young Female Students with Hearing Impairment: An Institutional Based Cross Sectional Study

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ABSTRACT

Background: Menarche which is a most important event during female puberty. It is a physiological process in all girls and problems related menstruation is very important to discuss with them. In which Dysmenorrhea is a one of them the most common gynecological complain among adolescent girls. But it is a difficult phase especially for adolescents with disability and their families and has received very limited attention.
Objectives: If able women find menstruation is a challenge, then what about those who are deaf and mute. This study was conducted to assess severity of pain during menstruation and assess any menstrual related physiological and psychological symptoms among deaf and mute girls.
Materials & Methodology: A cross sectional school-based study was conducted among 66 deaf and mute girls (11-19) from various schools of deaf and mute at Ahmedabad and Gandhinagar district.
Result: The dysmenorrhea was reported in 63 (95.5%) out of 66 deaf and mute girls. Regarding the duration of pain, almost half of the girls (n=30) have informed pain duration for 2-3 day (45.4%), 34.8% reported <2 days, followed with 15.2%reported pain for >3 days, 4.5% girls have reported no pain during or before menstruation. Most of the girls (87.9%) reported location of pain as lower abdomen. Out of 66 among 57 girls (86.3%) reported grade 1(mild pain) according to VMSS grading for severity of dysmenorrhea.
Conclusion: Menstruation is a normal physiological phenomenon happens in all normal female and female with any kind of disability. The present study concluded that the prevalence of dysmenorrhea among deaf and mute girls is consistently high. The findings also show that majority of them have normal menstrual pattern like any other girl.

Key Words: Deaf and Mute Adolescent Girl, Menstruation, Dysmenorrhea, Lower Abdomen Pain.

INTRODUCTION

Adolescence is a period in which major physical and psychological changes occur in every young woman. Serious gynecological pathology is rare in this age group, but menstrual disturbances are most commonly noticeable and may add further disruption to this difficult phase especially for adolescents with disability and their families. Sometimes Girl with disability have received very limited attention from society .[1]

They found Physiological and psychological changes like Irregular bleeding, pain during menstruation, mood swings, and problems with hygiene often affect and complicate to manage of these adolescents. The care provider is asked to help with the pubertal

transition and the issues surrounding menstruation and reproductive health. This review will concentrate on the issues related to menstruation and that need special focus in girls with developmental disability (DD).[2] Most of the tasks in a human daily life depend on speaking and hearing, but people who do not know the sign language, which lead to problems in communication and create misinterpretation between the deaf mute and normal people. Difficulty in communication with the providers of reproductive health services and due to the lack of an understandable language between them, it is very important to know and aware about reproductive health among deaf and mute people.[3]these type of Adolescents may have difficulty raising issues of menstruation with their doctors[4] and may present with complaints of minor symptoms rather than their primary concerns .[5]

Childhood hearing problems may be hereditary or acquired which is the most common sensory deficit in humans today. According to WHO estimates in India, there are approximately 63 million people, who are suffering from Significant Auditory Impairment; this places the estimated prevalence at 6.3% in Indian population.[6]According to NSSO survey, currently there are 291 persons per one lac population who are suffering from severe to profound hearing loss (NSSO, 2001). Of these, a large percentage is children between the ages of 0 to 14 years. With such a large number of hearing impaired young Indians, it amounts to a severe loss of productivity, both physical and economic. (NPPCD) [7]

Menarche is defined as the first menstrual period, which is a most important event during female puberty. It is a physiological process in all girls and woman and during this period knowledge and awareness regarding menstruation as well as problems related menstruation are very important to discuss with them. In which Dysmenorrhea is a one of them the most common gynecological complain among adolescent girls. Dysmenorrhea is a cyclical lower abdominal or pelvic pain which may also radiate to the back and thighs; it occurs before or during menstruation, or both .[8]It begins soon after menarche. Many of girls and women experienced menstrual associated Symptoms, such as headache, vomiting, tiredness, dizziness, and diarrhea which Symptoms typically start at the onset of menstrual flow or occur within a few hours before or after onset, and last for the first 24-48 hours.[9,10]There are 2 types of dysmenorrhea: Primary dysmenorrhea refers to pain with no obvious pathological pelvic disease and almost always first occurs in women 20 years or younger after their ovulatory cycles become established and Secondary dysmenorrhea is caused by underlying pelvic conditions or pathology and is more common in women older than 20 years. [11,12]

