

# **“A STUDY TO EVALUATE THE EFFECTIVENESS OF SELF INSTRUCTIONAL MODULE REGARDING REPRODUCTIVE HEALTH ON KNOWLEDGE AND SELF-REPORTED PRACTICES AMONG ADOLESCENT BLIND STUDENTS IN SELECTED BLIND SCHOOLS OF WESTERN MAHARASHTRA, INDIA.”**

***Subtitle: EFFECTIVENESS OF SELF INSTRUCTIONAL MODULE REGARDING REPRODUCTIVE HEALTH ON KNOWLEDGE AND SELF-REPORTED PRACTICES AMONG ADOLESCENT BLIND STUDENTS OF WESTERN MAHARASHTRA, INDIA.***

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**Abstract :** This present study undertaken to empower the adolescent blind students through these two educational intervention which includes the scientific information on changing phase of life, process of growing up, hygienic practices (perineal and menstrual), prevention of reproductive tract infections, nutritional requirements during adolescent phase. Growth and development pattern is same among the sighted and blind individuals but only lack of sight in visually impaired children are unable to understand. Furthermore, sighted adolescent have enough number of resources available around them to understand about their sexual life but for the people with visual impaired the resources are not easily accessible even they cannot learn thorough observation or touching as it is against social taboos. So appropriate interventional strategies are needed to be developed to ensure that these children should know about the anatomy and physiology of the reproductive system and develop a positive attitude towards their own sexuality to form and maintain a strong and satisfactory relationship throughout their life.<sup>1</sup>

**IndexTerms:** Effectiveness, self-instructional module (SIM), reproductive health, knowledge, self-reported practices, adolescent blind students.

## **I. INTRODUCTION**

UNICEF press release reported that around 1.2 billion adolescents stand between the phases of childhood and adult out of them 243 million are in India, who make for a quarter of the India's population (34.8%)<sup>2</sup>, it means, more than 22% are comprised under the age group of 10-19 years, 12% of the adolescent between the age group of 10-14 years and 10% of the adolescent under the age group of 15-19 years who are anaemic.<sup>3</sup> The world health organization, ICD-10<sup>th</sup> revision and NPCB, India which defines the term blindness as visual acuity less than 20/200 in the better eye whereas, MoSJE India classified as corrected and uncorrected refractive errors as blindness. Worldwide vision 2020 is emphasizing on the theme to have right to sight.<sup>4</sup> Louis Braille who is invented the Braille script in tactile reading and writing style used by the blinds worldwide.<sup>5</sup> This tactile reading system is composed in various national and international languages since two centuries i.e. American, Arabic, Bharati-Devanagari, British, Chinese, Croatian, Czech, Dutch, Unified English, French, German, Italian, Japanese, Korean, Portuguese, Québécois, Spanish, Swedish, Vietnamese braille alphabet. It is used as a study material and valuable tool for communication in blind community. In India Bharati-Devanagari braille alphabet means Shree – Lippi braille transformer drives index braille/ braille embosser to print in all languages i.e. Marathi, Hindi, Sanskrit, Kannada, Gujarati, Tamil, Malayalam and all other regional script.<sup>6</sup> Hence, the research scholar had

decided to help them with the required information and developed the educational material in the form of self- instructional module in Marathi Devnagari Braille script and ascertain it on adolescent blind students. So the research scholar tried to answer the following problem as stated –

“A study to evaluate the effectiveness of Self Instructional Module vs. Audio CD-ROM Regarding Reproductive Health on Knowledge and Self-Reported Practices among Adolescent Blind Students in selected Blind Schools of Western Maharashtra, India.”

#### OBJECTIVES OF THE STUDY:

[1] To assess the knowledge and self-reported practices before and after administration of self - instructional module regarding reproductive health. [2] To find the correlation between pre-test knowledge scores with pre-test self-reported practices score and post-test knowledge scores with post-test self-reported practices of group with use of self-instructional module.[3]To associate the pre-interventional knowledge and self-reported practices findings with selected demographic variable i.e. Gender.

**ASSUMPTIONS:** Adolescent blind students may have some knowledge regarding reproductive health.

#### HYPOTHESIS OF THE STUDY:

**H0<sub>1</sub>:** There is **no difference between pre-test score and post test score of knowledge and self-reported practice** with the use of SIM as evidenced by structured knowledge questionnaire and structured self –reported practices at 0.05 level of significance.

**H1:** There is **difference between pre-test score and post test score of knowledge and self-reported practice** with the use of SIM as evidenced by structured knowledge questionnaire and structured self –reported practices at 0.05 level of significance.

**H0<sub>2</sub> for Correlation:** There is **no significant correlation between pre-test knowledge score with pre-test self-reported practices score** regarding reproductive health among adolescents’ blind students as evidenced by structured knowledge questionnaire and self –reported practices at 0.05 level of significance.

