

# Effectiveness of Self-instructional Modules on Knowledge Regarding Side-effects of Self-medication among Adolescents

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## ABSTRACT

**Introduction:** Self-medication is an old practice and may be defined as drug acquisition and consumption without physician's advice for diagnosis, prescription, or treatment monitoring.

**Aim:** To evaluate the effectiveness of self-instructional module on knowledge of side-effects regarding self-medication among adolescents.

**Materials and Methods:** The present study with pre and post-test design was conducted on 70 adolescents selected from Wardha, Maharashtra, India. The adolescents were selected based on non probability convenient sampling technique. Descriptive statistics were used to analyse the data. Paired

t-test was used to compute the mean, Standard Deviation (SD) and mean percentages. The unpaired t-test and one-way ANOVA were used to associate the demographic variables with level of knowledge.

**Results:** Majority of the subjects were in the age group of 17 years and were females. Pre-test mean score was 10.91 and post-test mean score was 19.03. The effectiveness of the self-instructional modules on the knowledge regarding side-effects of self-medication was statistically significant ( $p=0.034$ ).

**Conclusion:** The current study revealed that a self-instructional module as a mode of teaching on side-effects of self-medication effectively improved the knowledge level of adolescents.

**Keywords:** Adverse drug event, Awareness, Drug administration, Planned teaching program, Population, Self medicate, Youth

## INTRODUCTION

Self-medication is a global occurrence and a possible factor contributing to the resistance developed by human pathogens to antibiotics. Different people have different reactions or harmful effects on the body, both physiologically and psychologically. Mostly, adolescents do not have the required knowledge to diagnose the disease condition and to take medication by themselves. So this may lead to a chronic state and convert to a severe form of the disease which is not easily diagnosed and treatable [1].

Self-medication may be regarded as an indirect indicator of the amount of healthcare services provided. Children and adolescents are highly susceptible to substance abuse with or without medical control. The economic, political, and cultural factors contribute to the worldwide growth of self-medication. These factors have influence on aspects such as the large availability of medicines in current times; the state of health which a pharmaceutical agent may advertise for publicity, conversion of prescription drugs into Over-the-counter (OTC) drugs only; quality of healthcare; difficult access to healthcare services in developing countries. Self-medication is dangerous and it has a wide range of ill-effects which includes bleeding in the stomach, acidity, nausea, vomiting, diarrhea, constipation, dizziness, rashes, headache, dryness in the mouth, stomach pain, and blurred vision, ringing in the ear, restlessness, confusion, allergic reaction, swelling of lips, face and tongue. It may also increase blood pressure which counteracts the effect of some blood pressure medicines [2].

Self-medication is a cause of increasing concern of public health worldwide, defined as the use of a product without medical prescription or medical consultation to prevent or treat disease or symptoms or to promote health. In many cases medicine is provided by other people, generally, relatives, friends or colleagues who share both the medicine and the knowledge of its use. Both social and economic factors are responsible for this tendency, moreover can also be viewed with the light of economic globalisation and

increased product availability. Only one study reported potential adverse drug-related effects experienced by 31.1% of females and 19.6% of males [3].

Self-medication is one of the world's major health concerns and the global health community is focused on researching and monitoring it at the moment. In the last few decades, particularly in developing countries. Hence, this study was designed to study the self-medication practices and prevalence in urban Delhi, India. Self-medication prevalence was 92.8%. Self-medication was found to be more widely practiced by younger people than older people. The most widely used form of medicine was paracetamol and cough syrup [4].

### Study Objectives

- To assess the existing knowledge about side-effects of self-medication among adolescents.
- To assess the effectiveness of self-instructional module on knowledge about side-effects of self-medication among adolescents.
- To find out the association between knowledge score with selected demographic variables.