Menstrual hygiene management is also a very important to teach every girl child which defined using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period .[13]

AIM OF THE STUDY

Dysmenorrhea is a common gynecological condition that is under diagnosed and undertreated which affects most of the female adolescents today and represents the leading cause of periodic school and college absenteeism among that population. If able women find menstruation is a challenge, then what about those who are deaf and mute. (By PallaviAmte, Published: Tuesday 28 May 2019). Real communication happens when one can understand the message and can respond in same manner. Deaf and mute are at risk of not getting sufficient, accurate and secure healthcare information or proper care due to lack of communication between the communities.[14]

The aim of this study is to deal with deaf and mute adolescent girls regarding menstruation, dysmenorrhea and any other menstrual associated problems through the following objective:

- Assess severity of pain during menstruation
- Assess any menstrual related physiological and psychological symptoms.

RESEARCH HYPOTHESIS

Menstrual knowledge, awareness about dysmenorrhea and other menstrual related symptoms among the deaf and mute adolescent girl's students will be determined and it will be improved after implementing the study.

MATERIALS AND METHODS

An institutional based Cross-sectional Study was carried out among 66 school going deaf and mute girls in the age group of 11-19 years. Study was conducted in various deaf mute school of Ahmedabad city of Gujarat states. Oral consent was taken from the parents and teachers and written consent was obtained from students after explaining the importance of study.

Subjects were included as per inclusion and exclusion criteria. The girls who attained menarche were included for the study. Girls with incapable or not knowing sign language to provide informed consent were excluded from the study. A purposeful sampling was adopted to select unmarried girls; also those who volunteered to give complete and correct information were included for the study. Students with any history of musculoskeletal disease, chronic disease like diabetes, hypertension and coronary-vascular disease (any other systemic disease), Suffering from any other gynecological or pelvic disease such as endometriosis, fibromyoma, ovarian cyst, or other related problems were excluded from the study.

All the students were explained about the protocol and purpose of the study by help of sign language knowing teachers. Requested to all the students to complete the questionnaires to gather information relating to demographic feature, menstrual pain, intensity of pain, pain characteristics, menstrual symptoms, impact of dysmenorrhea and requirement of medication during pain or not.

The demographic information and menstrual characteristics included chronological age and age at menarche, height, weight, BMI, duration of menstruation, amount of flow (pad/day), length of menstrual cycle was obtained by self-administered questionnaires. Information regarding dysmenorrhea and related symptoms were obtained by self-administered questionnaire as well as Wong-Baker FACES pain rating scale and, VMSS grading.

The Wong–Baker FACES Pain Rating Scale (Wong and Baker, 1988)

The Wong-Baker FACES scale use for self-reporting of pain which include six graphically or cartoon-depicted faces with varying facial expressions. This tool was originally created with children for children to help them communicate about their pain. The FACES scale starts at 0 with the statement “No Hurt” under a face with a broad smile and 10 with the statement “Hurts worst” and a face with a frown and tears.

VERBAL MULTIDIMENSIONAL SCORING SYSTEM (VMS) (Andresch & Milson,1982)

The VMS is a grading system developed to assess the prevalence of and severity of primary dysmenorrhea. The VMS includes four categories of severity from grade 0(none), to grade 3(severe), with each grade based on criteria regarding pain severity, effects of pain on daily activities, systemic symptoms and analgesics requirements for it. The VMS has content validity and construct validity (as evidence by significant correlation between the VMS scores and VAS pain severity scores), but little evidence of reliability.

The collected data was analyzed using SPSS version 16.in the study, socio-demographic characteristic, menstrual characteristic and prevalence of dysmenorrhea were described using frequencies, percentage, mean and standard deviation.

