

Parental Knowledge, Attitudes, and Practices towards Self-medication for Various Oral Health-related Problems in Children: A Cross-sectional Study

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ABSTRACT

Introduction: Over the years, there has been an increase in the practice of Self-medication (SM) with over-the-counter drugs for dental conditions. Regarding paediatric patients, it is important for parents to have proper Knowledge, Attitude, and Practice (KAP) regarding SM for their children.

Aim: To assess the parental KAP towards SM for various oral health-related problems of children below 15 years of age.

Materials and Methods: A cross-sectional study was conducted at schools in Nellore, Andhra Pradesh, India, between March 2021 and January 2022. A total of 323 parents of children aged up to 15 years were included in the study. Data were collected from parents through a prevalidated questionnaire to record their demographic details and KAP of SM. Fisher's exact test was used to compare KAP of SM with the age, gender, education, and Socioeconomic Status (SES) of parents.

Results: The most common medicine and reason for which SM was practiced were pain relievers (85%) and expensive dental treatment (39.8%), respectively. The pharmacist was the most common source of information for SM (46.9%) and drug dosage (46%). There was a significant association ($p < 0.001$) between children age groups and the presentation form of medicine. Additionally, statistically significant differences were found when comparing parents' educational level and SES with dosage difference ($p = 0.01$, $p < 0.001$), route of administration of medicine ($p = 0.04$, $p < 0.002$), preference for expensive medicine ($p < 0.001$, $p < 0.001$), and reasons for not visiting the dentist ($p < 0.01$, $p < 0.001$), respectively. Furthermore, when SES was compared with course completion, a statistically significant difference was found ($p < 0.05$).

Conclusion: Knowledge regarding SM practice was lower in the low educational and low SES groups.

Keywords: Antibiotics, Dental conditions, Paediatric, Self-prescribed drugs

INTRODUCTION

Self-medication (SM) is the act of medicating oneself, either independently or based on advice from others, to treat self-recognised conditions or symptoms without the supervision of a healthcare professional [1]. The World Health Organisation (WHO) estimates that approximately 50% of patients fail to take their medications correctly [2]. Pharmacotherapy, including both prescribed and self-administered treatments, is on the rise and plays a significant role in managing oral health issues in adult and paediatric patients [3].

Despite being a crucial aspect of overall well-being, oral health is often neglected [4]. Adjusting dosage, choosing the appropriate route of administration, and considering the pharmacokinetics and pharmacodynamics of medications are all factors that need to be taken into account [3]. Therefore, when practicing SM, it becomes essential for parents to have sufficient and appropriate knowledge about medications [5].

Parents' attitudes toward illnesses and drugs can influence the use of over-the-counter medications [6]. Analgesics, antibiotics, and various multivitamin supplements are commonly prescribed to children in syrup or suspension form. This is because many parents believe that syrups offer good absorbability and flexibility and are more effective for their children. However, this parental attitude may be incorrect, as long-term use of sweetened oral medications can increase the risk of caries [7]. Additionally, parents who have a positive attitude toward SM are more likely to practice it on their children compared to those with a negative attitude [8].

SM can be practiced through actions such as reusing leftovers, sharing prescriptions with family members or friends, or relying on previous prescriptions or experiences [9]. Consequently, an alarming

trend of abuse has emerged through SM, either independently or based on others' recommendations, due to a medical model that people have learned [10].

Children, who represent a significant portion of the population receiving various medications due to common health issues, are often the victims of SM [11]. SM is commonly practiced in a children to alleviate fever or pain symptoms, often associated with a dental infections [12]. Many dosages are based on the child's age or weight, as the metabolism of drugs exhibits complex differences between adults and children. Under-dosage of a drug can lead to reduced effectiveness and the risk of drug resistance, while overdosage carries the risk of kidney and liver damage [13].

Education and Socioeconomic Status (SES) may influence parental SM. Individuals with low SES often have limited financial resources and low literacy levels, which can lead to poor understanding of the negative consequences of SM, potentially encouraging its practice. Conversely, parents from higher SES backgrounds typically have greater financial capabilities and a solid educational foundation, which enhances their understanding of the complications associated with SM [14].

Due to the limited research on SM in dentistry, particularly in children, the objective of this study is to assess parental Knowledge, Attitudes, and Practices (KAPs) regarding SM for oral health-related problems in children under 15 years of age.

MATERIALS AND METHODS

A cross-sectional study was conducted at schools in Nellore, Andhra Pradesh, India, between March 2021 and January 2022. The study protocol was approved by the Institutional Ethical Committee of

Narayana Dental College and Hospital, Nellore (IEC/NDCH/2020/P-44). The study was registered with Dr. NTR University of Health Sciences, Vijayawada, Andhra Pradesh, India (registration number D200040712).

Inclusion criteria: Parents with children below 15 years of age who were willing to participate were included in the study.

Exclusion criteria: Health workers (doctors, nurses, midwives) who had knowledge and rights to provide medical advice, parents who were mentally unable to provide valid responses to questions, and parents who were not willing to participate in the study were excluded.

Sample size calculation: Based on previous studies [4], a minimum sample size of 323 was calculated using the formula [15]:

$$N = Z^2(1-\alpha/2) p(1-p)/d^2$$

Where,

p=Expected proportion=0.7

d=Absolute error=5

1- α /2=Desired confidence level=95

Study Procedure

Data collection: Data were collected from parents who visited schools on the day of parent meetings.

Questionnaire: A 17-item questionnaire was developed based on a previous study [4] and validated by subject experts to assess parental Knowledge, Attitudes, and Practices (KAP). The questionnaire consisted of four parts: The first part included sociodemographic information such as the child's age, the respondent's relationship to the child (father/mother), the parent's age, occupation, education, and monthly family income. Socioeconomic Status (SES) was determined using the Modified Kuppaswamy scale-2020 [14]. The first part also included a question about the prevalence of SM practice. The second part comprised three dichotomous (yes/no) questions related to knowledge. The third part contained three attitude-related questions on a two-point Likert scale with "yes" and "no" options. The Fourth part contained 10 questions pertaining to the parental practice of SM.

The questionnaire was designed in both Telugu and English languages and was tested for wording, content, and appropriateness by subject experts. A pilot study was conducted with 20 parents to identify comprehension problems and to ensure that the questions aligned with the aim and objectives of the study. Appropriate changes were made, and the data collected during the pilot study were not included in the final analysis. After obtaining informed consent, data were collected from parents through face-to-face interviews conducted in a language most suitable for the respondents. Each interview took approximately 10 to 15 minutes.

STATISTICAL ANALYSIS

The data was entered into a Microsoft Excel spreadsheet in 2019, and statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 20.0 software (Chicago, IL, USA). Frequencies and percentages regarding the SM practices were tabulated. The Fisher-exact test was used to find significant differences. The level of significance was set at $p \leq 0.05$.

RESULTS

In the present study, out of 323 subjects, 172 (53.3%) were male, and the rest were females with a mean age of 35 years. In the present study, the majority of the subjects belonged to the lower middle class, and 113 participants stated that they had self-medicated their children without a prescription [Table/Fig-1].

