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Practice and Perception of Self Medication in Children by Caregivers in Sibul Hospital

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ABSTRACT

Introduction: Self-medication in children by caregivers is a common practice globally. Medical complications secondary to self medications is a cause of concern. This study aimed to study the prevalence of self-medication practice by caregivers in their children in Sibul Hospital. The perception of self-medication practice among children by their caregivers was explored too.

Methods: A cross-sectional survey was conducted between July 2020 and January 2021 in Paediatric Wards in Sibul Hospital using an interviewer-assisted structured questionnaire. All caregivers for children admitted to the Paediatric Wards who fulfilled the inclusion criteria was recruited.

Results: A total of 230 respondents were included in the study. 161 (70.0%) caregivers practised self-medication among children. Fever was the most common ailment for which caregivers practised self-medication for children (92.5%). The majority of the caregivers obtained non-prescription medicine from the pharmacy (98.1%). It seems that caregivers with more children tend to self medicate their children ($P=0.044$). Most of the caregivers agreed that it was essential to give medicine to a child at home when he/she falls sick (93.2%) and they could treat the child at home by buying medicine from a pharmacy (67.7%). However, most caregivers disagreed with using leftover medicine at home to treat their child (54.7%).

Conclusion: The findings of this study highlighted the importance to educate caregivers about the practice of self-medication among children. Proper knowledge about conditions that could be treated by self-medication should be taught. Pharmacists play an important role in providing correct information and advice to caregivers in the self-medication practice.

Keywords: caregiver, children, perception, practice, self-medication

INTRODUCTION

Medications play an important role in health as they are used to diagnose, prevent, and cure disease. There are two types of medicines which are prescription drugs in which a doctor prescription is needed to obtain the drugs and over-the-counter (OTC) drugs in which a prescription is not necessary to obtain the drugs. Following the approval of certain drugs to be altered from prescription status to those sold without prescription in the 1980s, self-medication has become more prominent, especially in recent years among developing and developed countries (1).

The World Health Organization (WHO) has defined self-medication as "the use of medicinal products by the consumer to treat self-recognized disorders or symptoms, or the intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms" (2). Self-care is a person's aptitude for the establishment of a healthy lifestyle as well as the prevention of diseases. Therefore, self-medication is a method of self-care (3). Generally, self-medication is only practised for health conditions that are commonly prevalent and minor. Self-medication most frequently involves OTC medications in which the patient can buy the drug from community pharmacy or shopping mall. Rarely self-medication can also include prescription-only medicines (POM). For example, the patient reutilizes a previous prescription to buy the drugs or consumes leftover medicines already available at home (4).

Self-medication for children by caregivers is a common practice globally. Previous studies in developed and developing countries showed that most of the caregivers self-medicated their children. A pretty high prevalence of self-medication in children was observed, such as 69.2 % in Italy (5), 96% in France (6), 62% in China (7), 77.25% in Pakistan (8) and 57.04% in India (9). Another study in Sudan revealed that 95.7% (n=908) of the respondents self-medicated their children for minor ailments (10). Studies showed that caregivers preferred to self-medicate their children's minor ailments such as fever, cough and cold and diarrhoea without consulting a doctor (11). Antipyretics (9,12), analgesics (12), antibiotics (5), anti-inflammatory agents (8,9,12), cough and cold preparations (9,12) were commonly used to self-medicate children.

According to a study carried out at Borama District, Somaliland, from June 2017 to May 2018, 82% of the respondents were reported practising self-medication for their children. High illiteracy

rate, poor exposure to medical information, poor economic status, distance to access healthcare facilities and nature of illness were the reasons that led to self-medication. The most common illnesses where caregivers practised self-medication for their children were fever and headache, which accounted for 43.1%, followed by cough and cold (26.7%), diarrhoea (11.1%) and nausea or vomiting (8%). This study also showed only 9.7% of the respondents had good knowledge of self-medication, and only 1.4% of the respondents had good practice of self-medication for their children (13). The outcome of this study reflected that it is a concern to be pondered on as some of the caregivers may not have adequate knowledge to execute a good practice of self-medication for their children.

