Journal of Developing Drugs
ISSN: 2329-6631

Gohar et al., J Develop Drugs 2017, 6:2
DOI:10.4172/2329-6631.1000173

Research Article Open Access

Self-Medication Trends in Children by their Parents

Umar Farooq Gohar[1], Sadia Khubaib[1] and Asad Mehmood[2]

[1]Riphah Institute of Pharmaceutical Sciences, Riphah International University, Lahore Pakistan
[2]University of New South Wales, Sydney 2033, Australia

Abstract

The aim of present study was to determine the self-medication trends in children by their parents, knowledge of self-medication and their attitude towards this practice. Factors that enforced them to do this practice were also determined along with their source of information about drug use. Total 400 parents were randomly selected and interviewed. It was observed that self-medication prevalence in children by their parents was 77.25% with male and female ratio 49% and 51%. Self-medication awareness was 66% among total parents and this practice was more in children of age 1-5 years i.e., 47%. Most common conditions for self-medication were fever, cough, flu, vomiting, diarrhoea and allergies. Frequently used drug groups include antipyretics, cough and cold preparation, antimicrobials, antiemetics and antiallergy. It was also observed that 45% of parents practiced self-medication 3-4 times per year and the main reasons behind this practice were perception of illness, previous experience, lack of time, financial constraint and leftover medicines. Old prescriptions, family members, friends and medical stores were common source of self-medication. This study also revealed that 57% of parents reported recovery after self-medication. It was also observed that 63% of parents informed physician about self-medication in their children and 18% reported that their child became sicker after self-medication. Out of total 56% participants were agreed that self-medication is unsafe for their children.

Keywords: Self-medication; Drug interactions; Analgesics; Anti-inflammatory agents

Introduction

Drug utilization in children is of great concern worldwide [1]. Many drugs for this group of population are used in outpatient settings [2]. Parents generally give drugs to treat their child sickness. The trend of using drugs on their own that is self-medication has been increasing in developing countries as well as in developed countries in recent years [1]. Drugs use without consulting any physician or health care provider for treating or preventing the ailments is self-medication [3].

According to World Health Organization self-medication is the use and selection of medicines by individuals to treat self-recognized illnesses or symptoms. The International Pharmaceutical Federation (IPF) has defined self-medication as non-prescription drugs use by individuals on their own initiative [4]. Drugs purchase and use without an authorized prescription or using previous prescription also comes under self-medication. It also included the use of leftover medicines which are stored at home and medicines advised by family members or friends [5].

Primary responsibility for the use of self-medication products comes not only to the individual but also on all people involved in self-medication. Therefore, all people must be aware of the benefits and risks associated with the self-use of medicines [6]. Self-medication associated risks include inappropriate diagnosis, drug interactions, drug resistance and adverse drug reactions, inappropriate drug choice and augmented polypharmacy. Risk of drug dependency and abuse are also associated with self-medication [4,7]. Others may also include inadequate dosage, excessive prolonged drug use and double medication as individuals could not be able to identify that same drug has already been taken with another brand name which may lead to serious consequences [8]. Unjustified and absurd self-medication consequence is the wastage of healthcare resources and may also lead to hospital admissions [4].

Self-medication practices are of great concern in case of children as children are considered to be more vulnerable regarding the use of medicines. In developing countries children constitute a large percentage of the population and they are more vulnerable and susceptible to different diseases [9]. It is observed that in developed countries people practice self-medication predominantly with non-prescription over the counter drugs whereas most developing countries have a high burden of irrational drug use. The reason behind is the poorly enforced drug utilization policies due to which individuals have access to both prescription and non-prescription medications [10].

Children are given medications by their parents [11]. When children become sick the first response by most of the parents is to self-medicate them [12]. Majority of the parents in both developed and developing countries prefer to treat their child's common ailments like fever, cough/cold and diarrhoea without consulting a physician [10]. Analgesics, antipyretics, anti-inflammatory agents, cough and cold preparations are amongst the commonly practiced self-medications [9].