When comparing parental KAP (Knowledge, Attitude, and Practice) of self-medication with various age groups of children, most parents presented the medicine in the form of tablets or other solid forms

| Demographic details | N (%) | Self-medicated | |
|------------------------------------------------------------------------------------|------------|----------------|------------|
| | | Yes | No |
| Child's age | | | |
| <5 years | 82 (25.4) | 19 (23.2) | 63 (76.8) |
| 5-10 years | 109 (33.7) | 44 (40.4) | 65 (59.6) |
| 10-15 years | 132 (40.9) | 50 (37.9) | 82 (62.1) |
| Child's gender | | | |
| Males | 172 (53.3) | 64 (37.2) | 108 (62.8) |
| Females | 151 (46.7) | 49 (32.5) | 102 (67.5) |
| Parent's age | | | |
| <30 years | 81 (25.1) | 27 (33.3) | 54 (66.7) |
| 30-39 years | 198 (61.3) | 69 (34.8) | 129 (65.2) |
| ≥40 years | 44 (13.6) | 17 (38.6) | 27 (61.4) |
| Parent's gender | | | |
| Father | 101 (31.3) | 38 (37.6) | 63 (62.4) |
| Mother | 222 (68.7) | 75 (33.8) | 147 (66.2) |
| Education as per the Modified Kuppaswamy scale (2020) [14] | | | |
| Profession or honors | 10 (3.1) | 0 | 10 (100) |
| Graduate | 77 (23.8) | 27 (35) | 50 (65) |
| Diploma or intermediate | 50 (15.4) | 23 (46) | 27 (54) |
| High school certificate | 60 (18.6) | 23 (38.3) | 37 (61.7) |
| Middle school certificate | 40 (12.4) | 13 (32.5) | 27 (67.5) |
| Primary school certificate | 27 (8.4) | 10 (37) | 17 (63) |
| Illiterate | 59 (18.3) | 17 (28.8) | 42 (71.2) |
| Occupation as per the Modified Kuppaswamy scale (2020) | | | |
| Legislators, senior officials and managers | 5 (1.5) | 3 (1.4) | 2 (1.8) |
| Professionals | 7 (2.2) | 3 (1.4) | 4 (3.5) |
| Technicians and associate professionals | 39 (12.1) | 28 (13.3) | 11 (9.7) |
| Clerks | 26 (8) | 12 (5.7) | 14 (12.4) |
| Skilled workers and shop and market sales workers | 49 (15.2) | 32 (15.2) | 17 (15) |
| Skilled agricultural and fishery workers | 135 (41.8) | 98 (46.7) | 37 (32.7) |
| Craft and related trade workers | 4 (1.2) | 1 (0.5) | 3 (2.7) |
| Plant and machine operators and assemblers | 9 (2.8) | 4 (1.9) | 5 (4.4) |
| 9. Elementary occupation | 48 (14.9) | 28 (13.3) | 20 (17.7) |
| 10. Unemployed | 1 (0.3) | 1 (0.5) | 0 |
| Socioeconomic Status (SES) as per the Modified Kuppaswamy scale (2020) [14] | | | |
| Upper | 0 | 0 | 0 |
| Upper middle | 58 (18) | 27 (46.6) | 31 (53.4) |
| lower middle | 131 (40.6) | 38 (29) | 93 (71) |
| Upper lower | 126 (39) | 45 (35.7) | 81 (64.3) |
| Lower | 8 (2.5) | 3 (37.5) | 5 (62.5) |

[Table/Fig-1]: Distribution of study participants according to sociodemographic characteristics N=323.

among 10-15-year-old children. A higher proportion of children who had syrup were less than five years old (79%), which showed a statistically significant difference ($p < 0.001$). There was no significant difference for KAP-related questions among the various age groups [Table/Fig-2].

Statistically, no significant difference was found when comparing the gender of parents with the KAP of parental self-medication in their children [Table/Fig-3].

When comparing parental KAP of self-medication with their educational level, the majority of parents who knew that dosage differs in children apart from adults and who preferred expensive medicines over cheaper ones, and the lowest proportion of parents who used the oral route were graduates (92%, 48%, and 66.6%) when compared to lower educational qualifications, which was statistically significant ($p = 0.01$,

| Questions | Parents of children <5 years | Parents of children 5-10 years | Parents of children 10-15 year | Total | p-value |
|------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------|--------------------------------|------------|------------------------------------|
| Do you know the hazards of overdosage? | | | | | |
| Yes | 4 (21.1) | 14 (31.8) | 15 (30) | 33 (29.2) | χ^2 : 0.771 $p=0.680$ (NS) |
| No | 15 (78.9) | 30 (68.2) | 35 (70.0) | 80 (70.8) | |
| Do you know about the course completion regarding medication? | | | | | |
| Yes | 6 (31.6) | 18 (40.9) | 12 (24) | 36 (31.9) | χ^2 : 3.083 $p=0.214$ (NS) |
| No | 13 (68.4) | 26 (59.1) | 38 (76) | 77 (68.1) | |
| Do you know that dosage differs in children apart that of adults? | | | | | |
| Yes | 14 (73.7) | 27 (61.4) | 31 (62.0) | 72 (63.7) | χ^2 : 0.986 $p=0.611$ (NS) |
| No | 5 (26.3) | 17 (38.6) | 19 (38) | 41 (36.3) | |
| Questions related to attitude Do you think it is fine to practice SM? | | | | | |
| Yes | 14 (73.7) | 18 (40.9) | 3 (46) | 55 (48.7) | χ^2 : 5.962 $p=0.051$ (NS) |
| No | 5 (26.3) | 26 (59.1) | 27 (54) | 58 (51.3) | |
| Do you think SM can harm the health of your child? | | | | | |
| Yes | 14 (73.7) | 20 (45.5) | 26 (52) | 60 (53.1) | χ^2 : 4.29 $p=0.117$ (NS) |
| No | 5 (26.3) | 24 (54.5) | 24 (48) | 58 (46.9) | |
| Do you think that there is a need for education regarding SM practices to increase the awareness among parents? | | | | | |
| Yes | 15 (78.9) | 39 (88.6) | 46 (92.0) | 100 (88.5) | χ^2 : 2.31 $p=0.316$ (NS) |
| No | 4 (21.1) | 5 (11.4) | 4 (8.0) | 13 (11.5) | |
| Questions related to practice Source of information about SM: | | | | | |
| Friends/Family | 7 (36.8) | 9 (20.5) | 17 (34) | 33 (29.2) | χ^2 : 7.834 $p=0.450$ (NS) |
| Pharmacist | 9 (47.4) | 23 (52.2) | 21 (42) | 53 (46.9) | |
| Old prescription | 3 (15.8) | 8 (18.2) | 11 (22) | 22 (19.5) | |
| Media | 0 | 0 | 0 | 0 | |
| Others (Unqualified practitioner, self-assessment) if any | 0 | 4 (9.1) | 1 (2.0) | 5 (4.4) | |
| Dental condition for which SM is practiced: | | | | | |
| Tooth pain | 13 (68.4) | 35 (79.5) | 38 (76) | 86 (76.1) | χ^2 : 4.99 $p=0.544$ (NS) |
| Soft tissue pain | 3 (15.8) | 2 (4.5) | 7 (14) | 12 (10.6) | |
| Oral ulcers | 2 (10.5) | 2 (4.5) | 2 (4) | 6 (5.3) | |
| Swelling | 1 (5.3) | 5 (11.4) | 3 (6) | 9 (8) | |
| Others (bleeding, trauma, bruxism, TMJ problems, tooth coloured problems) if any | 0 | 0 | 0 | 0 | |
| Commonly used medicine for SM: | | | | | |
| Pain relievers | 17 (89.5) | 41 (93.1) | 38 (76) | 96 (85) | χ^2 : 7.169 $p=0.127$ (NS) |
| Antibiotics | 2 (10.5) | 3 (6.8) | 12 (24.0) | 17 (15) | |
| Vitamins | 0 | 0 | 0 | 0 | |
| Calcium supplements | 0 | 0 | 0 | 0 | |
| Others (mouthwashes, herbal medicines), if any | 0 | 0 | 0 | 0 | |
| Source of information for drug dosage: | | | | | |
| Old prescription of the child | 5 (26.3) | 13 (29.5) | 10 (20) | 28 (24.8) | χ^2 : 6.188 $p=0.626$ (NS) |
| Pharmacist | 8 (42.1) | 20 (45.5) | 24 (48) | 52 (46) | |
| Unqualified practitioner | 4 (21.1) | 3 (6.8) | 11 (22) | 18 (15.9) | |
| Self-assessment depending on severity of condition | 1 (5.3) | 4 (9.1) | 2 (4) | 7 (6.2) | |
| Others (media, friends/family), if any | 1 (5.3) | 4 (9.1) | 3 (6.0) | 5 (4.4) | |