Despite the concern, there are scarce studies conducted in Malaysia to investigate self-medication in children. In Malaysia, Dawood et al. conducted a cross-sectional study involving 200 parents with the objectives to measure the parents' medical knowledge and management level for their children's ailments and evaluate the association between medical knowledge and the management of children's ailments related to medication use (14). Data were collected using self-administered questionnaires. The study revealed that 80.7% of parents had adequate knowledge about the medicine that should be given to their children during minor ailments. They also reported that 51.3% of the parents believed that self-medication can treat their children's ailments (14). This is problematic as half of the parents believed that they could self-medicate and cure their children instead of consulting a proper physician consultation.

Various reasons encourage caregivers to self medicate their children. Caregivers tend to self-medicate their children to immediately relieve minor illness (15). Self-medication can reduce the dependence on medical services where in most cases are not available and insufficient. Caregivers can save cost and time as they do not need to travel and wait for doctor's consultation at healthcare facilities. It can also help reduce the workload of healthcare workers in managing minor ailments (15).

However, caregivers might not realize the real problems and risks of self-medicating their child. During self-medication practices in children, caregivers might wrongly diagnose their children's illness and give wrong medication to their children (13). Caregivers also might not have sufficient

knowledge of the medication (13). For example, they do not know the dosage suitable for their children, potential drug-drug interaction, drug-food interaction and potential side effects of the drugs. This might lead to an additional economic burden on the health care system by frequent hospitalizations and visits to clinics (13). According to literature by VidyavatiSd *et al.*, another major problem of self-medication, especially antibiotics, among children is the emergence of superbug or strains of microorganisms that are resistant to drugs (15). VidyavatiSd *et al.* also stated that self-medication among children will delay diagnosis of a disease as the symptoms of a particular disease are being masked (15).

Medical complications caused by various self medications is a cause of concern, especially in vulnerable groups such as children. Despite parents' uprising trend of self-medication practice among children, studies focusing on self-medication trends among children by caregivers in Malaysia are still lacking. Therefore, this study was carried out to study the prevalence of self-medication practice by caregivers in their children in Sibul Hospital, Malaysia. The association between sociodemographic factors of caregivers with self-medication practice in children were investigated. In addition, the perception of caregivers regarding self-medication in children was explored too. This study was conducted to provide information regarding self-medication practice in children by their caregivers in Malaysia.

METHODS

Study Design and Study Population

This study was a cross-sectional survey conducted between July 2020 and January 2021 in Sibul Hospital. We invited the caregivers with at least one child admitted to paediatric wards to participate in this study. The caregivers of the children who refused to respond to the questionnaire, caregivers with the first newborn baby in the ward, caregivers with a language barrier, and non-Malaysians were excluded from the study. The research was registered with the National Medical Research Register (NMRR) and obtained ethical approval from the Medical Research and Ethics Committee (MREC), Ministry of Health, Malaysia (NMRR-20-972-54962).

Sampling and Sample Size

Universal sampling was used to recruit the participants from paediatric wards. The sample size was calculated via Raosoft sample size calculator with 95% confidence level and a 5% margin of error of 328 participants. A total of 230 participants was recruited in the end of the study due to Covid-19 outbreaks, which led to early termination of the sample recruitment process.

Data Collection Instrument

A questionnaire was used to obtain the data from the participants in the survey. The questionnaire for this study was adapted from the study conducted by Hareed and Nostrom (13). We obtained the permission to use the questionnaire from the original authors. Only section I and section IV from that questionnaire were adapted in our study with some modifications of the questions in section I (sociodemographic information).

The questionnaire for this study was prepared in the English version. It consisted of two sections. Section A was adapted from section I from the study mentioned above. It was related to the caregivers' sociodemographic information, which includes gender, age, race, occupational status, monthly income, and educational level. The total number of children of the respondent was asked too. In this section, the caregivers were interviewed whether they self-medicated their children and on what indication did they self-medicated their children. They were asked about the source of the medicine and the source of information regarding the medicine. Section B was adapted from section IV from the study mentioned above. It consisted of 6 questions. Caregivers were instructed to choose a level of agreement (either 'strongly agree', 'agree', 'uncertain', 'disagree' or 'strongly disagree') related to caregivers' perception regarding self-medication practice in children.