Different studies conducted to evaluate the patterns of self-medication in children have shown that self-medication prevalence is quite high among children. These studies also show that self-medication patterns are not appropriate enough and parents do not have sufficient and appropriate knowledge about the drug use in children [13]. Worldwide practice of self-medication has been reported to increase day by day. The studies which were conducted in developed countries revealed high prevalence among parents like in Germany 25.2% [11], France 96% [14], China 62% [15], Italy 69.2% [16].

Likewise, in developing countries prevalence rate is quite high. In, Pakistan the prevalence was found to be 51.3% [17], 59% in India [18] and in Brazil about 56.6% [19,20]. Among underdeveloped countries studies showed the prevalence as 60% in Yemen [21], 95.75% in Sudan [13] and 30.1% in Uganda [10]. In, Nigeria many studies were also

***Corresponding author:** Asad Mehmood, University of New South Wales, Sydney 2033, Australia, Tel: +61293851000; E-mail: asadofficial10@gmail.com

Received August 04, 2017; **Accepted** August 07, 2017; **Published** August 14, 2017

Citation: Gohar UF, Khubaib S, Mehmood A (2017) Self-Medication Trends in Children by their Parents. J Develop Drugs 6: 173. doi:10.4172/2329-6631.1000173

conducted for parental self-medication evaluation in children and infants. These studies revealed self-medication prevalence as 53.4% in children [22] and 47.62% in infants [23].

Mostly parents get advice from family, friends or use previous prescription to manage the ailments [9]. In some cases, parents get information from medicine information leaflets, internet, social media and pharmacies to manage the child's condition [16]. Most of the parents take the illness as of mild nature that does not need the service of any physician [16]. Studies also show that old prescriptions are commonly used for treating the similar complaints [21]. Similar complaints are not always the indication of previous disease thus the practice of using previous prescriptions to treat the current illness is not considered to be safe [9]. Similarly, parents are also not aware of the generic and brand name of drugs [9] which may lead to serious consequences especially when one drug is given at the same time having two different brand names. A study in France shows about 21% of parents combine two brands of paracetamol at the same time [14].

Generally, it is observed that parents have a lot of misunderstanding about antibiotics. They think that antibiotics can cure all type of diseases caused by even viruses [1]. In majority of the cases ailments like cold, flu, respiratory tract infections and diarrhoea are viral and usually self-limiting [15]. Emergence of antimicrobial resistance is a major issue throughout the world that is mainly due to the wrong use of antimicrobials. This affects not only to the individuals but to the whole society [24]. Consequences of drug resistance may lead to treatment failure, prolonged hospitalization, drug toxicity and increased treatment cost [1].

Studies showed that self-medication is increasing day by day and many number of factors are accounted for this practice. Among them socioeconomic status, easy availability of medicines, personal high potential for disease management and lifestyle are common [25]. Other important factors influencing self-medication are long waiting hours in clinics/hospitals, high drugs prices, demographic factors like education, gender and age. High consultation fee is also another reason observed for self-medication especially in economically poor deprived communities [26].

In, Germany higher socioeconomic position and higher level of mother's education were reported as the main factors associated with self-medication [11]. Taking the illness as of mild nature, time restraints and previous experience are also among the main reasons of self-medication [27]. Advertisements, financial problems, easy drug accessibility due to poor drug regulations and long time needed to consult physician are the other reasons [28].

Self-medication is also a common practice in Pakistan like other developing countries. Self-medication practices are of great concern in case of children as children are considered to be more vulnerable regarding the use of medicines. In Pakistan children also constitute a large percentage of the population and they are more vulnerable and susceptible to different diseases. Present study was designed and conducted with the purpose to determine the self-medication prevalence in paediatric population. Main aims of present study were to determine self-medication trends in children by parents, their knowledge and attitude towards self-medication. The conditions for which parents usually self-medicate their children, reasons for self-medication and information sources were also determined.