| Route of administration | | | | | |
|---------------------------------------------------------------------|-----------|-----------|---------|-----------|------------------------------------|
| Oral | 15 (78.9) | 38 (86.4) | 43 (86) | 96 (85) | χ^2 : 0.648 $p=0.723$ (NS) |
| Topical | 4 (21.1) | 6 (13.6) | 7 (14) | 17 (15) | |
| Presentation form of medicine | | | | | |
| Tablets/Other solid forms | 4 (21) | 32 (72.7) | 41 (82) | 77 (68.1) | χ^2 : 20.04 $p<0.001^*$ |
| Syrup | 15 (79) | 12 (27.3) | 9 (18) | 36 (31.8) | |
| Suspension | 0 | 0 | 0 | 0 | |
| Duration of SM given to your child: | | | | | |
| Less than 3 days | 14 (73.7) | 33 (75) | 39 (78) | 86 (76.1) | χ^2 : 0.719 $p=0.949$ (NS) |
| 3 to 6 days | 5 (26.3) | 10 (22.7) | 10 (20) | 25 (22.1) | |
| Over 6 days | 0 | 0 | 0 | 0 | |
| Till the condition subside | 0 | 1 (2.3) | 1 (2.0) | 2 (1.8) | |
| Do you check the expiry date before purchasing the medicine? | | | | | |
| Yes | 15 (78.9) | 33 (75) | 28 (56) | 76 (67.3) | χ^2 : 5.254 $p=0.07$ (NS) |
| No | 4 (21.1) | 11 (25) | 22 (44) | 37 (32.7) | |
| Do you prefer expensive medicines over cheaper ones? | | | | | |
| Yes | 7 (36.8) | 11 (25) | 11 (22) | 29 (25.7) | χ^2 : 1.606 $p=0.448$ (NS) |
| No | 12 (63.2) | 33 (75) | 39 (78) | 84 (74.3) | |
| Reason for not visiting dentist: | | | | | |
| Dental treatment is expensive | 4 (21.1) | 19 (43.2) | 22 (44) | 45 (39.8) | χ^2 : 5.87 $p=0.662$ (NS) |
| Non availability of dentist nearby | 3 (15.8) | 9 (20.5) | 10 (20) | 22 (19.5) | |
| Long waiting period | 7 (36.8) | 9 (20.5) | 8 (16) | 24 (21.2) | |
| Due to lack of time to visit dentist | 4 (21.1) | 6 (13.6) | 8 (16) | 18 (15.9) | |
| Others (Previous experience with similar symptoms) | 1 (5.3) | 1 (2.3) | 2 (4) | 4 (3.5) | |
| Simple condition, as primary teeth exfoliates, if any | | | | | |

[Table/Fig-2]: Comparison of parental knowledge, attitude, and practice of Self-Medication (SM) based on children of various age groups (N=113 i.e., those who self-medicated).

| Questions | Father | Mothers | p-value |
|------------------------------------------------------------------------------------------------------------------------|------------|-----------|----------------------------------|
| Questions related to knowledge | | | |
| Do you know the hazards of overdosage? | | | |
| Yes | 15 (39.5) | 18 (24) | χ^2 =2.9 $p=0.87$ (NS) |
| No | 23 (60.5) | 57 (76) | |
| Do you know about the course completion regarding medication? | | | |
| Yes | 12 (31.60) | 24 (32) | χ^2 =0.002 $p=0.96$ (NS) |
| No | 26 (68.4) | 51 (68) | |
| Do you know that dosage differs in children apart that of adults? | | | |
| Yes | 22 (57.9) | 50 (66.7) | χ^2 =0.84 $p=0.36$ (NS) |
| No | 16 (42.1) | 25 (33.3) | |
| Questions related to attitude | | | |
| Do you think it is fine to practice SM? | | | |
| Yes | 17 (44.7) | 38 (50.7) | χ^2 =0.36 $p=0.69$ (NS) |
| No | 21 (55.3) | 37 (49.3) | |
| Do you think SM can harm the health of your child? | | | |
| Yes | 17 (44.7) | 43 (57.3) | χ^2 =1.16 $p=0.20$ (NS) |
| No | 21 (55.3) | 32 (42.7) | |
| Do you think that there is a need for education regarding SM practices to increase the awareness among parents? | | | |
| Yes | 35 (92.1) | 65 (86.7) | χ^2 =0.733 $p=0.39$ (NS) |
| No | 3 (7.9) | 10 (13.3) | |

| Questions related to practice | | | |
|-----------------------------------------------------------------------------------------------------------------|-----------|------------|------------------------------------|
| Source of information about SM: | | | |
| Friends/Family | 10 (26.3) | 23 (30.7) | $\chi^2=4.29$ $p=0.367$ (NS) |
| Pharmacist | 21 (55.3) | 32 (42.6) | |
| Old prescription | 7 (18.4) | 15 (20) | |
| Media | 0 | 0 | |
| Others (Unqualified practitioner, self-assessment) if any | 0 | 5 (6.7) | |
| Dental condition for which SM is practiced: | | | |
| Tooth pain | 27 (71.1) | 59 (78.7) | $\chi^2=7.36$ $p=0.06$ (NS) |
| Soft tissue pain | 4 (10.5) | 8 (10.7) | |
| Oral ulcers | 5 (13.2) | 1 (1.3) | |
| Swelling | 2 (5.3) | 7 (9.3) | |
| Others (bleeding, trauma, bruxism, temporomandibular joint problems, tooth coloured problems) | 0 | 0 | |
| Commonly used medicine for SM: | | | |
| Pain relievers | 31 (81.6) | 65 (86.7) | $\chi^2=0.98$ $p=0.61$ (NS) |
| Antibiotics | 7 (18.4) | 10 (13.3) | |
| Vitamins | 0 | 0 | |
| Calcium supplements | 0 | 0 | |
| Others (mouthwashes, herbal medicines), if any | 0 | 0 | |
| Source of information for drug dosage: | | | |
| Old prescription of the child | 8 (21.1) | 20 (26.7) | $\chi^2=2.82$ $p=0.59$ (NS) |
| Pharmacist | 21 (55.3) | 31 (41.3) | |
| Unqualified practitioner | 6 (15.8) | 12 (16) | |
| Self-assessment depending on severity of condition | 1 (2.6) | 6 (8) | |
| Others (media, friends/family), if any | 2 (5.3) | 6 (8) | |
| Route of administration | | | |
| Oral | 30 (78.9) | 66 (88) | $\chi^2=1.61$ $p=0.20$ (NS) |
| Topical | 8 (21.1) | 9 (12.0) | |
| Presentation form of medicine | | | |
| Tablets/Other solid forms | 24 (63.1) | 53 (70.66) | $\chi^2=0.65$ $p=0.418$ (NS) |
| Syrup | 14 (36.9) | 22 (29.34) | |
| Suspension | 0 | 0 | |
| Duration of SM given to your child: | | | |
| Less than 3 days | 30 (78.9) | 56 (74.7) | $\chi^2=0.66$ $p=0.72$ (NS) |
| 3 to 6 days | 7 (18.4) | 18 (24) | |
| Over 6 days | 0 | 0 | |
| Till the condition subside | 1 (2.6) | 1 (1.3) | |
| Do you check the expiry date before purchasing the medicine? | | | |
| Yes | 23 (60.5) | 53 (70.7) | $\chi^2=1.18$ $p=0.28$ (NS) |
| No | 15 (39.5) | 22 (29.3) | |
| Do you prefer expensive medicines over cheaper ones? | | | |
| Yes | 11 (28.9) | 18 (24) | $\chi^2=0.32$ $p=0.57$ (NS) |
| No | 27 (71.1) | 57 (76) | |
| Reason for not visiting dentist? | | | |
| Dental treatment is expensive | 15 (39.5) | 30 (40) | $\chi^2=1.81$ $p=0.771$ (NS) |
| Non availability of dentist nearby | 9 (23.7) | 13 (17.3) | |
| Long waiting period | 6 (15.8) | 18 (24) | |
| Due to lack of time to visit dentist | 6 (15.8) | 12 (16) | |
| Others (Previous experience with similar symptoms, Simple condition, as primary teeth exfoliates), if any _____ | 2 (5.3) | 2 (2.7) | |