**H2 for Correlation:** There is **significant correlation between pre-test knowledge score with pre-test self-reported practices score** regarding reproductive health among adolescents’ blind students as evidenced by structured knowledge questionnaire and self –reported practices at 0.05 level of significance.

**H0<sub>3</sub> for Association:** There is **no significant association between pre-interventional knowledge and self-reported practices findings** with selected demographic variable i.e. **Gender** at 0.05 level of significance.

**H3 for Association:** There is **significant association between pre-interventional knowledge and self-reported practices findings** with selected demographic variable i.e. **Gender** at 0.05 level of significance.

#### ETHICAL CONSIDERATION

- **Approval by the institutional ethical committee (IEC)-** The study proposal has been approved by IEC of Bharati Vidyapeeth Deemed University, College of Nursing, Pune.
- **Permission from the apex concerned authority:** Written permission obtained from the director/ principal of the respective selected blind schools.
- **Consent from the participants:** Concerned authority permitted to take the adolescents in the age group of 13-18 years from residential schools. Informed written consent was taken from the students of 18 years of age and other minors’ of 13-17 years of age provided oral information by reading the consent and considered a key point for willingness to participate in the present study without felt pressurized.
- **Ethical consideration in preparation of content-** At the end of the SIM all the difficult terminologies used in content on reproductive health were described and explained.

#### CONCEPTUAL FRAMEWORK

**Dr. Nola J. Pender** (2011) –HPM-This model is particularly directed towards the developing resources to maintain the individuals’ well-being<sup>7</sup>. It has mainly three variables based on health promoting behaviors which includes the components of model such as

**Individual characteristics and experience , Behavior- specific cognitions and affect and Behavioral outcome**

**Review of Literature: presented under the following headings-** 1. Literature related to prevalence of adolescents reproductive health problems.2. Literature related to existing knowledge and practices related to reproductive health among adolescent.3.

Literature related to effectiveness of various educational interventions on reproductive health based on knowledge, attitude and practices among adolescent.

Research Methodology- The present study was carried out on a quantitative basis, "Quasi-experimental two group-pre-test-post-test-designs".

#### VARIABLES

**Independent Variable**-Self-instructional module (SIM)

**Dependent variable**-Knowledge and Self-reported practices.

#### RESEARCH SETTING

##### The setting for the final data collection-

Blind Schools from the districts of Pune (3), Satara (1), Kolhapur (1), Sangli (1) and Solapur (2).

#### POPULATION (TARGET POPULATION)

In this study, population consists of all blind adolescents.

##### SAMPLE (ACCESSIBLE POPULATION):

In this study the samples were accessible adolescent Blind students from selected Blind Schools from Western Maharashtra.

**SAMPLING CRITERIA:** For present study following inclusion and exclusion criteria were set-

##### Inclusion Criteria:

- Blind adolescent in the age group of 13-18 years.
- Those who can read Marathi Braille script.
- Those who can hear Audio-CD ROM
- Girls who attained menarche

##### Exclusion criteria:

- Those who are sick on the day of data collection.
- Those who are medically declared deaf.
- Those who are mentally challenged.

##### SAMPLE SIZE:

The appropriate sample size for a study was determined by estimated prevalence of the variable of interest that was the rate of adolescent blind students' i.e. 0.08%. The desired level of confidence and absolute precision (acceptable margin of error) was assumed to be 5% (0.05). So required sample size for the present study as per calculation is 112. Taking the factors into consideration those 112 samples for administration of SIM. **Calculation of Sample size by power analysis formula  $[n=t^2 (P (1-P)/D)^2]$**

##### SAMPLING METHOD

- Researcher had selected the mixed method by using Multiphase approach:
  - 1st phase-
    - Western Maharashtra region into zones for the selection of cities as Pune, Satara, Kolhapur, Sangli and Solapur.
    - Further, random assignment of cities for methods of teaching i.e. SIM and Audio-CD-ROM. Therefore; no chance for participants being contaminated in the study.
  - 2nd phase- **non-probability convenience sampling technique** was used in this study. Samples were easy to contact and reach as they were residing in the blind school. It is also called as availability sampling.

#### DATA COLLECTION TOOL AND TECHNIQUE -

##### DEVELOPMENT OF TOOL

The present study aimed to assess the effectiveness of SIM on knowledge and self-reported practices regarding reproductive health among adolescent blind students in selected blind schools of Western Maharashtra. Thus demographic proforma, structured

knowledge questionnaire and structured self-reported practice items in Marathi Braille script was prepared. During the preparation of the tool the following steps were adopted.

#### DESCRIPTION OF TOOL

##### Tool was prepared and described in three sections -

**Section-I-** Dealt with the demographic performance of the participants characteristics. It includes age in years, gender, previous information regarding reproductive health (yes/ No), If yes; sources of information and person whom you discuss the queries related to reproductive health.