## MATERIALS AND METHODS

Quantitative research approach was adopted in the study conducted from 12<sup>th</sup> October 2019 to 14<sup>th</sup> March 2020. In the study, the researcher used the pre-experimental one group pre-test and post-test research design. Non probability convenient sampling technique was used to select 70 adolescents from a school of Wardha, Maharashtra, India. Ethical Approval was taken from Institutional Ethical Committee Board, Datta Meghe Institute of Medical Sciences (Deemed to be University), (Ref.No. DMIMS (DU)/IEC/Sept-2019/2495, Date: 12.10.2019) India. Written informed consent was taken from the parents prior to the study.

**Inclusion criteria:** Adolescents between age group of 16-19 years, available at the time of data collection and whose parents gave consent to participate in the study were included.

**Exclusion criteria:** Adolescents who were not physically or mentally fit, those having a chronic illness were excluded. Adolescents belonging to a family of health professionals or who attended any similar teaching program within six months were also excluded.

### Data Collection

The data collection instruments were demographic data and a structured knowledge questionnaire on side-effects of self-medication. The questionnaire consisted of two sections, section 1 and section 2.

Section 1: It consisted of demographic characteristics regarding adolescents, i.e., age, sex, education, monthly family income, father occupation, and mother occupation.

Section 2: It consisted of 20 multiple choice questions to assess the knowledge regarding side-effects of self-medication in adolescents.

It consisted of 20 multiple choice questions related to side-effects of self-medication and the participants were asked to tick the most appropriate answers. Each correct response was given 1 point and wrong answer was given 0. The maximum points expected were 20 and the minimum was 0. The total Knowledge score were divided into five categories as; poor knowledge (1-4 score), average knowledge (5-8 score), good knowledge (9-12 scores), (13-16 scores) very good and excellent knowledge (17-20 score). Questions were formulated in English by the principal investigator and translated to Marathi, which is the local language. The tools were also submitted to eight experts (six PhD nursing faculty and two Physician) not associated with this study. There was 100% agreement for the selection of the content. The value of the reliability of the tool was obtained through Cronbach's alpha using Statistical Package for the Social Sciences (SPSS) software version 23 and the tool was found to be reliable with the score 0.88.

A pilot study was conducted in School of Scholar Sawangi, Wardha from 9<sup>th</sup> November to 14<sup>th</sup> November 2019. The research design and tools were found feasible and practicable to conduct the final study. The main data was collected from high school and Junior College, Kangaon at Wardha district. The permission was obtained from principal of both the schools prior to conduction of the study.

### Study Procedure

The investigators introduced themselves and informed the participants about the nature of the study, to ensure better cooperation during the data collection. A pre-test was conducted by administering the structured knowledge questionnaire to the participants. They filled it and gave back within half an hour; then distributed the Self-Instructional Module (SIM) to participants. Post-test assessment was done after one week of intervention to know the effectiveness of the SIM on the level of knowledge regarding self-medication among adolescents.

### STATISTICAL ANALYSIS

Data was analysed using descriptive statistics. Paired t-test was used to compute the mean, Standard Deviation (SD) and mean percentages. The unpaired t-test and one-way ANOVA were used to associate the demographic variables with level of knowledge. The p-value less than 0.05 were considered to be significant.

### RESULTS

Majority of the participants 38 (54.3%) were in the age group of 17 years. Majority of the participants 44 (62.9%) were female. Majority of the participants 40 (57.1%) had education up to 11<sup>th</sup> standard, 22 (31.4%) had family income between Rs. 20,000-30,000, 58 (82.9%) participant's fathers were farmers and 33 (47.1%) participant's mothers were homemaker [Table/Fig-1].

Variables	Total participants (n)	Percentage (%)
<b>Age (years)</b>		
16	13	18.6
17	38	54.3
18	16	22.9
19	3	4.2
<b>Sex</b>		
Female	44	62.9
Male	26	37.1
<b>Education</b>		
10 <sup>th</sup> standard	2	2.9
11 <sup>th</sup> standard	40	57.1
12 <sup>th</sup> standard	28	40
<b>Monthly family income (in Rs.)</b>		
5,000-10,000	18	25.7
10,000-20,000	14	20.0
20,000-30,000	22	31.4
>30,000	16	22.9
<b>Father occupation</b>		
Farmer	58	82.9
Labour	11	15.7
Private employee	0	00
Government employee	1	1.4
<b>Mother occupation</b>		
Private employee	7	10.0
Homemaker	33	47.1
Government employee	1	1.4
Daily wages	29	41.4

**[Table/Fig-1]:** Percentage-wise distribution of adolescents with regards to related demographic variables.

The data depicted that there was an improvement in knowledge level with mean difference of  $8.12 \pm 2.357$  between pre-mean ( $10.91 \pm 3.225$ ) and post-mean score ( $19.03 \pm 0.868$ ). The computed p-value was 0.034.