[Table/Fig-3]: Comparison of parental knowledge, attitude, and practice of Self-Medication (SM) based on gender (N=113). Fisher-exact test *p-value <0.05 was considered statistically significant

$p<0.001$, $p=0.04$). A higher proportion of parents who gave the reason for not visiting the dentist due to expensive dental treatment belonged to lower educational qualifications, which was statistically significant ($p=0.01$) [Table/Fig-4].

When comparing parental KAP of self-medication with their occupation, skilled workers preferred tablets, a complete course of medication was preferred by parents with an elementary education, skilled workers preferred expensive medicines, and dental treatment was expressed as expensive by technicians. There was a statistically significant difference ($p=0.042$, $p<0.009$, $p=0.006$, $p=0.003$) [Table/Fig-5].

When comparing parental KAP with SES (Socioeconomic Status), a higher proportion of parents who knew about course completion (51.9%), dosage difference in children (88.9%), and those who preferred expensive medicines over cheaper ones (59.3%), and the lowest percentage of parents (63%) who used the oral route belonged to the upper middle class, in comparison to those in low SES, which was statistically significant ($p=0.05$, $p=0.001$, $p<0.001$, $p=0.002$). A higher proportion of parents who gave the reason for not visiting the dentist due to expensive dental treatment belonged to the lower class (66.7%), which was statistically significant ($p<0.001$) [Table/Fig-6].

DISCUSSION

When parents were questioned about their knowledge of Self-medication (SM), the majority of parents (70.8%) were unaware of the hazards of overdosage and course completion (68.1%). However, most parents (63.7%) knew that dosage differs in children compared to adults. These findings are similar to a study conducted by Nayyar A et al., in Karnataka, India [4].

When questions relating to the attitude of parents towards SM were asked, almost 50% of parents thought that SM is not a good practice, and most parents believed that SM can harm the health of their child. In agreement with this study, Gohar UF et al., reported a rate of 56% of participants who agreed that SM is unsafe for their children [9]. A higher percentage of parents (88.5%) believed that there was a need for education regarding SM practices to raise awareness among parents. This may be because the majority of respondents in this study had low knowledge regarding the usage of drugs.

When parents were questioned about SM practices and the source of information on SM and drug dosage, the majority of participants relied on pharmacists (46%). This finding is in agreement with other studies conducted by Patel SJ et al., Ganguly S et al., Lima BR et al., and Eldalo AS et al., [5,11,12,16]. This could be due to financial reasons, liberal over-the-counter drug distribution, and easier access to pharmacies in India.

The current study found that SM practice was high for a toothache (76.1%), which is consistent with the findings of other studies [1,3,17]. This might be because SM for quick alleviation of tooth pain can lead to cost savings in terms of consultations, tests, and treatments, as well as less time spent on caring for children. However, this finding disagrees with Kalyan VS et al., who found that mouth ulcers were the most commonly self-medicated condition [18].

Pain relievers were the most frequently utilised medications among children who self-medicated (85%). These findings are consistent with previous studies [1,3,10,19,20]. However, this contradicts the study conducted by Eldalo AS et al., and Nazir S et al., who found antibiotics to be commonly self-medicated drugs [16,21]. This difference could be attributed to the broad availability and affordability of analgesics. Additionally, parents might think that they are not toxic. The most common route of medicine administration was the oral route (85%), which aligns with another study [3]. This could be explained by the fact that tooth pain was the condition for which the majority of parents self-medicated, rather than soft tissue pain.