Study Procedure

A pilot study was conducted, and the questionnaire was pre-tested among 50 caregivers to test the validity and reliability of the questionnaire. The Cronbach's alpha reliability coefficient test obtained was 0.549 for the perception of self-medication in children by caregivers. By removing question number 5 in perception, the Cronbach's alpha reliability coefficient test obtained was 0.65. Interviewers discussed among themselves and the standardization of the questionnaire in terms of rephrasing, structure and keywords of the questions during interviewing process to

prevent interviewers' bias and responders' confusion which may affect the result. Before distributing the questionnaire, the purpose of the study and consent form were explained to the caregivers. Upon willingness of the caregivers to participate in the study, the consent form was signed by the caregivers. Researchers conducted the data collection by interviewing the caregivers with a structured questionnaire. The study procedure was illustrated in Figure 1.

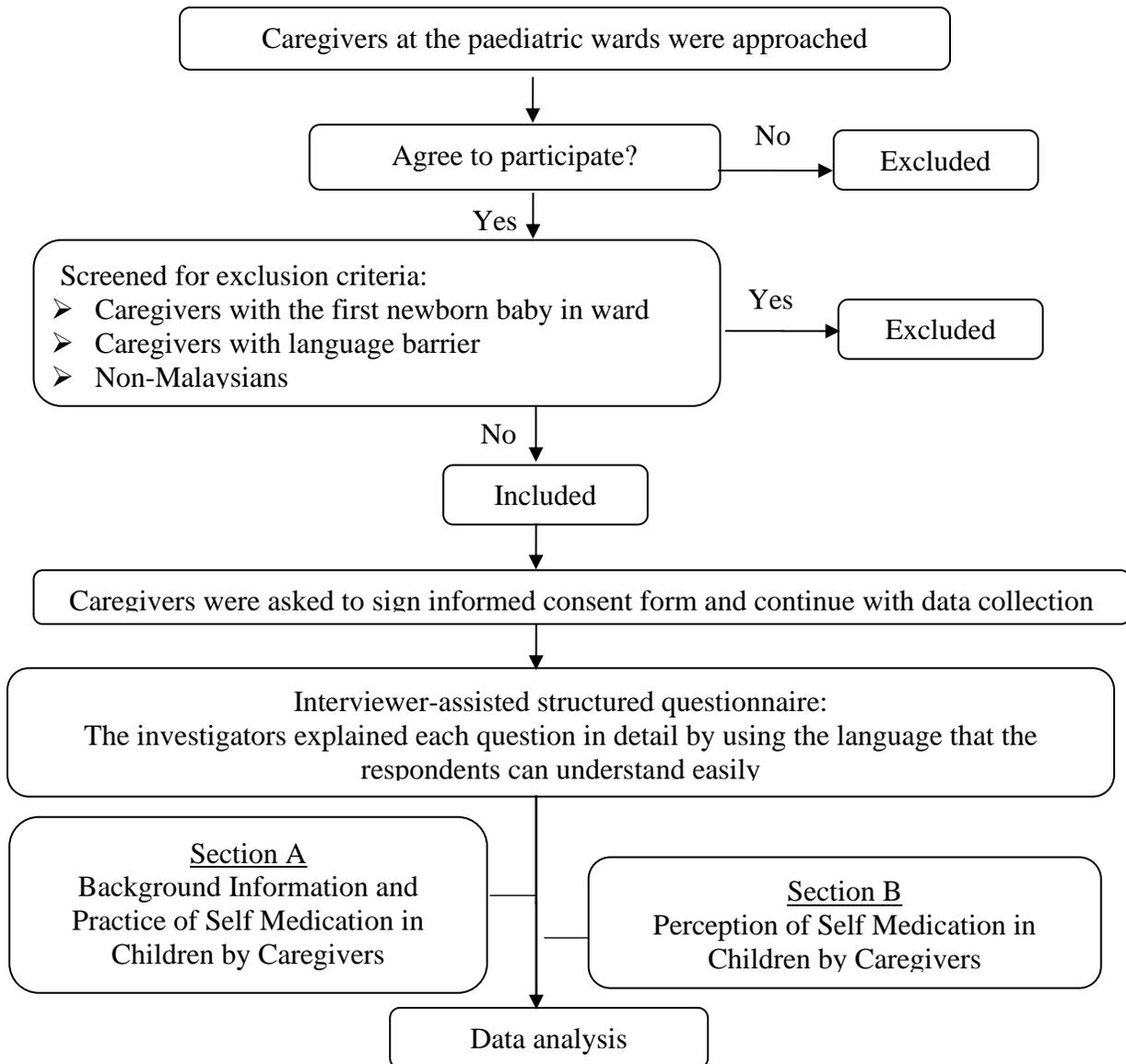


Figure 1: Flowchart of the Study Procedure

Data Analysis

The results were analyzed using the Statistical Package for Social Sciences (SPSS, Version 22, SPSS Inc). The data of sociodemographic information, prevalence of self-medication and perception of self-medication of caregivers were summarized using descriptive statistics. Chi-square test and independent sample t-test were used to examine the association between the sociodemographic characteristics of caregivers with self-medication practice. A value of $P < 0.05$ was considered statistically significant.

RESULTS

Table 1 shows the sociodemographic information of caregivers. Our study shows that the majority of the respondents were females, were mothers to the children and were unemployed. In addition, most of the respondents recruited were from the native ethnic group, Iban. From our study, 70.0% of caregivers (n=161) practised self-medication among children. The self-medication practice in children by caregiver was illustrated in Table 2.