**Section-II-** Dealt with the structured knowledge questionnaire which included 24 questions after preparing the blueprint. All the knowledge items listed in the multiple-choice questionnaire was prepared in Marathi Braille script, which was calculated as 1-score for correct answer and 0-score for wrong answer. The knowledge score was plotted on the scale of three-

#### SCORING SYSTEM-

Poor-(0-8)	- <50%
Average-(9-16)	- 50-75%
Good-(17-24)	- >75-100%

**Section-III-** Dealt with the structured self-reported practice items which include male 8 practices and in female 17 practices. The practice tool was prepared separately for male (III<sup>a</sup>) and female (III<sup>b</sup>) as follows-

#### SCORING SYSTEM:

Unsatisfactory practices :( 0-5/<60%)
Satisfactory practices: (6-8/>60-100%)

#### VALIDITY

- The overall suggestions on the content of the tool were obtained during the period June to October 2016.
- Opinion of the tool were received on the following-
- Section- I – demographic performance
- Section-II- Structured knowledge questionnaire
- Section-III (a) and III(b)- Structured self-reported practice items.
- Teaching Material- SIM on reproductive health.
- Validity of the tool was established by 30 experts out of whom 27 experts have given the tool back after validation.
  - SIM in Marathi braille script which was validated by the director of Braille press and Experts established the validity of the tool through certification of the tool. tool were ready to ascertain the data from the participants.

#### Section-IV- Construction of Self- instructional module, structured knowledge questionnaire and structured self-reported practice in Marathi braille script and Audio-CD-ROM-

The methods of teaching material and questionnaire were prepared by using the following steps-

##### 1. Development of Self-Instructional Module-

- SIM on adolescent's reproductive health was prepared on 10 topics which were selected through the extensive reviews and experts suggestions after the content validity and finalize the content of the topic in English and translated in Marathi.
- Marathi editing done from the expert with certification of the editing.
- Final Marathi draft on adolescent reproductive health was given to the NFBM Braille publishing center, Alandi which is run by the national Federation of the Blind, Maharashtra for development of the SIM, structured knowledge questionnaire and self-reported practices in Marathi Braille script.
- The draft of SIM, structured knowledge questionnaire and self-reported practices in Marathi Braille script by using **Arial Unicode MS with 18 No font size.**

- The Authentication certificate was received by the NFBM braille publishing center, Alandi on 27/06/2017 for the accuracy of the content.
- The participants were asked to spend at least one hour daily to read the self-instructional module.
- 2. **Answer Key-** The key was prepared by the researcher in Marathi language.
- 3. As researcher prepared the instructional manual in braille script and audio-CD-ROM it was expected that the educational material was intended for individual blind adolescent student, self-instruction use as many times as needed, with the necessary interruptions as at the same time the instruction was given on its use.

#### RELIABILITY

The reliability of tool was determined by administering the Knowledge and practice questionnaires to 20 samples on dated 24<sup>th</sup>-25<sup>th</sup> August 2017. The time taken per respondent was 30 to 45 minutes. The reliability coefficient was calculated by using test split half method as total score of each item for each observation is correlated and then compared to the variance for all individual item score.

The reliability coefficient 'r' was found to be-

- The reliability of tool was determined by administering the Knowledge and practice questionnaires to 20 samples on dated 24<sup>th</sup>-25<sup>th</sup> August 2017.
- The time taken per respondent was 30 to 45 minutes.
- Split half method as total score of each item of knowledge and self-reported practices questionnaires.
- **Structured knowledge questionnaire in Marathi Braille r=0.84**
- **Structured self-reported practice questionnaire in Marathi Braille**
- **0.75 for males and 0.83 for female**, hence it was found to be reliable.

The purpose was to determine the clarity of item; difficulty in understanding the items and to ensure the reliability and feasibility of the tool.

#### PILOT STUDY

- Pilot study was conducted on 12 samples from the 10<sup>th</sup> January 2018-24<sup>th</sup> January 2018 i.e. 15 days interval between the pre-test and post-test was kept as these group need the time more than sighted students to go through the braille reading. The findings of the pilot study revealed that the tool was reliable and it was feasible to conduct the final study and did not reveal any major problem as it gave a better insight to the investigator.

#### PROCEDURE FOR DATACOLLECTION:-

The final study was conducted from 25<sup>th</sup> July 2018 to 31<sup>st</sup> January 2019. Actual data collection was done on SIM group-112 by meeting the criteria for the study for samples. The data were collected through pencil point technique. The blind students were asked to just make a dot on the selected answer. The following schedule was followed for data collection. As per ethical consideration the permission obtained same as in pilot study.