A convenient sample of 70 subjects was drawn from the study population. The data obtained to describe the sample characteristics included age, sex, monthly family income, education of adolescent, occupation of father, occupation of mother.

Assessment of pre-test knowledge regarding side-effects of self-medication among adolescents has been mentioned in [Table/Fig-2] and assessment of post-test knowledge regarding side-effects of self-medication among adolescents is given in [Table/Fig-3]. Adolescent who had an excellent level of knowledge score were 70 (100%). The minimum score was 17 and the maximum score was 20, the mean score was  $19.03 \pm 0.868$  with a mean percentage score of 95.15.

[Table/Fig-4] shows that there is a significant difference between pre-test and post-test knowledge score interpreting effective self-instructional module on knowledge regarding side-effects of self-medication among adolescents. Mean value of pre-test was 10.91 and post-test was 19.03 and the standard deviation values of pre-test were 3.225 and post-test was 0.868. The calculated t-value was 19.77 and p-value was 0.034. Hence, it is statistically interpreted that the self-instructional module on knowledge regarding side-effects of self-medication among adolescents was effective.

Association of knowledge score of adolescents with selected demographic variables is shown in [Table/Fig-5]. Association between levels of knowledge with the demographic variables was done using likelihood ratio ( $n=58$ ). The p-value less than 0.05 was considered significant. No significant association was found between the pre-test level knowledge and the selected demographic variables.

Level of knowledge score	Score range	Percentage score	Pre-test	
			Frequency	Percentage
Poor	1-4	0-20%	2	2.9%
Average	5-8	21-40%	17	24.3%
Good	9-12	41-60%	29	41.4%
Very good	13-16	61-80%	21	30.0%
Excellent	17-20	81-100%	1	1.4%
Minimum score	3			
Maximum score	17			
Mean score	10.91±3.225			
Mean %	54.55%			

**[Table/Fig-2]:** Assessment of pre-test knowledge regarding side-effects of self-medication among adolescents (n=70).

Level of knowledge score	Score range	Percentage score	Post-test	
			Frequency	Percentage
Poor	1-4	0-20%	0	0%
Average	5-8	21-40%	0	0%
Good	9-12	41-60%	0	0%
Very good	13-16	61-80%	0	0%
Excellent	17-20	81-100%	70	100%
Minimum score	17			
Maximum score	20			
Mean score	19.03±0.868			
Mean %	95.15%			

**[Table/Fig-3]:** Assessment of post-test knowledge regarding side-effects of self-medication among adolescents (n=70).

Tests	Mean	SD	t-value	p-value
Pre-test	10.91	3.225	19.77	0.034*
Post-test	19.03	0.868		

**[Table/Fig-4]:** Percentage-wise distribution of effectiveness of self-instructional module on knowledge regarding side-effects of self-medication among adolescents (n=70).

\*p<0.05 statistically significant

Variables	No. of adolescents	Mean knowledge score	F-value	p-value
<b>Age (years)</b>				
16	13	19.00	0.218	0.986
17	38	18.97		
18	16	19.25		
19	3	18.67		
<b>Sex</b>				
Female	44	19.18	3.848	0.054
Male	26	18.77		
<b>Education of adolescents</b>				
10 <sup>th</sup> standard	2	18.50	0.684	0.508
11 <sup>th</sup> standard	40	18.97		
12 <sup>th</sup> standard	28	19.14		
<b>Family income (in Rs.)</b>				
5,000-10,000	18	19.00	1.61	0.909
10,000-20,000	14	18.93		
20,000-30,000	22	19.14		
>30,000	16	19.00		
<b>Occupation of father</b>				
Farmer	58	18.97	0.973	0.383
Labour	11	19.36		
Private employee	0	00		
Government employee	1	19.00		