Table 3a and 3b summarise the association between self-medication practice and sociodemographic factors of caregivers. The Chi-Square test showed that there was a significant association between the number of children with self-medication practice according to the chi-square test ($P < 0.05$). The perception of caregivers towards self-medication in children was described in Table 4.

Table 1: Sociodemographic Information of Caregivers (n =230)

| Demographic Information | Frequency, n (%) | Mean (SD) |
|--------------------------------|-------------------------|------------------|
| Gender | | |
| Male | 22 (9.6) | |
| Female | 208 (90.4) | |
| Relationship with child | | |
| Mother | 196 (85.2) | |
| Father | 23 (10.0) | |
| Others | 11 (4.8) | |
| Age (years) | | 31.30 (7.84) |
| Race | | |
| Malay | 41 (17.8) | |
| Chinese | 35 (15.2) | |
| Iban | 125 (54.3) | |
| Others | 29 (12.6) | |
| Occupation | | |
| Employed or Retired | 72 (31.3) | |
| Unemployed | 158 (68.7) | |
| Educational level | | |
| Primary school or below | 49 (21.3) | |
| Secondary school (PMR/SPM) | 134 (58.3) | |
| Pre-U / Diploma | 30 (13.0) | |
| University | 17 (7.4) | |
| Family monthly income | | |
| RM5001 and above | 11 (4.8) | |
| RM3001 - RM5000 | 32 (13.9) | |
| RM1001 - RM3000 | 108 (47.0) | |
| RM1000 and below | 79 (34.3) | |
| Number of children | | |
| 1 | 44 (19.1) | |
| 2 | 75 (32.6) | |
| 3 | 55 (24.0) | |
| 4 | 35 (15.2) | |
| 5 and above | 21 (9.1) | |

Table 2: Self Medication Practice in Children by Caregivers (n= 161)

| Background Information | Frequency, n | Percentage (%) |
|---|---------------------|-----------------------|
| When do you give OTC or medicine without prescription to your child? | | |
| Fever | 149 | 92.5 |
| Headache | 18 | 11.2 |
| Common cold and cough | 100 | 62.1 |
| Gastritis | 27 | 16.8 |
| Nausea and vomiting | 20 | 12.4 |
| Diarrhoea | 37 | 23.0 |
| Skin problems | 69 | 42.9 |
| Eye and ear problems | 18 | 11.2 |
| Asthma | 9 | 5.6 |
| Others | 4 | 2.5 |
| When your child falls sick at home, where do you get medications to treat him/her? | | |
| Buy medicines from a pharmacy | 158 | 98.1 |
| Use remaining medications at home | 53 | 32.9 |
| Use the previous prescription to buy medicines | 8 | 5.0 |
| Others | 0 | 0.0 |
| When you buy medication for your child, who do you seek advice from? | | |
| Relatives | 29 | 18 |
| Pharmacists | 152 | 94.4 |
| Neighbours | 4 | 2.5 |
| Friends | 16 | 9.9 |