#### I. Methods of data collection

- The investigators herself administered the structured knowledge and self-reported practice questionnaire to the blind adolescent students.
- **Technique for data collection-**
- **Phase-I:** Data were collected on demographic profile through individual interview.
- **Phase-II:** Pre-test was conducted on 1<sup>st</sup> day.
- **Phase-III:** Administered SIM and Audio-CD-ROM following pre-test on 1<sup>st</sup> day to selected group of participant from randomly assigned schools.
- **Phase-IV:** Post-test was conducted on 15<sup>th</sup> day
- **Phase V-** Evaluation of the knowledge and self-reported practices questionnaire by the teachers of blind schools.
- The time duration required to each sample was 30 to 45 minutes for answering on the knowledge and self-reported practice items.
- The answers were coded and recorded in the Microsoft Excel data sheet.

**PLAN FOR DATA ANALYSIS**-Data was prepared and analysis was done in descriptive and inferential statistical analysis method with the help of **SPSS 22 version**.

## PRESENTATION AND INTERPRETATION OF FINDINGS-

### SECTION I: Analysis of demographic characteristics

This section dealt with the frequency and percentage distribution of demographic characteristics of adolescent blind students with the use of SIM which were represented in table no.1.

N=112

Demographic characteristics	SIM (n=112)	
	Freq. & %	Freq.& %
<b>Gender</b>	<b>Male</b>	<b>Female</b>
	<b>56(50)</b>	<b>56(50)</b>
<b>13- 15</b>	21 (37.5)	<b>29 (51.7)</b>
<b>16-18</b>	<b>35 (62.5)</b>	27 (48.3)
<b>Yes</b>	17 (30.4)	15 (26.8)
<b>No</b>	<b>39 (69.6)</b>	<b>41 (73.2)</b>
<b>If yes, Sources of information</b>		
Family members	1 (5.9)	2 (13.3)
Friends	<b>11 (64.7)</b>	4 (26.7)
Residential school caretaker	5 (29.4)	<b>9 (60)</b>
Friends	<b>24 (42.9)</b>	17 (30.4)
Mother	7 (12.6)	5 (8.9)
School teachers	5 (8.9)	9 (16.1)
Residential school caretaker	10 (17.8)	<b>19 (33.9)</b>
Doctor	10 (17.8)	6 (10.7)

The above table no.1. Shows the findings as following-

**Gender-** In the present study, 56(50%) males and females 56(50%) adolescent blind students were selected in each group with use of SIM **Ages in years**-In a group with use of SIM, majority of males (62.5%) were from the age of 16-18 years, and females (51.7%) from the age of 13-15 years, **Previous information regarding reproductive health**-In a group with use of SIM, majority of male adolescent blind students (69.6%) did not receive the information on the reproductive health previously, only (30.4%) of males received information, similarly; majority of females (73.2%) did not receive the information, only (26.8%) of females received information on reproductive health previously. **Person with whom do you discuss your queries related to reproductive health**-In a group with use of SIM, majority of male adolescent blind students i.e.(42.9%) had friends to discuss their queries related to RH whereas; in a group with use of SIM, majority of the female adolescent blind students i.e. (33.09%) had residential school caretaker with whom they discuss their queries related to RH and the remaining participants in a group with use of SIM, males and females discussed their queries with their parents, school teachers and doctors.

### SECTION-II

It dealt with the analysis of knowledge and self reported practices among adolescent blind students before and after administration of self-instructional module on 1<sup>st</sup> day and 15<sup>th</sup> day. The knowledge domain measured through structured knowledge questionnaire in Marathi Braille script which includes 24 MCQ's and self-reported practices were measured through structured self-reported

practice items in Marathi Braille script which was prepared separately for male it includes 08 practices and for female it includes 17 practices on reproductive health.

**Table No-2. Knowledge assessment related to reproductive health according to pre and post intervention among male adolescent blind students with use of SIM-**