Methodology

The study was conducted in Lahore from the parents visiting health care facilities. Study duration was from December 2016 to July 2017. Parents having at least one child of age less than 16 years were included in this study. There was no limitation of age, level of education, economic status and gender of participants. Data of total 400 participants was collected.

The design of present study based on random sampling technique which was questionnaire based and cross sectional. The questionnaire was prepared in English language and consisted of three sections. First section was related to basic demographic information of participants like name, gender, age, education status, monthly income, number of children and child age for self-medication. In second section, there were twelve basic questions related to self-medication, conditions for which parents usually preferred to self-medicate, medicines used to treat illness and reasons for self-medication. It also included self-medication information source, duration of self-medication, recovery related question and general perception of participants about child self-medication either they considered it safe or not. The last section was related to consent.

Verbal consent of parents was taken prior to interview by explaining them the objective of study. During interview, each question was properly explained to the participants in the language which he/she could understand easily. For each participant data was collected on individual questionnaire. Data of each questionnaire was transferred on excel sheets and results were compiled in the form of frequencies and percentages. Results were then analysed by chi square test using SPSS version 20.

Results

In, order to determine self-medication trends in children 400 parents were interviewed. Gender distribution of participants was 49% male and 51% females (Figure 1). Among total participants 50% belonged to age group 25-34 years and 36.25% were graduated (Figures 2 and 3). As far as the monthly income was concerned 36% of participants belonged to group having income between 30,000-60,000 PKR (Figure 4). Participants having two or three children were 34.25% and 21.5% respectively (Figure 5). Self-medication was found to be 77.25% among total participants (Figure 6). It was observed that 47% of participants were practised self-medication in children between age 1-5 years and 33% in age between 5-12 years as shown in Figure 7.

In present study, trend of preferred therapies among parents who practiced self-medication for their child's ailments were also observed. Most of the participants preferred allopathy as a first choice. Among 309 participants who self-medicate their child, 177(57.3%) preferred allopathy and 84(27.2%) participants preferred allopathy along with other therapies at the same time. Figure 8 clearly shows the results of preferred therapy distribution among participants.

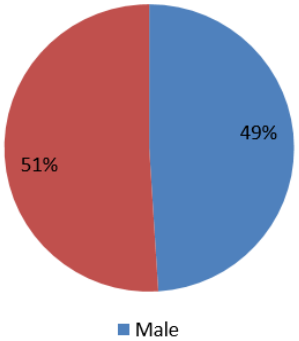
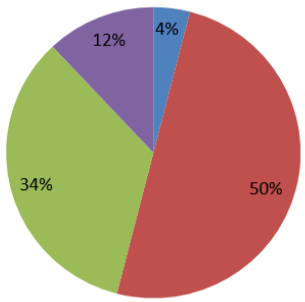
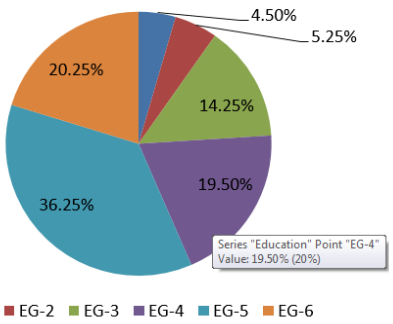


Figure 1: Gender distribution of participants.



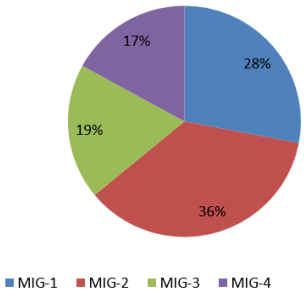
AG-1=18-24 years, AG-2=25-34 years, AG-3=35-44 years, AG-4=45 years or above.

Figure 2: Age group distribution of participants.



EG-1=Illiterate, EG-2=Primary, EG-3=Secondary, EG-4=Intermediate, EG-5=Graduation, EG-6=Post graduate.

Figure 3: Education based group distribution of participants.