Table 3a: Association Between Self Medication Practice and Sociodemographic Factors of Caregivers

| Variable | Self-medicated n (%) | Did not self-medicated n (%) | P value^a |
|------------------------------|---------------------------------|---|----------------------------|
| Gender | | | |
| Male | 12 (5.2) | 10 (4.3) | 0.140 |
| Female | 149 (64.8) | 59 (25.7) | |
| Race | | | |
| Malay | 32 (13.9) | 9 (3.9) | 0.646 |
| Chinese | 23 (10.0) | 12 (5.2) | |
| Iban | 86 (37.4) | 39 (17.0) | |
| Others | 20 (8.7) | 9 (3.9) | |
| Occupation | | | |
| Employed or Retired | 53 (23.0) | 20 (8.7) | 0.643 |
| Unemployed | 108 (47.0) | 49 (21.3) | |
| Educational level | | | |
| Primary school or below | 31 (13.5) | 18 (7.8) | 0.711 |
| Secondary school (PMR/SPM) | 97 (42.2) | 37 (16.1) | |
| Pre-U / Diploma | 21 (9.1) | 9 (3.9) | |
| University | 12 (5.2) | 5 (2.2) | |
| Family monthly income | | | |
| RM5001 and above | 6 (2.6) | 5 (2.2) | 0.240 |
| RM3001 - RM5000 | 22 (9.6) | 10 (4.3) | |
| RM1001 - RM3000 | 82 (35.7) | 26 (11.3) | |
| RM1000 and below | 51 (22.2) | 28 (12.2) | |
| Number of children | | | |
| 1 | 23 (10.0) | 21 (9.1) | *0.044 |
| 2 | 52 (22.6) | 23 (10.0) | |
| 3 | 42 (18.3) | 13 (5.7) | |
| 4 | 27 (11.7) | 8 (3.5) | |
| 5 and above | 17 (7.4) | 4 (1.7) | |

^aChi-square test

*P value significant at < 0.05

Table 3b: Difference in Age of Caregivers and Self Medication Practice

| Sociodemographic Characteristics | Self-medicated (n= 161) Mean (SD) | Did not self-medicated (n= 70) Mean (SD) | Mean difference (95% CI) | P value^b |
|---|--|---|---------------------------------|----------------------------|
| Age (years) | 31.53 (7.352) | 30.75 (8.900) | 3.005 | 0.490 |

^bIndependent *t*-test**Table 4:** Caregivers' Perception of Self Medication in Children (n = 161)

| Question | Responses, n (%) | | | | |
|--|-------------------------|---------------|------------------|-----------------|--------------------------|
| | Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
| 1 It is important to give medicine to the child at home when he/she falls sick. | 43 (26.7) | 107 (66.5) | 8 (5.0) | 3 (1.9) | 0 (0) |
| 2 Medication given at home can prevent worsening of the disease. | 29 (18.0) | 97 (60.2) | 18 (11.2) | 16 (11.2) | 1 (0.6) |
| 3 I always give medicine to the child as soon as he/she falls sick at home. | 36 (22.4) | 96 (59.6) | 9 (5.6) | 17 (10.6) | 3 (1.9) |
| 4 I can treat the child at home by buying medicine from a pharmacy. | 14 (8.7) | 95 (59.0) | 33 (20.5) | 17 (10.6) | 2 (1.2) |
| 5 I can use leftover medicine at home to treat the child. | 7 (4.3) | 35 (21.7) | 31 (19.3) | 51 (31.7) | 37 (23.0) |
| 6 Medication given to the child at home can keep my child healthy. | 14 (8.7) | 65 (40.4) | 59 (36.6) | 21 (13.0) | 2 (1.2) |