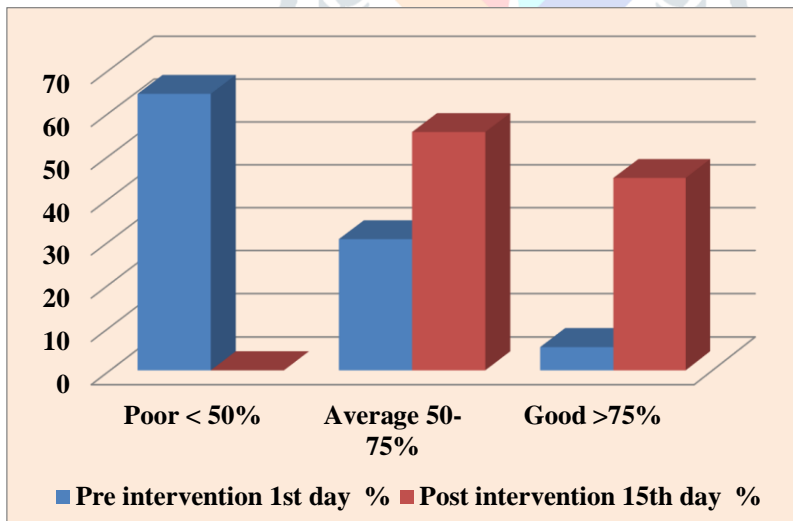
**n=56**

Level of Knowledge score	Pre intervention (1 <sup>st</sup> day) Freq. & %	Post intervention (15 <sup>th</sup> day) Freq. & %	Z value	p value	Result
Poor / (0-8) / < 50%	36 (64.28)	0 (0.00)	14.291	<.00001	* Significant
Average / (9-16)/ 50-75%	17 (30.36)	31 (55.36)			
Good/ (17-24) >75%	3 (5.36)	25 (44.64)			
Total	56	56			

The above **table no.2** revealed the findings that in pre-intervention test majority 64.28% of participants had shown poor knowledge, 30.36 % had obtained average score and 5.36% of students shown good knowledge whereas, in post-intervention test there were no participants had shown poor performance; moreover, 55.36% of students had shown average knowledge and 44.56% had obtained good score in knowledge domain.

As well as ‘Z’ test were applied for comparison between pre-post so it was found to be statistically significant as the corresponding p value as <.00001, which is less than at the level of significance 0.05.

**This shows that male blind students’ knowledge is increased after the administration of self –instructional module related to reproductive health. Therefore, the finding concluded that the null hypothesis H<sub>0</sub> is rejected and H<sub>1</sub> researchable hypothesis accepted.**



**Figure No.1. Bar diagram showing the significant difference between the pre-test (1<sup>st</sup> day) and post test (15<sup>th</sup> day) knowledge scores in terms of frequency and percentage among male adolescent blind students with use of self- instructional Module on reproductive health.**

Table No-3. Knowledge assessment related to reproductive health according to pre and post intervention among female adolescent blind students with use of SIM-

n=56

Level of Knowledge score	Pre intervention (1 <sup>st</sup> day) Freq. & %	Post intervention (15 <sup>th</sup> day) Freq. & %	Z value	p value	Result
Poor / (0-8) / < 50%	41 (73.22)	0 (0.00)	18.654	<.00001	* Significant
Average / (9-16)/ 50-75%	10 (17.85)	18 (32.14)			
Good/ (17-24) >75%	5 (8.93)	38 (67.87)			
Total	56	56			

The above **table no.3** revealed the findings that in pre-intervention test majority 73.22 % of participants had shown poor knowledge, 17.85 % had average score and 8.93% of female students shown good knowledge whereas, in post-intervention test there was no participants had shown poor level of knowledge; moreover majority, 67.87% of students had shown good knowledge and 32.14% had obtained average knowledge score.

As well as 'Z' test were applied by the researcher for comparison between pre-post so it was found to be statistically significant as the corresponding p value as <.00001, which is less than at the level of significance p as 0.05.

**This shows that female blind student's knowledge is increased after the administration of self –instructional module related to reproductive health. Therefore, the finding concluded that the null hypothesis H<sub>0</sub> is rejected and H<sub>1</sub> researchable hypothesis accepted.**

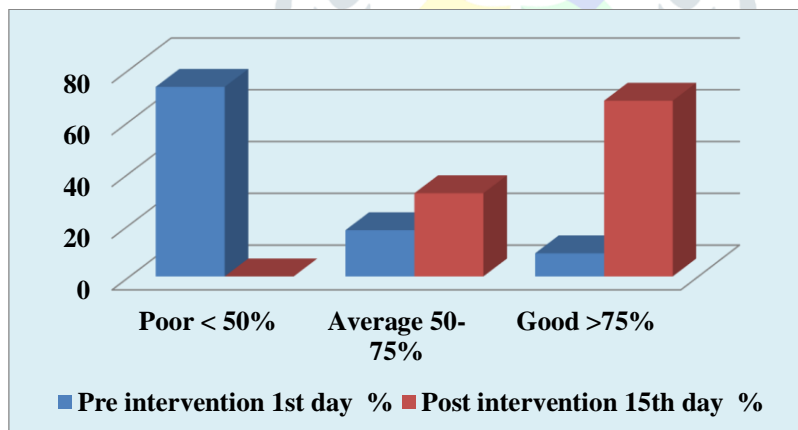


Figure No.2. Bar diagram showing the significant difference between the pre-test (1<sup>st</sup> day) and post test (15<sup>th</sup> day) knowledge scores in terms of frequency and percentage among female adolescent blind students with use of self-instructional Module on reproductive health.