Occupation of mother				
Private employee	7	18.71	0.368	0.776
Homemaker	33	19.03		
Government employee	1	19.00		
Daily wages	29	19.10		

**[Table/Fig-5]:** Association of knowledge score of adolescents with selected demographic variables.

## DISCUSSION

The aim of the study was to assess the effectiveness of self-instructional module on knowledge regarding side-effects of self-medication among adolescents. In the present study, among the 70 adolescents, 2 (2.9%) had poor pre-test score, 17 (24.3%) of them had average level of knowledge score, 29 (41.4%) of them had good level of knowledge score, 21 (30.0%) of them had very good level of knowledge score and 1 (1.4%) of them had excellent level of knowledge. The mean score was 10.91±3.225 with a mean percentage score of 54.55%. However, in post-test scores 70 (100%) of them had excellent level of knowledge score. The mean score was 19.03±0.868 with a mean percentage score of 95.15%. Hence, it was statistically interpreted that post-test knowledge score was higher than the pre-test knowledge score.

The above finding were supported by the Kale A study which included 40 caregivers of children receiving chemotherapy. The statistical data showed that there was a significant difference in mean score and standard deviation. Statistically, the values show that there is no association between scores and demographic data findings related to assessment of the effectiveness of planned health teaching related to home care of children receiving chemotherapy with Acute Lymphoblastic Leukemia (ALL) among care givers. Before pre-test, the samples were not having adequate knowledge related to home care of children receiving chemotherapy among care givers of ALL children, after the planned health teaching programme the samples gained adequate knowledge, and the post-test score was increased [5].

Narayane M and Pohekar SB, conducted a study in selected hospitals of Nagpur with a sample size of 60. The Mean score value of the pre-test was 07.57 and the post-test was 21.13 (p-value=0.001). Hence, it indicates that planned teaching was effective. The study showed that the leukaemia management education was successful in improving the awareness about management of leukaemia [6].

In a study by Shivhare N, among 40 parents of children, 2.5% parents of children possessed adequate knowledge whereas 77.5% had moderate knowledge and 20% parents of children had inadequate knowledge. After SIM the post-test knowledge score among 40 parents of children, 22.5% parents of children possessed adequate knowledge whereas 75% had moderate knowledge and 2.5% parents of children had inadequate knowledge [7].

Alo C et al., has conducted a study in 2017. The study had a total 398 samples. The number of self-medication was 375 (89.7%) and the recurrence of those who had at least one episode adverse effect. The number of the symptoms reported were itching (47.73%), blurring of vision (14.77%), and abdominal pain [8].

A study was conducted in the south Indian population and findings showed that 65% of the participant knew about side-effects of self-medication, while 35% of them were not aware of this. Appropriate knowledge is required to minimise side-effects of self-medication, which is justified, by the present study [9].

A research was conducted among the population of Saudi Arabia; which focused on the prevalence of self-medication among adolescents which was high (94.5%) vast population of the research was adolescent group [10].

The researcher suggested that the awareness and knowledge based teaching program regarding side-effects of self-medication must be provided in the society, community, and schools in a large population.

It will help to provide correct information about self-medication and reduce the number of self-medication in adolescents.

### Limitation(s)

The study was limited to the adolescents selected from Wardha, Maharashtra and evaluated only the knowledge aspect. The study could be conducted to evaluate the attitude and practice.

### CONCLUSION(S)

The present researchers found that self-instructional modules can be one of the best options for creating awareness among adolescents. Proper information about side-effects of self-medication is statistically interpreted as Self Instructional Module (SIM) was effective on knowledge regarding side-effects of self-medication among adolescents. They gain correct knowledge about side-effects of self-medication and it will help to decrease the incidence of self-medication in adolescents.

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