DISCUSSION

Self Medication Practice in Children by Caregivers

From our study, 70.0% of caregivers (n=161) practised self-medication among children. The prevalence was higher as compared to other developed countries. Germany recorded a self-medication prevalence of 25.2% (16), while China recorded 62% (6). The prevalence of self-medication among children in Italy was almost similar to this study, with a recorded prevalence of 69.2% (7). However, France had a higher prevalence of 96% (5). Besides, other developing countries had a lower prevalence rate compared to this study. The recorded prevalence in Pakistan was 51.3% (17), 59% in India(18) and in Brazil, which was about 56.6% (19). Moreover, underdeveloped countries also had a lower prevalence compared to this study. The prevalence of self-medication among children was 60% in Yemen (20), 30.1% in Uganda (11) and 53.4% in Nigeria (21).

This difference in the prevalence could have been caused by the difference in sociodemographic backgrounds and cultural attributes between the communities in different countries. Besides inadequate healthcare service in some countries, ease of access to OTC medications in different countries, parental knowledge and perception about self-medication may also lead to differences in the prevalence of self-medication among children by caregivers.

Our study showed that fever was the most common ailment for which caregivers practised self-medication for children. Other studies regarding self-medication in children also had similar outcomes (10,18,22). Table 2 also shows that majority of the caregivers obtained non-prescription medicine from the pharmacy. Caregivers are more likely to go to a pharmacy, where they can more easily obtain treatment without paying for a consultation in a health centre (23). According to the results of our study, only a minority of caregivers used leftover medicine at home to self medicate their children to save money and time. This study also reflected that most caregivers consulted pharmacists when buying medicine to self medicate the children. Pharmacists play a crucial role in providing the public with assistance, advice and information about medicines available for self-medication (23). It was also a common practice among caregivers to seek advice from other family members or friends whenever a child became sick. They seek advice from more experienced family members or friends for a second opinion on the choice of medicines.

Association between Self Medication Practice and Sociodemographic Factors

The Chi-Square test in Table 3a showed that there was a significant association between the number of children with self-medication practice according to the chi-square test ($P < 0.05$). It was noted that caregivers with more children tend to self-medicate their children if compared to caregivers with their first child. Caregivers with more children were more experienced in taking care of the children, including managing their children's ailments and medicine. As revealed by the results of our study, for common and minor ailments such as fever, common cold and minor skin problems, caregivers were more confident to self-medicate their children as they experienced the ailments before. Previous studies also reported common reasons for self-medication in children included minor symptoms of children's ailments (5, 11) and experience of similar symptoms (5,9,22). Caregivers with their first child were not confident to self-medicate their child due to lack of experience and the fear of the side effects of the medications. They were more comfortable sending their children to the nearest health facility to seek medical treatment with consultation from healthcare professionals. As caregivers, they had the responsibility to seek for the best care for their children.

On the other hand, other demographics such as age, gender, race, educational level, occupational status and family monthly income did not reflect a significant association with self-medication practice, as shown in Table 3a and 3b. The results of our study may be limited by the small sample size and unequal recruitment of participants based on their demographics. In future, studies conducted with a larger sample size with equal distribution of demographic background may be conducted to further investigate the association of demographic background with self-medication practice.

Perception of Caregivers towards Self Medication in Children

In this study, most of the caregivers agreed that it was important to give medicine to a child at home when he/she feel sick and medication given can prevent worsening of the disease. However, some respondents mentioned that it was only applicable to some minor illnesses, especially those symptomatic treatments such as fever or flu. Besides, the majority of caregivers agreed that they always gave medicine to the child as soon as he/she fell sick at home. They further explained that they only self-medicated the child when they were familiar with the symptoms. A study done by

Tarciuc et al. also mentioned that the symptoms that lead caregivers to treat their children without medical consultation include minor symptoms such as fever, cough, minor trauma and diarrhoea (25).

In the present study, the majority of the respondents agreed that they could treat the child at home by buying medicine from a pharmacy. The minimal role of a pharmacist in helping respondents to make the proper choice of drug in self-medication was observed in a study from Kuwait (26). Hence, improved awareness about the pharmacist's role as a drug consultant for careful and cautious use of medicine available for self-medication would be recommended. However, about one-fifth of respondents showed uncertain responses to the above statement as they preferred to send their child to clinic or hospital for further treatment.