RESULTS

In the present study a total of 66 deaf and mute girls participated in the study of age group between 11-19 years. The dysmenorrhea was reported in 63 (95.5%) of the total girls, whereas absent in 3 (4.5%) adolescent girls.

BASELINE CHARACTERISTICS:

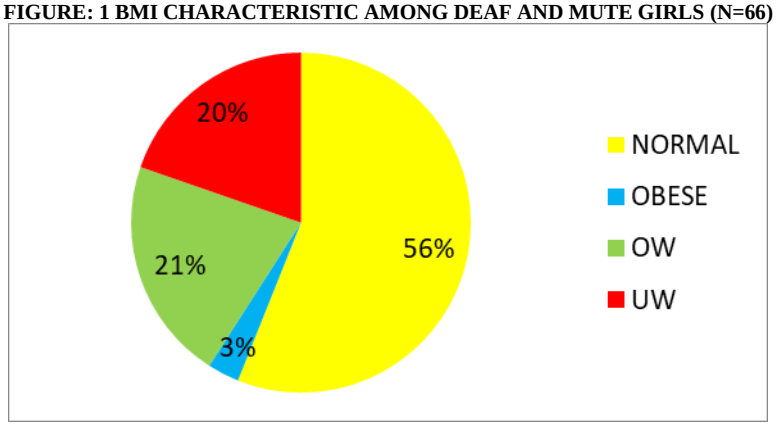
The average age of the participants was 15.74±2.24 years, ranging from 11 to 19 years. Around 44.1% (29) were in the age range of 11 to 15 years and 55.9% (37) were between age ranges of 16 and 19 years. Majority of girls are under age group16-19 years. (Table: 1)

In present study Mean BMI of the participants was 22.22±1.5 kg/m^2. More than half of the participants (56%) had a normal BMI, whereas underweight and overweight categories had almost equal distribution with 21% and 20%, respectively and 3% obese. (Table: 1, Figure: 1)

TABLE: 1 BASELINE CHAARCTERISTIC OF THE STUDY POPULATION (N=66)

VALUES ARE PRESENTED AS A MEAN & STANDARED DEVIATION				
PARAMETERS	**AGE (years)**	**HEIGHT (cm)**	**WEIGHT (kg)**	**BMI (wt/ht^2)**
Mean	15.7424	146.9242	43.6818	22.2205
SD	2.24849	8.10187	10.77056	1.57570

FIGURE: 1 BMI CHARACTERISTIC AMONG DEAF AND MUTE GIRLS (N=66)



MENSTRUAL CHARACTERISTICS

Details of menstruation & pain namely age of menarche, duration & length of menstrual cycle, onset, duration, type and location has been presented as follows:

AGE OF MENARCHE

The average age of menarche was reported as 12.12 ± 1.69 years (ranging from 11 to 19), majority of the participants (51.5%) fall between 12-13 years, 15.1% fall between 14-15 years remaining 3.1 % had started menstruating after the age of 15 and. Majority of girls fall under the reference category of 12–14 years for age of menarche; therefore, the difference between age at menarche and dysmenorrhea was not significant ($P > 0.1$).

DURATION OF MENSTRUAL CYCLE

Majority of girls (95.5%) have reported ideal menstrual cycle < 7days and remaining 4.5 % girls reported >7 days long menstrual cycle.

LENGTH OF MENSTRUAL CYCLE

Among the 66 participants, the average duration of the menstrual cycle was 29.8 ± 3.3 days. A large chunk of students (75.8%) had menstrual cycle duration of 29 to 35 days, which is considered as normal. Since a very small number (7.6%) had cycle length >35 days and remaining 16.7% had cycle length between 22 and 28 days, no significance could be established with dysmenorrhea.

ONSET AND DURATION OF PAIN:

Most of the girls reported onset of pain prior one or two days of menstruation as well as first day of menstruation 33.3% & 57.6% respectively. Remaining of the girls had no pain (3%) and start second or third day of menstruation (3%).