Table No-5. Self-reported practices assessment related to reproductive health according to pre and post intervention among male adolescent blind students with use of SIM-

n=56

Level of practice score	Pre intervention (1 <sup>st</sup> day) Freq. & %	Post intervention (15 <sup>th</sup> day) Freq. & %	z value	p value	Result
Unsatisfactory (0-5)/<60%	52 (92.86)	8 (14.29)	13.240	<.00001	* Significant
Satisfactory (6-8)/>60%	4 (7.14)	48 (85.71)			
<b>Total</b>	<b>56</b>	<b>56</b>			

The above table no. 4. Shows that after the administration of SIM, the percentage in unsatisfactory practice were reduced from 92.86% to 14.29% and satisfactory practices are improved from 7.14% to 85.71%. So, among 40 male blind students' practices were improved related to reproductive health.

As well as Z test were applied for comparison between pre-post so it was found to be statistically significant as the corresponding 'Z' value 13.240 and p value was <.00001, which is less than at the level of significance 0.05.

This shows that self-reported practices score among the male blind students was increased with the use of self – instructional module on reproductive health. Therefore, the finding concluded with the null hypothesis H<sub>0</sub> is rejected and researchable hypothesis H<sub>1</sub> is accepted.

Table No-5. Self-reported practices assessment related to reproductive health according to pre and post intervention among female adolescent blind students with use of SIM-

n=56

Level of practice score	Pre intervention (1 <sup>st</sup> day) Freq. & %	Post intervention (15 <sup>th</sup> day) Freq. & %	z value	p value	Result
Unsatisfactory (0-10)/<60%	53 (94.64)	26 (46.43)	7.333	<.00001	*significant
Satisfactory (11-17)/>60%	3 (5.36)	30 (53.57)			
<b>Total</b>	<b>56</b>	<b>56</b>			

The above table no.5 shows that after the administration of SIM, the percentage in unsatisfactory practices were reduced from 94.64% to 46.43% and for satisfactory practices are improved from 5.36% to 53.57%. So, among 16 female blind students' practices was improved related to reproductive health.

As well as Z test were applied for comparison between pre-post intervention, so it was found to be statistically significant as the corresponding 'Z' value 7.333 and p value was <.00001, which is less than at the level of significance as 0.05.

This shows that among the female blind students self-reported practices score was improved with the administration of self –instructional module on reproductive health. Therefore, the finding concluded with the null hypothesis H<sub>0</sub> is rejected and researchable hypothesis H<sub>1</sub> is accepted.

## SECTION-III

This section dealt with the analysis of the correlation between the pre-test knowledge score with pre-test self-reported practice score and post-test knowledge score with post-test self-reported practice score among adolescent blind students on intervention of self-instructional module related to reproductive health.

**Table No.6. Shows the Correlation between the pre-test knowledge score with pre-test self-reported practices in a group with use of self-instructional module among adolescent blind students**

n=112

Gender	Karl's Pearson correlation coefficient(r)	t value	p value	Significance level at -1 or +1
Male	0.057	12.821	0.00001	*Significant
Female	0.229	2.652	0.00046	*Significant

The above **table No.6.** shows the findings that in male adolescent blind students for pre-test knowledge score and pre-test self-reported practices shows **positive correlation** but the relationships between the pre-test knowledge score with pre-test self reported practices is **low degree of significant, whereas,** in female adolescent blind students pre-test knowledge score and pre-test self-reported practice shows **positive correlation** but the relationship between the pre-test knowledge score with pre-test self reported practices is **low degree of significant.**

**This proves that the hypothesis H<sub>1</sub> is accepted and H<sub>0</sub> is rejected that means as adolescent blind students' knowledge was poor hence their practices was also very poor before administration of SIM.**

**Table No. 7. Shows the Correlation between the pre-test knowledge score with pre-test self-reported practices among adolescent blind students in a group with use of Audio-CD ROM-**

n=112

Gender	Karl's Pearson correlation coefficient (r)	t value	p value	Significance level at -1 or +1
Male	0.293	14.125	0.00001	**Highly Significant
Female	0.517	1.382	0.085	Not Significant

The above **table No.7.** Findings revealed that in male blind students for pre-test knowledge score with pre-test self-reported practices shows **positive correlation** but the relationships between the pre-test knowledge score with pre-test self reported practices is **high degree and highly significant, whereas,** in female adolescent blind students for pre-test knowledge score with pre-test self-reported practices is **not significant .**

**This proves that the hypothesis H<sub>1</sub> is rejected and H<sub>0</sub> is accepted that means as male adolescent blind students' knowledge was good hence their practices were also improved but in female adolescents blind students knowledge was poor hence their practices were also very poor before administration of Audio CD-ROM.**

**Table No.8. Correlation between the post-test knowledge score with post-test self-reported practices among adolescent blind students in a group with use of self-instructional module -**

n=112

Gender	Karl's Pearson correlation coefficient (r)	t value	p value	Significance level at -1 or +1
Male	0.044	19.179	0.00001	**Highly Significant
Female	0.210	12.606	0.00001	*Significant

The above **table No.8** findings revealed that in male adolescent blind students for post-test knowledge score with post-test self-reported practice score is **positive correlation** but **highly significant** whereas, in female adolescent blind students for post-test knowledge score with post-test self-reported practice score is **positive and low degree correlation** but **significant**.