| Questions related to knowledge | Profession or honours | Graduate | Intermediate or diploma | High school certificate | Middle school certificate | Primary school certificate | Illiterate | p-value |
|----------------------------------------------------------------------------------------------------------------------|-----------------------|-----------|-------------------------|-------------------------|---------------------------|----------------------------|------------|------------|
| Do you know the hazards of over dosage? | | | | | | | | |
| Yes | 0 | 13 (48) | 6 (26.1) | 6 (26.1) | 4 (30.8) | 1 (10) | 3 (17.60) | 0.25 (NS) |
| No | 0 | 14 (52) | 17 (73.9) | 17 (73.9) | 9 (69.2) | 9 (90) | 14 (82.4) | |
| Do you know about the course completion regarding medication? | | | | | | | | |
| Yes | 0 | 14 (52) | 8 (34.8) | 5 (21.7) | 3 (23.1) | 2 (20) | 4 (23.5) | 0.26 (NS) |
| No | 0 | 13 (48) | 15 (65.2) | 18 (78.3) | 10 (76.9) | 8 (80) | 13 (76.5) | |
| Do you know that dosage differs in children apart that of adults? | | | | | | | | |
| Yes | 0 | 24 (92) | 16 (69.6) | 14 (60.9) | 7 (53.8) | 5 (50) | 6 (35.3) | 0.01* |
| No | 0 | 3 (8) | 7 (30.4) | 9 (39.1) | 6 (46.2) | 5 (50) | 11 (65.7) | |
| Questions related to attitude | | | | | | | | |
| Do you think it is fine to practice SM? | | | | | | | | |
| Yes | 0 | 16 (59.3) | 9 (39.1) | 9 (39.1) | 10 (76.9) | 2 (50) | 6 (35.3) | 0.14 (NS) |
| No | 0 | 11 (40.7) | 14 (60.9) | 14 (60.9) | 3 (23.1) | 5 (50) | 11 (64.7) | |
| Do you think SM can harm the health of your child? | | | | | | | | |
| Yes | 0 | 16 (59.3) | 10 (43.5) | 12 (52.2) | 11 (84.6) | 5 (50) | 6 (35.3) | 0.12 (NS) |
| No | 0 | 11 (40.7) | 13 (56.5) | 11 (47.8) | 2 (15.4) | 5 (50) | 11 (64.7) | |
| Do you think that there is need for education regarding SM practices to increase the awareness among parents? | | | | | | | | |
| Yes | 0 | 22 (89) | 21 (91.3) | 20 (87) | 10 (76.9) | 9 (90) | 16 (94.1) | 0.84 (NS) |
| No | 0 | 3 (11) | 2 (8.7) | 3 (13) | 3 (23.1) | 1 (10) | 1 (5.9) | |
| Questions related to practice | | | | | | | | |
| Source of information about SM: | | | | | | | | |
| Friends/Family | 0 | 7 (25.9) | 8 (34.8) | 10 (43.5) | 2 (15.4) | 3 (30) | 3 (17.6) | 0.46 (NS) |
| Pharmacist | 0 | 14 (51.8) | 7 (30.4) | 9 (39.1) | 9 (69.2) | 6 (60) | 8 (47.1) | |
| Old prescription | 0 | 5 (18.5) | 8 (34.8) | 2 (8.7) | 2 (15.4) | 0 | 5 (29.4) | |
| Media | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Others (Unqualified practitioner, self-assessment) if any | 0 | 1 (3.7) | 0 | 2 (8.7) | 0 | 1 (10) | 1 (5.9) | |
| Dental condition for which SM is practiced: | | | | | | | | |
| Tooth pain | 0 | 14 (51.8) | 19 (82.6) | 20 (87) | 12 (92.3) | 7 (70) | 14 (82.4) | 0.15 (NS) |
| Soft tissue pain | 0 | 6 (22.2) | 2 (8.7) | 1 (4.3) | 1 (7.7) | 1 (10) | 1 (5.9) | |
| Oral ulcers | 0 | 4 (14.8) | 1 (4.3) | 0 | 0 | 1 (10) | 0 | |
| Swelling | 0 | 3 (11.1) | 1 (4.3) | 2 (8.7) | 0 | 1 (10) | 2 (11.8) | |
| Others, if any Others (bleeding, trauma, bruxism, TMJ problems, tooth coloured problems) if any | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Commonly used medicine for SM: | | | | | | | | |
| Pain relievers | 0 | 21 (77.7) | 22 (95.7) | 19 (82.6) | 10 (76.9) | 9 (90) | 15 (88.2) | 0.513 (NS) |
| Antibiotics | 0 | 6 (22.2) | 1 (4.3) | 4 (17.4) | 3 (23.1) | 1 (10) | 2 (11.8) | |
| Vitamins | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Calcium supplements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Others (mouthwashes, herbal medicines), if any | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Source of information for drug dosage: | | | | | | | | |
| Old prescription of the child | 0 | 7 (25.9) | 7 (30.4) | 5 (21.7) | 2 (15.4) | 1 (10) | 6 (35.3) | 0.526 (NS) |
| Pharmacist | 0 | 8 (29) | 9 (39.1) | 12 (52.2) | 9 (69.2) | 7 (70) | 7 (41.2) | |
| Unqualified practitioner | 0 | 7 (25.9) | 2 (8.7) | 5 (21.7) | 2 (15.4) | 0 | 2 (11.8) | |
| Self-assessment depending on severity of condition | 0 | 3 (11.1) | 1 (4.3) | 1 (4.3) | 0 | 1 (10) | 1 (5.9) | |
| Others (media, friends/family), if any | 0 | 2 (7.4) | 4 (17.4) | 0 | 0 | 1 (10) | 1 (5.9) | |
| Route of administration: | | | | | | | | |
| Oral | 0 | 18 (66.6) | 20 (87) | 21 (91.3) | 13 (100) | 8 (80) | 16 (94.1) | 0.04* |
| Topical | 0 | 9 (33.3) | 3 (13) | 2 (8.7) | 0 | 2 (20) | 1 (5.9) | |
| Presentation form of medicine: | | | | | | | | |
| Tablets/Other solid forms | 0 | 17 (62.9) | 19 (82.6) | 14 (60.8) | 9 (69.2) | 7 (70) | 11 (64.7) | 0.758 (NS) |
| Syrup | 0 | 10 (37.1) | 4 (17.4) | 9 (39.1) | 4 (30.8) | 3 (30) | 6 (35.3) | |
| Suspension | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Duration of SM given to your child: | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------|---|-----------|-----------|-----------|-----------|---------|-----------|------------|
| Less than 3 days | 0 | 19 (70.3) | 19 (82.6) | 18 (78.3) | 8 (61.5) | 9 (90) | 13 (76.5) | 0.324 (NS) |
| 3 to 6 days | 0 | 7 (25.9) | 3 (13) | 5 (21.7) | 5 (38.5) | 1 (10) | 4 (23.5) | |
| Over 6 days | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Till the condition subside | 0 | 1 (3.7) | 1 (4.3) | 0 | 0 | 0 | 0 | |
| Do you check the expiry date before purchasing the medicine? | | | | | | | | |
| Yes | 0 | 20 (74) | 14 (60.9) | 19 (82.6) | 9 (69.2) | 5 (50) | 9 (52.9) | 0.314 |
| No | 0 | 7 (26) | 9 (39.1) | 4 (17.4) | 4 (30.8) | 5 (50) | 8 (47.1) | (NS) |
| Do you prefer expensive medicines over cheaper ones? | | | | | | | | |
| Yes | 0 | 13 (48) | 7 (30.4) | 7 (30.4) | 1 (7.7) | 1 (10) | 0 | <0.001* |
| No | 0 | 14 (52) | 16 (69.6) | 16 (69.6) | 12 (92.3) | 19 (90) | 17 (100) | |
| Reason for not visiting dentist: | | | | | | | | |
| Dental treatment is expensive | 0 | 3 (11.1) | 7 (30.4) | 12 (52.2) | 8 (61.5) | 6 (60) | 9 (52.9) | 0.01* |
| Non availability of dentist nearby | 0 | 9 (33.3) | 2 (8.7) | 4 (17.4) | 2 (15.4) | 1 (10) | 4 (23.5) | |
| Long waiting period | 0 | 10 (37) | 9 (39.1) | 1 (4.3) | 0 | 2 (20) | 2 (11.8) | |
| Due to lack of time to visit dentist | 0 | 5 (18) | 3 (13) | 6 (26.1) | 2 (15.4) | 1 (10) | 1 (5.9) | |
| Others (Previous experience with similar symptoms, Simple condition, as primary teeth exfoliates), if any _____ | 0 | 0 | 2 (8.7) | 0 | 1 (7.7) | 0 | 1 (5.9) | |

[Table/Fig-4]: Comparison of parental knowledge, attitude, and practice of Self-Medication (SM) based on education (N=113). Fisher-exact test *p-value <0.05 was considered statistically significant