MIG-1=Less than 30,000 PKR, MIG-2=30,000-60,000 PKR, MIG-3=Above 60,000 PKR, MIG-4=Refusal.

Figure 4: Income based group distribution of participants.

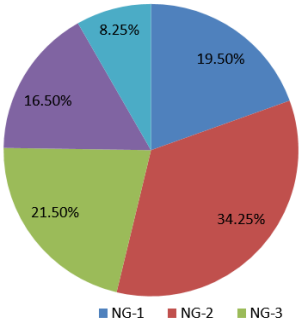
Common ailments for which participants preferred to self-medicate their children were also noted. The distribution of self-medication conditions among participants is shown in Figure 9. It was observed that the most common illness for which parents preferred self-medication was fever (94%). Other common conditions for which self-medication was practices in routine included cough, flu and cold, vomiting and diarrhoea.

Among drugs used for children antipyretics were at the top i.e., 94% then cough and cold preparations 60%, antimicrobials 34% and antiemetics 32%. These were followed by analgesics 25%, antiallergy 21%, ophthalmic preparations 9%, topical preparations 5% and ear preparation 3% as shown in Figure 10.

Self-medication frequency in previous year among children was also noted. It was observed that 45% of participants self-medicate their children three to four times per year (Figure 11). Main reasons that enforced the parents to self-medicate their child were perception of illness 35% and lack of time 24% (Figure 12).

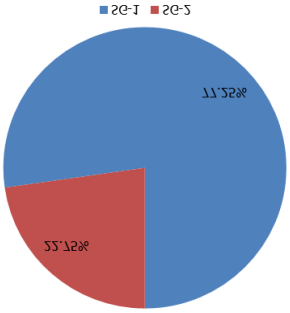
How the people get information about the use of medicine for different ailments was also an important part of present study. Main sources that parents used to get information about the medicine were shown in Figure 13. Participants in group-1 were 24% who acquired information from family members or friends. About 50% of participants used last prescription or previous experience, 24% from family members or friends and 23% from medical stores.

Parents' attitude towards self-medication was also assessed in present study. The attitude of participants towards the recovery after



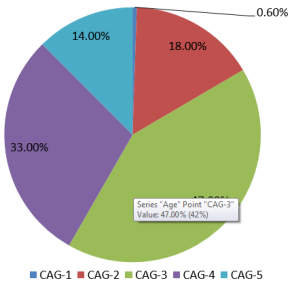
NG-1=One child, NG-2=Two children, NG-3=Three children, NG-4=Four children, NG-5=More than four children.

Figure 5: Group distribution on the basis of number of children.



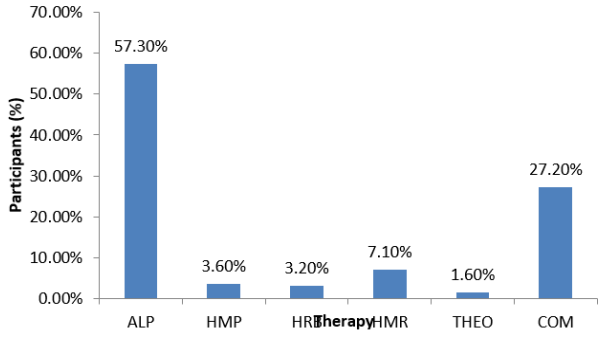
SG-1=Participants who self-medicate, SG-2=Participants who never self-medicate.

Figure 6: Self-medication prevalence groups.



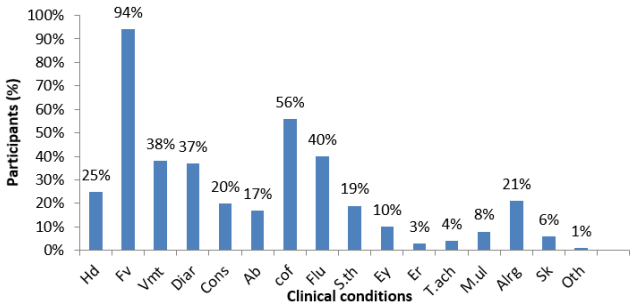
CAG-1=less than 1 month, CAG-2=1-12 months, CAG-3=1-5 years, CAG-4=5-12 years, CAG-5=12-16 years.