**This proves that the hypothesis H<sub>4</sub> of correlation is accepted and H<sub>0</sub> is rejected. So it is observed that as the post test knowledge was increased hence their practices were also improved after the administration of SIM.**

#### SECTION - V

This section represents analysis on association of the pre-interventional knowledge and self-reported practices score with gender.

**Table No-9. Analysis on association between the pre-interventional knowledge scores with male and female.**

N=112

PRE-INTERVENTION	LEVEL OF KNOWLEDGE				chi square $\chi^2$	p-value at 0.05	Result
	POOR	AVERAGE	GOOD	Total			
Self Instructional Module ( n=112)							
MALE	36	17	3	56	1.0823	0.585	NOT SIGNIFICANT
%	64.28	30.86	5.36				
FEMALE	41	10	5	56			
%	33.20	17.85	8.93				
TOTAL	77	27	8	112			

Commented [AG1]:

**Table no- 9** depict the association between the pre-interventional knowledge scores with the male and female blind adolescent students in a group with use of SIM, chi square value as 1.0823 and corresponding p value as 0.585 which was higher than the level of significance at 0.05. It means **researchable hypothesis H<sub>4</sub> is rejected and null hypothesis H<sub>0</sub> accept is accepted**. Therefore, in the present study it is proved that there was no association between the pre-interventional knowledge score with gender in a group with use of SIM as evidenced by **the knowledge is not dependent on gender**.

#### DISCUSSION WITH SUPPORTIVE LITERATURE:

Blind adolescents need to be informed regarding the reproductive health same as sighted adolescents at the age between 10-18 years. The present study demonstrates that on pre-intervention of self- instructional module and audio-CD ROM regarding reproductive health on knowledge and self-reported practices were low but on follow-up intervention there was significant improvement. These findings agree with results of supportive studies in national and international level on adolescents' reproductive health. This discussion on the need of educational intervention supported by **Dr. Nilima Bhore, Vijaya R Kumbhar<sup>8</sup>** that adolescent girls have less knowledge on structural and functional area of reproductive system, menarche, menstruation and hygienic practices. So the adolescents, school teachers and also parents should be educated on the same issue. Even according to, **Mohammad Reza, et al<sup>9</sup>** evidenced that there is high prevalence rate and lack of knowledge among the adolescent males in Iran, so program is required to impart the information and skill to have healthy and safe sexual and reproductive life.

The current statistics is a result of survey conducted in 8 blind schools from 5 cities which was randomly assigned and the researcher selected the age i.e. 13 years of age is the average age for girls for onset of menstruation and other major changes and in boys for first ejaculation and other physical, emotional, moral and mental changes<sup>10</sup>. According to WHO the 18 years of adolescents comes in category of late adolescents (18-20 years) but in visually impaired adolescents biological age cannot compare with academic year. So the 18 years of participants were also included residential blind school till they complete their 10<sup>th</sup> standard education. Some milestones in adolescent blind students can be considered perfectly natural which are earlier and other may seen later than the adolescents without disability.<sup>11</sup> The results of the findings revealed that before the intervention of SIM the majority 64.28% of the male adolescents blind students were had poor knowledge which has changed to 55.36% average knowledge and those were in 30.36% of average score changed to 44.56% good knowledge and no one had poor knowledge score after the SIM intervention which shows the significantly increase in knowledge domain.

The 40 male blind adolescent's practices on perineal hygiene, use of cotton underwear's and health seeking behaviour during reproductive tract infections were improved to satisfactory practices from (7.14% to 85.71% ) and reduced unsatisfactory practices from (92.86% to 14.29%) as evidenced by the use of self instructional module.

Similarly; the 16 female blind adolescent's practices on perineal hygiene, use of cotton underwear's, menstrual hygiene and health seeking behaviour during reproductive tract infections like few of the participants about the vaginal irritation as they are using cotton cloths during menstruation and burning micturition, so there were improved to satisfactory practices from (5.36% to 53.57% ) and reduced unsatisfactory practices from (94.64% to 46.43%) as evidenced by the use of self instructional module. This results in accordance with **S.L. Chauhan, U.M. Dhonde et al;** who revealed the findings in schools and colleges the reproductive health knowledge, attitude and reproductive health problems among adolescents aged 11-19 years explored that adolescent girls mostly suffered with the menstrual problem followed by vaginal discharge and itching of genitalia.