| Questions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | p-value |
|----------------------------------------------------|---------|---------|-----------|-----------|-----------|-----------|----------|--------|---------|----|--------------------------------|
| Source of information for drug dosage | | | | | | | | | | | |
| Friends/Family | 1 (50) | 1 (25) | 1 (9.1) | 5 (35.7) | 4 (23.5) | 15 (40.5) | 0 | 1 (20) | 5 (25) | 0 | $\chi^2=23.74$ p=0.85 (NS) |
| Pharmacist | 0 | 3 (75) | 7 (63.6) | 6 (42.9) | 10 (58.8) | 15 (40.5) | 2 (66.7) | 2 (40) | 7 (35) | 0 | |
| Old prescription | 1 (50) | 00 | 2 (18.2) | 2 (14.3) | 2 (11.8) | 6 (16.2) | 1 (33.3) | 2 (40) | 6 (30) | 0 | |
| Media | 0 | 0 | 0 | 0 | 1 (5.9) | 0 | 0 | 0 | 0 | 0 | |
| Others, if any _____ | 0 | 0 | 1 (9.1) | 1 (7.1) | 0 | 1 (2.7) | 0 | 0 | 2 (10) | 0 | |
| Dental condition for which SM is practiced | | | | | | | | | | | |
| Tooth pain | 2 (100) | 4 (100) | 7 (63.6) | 12 (85.7) | 16 (94.1) | 27 (73) | 3 (100) | 4 (80) | 11 (55) | 0 | $\chi^2=24.42$ p=0.82 (NS) |
| Soft tissue pain | 0 | 0 | 1 (9.1) | 1 (7.1) | 1 (5.9) | 4 (10.8) | 0 | 0 | 5 (25) | 0 | |
| Oral ulcers | 0 | 0 | 1 (9.1) | 0 | 0 | 1 (2.7) | 0 | 1 (20) | 3 (15) | 0 | |
| Swelling | 0 | 0 | 2 (18.2) | 1 (7.1) | 0 | 4 (10.8) | 0 | 0 | 1 (5) | 0 | |
| Others, if any _____ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Commonly used medicine for SM: | | | | | | | | | | | |
| Pain relievers | 1 (50) | 4 (100) | 9 (81.8) | 11 (78.6) | 14 (82.4) | 33 (89.2) | 3 (100) | 4 (80) | 16 (80) | 0 | $\chi^2=10.16$ p=0.84 (NS) |
| Antibiotics | 1 (50) | 0 | 2 (18.2) | 3 (21.4) | 2 (11.8) | 4 (10.8) | 0 | 1 (20) | 4 (20) | 0 | |
| Vitamins | 0 | 0 | 0 | 0 | 1 (5.9) | 0 | 0 | 0 | 0 | 0 | |
| Calcium supplements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Others, if any _____ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Source of information for drug dosage: | | | | | | | | | | | |
| Old prescription of your child | 2 (100) | 1 (25) | 2 (18.2) | 3 (21.4) | 3 (17.6) | 6 (16.2) | 1 (33.3) | 2 (40) | 8 (40) | 0 | $\chi^2=26.69$ p=0.73 (NS) |
| Old prescription of other child of same age _____ | 0 | 0 | 0 | 1 (7.1) | 1 (5.9) | 5 (13.5) | 0 | 0 | 1 (5) | 0 | |
| Unqualified practitioner | 0 | 1 (25) | 1 (9.1) | 4 (28.6) | 1 (5.9) | 5 (13.5) | 0 | 1 (20) | 5 (25) | 0 | |
| Self-assessment depending on severity of condition | 0 | 0 | 1 (9.1) | 0 | 1 (5.9) | 3 (8.1) | 0 | 0 | 2 (10) | 0 | |
| Others, if any | 0 | 2 (50) | 7 (63.6) | 6 (42.9) | 11 (64.7) | 18 (48.6) | 2 (66.7) | 2 (40) | 4 (20) | 0 | |
| Route of administration | | | | | | | | | | | |
| Oral | 1 (50) | 4 (100) | 10 (90.9) | 12 (85.7) | 16 (94.1) | 33 (89.2) | 2 (66.7) | 4 (80) | 14 (70) | 0 | $\chi^2=8.9$ p=0.34 (NS) |
| Topical | 1 (50) | 0 | 1 (9.1) | 2 (14.3) | 1 (5.9) | 4 (10.8) | 1 (33.3) | 1 (20) | 6 (30) | 0 | |
| Presentation form of medicine | | | | | | | | | | | |
| Tablets | 0 | 2 (50) | 10 (90.9) | 8 (57.1) | 11 (64.7) | 30 (81.1) | 3 (100) | 2 (40) | 11 (55) | 0 | $\chi^2=16.02$ p=0.042* |
| Syrup | 2 (100) | 2 (50) | 1 (9.1) | 6 (42.9) | 6 (35.3) | 7 (18.9) | 0 | 3 (60) | 9 (45) | 0 | |
| Duration of SM given to your child | | | | | | | | | | | |
| Less than 3 days | 1 (50) | 3 (75) | 8 (72.7) | 10 (71.4) | 12 (70.6) | 29 (78.4) | 2 (66.7) | 4 (80) | 16 (80) | 0 | $\chi^2=13.09$ p=0.666 (NS) |
| 3 to 6 days | 1 (50) | 1 (25) | 3 (27.3) | 4 (28.6) | 3 (17.6) | 8 (21.6) | 1 (33.3) | 1 (20) | 4 (20) | 0 | |

| | | | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------|---------|---------|-----------|-----------|-----------|-----------|----------|---------|---------|---|--------------------------------------|
| Over 6 days | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Till the condition subside | 0 | 0 | 0 | 0 | 2 (11.8) | 0 | 0 | 0 | 0 | 0 | |
| Do you know the hazards of over dosage? | | | | | | | | | | | |
| Yes | 0 | 2 (50) | 2 (18.2) | 3 (21.4) | 3 (17.6) | 9 (24.3) | 2 (66.7) | 3 (60) | 9 (45) | 0 | $\chi^2=10.98$ $p=0.203$ (NS) |
| No | 2 (100) | 2 (50) | 9 (81.8) | 11 (78.6) | 14 (82.4) | 28 (75.7) | 1 (33.3) | 2 (40) | 11 (55) | 0 | |
| Do you know about the course completion regarding medication? | | | | | | | | | | | |
| Yes | 0 | 2 (50) | 1 (9.1) | 2 (14.3) | 5 (29.4) | 9 (24.3) | 3 (100) | 3 (60) | 11 (55) | 0 | $\chi^2=20.34$ $p=0.009^*$ |
| No | 2 (100) | 2 (50) | 10 (90.9) | 12 (85.7) | 12 (70.6) | 28 (75.7) | 0 | 2 (40) | 9 (45) | 0 | |
| Do you check the expiry date before purchasing the medicine? | | | | | | | | | | | |
| Yes | 0 | 4 (100) | 6 (54.5) | 8 (57.1) | 13 (76.5) | 23 (62.2) | 2 (66.7) | 4 (80) | 16 (80) | 0 | $\chi^2=10.448$ $p=0.235$ (NS) |
| No | 2 (100) | 0 | 5 (45.5) | 6 (42.9) | 4 (23.5) | 14 (37.8) | 1 (33.3) | 1 (20) | 4 (20) | 0 | |
| Do you know that dosage differs in children apart that of adults? | | | | | | | | | | | |
| Yes | 0 | 3 (75) | 3 (27.3) | 8 (57.1) | 11 (64.7) | 24 (64.9) | 2 (66.7) | 4 (80) | 17 (85) | 0 | $\chi^2=14.845$ $p=0.06$ (NS) |
| No | 2 (100) | 1 (25) | 8 (72.7) | 6 (42.9) | 6 (35.3) | 13 (35.1) | 1 (33.3) | 1 (20) | 3 (15) | 0 | |
| Do you think it is fine to practice SM? | | | | | | | | | | | |
| Yes | 2 (100) | 2 (50) | 3 (27.3) | 8 (57.1) | 8 (47.1) | 16 (43.2) | 0 | 3 (60) | 13 (65) | 0 | $\chi^2=10.22$ $p=0.25$ (NS) |
| No | 0 | 2 (50) | 8 (72.7) | 6 (42.9) | 9 (52.9) | 21 (56.8) | 3 (100) | 2 (40) | 7 (35) | 0 | |
| Do you think SM can harm the health of your child? | | | | | | | | | | | |
| Yes | 0 | 2 (50) | 8 (72.7) | 5 (35.7) | 11 (64.7) | 22 (59.5) | 3 (100) | 4 (80) | 12 (60) | 0 | $\chi^2=10.26$ $p=0.25$ (NS) |
| No | 2 (100) | 2 (50) | 3 (27.3) | 9 (64.3) | 6 (35.3) | 15 (40.5) | 0 | 1 (20) | 8 (40) | 0 | |
| Do you prefer expensive medicines over cheaper ones? | | | | | | | | | | | |
| Yes | 0 | 0 | 1 (9.1) | 3 (21.4) | 3 (17.6) | 7 (18.9) | 1 (33.3) | 1 (20) | 13 (65) | 0 | $\chi^2=21.64$ $p=0.006^*$ |
| No | 2 (100) | 4 (100) | 10 (90.9) | 11 (78.6) | 14 (82.4) | 30 (81.1) | 2 (66.7) | 4 (80) | 7 (35) | 0 | |
| Do you think that there is need for education regarding SM practices to increase the awareness among parents? | | | | | | | | | | | |
| Yes | 1 (50) | 4 (100) | 11 (100) | 12 (85.7) | 14 (82.4) | 33 (89.2) | 3 (100) | 5 (100) | 17 (85) | 0 | $\chi^2=6.895$ $p=0.548$ (NS) |
| No | 1 (50) | 0 | 0 | 2 (14.3) | 3 (17.6) | 4 (10.8) | 0 | 0 | 3 (15) | 0 | |
| Reason for not visiting dentist | | | | | | | | | | | |
| Dental treatment is expensive | 2 (100) | 2 (50) | 8 (72.7) | 9 (64.3) | 8 (47.1) | 13 (35.1) | 1 (33.3) | 2 (40) | 0 | 0 | $\chi^2=58.79$ $p=0.003^*$ |
| No trust in doctor | 0 | 0 | 0 | 1 (7.1) | 0 | 1 (2.7) | 1 (33.3) | 1 (20) | 1 (5) | 0 | |
| Long waiting period | 0 | 0 | 1 (9.1) | 2 (14.3) | 0 | 8 (21.6) | 0 | 0 | 12 (60) | 0 | |
| Due to lack of time to visit dentist | 0 | 2 (50) | 0 | 1 (7.1) | 5 (29.4) | 7 (18.9) | 0 | 0 | 3 (15) | 0 | |
| Others | 0 | 0 | 2 (18.2) | 1 (7.1) | 4 (23.5) | 8 (21.6) | 1 (33.3) | 2 (40) | 4 (20) | 0 | |

