

**Beliefs about medicines and self-medication among patients with dental pain in outreach programs - A cross sectional study**

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**Abstract**

**Background:** Self-medication is the use of drugs to treat self-diagnosed disorders or symptoms or the intermittent or continued use of prescribed drug for chronic or recurrent disease or symptoms, and it is mostly common in developing countries. Uncontrolled use of antimicrobials without medical guidance may result in incorrect, or undue therapy, missed diagnosis, delays in appropriate treatment, pathogen resistance and increased morbidity. So, the present study aims to evaluate the relationship between beliefs about medicines and self-medication in dental pain management.

**Materials & Methods:** A cross-sectional study was among 450 participants of outreach programs in the East Godavari district. A pre-tested, pre-designed

questionnaire was used and were analyzed using the Statistical Package for the Social Sciences version 23.0 software (SPSS Inc., Chicago, IL, USA).  $p \leq 0.05$  was considered statistically significant.

**Results:** Among 450 participants, 81.1% complain of pain in tooth/teeth region. 341 (75.8%) patients experienced pain for one week or longer. The majority of the participants had mild (52%) and episodic (78.9%) dental pain. Participants with beliefs about medicines showed highest mean score (3.6) for general overuse.

**Conclusion:** In the present study the patients attending outreach programs who practiced self-medication had stronger beliefs about general overuse and harm of the medicines and weaker beliefs about the benefits of medicines; in spite of having good knowledge and beliefs

about medicines, they still are practicing self-medication for dental pain.

**Keywords:** Self-medication, Dental pain, Analgesics, Antibiotics.

### Introduction

Dental pain is the most commonly reported oral health problem that can have a negative impact on normal physical health and psychological well-being.<sup>1</sup> William Osler mentioned that "a desire to take medicine was perhaps the greatest feature of man which distinguished him from animals." Self-medication is defined as using medications without consulting a doctor regarding the drug's indication, dose, and duration.<sup>2</sup> According to the world health organization(WHO), self-medication is the selection and use of medicines by individuals to treat self-recognized diseases or symptoms.<sup>3</sup> Self-medication is a universal phenomenon and practiced worldwide with a varied frequency of up to 68% in European countries, while in the Indian sub-continent, prevalence rates of 31% in India.<sup>5</sup> In India, almost every pharmacy sells drugs without a prescription, a phenomenon seen in many developing countries.<sup>4</sup> Self-medication among patients with dental pain is a common practice driven by various underlying factors. Easy availability of the drugs and poor awareness leads to potentially lethal effects. Self-medication for dental pain among patients is a common practice determined by various underlying factors. It was found that beliefs about medicines lead to the practice of self-medication.<sup>5</sup> Self-medication has been observed most frequently in the countries of economic transition where the prescription legislation is not well enforced. And the drugs are freely available over the counter.<sup>6</sup>

Belief is the mental acceptance of the actuality of an idea. According to self-regulatory theory, the decision on choosing a coping action for an illness is influenced by beliefs about the possible cure of that illness. Beliefs about

medicines are commonly evaluated by the Beliefs about Medicines Questionnaire (BMQ).<sup>1</sup> BMQ can be used as the predictor of medication dependence. Beliefs about medicines were related to self-medication as these beliefs might affect a patient's decision to take a certain medicine for self-diagnosed disorders. To the best of our knowledge, there is very limited information regarding the beliefs about medicines and self-medication for dental pain. Analgesic and Antibiotics are the most frequently used medicines for self-medication in dental pain management. The main aim of this study was to evaluate the relationship between beliefs about medicines and self-medication in dental pain management.

### Materials and Methods

A cross-sectional study was conducted for 5 months from September 2019 to January 2020 among patients of outreach programs in the East Godavari district. A convenience sampling procedure was used, and a total of 450 participants were included in the study. Ethical clearance was obtained priorly from the Institutional Ethical Committee (IEC). Informed written consent was obtained from the participants. A pre-tested, pre-designed questionnaire was used.<sup>1</sup> It consists of socio-demographic details, modified dental pain questionnaire, beliefs about medicine questionnaire, type of drug, drug dosage and duration, reasons for self-medication, and hazardous effects. Inclusion criteria include healthy individuals aged 18 years and above, who were willing to give informed consent, participants who were able to give objective assessments and replies. Children and old age ( $\geq 75$  years) and physically and mentally ill and unable to participate in the study were excluded.

**Statistical Analysis:** Data was entered into the Microsoft Word Excel Sheet 2010 version and was analyzed using the Statistical Package for the Social Sciences version 23.0 software (SPSS Inc., Chicago, IL, USA). Descriptive

analysis was used for demographic variables, modified dental pain questionnaire, beliefs about medicine questionnaire, and type, dosage, and duration of drugs. The quantitative data were presented as mean and standard deviation, while the qualitative data were presented as frequencies and percentages. Chi-square test was applied  $p \leq 0.05$  was considered statistically significant.