#### CONCLUSION:

The study findings further conclude with strengthening and promoting for the sex education under the content of adolescent reproductive health. It requires a organized and hard efforts to aware the young people about the sexual issues. All the vulnerable population is required the proper information. The encouraging interpretation drawn by the researcher is blind adolescents are not getting the proper education due to lack of accessible resources on this issues leading to lack of knowledge and scientific information through proper channel. In India, Majority of the visually impaired and sighted youths need help of the health planners, care takers, school teachers, parents and NGOs to prepare schemes for welfare of this vulnerable population. The researcher tried to meet the need of the blind adolescents to broach the subject 97on reproductive health by developing and implementing the self instructional module in Marathi braille script and audio- CD ROM in Marathi language and the result revealed that both are equally effective among the male and female blind adolescent students as there is significant improvement in the knowledge and self-reported practices.

Apart from the study process when researcher had talked with the few participants from all the blind schools and verbalized that they did not have much information regarding the reproductive health; it was only when they discuss with their queries with the doctors during the health visit even the councillor and school teachers and care takers are not able to give information but after this intervention of educational materials they were received the information as they were seeking earlier.

The researcher further would like to share that the attitude of few directors were negative as reproductive health issue was not viewed in a positive way. Researcher faced difficulties to sought the permission from the blind schools, but the educational material were given for reference and after that only the were really appreciated the effort and permitted to conduct the study. During this experience the researcher felt that the researcher should have the characteristics as intellectual curiosity as to answered the questions about the knowledge and self-reported practices of the blind adolescents by creative thinking for preparation of SIM and Audio-CD-ROM by using critical thinking as SIM is prepared in Braille informed instructional manual and Audio-CD-ROM in marathi. Researcher learns to keep the patience and discipline to push the study through and kept the intellectual honesty and sense of humor while handling the adolescent blind students as study participants.

**IMPLICATION:****Nursing practice:**

The study conclusion would give insight to the hospital based Midwives, pediatric nurses and student nurses collectively to play a vital role in expanding the adolescents reproductive health services by using this self-instructional module in Marathi devnagari script and audio-CD ROM and make them available to all the admitted adolescents and young adults, with opportunity for follow up- discussion with their queries as this method can be intervene along with their regular nursing care as supplementary remedy administered in the ward.

**Nursing Education:**

This Self-instructional module can be used by the Nurse –educators. Nurse educators can plan the scientific sessions for the student nurses as they are also need the information regarding reproductive health at the college level as well as these students nurse can impart the same sessions during clinical settings

**Nursing Administration:**

**At college level:** Curriculum can be revised by recommending to the management committee of board of studies and faculty of Nursing to add the topic of “Reproductive health” in the midwifery and community course plan for the student nurse in their pre-service training.

**At Hospital level:**

The director of Nursing and nursing personnel has the accountability to train the nurses as a part of the continuing nursing education, conference, or in-service education programme.

**Nursing Research:**

This research report will be helpful to the research scholars (UG/PG/PhD) to refer the research methodology even they will get an idea of preparation and implementation of self-instructional module during their tool preparation and the recommendation can be used for the future research project.

**STRENGTHS AND LIMITATIONS:****STRENGTHS:**

1. This is the first study to evaluate a reproductive health as in the form of self-instructional module in Marathi braille script among adolescent blind students in Western Maharashtra.
2. This study evaluated the reproductive health knowledge and self-reported practices among the male and female comprised at the age group between 13-18 years.
3. The Self-instructional module resulted in significant improve in knowledge and self-reported practices as hypothesized.
4. The same educational material should be implemented for all the adolescent blind students in other regions of Maharashtra.
5. Developed research material on reproductive health for the adolescents’ blind students would be available for health orientation and education in blind schools. This make easily accessible to the information.

**LIMITATIONS:**

1. This study is limited to the blind adolescent students, who enrolled in residential blind schools of western Maharashtra.

**RECOMMENDATIONS**

1. Longer interventions may be needed to significantly improve the Knowledge and practices among this group in all over India by using the same educational packages in different braille language respectively.
2. In addition to the findings emphasis that information on reproductive health along with the healthy hygienic and sanitary practices should be included in the school curriculum and that there should be better communication between the blind students and school teachers and care takers. School teachers and care takers as well as the parents should be trained on the reproductive health.
3. Well-informed scientific information should be delivered continuously to this vulnerable group.
4. Nurse researcher can work as a councilor in regular and residential blind schools to conduct the sessions on sexual and reproductive health on regular visits.
5. Web-based internet resources like watapps face book, web pages, blogs, bulletin Newspapers and chartrooms considering the affordable, availability and ease of use and confidentiality of online resources, so these sources can be used to provide the information on reproductive health and can reach to the potentially large number of participants worldwide.

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