As shown in table 4, most of the caregivers disagreed with using leftover medicine at home to treat their child. On the other hand, one-quarter of the respondents agreed to use leftover medicine if the medicine had not expired and was still in good condition. The majority of the respondents agreed that medication given to the child at home could keep them healthy. However, some of the respondents were uncertain about this statement as they claimed that it depends on the seriousness of the illness. Most of them mentioned that they would self-medicate if they had experienced similar symptoms before. To sum up, the perception of self-medication in children could be affected by the self-medication behaviour (27). However, our study only explored the perception of caregivers who self-medicated the child at home. Further studies can be conducted in future on the association of perception and self-medication behaviour.

Limitation

The limitation of this study included low Cronbach's alpha reliability coefficient value obtained for the perception section and inadequate samples recruited for this study. The low Cronbach's alpha for the perception part indicated poor reliability of the questionnaire. Due to the Covid-19 outbreaks leading to the early termination of the samples recruitment process. Based on Raosoft sample size calculator, in order to achieve a confidence level of 95% or a margin of error of 5%, the sample size needed to be recruited was 328. However, at the end of this study, only 230 samples were recruited. The main problem with the small sample size was the interpretation of results,

particularly confidence intervals and *p*-values, which may lead to inconclusive results. Besides, this study mainly relied on the recall of the caretakers who could have introduced a recall bias in the study. Moreover, there was an unequal distribution of caregivers regarding their sociodemographic factors, affecting the association findings.

CONCLUSION

Our study showed that self-medication prevalence in children by their caregivers was high (70.0%) compared to other studies. Fever was the most common ailment for which caregivers practised self-medication for children, with a majority of the caregivers obtaining medicine from the pharmacy. Our findings also highlighted that caregivers with more number of children tend to self-medicate their children if compared to caregivers with their first child. In contrast, other demographics such as age, gender, race, educational level, occupational status, and family monthly income were not associated with self-medication practice. Moreover, caregivers generally agreed with the statements mentioned in studying respondents' perception towards self-medication practice, except that most of them disagreed with using leftover medicine at home to treat their child. Therefore, it is strongly recommended to establish education programs for the general population to specify the conditions that could be treated by self-medication practice. Pharmacists' role of advice and information seems essential to caregivers in the choice and use of the drug in self-medication. Pharmacists must fulfil the role of educating caregivers to avoid trivialization of the drug.

REFERENCES

1. Ali AN, Kai JT, Keat CC, Dhanaraj SA. Self-medication practices among health care professionals in a Private University, Malaysia. *International Current Pharmaceutical Journal*. 2012;1(10):302-10.
2. World Health Organization. *Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication*. 2000 p. 31.
3. Bennadi D. Self-medication: A current challenge. *Journal of Basic and Clinical Pharmacy*. 2013;5(1):19.
4. Helal RM, Abou-ElWafa HS. Self-medication in university students from the city of Mansoura, Egypt. *Journal of Environmental and Public Health*. 2017;2017:1-7.