[Table/Fig-5]: Comparison of parental knowledge, attitude, and practice of Self-Medication (SM) based on Occupation (N=113).

Fisher-exact test *p-value <0.05 was considered statistically significant

| Questions related to knowledge | Upper middle | Lower middle | Upper lower | Lower | p-value |
|----------------------------------------------------------------------------------------------------------------------|--------------|--------------|-------------|----------|-------------------------------------|
| Do you know the hazards of over dosage? | | | | | |
| Yes | 13 (48.1) | 9 (23.7) | 11 (24.4) | 0 | $\chi^2: 6.98$ $p=0.073$ (NS) |
| No | 14 (51.9) | 29 (76.3) | 34 (75.6) | 3 (100) | |
| Do you know about the course completion regarding medication? | | | | | |
| Yes | 14 (51.9) | 12 (31.6) | 10 (22.3) | 0 | $\chi^2: 7.891$ $p=0.05^*$ |
| No | 13 (48.1) | 26 (68.4) | 35 (77.7) | 3 (100) | |
| Do you know that dosage differs in children apart that of adults? | | | | | |
| Yes | 24 (88.9) | 26 (68.4) | 22 (48.9) | 0 | $\chi^2: 13.55$ $p=0.001^*$ |
| No | 3 (11.1) | 12 (31.5) | 23 (51.1) | 3 (100) | |
| Questions related to attitude | | | | | |
| Do you think it is fine to practice SM? | | | | | |
| Yes | 15 (55.6) | 16 (42.1) | 21 (46.7) | 3 (100) | $\chi^2: 4.014$ $p=0.22$ (NS) |
| No | 12 (44.4) | 22 (57.9) | 24 (53.3) | 0 | |
| Do you think SM can harm the health of your child? | | | | | |
| Yes | 15 (55.6) | 19 (50) | 23 (51.1) | 3 (100) | $\chi^2: 2.93$ $p=0.40$ (NS) |
| No | 12 (44.4) | 19 (50) | 22 (48.9) | 0 | |
| Do you think that there is need for education regarding SM practices to increase the awareness among parents? | | | | | |
| Yes | 24 (88.9) | 34 (89.5) | 40 (88.9) | 2 (66.7) | |

| | | | | | |
|----------------------------------------------------------------------------------|-----------|-----------|-----------|----------|--------------------------------------|
| No | 3 (11.1) | 4 (10.5) | 5 (11.1) | 1 (33.3) | $\chi^2: 1.451$ $p=0.694$ (NS) |
| Questions related to practice | | | | | |
| Source of information about SM: | | | | | |
| Friends/Family | 7 (25.9) | 14 (36.8) | 11 (24.4) | 1 (33.3) | $\chi^2: 11.22$ $p=0.51$ (NS) |
| Pharmacist | 11 (40.7) | 15 (39.4) | 26 (57.8) | 1 (33.3) | |
| Old prescription | 7 (25.9) | 9 (23.7) | 5 (11.1) | 1 (33.3) | |
| Media | 0 | 0 | 0 | 0 | |
| Others (Unqualified practitioner, self-assessment) if any | 2 (7.4) | 0 | 3 (6.7) | 0 | |
| Dental condition for which SM is practiced: | | | | | |
| Tooth pain | 15 (55.6) | 32 (84.2) | 36 (80.0) | 3 (100) | $\chi^2: 20.10$ $p=0.17$ (NS) |
| Soft tissue pain | 6 (22.2) | 2 (5.3) | 4 (8.9) | 0 | |
| Oral ulcers | 5 (18.5) | 0 | 1 (2.2) | 0 | |
| Swelling | 1 (3.7) | 4 (10.5) | 4 (8.9) | 0 | |
| Others (bleeding, trauma, bruxism, TMJ problems, tooth coloured problems) if any | 0 | 0 | 0 | 0 | |
| Commonly used medicine for SM: | | | | | |
| Pain relievers | 21 (77.8) | 35 (92.1) | 38 (84.4) | 2 (66.7) | |