Regarding the duration of pain, almost half of the girls (n=30) have informed pain duration for 2-3 day (45.4%), 34.8% reported <2 days, followed with 15.2%reported pain for >3 days, 4.5% girls have reported no pain during or before menstruation.

NUMBER OF PADS USE PER DAY:

Once sanitary pads become wet, it should be changed immediately. If not, it can cause irritation on the inside of the thighs and can lead to infections. Table 3 showed majority (72.7%) were using 2-3 absorbent sanitary napkins during menstruation

TABLE: 2 FREQUENCIES AND PERCENTAGE DISTRIBUTION BASED ON MENSTRUAL HISTORY

SR NO	MENSTRUAL CHARACTERISTICS		N(66)	%	Mean	SD
1.	AGE AT FIRST MENARCHE	<12	20	30.3	12.12	1.69
		12-13	34	51.5		
		14-15	10	15.1		
		>15	02	3.1		
2.	DURATION OF MENSTRUAL CYCLE	<7 DAYS	63	95.5	1.05	0.21
		>7 DAYS	3	4.5		
3.	NO OF PADS CHANGED PER DAY	<2	16	24.2	2.00	1.57
		2-3	48	72.7		
		4-5	2	3.1		
		>5	0	0		
4.	LENGTH OF MENSTRUAL CYCLE	22-28	11	16.7	2.67	0.61
		29-35	50	75.8		
		>35	5	7.6		

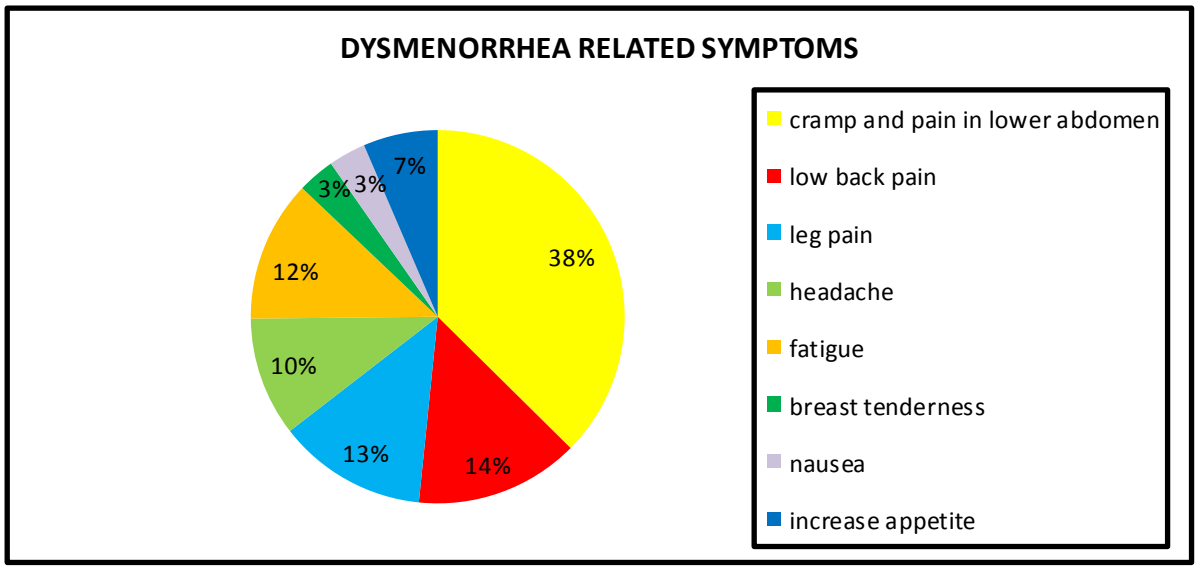
OTHER PHYSIOLOGICAL PROBLEMS DURING MENSTRUATION:

Though dysmenorrhea is largely associated with various physiological symptoms were also asked in the present study. Most of the girls (87.9%) reported location of pain as lower abdomen, lower back (30.3%), legs (33.3%), headache (24.2%), fatigue (28.8%), Nausea (7.6%), Increase appetite (7.6%) and breast tenderness (15.2%).