Figure 7: Group distribution of participants on the basis of child age.



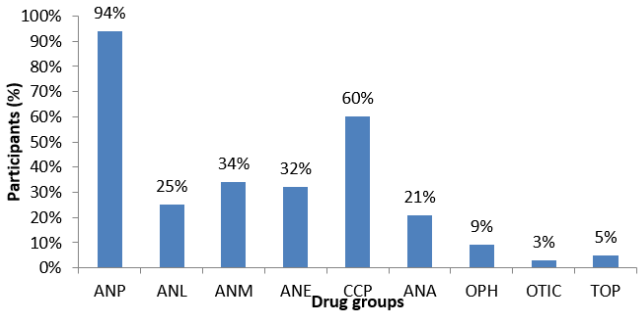
ALP=Allopathy, HMP=Homeopathy, HRB=Herbal, HMR=Home remedies, THEO=Theo-therapy, COM=Combination therapies.

Figure 8: Distribution of preferred therapy among participants.



Hd=Headache, Fv=Fever, Vmt=Vomiting, Diar=Diarrhea, Cons=Constipation, Ab=Abdominal pain, Cof=Cough, Flu=Flu and cold, S.th=Sore throat, Ey=Eye infection, Er=Ear problem, T.ach=Toothache, M.ul=Mouth ulcers, Alrg=Allergy, Sk=Skin problems, Oth=Others (Not mentioned above).

Figure 9: Self-medication based on clinical conditions among participants.

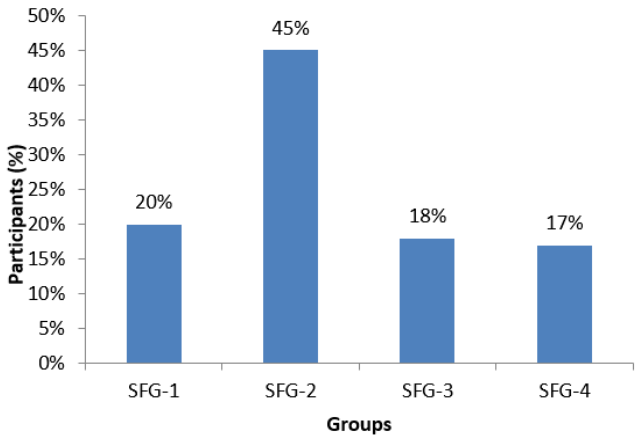


ANP=Antipyretics, ANL=Analgesics, ANM=Antimicrobials, ANE=Antiemetics, CCP=Cough & cold preparations, ANA=Antiallergy, OPH=Ophthalmic preparations, OTIC=Otic preparations, TOP=Topical preparations.

Figure 10: Commonly self-medicated drug groups.

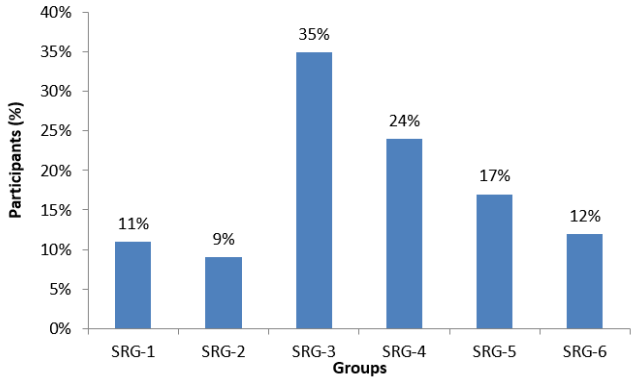
self-medication, duration of self-medication, worsening of child condition after self-medication and intimation of self-medication to physician are shown in Figures 14-17.