5. Garofalo L, Giuseppe GD, Angelillo IF. Self-Medication Practices among Parents in Italy. *BioMed Research International*. 2015;580650: p1-8.
6. Escourrou B, Bouville B, Bismuth M, Durrieu G, Oustric S. Self-medication in children by parents: a real risk? A cross-sectional descriptive study. *La Revue du Praticien*. 2010;60(6 Suppl):27-34.
7. Yu M, Zhao G, StålsbyLundborg C, Zhu Y, Zhao Q, Xu B. Knowledge, attitudes, and practices of parents in rural China on the use of antibiotics in children: a cross-sectional study. *BMC Infectious Diseases*. 2014;14(1):112.
8. Gohar UF, Khubaib S, Mehmood A. Self-medication trends in children by their parents. *Journal of Developing Drugs*. 2017;6(2):1-7.
9. Nazir S, Goel K, Mittal A, Singh J, Goel RK, Rashid A. Parent induced self-medication among under five children: an observational cross sectional study. *TAF Preventive Medicine Bulletin*. 2015;14(2):81-6.
10. Eldalo A, Yousif M, El-Hadiyah T. Sudanese parents' knowledge, attitudes and practice about self-medication to their children: Qualitative study. *Saudi Journal for Health Sciences*. 2013;2(2):103.
11. Alele PM, Musoke P, Nabukeera N. Self-medication practices by caretakers for children under five years in a rural district of eastern Uganda. *International Invention Journal of Medicine and Medical Sciences*. 2015;2(11):165-171.
12. Sontakke S, Magdum A, Jaiswal K, Bajait C, Pimpalkhute S. Evaluation of parental perception about self-medication and other medicine use practices in children. *European Journal of Pharmaceutical and Medical Research*. 2015;2(7):179-85.
13. Hareed YA, Norstrom F. Knowledge, Perception and Practices of Self Medication Among Households in Children Under Five Years in Borama District, Somaliland. Postgraduate [Thesis]. Somaliland: Amoud University; 2018. Available from: <https://www.umu.se/globalassets/organisation/fakulteter/medfak/institutionen-for-epidemiologi-och-global-halsa/somalia/yusuf-hared.pdf>
14. Dawood OT, Ibrahim MIM, Palaian S. Parent's knowledge and management of their children's ailments in Malaysia. *Pharmacy Practice (Granada)* 2010;8(2):96-102.

15. Vidyavati SD, Sneha A, Kamarudin J, Katti SM. Self Medication - Reasons, Risks and Benefits. *International Journal of Healthcare and Biomedical Research*. 2016;04(04) 21-24.
16. Du Y, Knopf H. Self-medication among children and adolescents in Germany: results of the National Health Survey for Children and Adolescents (KiGGS). *British Journal of Clinical Pharmacology*. 2009;68(4):599-608.
17. Haider S, Thaver IH. Self-medication or self-care: implication for primary health care strategies. *Journal Pakistan Medical Association*. 1995;45: 297-298.
18. Tibdewal S, Gupta M. Mother's use of medication in their children of preschool age. *Indian Journal of Public Health*. 2005;49(1): 27-29.
19. Pereira FS, Bucarechi F, Stephan C, Cordeiro R. Self-medication in children and adolescents. *Jornal de Pediatria*. 2007;83(5): 453-458.
20. Mohanna M. Self-medication with antibiotic in children in Sana'a City, Yemen. *Oman Medical Journal*. 2010;25(1): 41-43.
21. Salami KK, Adesanwo OJ. The practice of self-medication for treatment of illnesses for under-five children by mothers in Ibadan, Nigeria. *Research Journal of Drug Abuse*. 2015;2(1): 2.
22. Tsifiregna R, Razafimahatratra S, Raveloharimino N, Rakotomalala R, Ravelomanana N. Self-medication practice among children in Antananarivo, Madagascar. *International Journal of Research in Medical Sciences*. 2016;4(12):5172-5175.
23. Joint Statement by The International Pharmaceutical Federation and The World Self-Medication Industry: Responsible Self-Medication [Internet]. Fip.org. 1999 [cited 18 February 2021]. Available from: <https://www.fip.org/file/1484>
24. Katumbo AM, Tshiningi TS, Sinanduku JS, Mudisu LK, Mulunda P, Mwadi OM, Luboya ON, Malonga FK. The practice of self-medication in children by their mothers in Lubumbashi, Democratic Republic of Congo. *Journal of Advanced Pediatrics and Child Health*. 2020;3:27-31.
25. Tarciuc P, Stanescu AM, Diaconu CC, Paduraru L, Duduciuc A, Diaconescu S. Patterns and factors associated with self-medication among the pediatric population in Romania. *Medicina*. 2020;56(6):312.

26. Al-Hussaini M, Mustafa S, Ali S. Self-medication among undergraduate medical students in Kuwait with reference to the role of the pharmacist. *Journal of Research in Pharmacy Practice*. 2014;3(1):23.
27. Mok CZ, Sellappans R, Ee Loo JS. The prevalence and perception of self-medication among adults in the Klang Valley, Malaysia. *International Journal of Pharmacy Practice*. 2021;29(1):29–36