| | | | | | |
|-----------------------------------------------------------------------------------------------------------|------------|------------|-----------|----------|--------------------------------------|
| Antibiotics | 6 (22.2) | 3 (7.9) | 7 (15.6) | 1 (33.3) | $\chi^2: 4.947$ $p=0.55$ (NS) |
| Vitamins | 0 | 0 | 0 | 0 | |
| Calcium supplements | 0 | 0 | 0 | 0 | |
| Others (mouthwashes, herbal medicines), if any | 0 | 0 | 0 | 0 | |
| Source of information for drug dosage: | | | | | |
| Old prescription of the child | 9 (33.3) | 9 (23.7) | 8 (17.8) | 2 (66.7) | $\chi^2: 14.018$ $p=0.30$ (NS) |
| Pharmacist | 7 (25.9) | 17 (44.7) | 28 (62.2) | 0 | |
| Unqualified practitioner | 6 (22.2) | 6 (15.8) | 5 (11.1) | 1 (33.3) | |
| Self-assessment depending on severity of condition | 2 (7.4) | 3 (7.9) | 2 (4.4) | 0 | |
| Others (media, friends/family), if any | 3 (11.1) | 3 (7.9) | 2 (4.4) | 0 | |
| Route of administration | | | | | |
| Oral | 17 (63) | 36 (94.7) | 41 (91.1) | 2 (66.7) | $\chi^2: 15.18$ $p=0.002^*$ |
| Topical | 10 (37) | 2 (5.3) | 4 (8.9) | 1 (33.3) | |
| Presentation form of medicine | | | | | |
| Tablets/Other solid forms | 17 (62.96) | 28 (73.68) | 31 (68.9) | 1 (33.3) | $\chi^2: 2.55$ $p=0.465$ (NS) |
| Syrup | 10 (37.04) | 10 (26.31) | 14 (31.1) | 2 (66.7) | |
| Suspension | 0 | 0 | 0 | 0 | |
| Duration of SM given to your child: | | | | | |
| Less than 3 days | 21 (77.8) | 31 (81.6) | 32 (71.1) | 2 (66.7) | $\chi^2: 6.77$ $p=0.342$ (NS) |
| 3 to 6 days | 6 (22.2) | 5 (13.2) | 13 (28.9) | 1 (33.3) | |
| Over 6 days | 0 | 0 | 0 | 0 | |
| Till the condition subside | 0 | 2 (5.2) | 0 | 0 | |
| Do you check the expiry date before purchasing the medicine? | | | | | |
| Yes | 20 (74.1) | 27 (71.1) | 28 (62.2) | 1 (33.3) | $\chi^2: 2.90$ $p=0.41$ (NS) |
| No | 7 (25.9) | 11 (28.9) | 17 (37.8) | 2 (66.7) | |
| Do you prefer expensive medicines over cheaper ones? | | | | | |
| Yes | 16 (59.3) | 8 (21.1) | 5 (11.1) | 0 | $\chi^2: 22.43$ $p=<0.001^*$ |
| No | 11 (40.7) | 30 (78.9) | 40 (88.9) | 3 (100) | |
| Reason for not visiting dentist: | | | | | |
| Dental treatment is expensive | 2 (7.4) | 13 (34.2) | 28 (62.2) | 2 (66.7) | $\chi^2: 36.93$ $p=<0.001^*$ |
| Non availability of dentist nearby | 8 (29.6) | 6 (15.8) | 8 (17.8) | 0 | |
| Long waiting period | 13 (48.1) | 7 (18.4) | 4 (8.9) | 0 | |
| Due to lack of time to visit dentist | 3 (11.1) | 11 (28.9) | 3 (6.7) | 1 (33.3) | |
| Others (Previous experience with similar symptoms, Simple condition, as primary teeth exfoliates), if any | 1 (3.7) | 1 (2.6) | 2 (4.4) | 0 | |

[Table/Fig-6]: Comparison of parental knowledge, attitude, and practice of Self-Medication (SM) based on Socioeconomic Status (SES) (N=113). Fisher-exact test *p-value <0.05 was considered statistically significant

Approximately 71.7% of the parents provided tablets or other solid forms of medication, which is similar to another study [3]. In contrast, Zyoud SE et al., reported that most parents preferred syrup (76.6%) over tablets, which could be because the majority of participants in that study were between 5 and 15 years old, unlike those under 5 years [8]. A higher proportion of parents (76.1%) self-medicated their children for less than 3 days, which was similar to other studies [22,23]. However, this finding contradicted another study where the duration of self-medication varied from two days to more than a week [5]. This difference might be because the majority of participants in the current study had no knowledge regarding the completion of the prescribed course of medicine.

The majority of parents (67.3%) did not check the expiry date before purchasing the medicine, and these results were in line with another study [24]. Moreover, in this study, most parents (74.3%) did not prefer expensive medicines, which was consistent with another study [8]. A possible explanation for this is that the majority of participants in this study had lower educational qualifications and Socioeconomic Status (SES).

The most common reason for not visiting the dentist was expensive dental treatment (39.8%), which was in accordance with other studies [25,26]. This could be because self-medication seemed to bypass the consultation charges and save money on medications [27]. These findings contrasted with the study conducted by Ganguly S et al., who reported that patients in Odisha have access to free consultations and medicines, thereby contributing to the reason for self-medication in only 6.3% of cases [11].

On comparing parental KAP of Self-medication (SM) with different age groups of children, it was found that syrup was the most commonly used drug form in children below 5 years (79%) compared to children aged 5-15 years, and this difference was statistically significant ($p \leq 0.001$). These findings are consistent with previous studies conducted by Zyoud SE et al., and Tsifregna RL et al., [8,28]. This preference for syrup in younger children may be attributed to parents believing that it is easier to swallow and acts as a suitable substitute when a child refuses to take tablets [29]. There was no significant association found between parents' gender and their KAP of SM, which aligns with other studies [10,22]. This suggests that the influence on SM is more related to attitude rather than necessity [22].

There are no existing studies in the literature that compare the KAP of SM with parents' education level and Socioeconomic Status (SES). However, in this study, it was observed that a higher percentage of graduates (92%) had knowledge of dosage differences in children compared to those with lower educational qualifications, and this difference was statistically significant ($p=0.01$). This finding is consistent with a study conducted by Ganguly S et al., [11]. It can be understood that higher educational attainment provides individuals with more experience and knowledge about diseases and medicines, leading to increased self-efficacy in making appropriate decisions regarding self-diagnosis and self-treatment [30].

Furthermore, it was found that graduates (48%) preferred expensive medicines over cheaper alternatives, and this difference was statistically significant ($p \leq 0.001$). This preference among highly educated parents could be attributed to their higher socioeconomic status, which allows them to afford more expensive medications. This finding is in line with a study conducted by Chang J et al., [30]. Additionally, a lower proportion of graduates (66.6%) and those belonging to the upper middle class (63%) used the oral route for administering medicine, and these differences were statistically significant ($p=0.04$, $p=0.002$). This may be because, in the current study, most graduates and participants from the upper middle class practiced SM for oral ulcers, where the topical route is the preferred method of administration.

Parents who cited expensive dental treatment as the reason for not visiting the dentist belonged to lower educational qualifications and lower Socioeconomic Status (SES), which were statistically significant ($p=0.01$, $p \leq 0.001$), respectively. These findings are consistent with studies conducted by Gohar UF et al., and Chang J et al., who indicated that financial difficulties are a primary factor in choosing self-treatment over seeking medical care for non-severe illnesses [9,30]. Self-medication (SM) offers an affordable alternative for individuals with limited income, often being their initial response to illness [9].

A greater percentage of parents from the upper middle class displayed knowledge about course completion, dosage variation for children, and a preference for more expensive medications compared to those in lower SES, with statistically significant differences ($p=0.05$, $p=0.001$, $p \leq 0.001$), respectively. This disparity may be attributed to

higher SES individuals having higher educational qualifications and, subsequently, better knowledge regarding medication [28].

Limitation(s)

Answers reported by the parents could not be confirmed, and recall bias was likely.

CONCLUSION(S)

The most common dental condition for which Self-medication (SM) was practiced is tooth pain, and the medicine commonly used is painkillers. Pharmacists were found to be the common source of information regarding SM. There was a low level of knowledge regarding SM practice, particularly among individuals with low educational attainment and low Socioeconomic Status (SES). This study emphasises the necessity for public education on the appropriate use of SM, particularly regarding the completion of drug courses, correct dosage based on a child's age and weight, and the potential side effects of these drugs.

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