Self-medication is either safe or not is a worldwide issue. In present study, it was also enquired from the participants. Among 309 participants who practiced self-medication 56% considered self-medication safe for their children whereas 43% agreed that it was not safe as they have no knowledge of diseases and medicine (Figure 18).



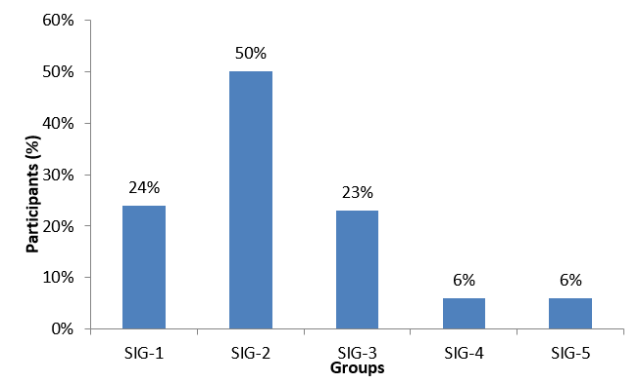
SFG-1=Who self-medicate 1-2 times, SFG-2=Who self-medicate 3-4 times, SFG-3=Who self-medicate 5-6 times, SFG-4=Who self-medicate many times.

Figure 11: Participants' distribution based on self-medication frequency.



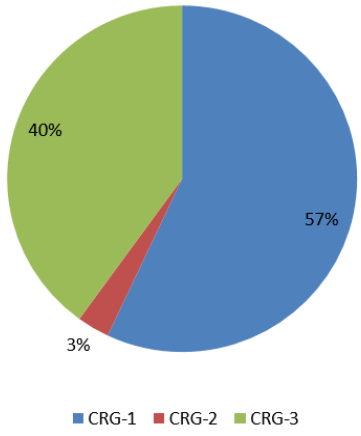
SRG-1=Unavailability/inaccessibility to medical professionals, SRG-2=Non-cooperative attitude of medical staff, SRG-3=Perception of illness, SRG-4=Lack of time, SRG-5=Economical constraint, SRG-6=Others (Not mentioned above).

Figure 12: Distribution of participants based on self-medication reasons/factors.



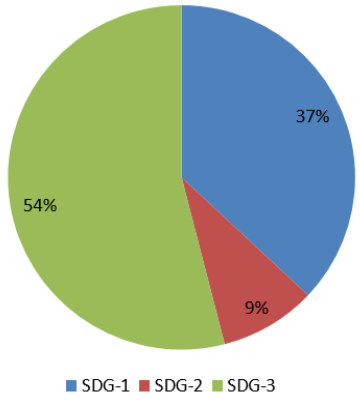
SIG-1=Family/friends, SIG-2=Last prescription/ previous experience, SIG-3=Medical stores/pharmacy, SIG-4=Social media (TV, newspapers, internet), SIG-5=Others (Not mentioned above).

Figure 13: Source of information used by participants for self-medication.



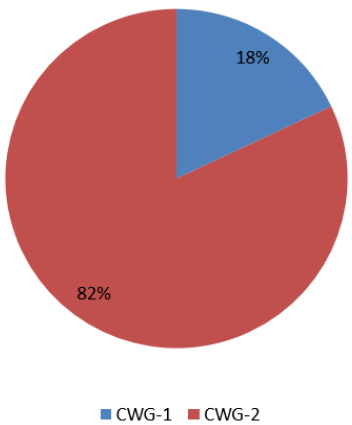
CRG-1=Yes, CRG-2=No, CRG-3=Sometimes.

Figure 14: Distribution of participants based on child recovery after self-medication.



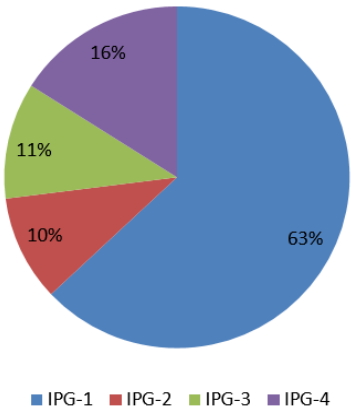
SDG-1=Until recovery, SDG-2=No recovery move to next self-medication, SDG-3=No recovery or become critical move to physician /hospital.