TABLE: 3 PHYSIOLOGICAL PROBLEMS WITH MENSTRUATION

NO.	PHYSIOLOGICAL PROBLEMS WITH MENSTRUATION		N (66)	%	Mean	SD
1.	CRAMP & PAIN IN LOWER ABDOMEN	YES	58	87.9	2.77	0.62
		NO	08	12.1		
2.	PAIN IN LOWER LEG	YES	22	33.3	1.30	0.46
		NO	44	66.7		
3.	BACKACHE	YES	20	30.3	1.33	0.47
		NO	46	69.7		
4.	HEADACHE	YES	16	24.2	1.24	0.43
		NO	50	75.8		
5.	FATIGUE	YES	19	28.8	1.29	0.45
		NO	47	71.2		
6.	NAUSEA	YES	05	7.6	1.08	0.26
		NO	51	92.4		
7.	INCREASE APPETITE	YES	05	7.6	1.15	0.36
		NO	61	92.4		
8.	BREAST TENDERNESS	YES	10	15.2	1.08	0.26
		NO	56	84.8		

FIGURE 2: PHYSIOLOGICAL SYMPTOMS RELATED TO DYSMENORRHEA



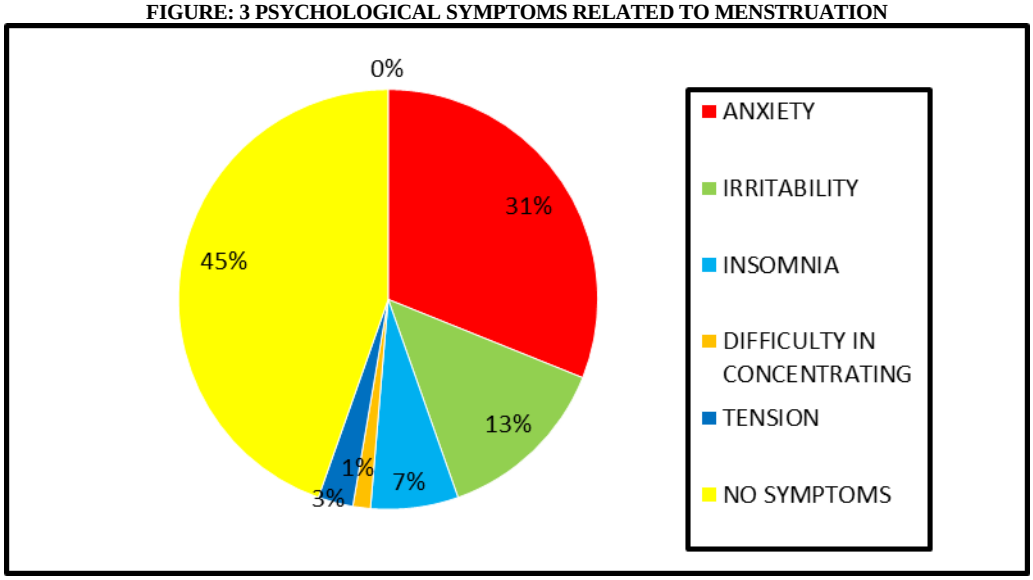
PSYCHOLOGICAL PROBLEMS DURING MENSTRUATION:

Majority of the dysmenorrhic girls are not experiencing any psychological symptoms (21.7) where others were reported anxiety (15.8%), irritability (6.6%), insomnia (3.3%), difficulty in concentrating (0.6%), and stress (1.32%) during menstrual period (TABLE:4)

TABLE: 4 PSYCHOLOGICAL SYMPTOMS RELATED TO MENSTRUATION

SR.NO	PSYCHOLOGICAL SYMPTOMS	N (66)	%	Mean	SD
1	ANXIETY	23	15.8	2.29	0.45
2	IRRITABILITY	10	6.60	2.20	0.40
3	INSOMNIA	05	3.30	2.09	0.29
4	DIFFICULTY IN CONCENTRATING	01	0.66	2.02	0.12
5	STRESS	02	1.32	1.03	0.24
6	NO SYMPTOMS	33	21.78	2.03	1.01