## Results

A total of 450 patients participated in this study. Participant's socio-demographic details are presented in Table 1. Among the participants, 51(11.3%) were in the age group of  $\leq 20$  years, 144(32.0%) were in the age group of 21-50 years, and 255(56.7%) were in the age group of 51-75 years. Over half of the participants were female (69.6%). Dental pain-related characteristics of participants are reported in Table 2. Most participants complain of pain in tooth/teeth (81.1%). 341 (75.8%) patients experienced pain for one week or longer. The majority of the participants had mild (52%) and episodic (78.9%) dental pain. And 67.3% of patients reported that the pain is localized and aggravating while chewing and eating (75.1%), and only in 50% of participant's pain gets worse while drinking cold. Gum swollen gums were observed in 246(54.7%) patients, and in only 28% of individuals, the painful tooth feels like it is loose. Only 11.2% of participants had difficulty in swallowing, and most of the patients felt it difficult to sleep with tooth/teeth pain.

Beliefs about medicines are reported in Table 3. The lowest mean score (1.8) was observed for Specific-necessity, i.e., my oral health in the future will depend on my medicines for dental pain. And highest mean score (3.6) was observed for general overuse, i.e., if dentists had more time with patients, they would prescribe fewer medicines.

The level of education and type, dosage, and duration of medication used was reported in Table 4. Inappropriate

dosage was higher among both  $\leq 10^{\text{th}}$  standard and  $\geq 10^{\text{th}}$  standard participants and a statistically significant difference was observed in between appropriate dosage and duration and inappropriate dosage and duration in patients used antibiotics. Gender and type, dosage, and duration of medication used were reported in Table 5. Inappropriate dosage was higher among both males and females and a statistically significant difference was observed in between appropriate dosage and duration and inappropriate dosage and duration in patients used antibiotics.

## Discussion

The present study attempted to assess the beliefs about self medicines and self-medication among patients with dental pain with analgesics and antibiotics. Recruited participants in the present study were patients attending outreach programs, and similar studies were done by Simon et al.<sup>5</sup> and Mittal P et al.,<sup>1</sup> and in the study done by Jain et al. 3., participants included were customers visiting pharmacies. In the present study prevalence of self-medication was high in  $\geq 10^{\text{th}}$  standard (55.3%), whereas, similar findings were observed in a study done by Rawlani SM et al.<sup>7</sup> and Mittal P et al.<sup>1</sup>

In the present study, participants reported that pain originates from tooth/teeth (81.1%) and is episodic (78.9%). A similar study was done by Mittal P et al. <sup>1</sup>, who also reported that pain originating from tooth/teeth (77.5%) and episodic (77.1%).

In the present study, BMQ highest mean was observed in General-overuse, i.e., if had dentists more time with patients, they would prescribe fewer medicines; dissimilar results were observed in the study done by Mittal P et al. <sup>1</sup> in which the highest mean was observed in General-overuse, i.e., natural remedies are safer than medicines. In the present study Lowest mean score (1.8) was observed for Specific-necessity, i.e., my oral health in the future

will depend on my medicines for dental pain. Similar results were observed from the study done by Mittal P et al.<sup>1</sup>

In the present study, diclofenac was the most commonly used analgesic by a patient with dental pain. Contrary results were observed from the study done by Gandhi et al.,<sup>8</sup> Mittal P et al.<sup>1</sup>, where paracetamol was the most commonly used analgesic. In the present study, irrespective of the level of education and gender majority of participants used inappropriate dosage and duration of antibiotics, and this could be lead to antimicrobial resistance. This might be due to a lack of knowledge and awareness only a few participants reported due to the unavailability of dentists. In several studies, it was stated that inappropriate use of self-medication results not only in wastage of resources but also leads to resistance in pathogens, drug dependence in case of some types of medicines, and severe adverse drug reactions owing to their repeated and chronic use over time. On the other side, if used appropriately, self-medication is seen to save lives in acute medical conditions and certain emergencies.<sup>8</sup>

### Conclusion

The practice of self-medication often has many adverse effects and can lead to many problems, including the global emergence of Multi-Drug Resistant pathogens, drug dependence, and addiction, masking of malignant and potentially fatal diseases. The study found that patients attending outreach programs who practiced self-medication had stronger beliefs about general overuse and harm of the medicines and weaker beliefs about the benefits of medicines; in spite of having good knowledge and beliefs about medicines, they still are practicing self-medication for dental pain.