FIGURE: 3 PSYCHOLOGICAL SYMPTOMS RELATED TO MENSTRUATION



DYSMENORRHEA AND RELATED CHARACTERISTICS

PRESENCE OF DYSMENORRHEA: Table 5 shows Dysmenorrhea was found among 95.5% (63) of the total girls, whereas only

4.5% (3) reported no dysmenorrhea. Among them 42% student reported positive family history. Out of 63 dysmenorrhic students 22(33.3%) reported onset of pain before menstruation and other 38 (57.6%) reported onset of pain first of menstruation and remaining 3(4.5%) reported pain onset 2nd and 3rd day of menstruation.

The study revealed that majority of girls 30 (44.5%) of the dysmenorrhic girls reported to have pain for 2-3 days, 23(34.8%) for <2 days and 10 (15.2%) for 3 days respectively.

TABLE: 5 DYSMENORRHEA AND RELATED CHARACTERISTICS

SR.NO	DYSMENORRHEA & CHARACTERISTICS		n	%	Mean	SD
1.	PRESENCE OF DYSMENORRHEA	YES	63	95.5	1.95	0.21
		NO	03	4.5		
2.	FAMILY H/O DYSMENORRHEA	YES	42	63.6	1.36	0.48
		NO	24	36.4		
3.	ONSET OF PAIN	NO PAIN	3	4.5	1.80	0.72
		BEFORE MENSTRUATION	22	33.3		
		FIRST DAY OF MENSTRUATION	38	57.6		
		SECOND OR THIRD DAY OF MENSTRUATION	3	4.5		
4.	NO. OF PAIN/DAY	NO PAIN	03	4.5	2.00	1.10
		<2 DAYS	23	34.8		
		2-3 DAYS	30	45.4		
		>3 DAYS	10	15.2		

WONG BACKER FACES PAIN RATING SCALE GRADE:

Measuring pain is very difficult in deaf and mute population. The Wong-Backer FACES pain rating scale is based on the faces and written descriptions, the patient chooses the face that best describes their level of pain. Deaf and mute students can easily understand the faces and emotions they represent and point to the one that best matches their level of pain. It was asked to all the study girls who reported dysmenorrhea.

The prevalence of dysmenorrhea was very high with 95.5%, with around 24.2% of these girls who had experienced “hurts even more, and hurts just little bit” i.e., grade 6 and 2. Around 18.2% reported the pain score grade 4(hurts little more). Grade 8 & 10 (hurts whole lots and worst) remaining 16.7% and 10.6% and 6.1% girls reported no pain grade 0 (no hurts) (TABLE: 6).

TABLE: 6 WONG-BAKER FACES PAIN RATING SCALE

SCALE		N (66)	%	Mean	SD
0	NO HURT	4	6.1	5.13	2.84
2	HURTS LITTLEBIT	16	24.2		
4	HURTS LITTLE MORE	12	18.2		
6	HURTS EVEN MORE	16	24.2		
8	HURTS WHOLE LOT	11	16.7		
10	HURTS WORST	7	10.6		
Total		66	100.0		

VERBAL MULTIDIMENSIONAL SCORING SYSTEM (VMS)

The VMS grading system ranges from zero, one, two and three grade for evaluating the working ability, the systemic symptoms and analgesia is required or not.

Altogether majority of 57 students (86.3%) reported grade 1(mild pain), analgesics seldom required, others reported grade 0 (4.5%) and grade 2(9.1%).

TABLE: 7 VERBAL MULTIDEIMENTIONAL SCORING SYSTEM FOR ASSESSMENT OF DYSMENORRHEA

GRADE		N	%	Mean	SD
0	Menstruation is not painful & daily activity is unaffected	03	4.5	0.92(0.50)	0.50
1	Menstruation is painful but seldom inhibits normal activity; Analgesics are seldom required; Mild pain	57	86.3		
2	Daily activity is affected; Analgesics required and give sufficient relief so that absence from school is unusual; Moderate pain	6	9.1		
3	Activity clearly inhibited; Poor effect of analgesics; Vegetative symptoms (Headache, Fatigue, Vomiting and Diarrhea); Sever pain	0	0		
Total		66			

DISCUSSION

The Ministry of Health and Family Welfare has introduced multiple programs related to menstrual hygiene among adolescent girls to increase awareness about Menstrual Hygiene to increase awareness and access to use of high quality sanitary napkins to adolescent girls in rural areas, to ensure safe disposal techniques of Sanitary Napkins in an environmentally friendly manner.

There are multiple studies conducted in general population about examine and manage dysmenorrhea, menstrual characteristics, menstrual awareness etc... But lack of the data is available in deaf and mute population and other especially able children regarding reproductive health. Usually people avoid talking about menstruation and its related issues. At the same time present study assessed the primary dysmenorrhea, its severity, and it's related other physiological and psychological problems among deaf and mute girls. Therefore, these finding emphasize the need to develop educational awareness program to educate them also related to reproductive health.

Majority of the students in the present study expressed their presence of dysmenorrhea was 95.5% (n=66) which is in line with the 63.64% (n=22) finding observed in deaf and dumb adolescent girls by Serma Subbathra et al.[15] Individual's perception of menstrual pain and its related sign and symptoms are varies from each and every individuals. Even many young women were unable to identify and aware about the symptoms and how much pain is normal during dysmenorrhea.[16]

Many studies normal population found that the prevalence of dysmenorrhea showed a decrease with increasing age, indicating that primary dysmenorrhea peaks in late adolescence and the early 20s and the incidence falls with increasing age.[17,18,19] However, in present study we did not find any connection between age groups and the prevalence of dysmenorrhea ($P > 0.05$).

Majority of the girls in the present study were found to have normal BMI in our students .in present study, the relation between dysmenorrhea and BMI was no found significant difference ($p>0.05$) among deaf and mute girls. A longitudinal study by Ju et al. reported that U-shaped association between dysmenorrhea and BMI, revealing increased prevalence in both underweight and overweight.[20]

The present study also revealed that girls with hearing impairment have normal pattern of menstruation like other girls. The majority of the girls who were included in the present study had average 4-5 day duration of menstruation cycle been regular. Majority of girls fall under the reference category of 12–14 years for age of menarche; which found normal to menarche of normal female in India, i.e. 13.76 (Pathak, Tripathi& Subramanian, 2014).[21]Though dysmenorrhea is largely associated with various physiological as well as psychological symptoms were also asked in the present study in which Most of the girls (87.9%) reported location of pain as lower abdomen were Majority of the dysmenorrhic girls are not experiencing any psychological symptoms. In this study dysmenorrhea and its severity was assessed by wong backer faces pain scale and dysmenorrhea severity scale (VMSS). The study revealed that the prevalence of dysmenorrhea was very high with 95.5%, however according to wong backer faces score with around 24.2% of these girls who had experienced "hurts even more" and by VMSS score majority of 57 students (86.3%) reported grade 1(mild pain) of dysmenorrhea.

CONCLUSION

Menstruation is a normal physiological phenomenon happens in all normal female and female with any kind of disability. The present study concluded that the prevalence of dysmenorrhea among deaf and mute girls is consistently high. The findings also show that majority of them have normal menstrual pattern like any other girl. Future research should focus on strategies to improve pain & other symptoms related menstruation and

manage dysmenorrhea with the aim of reduced the impact of dysmenorrhea among deaf and mute girls.

Limitation of the Study

This study has some limitations. It was not possible to comparison between the associations of different independent variable to the severity grades of primary dysmenorrhea. Lack of references found regarding study topic in deaf and mute population.

Future Recommendations

From the current study findings, the following future recommendations are suggested:

- Distribute comprehensive educational booklet with sign language or picturized regarding reproductive health and explain all about menstrual health, hygiene, awareness, etc.
- Communicate with school teachers or expertise knowing signs language as well as gynecologist and conduct various program related to reproductive health and spread awareness among deaf and mute girls.

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