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**Legend Tables**

Table 1: Sociodemographic Details of The Participants (n=450)

Age	Frequency	Percentage (%)
≤20	51	11.3%
21-50	144	32%
51-75	255	56.7%
<b>GENDER</b>		
Male	137	30.4%
Female	313	69.6%
<b>EDUCATION</b>		
≤10 <sup>th</sup> Standard	201	44.7%
≥10 <sup>th</sup> Standard	249	55.3%

Table-2: Frequency Distribution of the Modified Dental Pain Questionnaire

Items	Frequency (N)	Percentage (%)
<b>PAIN IN THE .</b>		
Tooth/teeth	365	81.1%
Gums	67	14.9%
Both	18	4.0%
<b>PAIN FOR(CHRONICITY OF CURRENT PAIN)</b>		
Less than 1 week	109	24.2%
From 1 week or longer	341	75.8%
<b>PAIN IS (DENTAL PAIN INTENSITY)</b>		
Mild	234	52.0%
Discomforting and distressing	97	21.5%
Horrible and excruciating	119	26.5%
<b>PAIN HAS BEEN(PATTERN OF CURRENT DENTAL PAIN)</b>		
Episodic	355	78.9%
Continuous	95	21.1%
<b>PAIN RADIATES TO THE SURROUNDING AREA</b>		
No	303	67.3%
Yes	147	32.7%
<b>PAIN WORSE WHEN CHEWING AND EATING</b>		
Yes	338	75.1%
No	112	24.9%

EATING OR DRINKING SOMETHING COLD MAKES PAIN WORSE		
Yes	227	50.4%
No	223	49.6%
GUMS SWOLLEN		
Yes	246	54.7%
No	204	45.4%
PAINFUL TOOTH FEELS LIKE IT IS LOOSE		
Yes	126	28.0%
No	324	72.0%
DIFFICULTY TO SWALLOW		
Yes	50	11.2%
No	400	88.8%
PAINFUL TOOTH FEELS LIKE IT IS STICKING OUT		
Yes	356	79.1%
No	94	20.9%
DIFFICULTY IN SLEEPING		
Yes	279	62.0%
No	171	38.0%

Table 3: Mean Score for Each Item of Beliefs about Medicines Questionnaire (BMQ)

Item	Mean	SD
SPECIFIC-NECESSITY		
My oral health, at present, depends on my medicines for dental pain.	2.1	1.4
My life would be impossible without my medicines for dental pain.	2.4	1.0
Without my medicines for dental pain I would be very ill.	2.2	1.3
My oral health in the future will depend on my medicines for dental pain.	1.8	1.0
My medicines for dental pain protect me from becoming worse.	2.7	1.5
SPECIFIC-CONCERN		
Having to take medicines for dental pain worries me.	2.4	1.3
I sometimes worry about the long-term effects of my medicines for dental pain.	3.1	1.5
My medicines for dental pain are a mystery to me.	2.5	1.3
My medicines for dental pain disrupt my life	2.1	1.3
I sometimes worry about becoming too dependent on my medicines for dental pain	2.9	1.5
GENERAL-HARM		

People who take medicines should stop their treatment for a while every now and again.	2.2	1.3
Most medicines are addictive.	2.8	1.3
Medicines do more harm than good.	3.4	1.2
All medicines are poisons.	2.3	1.3
GENERAL-OVERUSE		
Dentists use too many medicines.	1.9	1.0
Natural remedies are safer than medicines	2.9	1.2
Dentists play too much trust in medicines	2.2	1.0
If dentists had more time with patients, they would prescribe fewer medicines.	3.6	1.2

Table 4: Relation between education and type, dosage and duration of medication

Education	Type of medication	Appropriate dosage & duration (%)	Inappropriate dosage & duration (%)	Total	p-value
≤10 <sup>TH</sup> STANDARD	Antibiotics	76(37.9%)	125(62.1%)	201(100%)	0.02*
	Analgesic	79(39.3%)	122(60.7%)	201(100%)	0.06
≥10 <sup>TH</sup> STANDARD	Antibiotic	125(50.3%)	124(49.7%)	249(100%)	0.03*
	Analgesic	119(47.7%)	130(52.3%)	249(100%)	0.06

\*statistically significant

Table 5:Relation between gender and type,dosage and duration of medication

GENDER	Type of medication	Appropriate dosage & duration(%)	Inappropriate dosage & duration(%)	Total	p-value
Males	Antibiotic	56(40.9%)	81(59.1%)	137(100%)	0.04*
	Analgesic	55(40.2%)	82(59.8%)	137(100%)	0.9
Females	Antibiotic	138(44.0%)	175(56.0%)	313(100%)	0.03*
	Analgesic	144(46.0%)	169(54.0%)	313(100%)	0.03*

\*statistically significant