Figure 15: Distribution of participants based on duration of self-medication.



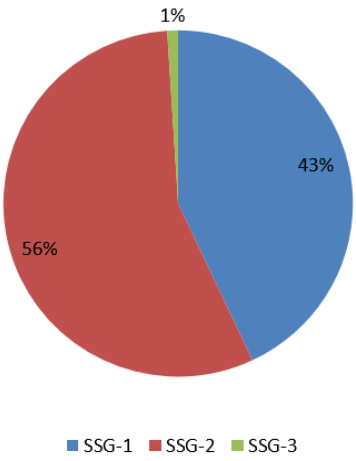
CWG-1=Child's condition worsens after self-medication, CWG-2=Child's condition never worsen after self-medication.

Figure 16: Distribution of participants based on worsen condition.



IPG-1=Informed physician, IPG-2=Did not informed physician, IPG-3=Informed physician at times, IPG-4=No experience.

Figure 17: Distribution of participants based on self-medication intimation to physician.



SSG-1=Self-medication is safe, SSG-2=Self-medication is not safe, SSG-3=No opinion.

Figure 18: Self-medication safety distribution among total participants.

Discussion

Total 400 parents were participated in present study. Among them 51% were mothers and 49% were fathers which show that both parents were almost equally involved while dealing with different issues of child health. Major participants were of age group 25-34 years with 55% females and 45% males. This might be due to the fact that participants in this age group were considered to be more active and showed more concerns to get information and knowledge about their child's health.

Self-medication prevalence among parents was 77.25% which was high as compared to the study conducted in 1995 in Karachi that was 58% [17]. Different studies were also documented extremely variable rates of self-medication in children by parents ranging from 43% to 95.7% [9]. The reasons for this variation might be due to different methods of data collection, availability of free medical for children in some countries, parents' concern about the safety of medicine and high cost of medical care. At times parents did not reveal about the self-use of medicine in children that may also lead to variation [9].

It was observed that educated parents practiced self-medication more as compared to less educated and illiterate. In a study conducted in

Germany self-medication prevalence was also found to be high in educated mothers [11]. Present study reveals that parents with low to moderate monthly income (less than 30,000 and from 30,000 to 60,000 PKR) usually practiced more self-medication to their child. This might be due to high consultation fee of physician and more family responsibilities. This finding contrasts with that studied in Germany where self-medication practice was more in families with high income [11].

Present study reveals that self-medication was high in children above one year of age. This was probably since majority of participants were in opinion that it was safe to use the medicine in children above the age of one year. It was noted that most of the parents preferred allopathy as the first choice of therapy. This is probably due to the awareness among parents and their confidence on allopathy as more effective and reliable as compared to other therapies [13].

Fever was found to be most common for which parents usually self-medicate their children. First response of 94% of parents was to use antipyretic in case of fever. This high percentage was due to the knowledge and awareness among parents regarding the use of antipyretics in fever. Cough, flu, vomiting and diarrhoea were also among the common ailments. In other studies, above mentioned conditions were also reported as most common symptoms in children for which parents practiced self-medication [13,29]. Majority of the medicines used by parents were antipyretics, cough and cold preparations, antimicrobials and antiemetics.

Antimicrobials were mostly used to treat cough and cold, sore throat and diarrhoea. It was also documented in other studies that these ailments are usually treated inappropriately with antimicrobials [9]. Self-use of antimicrobials is alarming. Parents do not have sufficient knowledge about the appropriate use of antimicrobials. The reason behind the frequent use is that antimicrobials can be easily purchased from the medical stores/pharmacies without prescription and no polices are implemented for the sale of antimicrobials without prescription.

Reasons that enforced parents to self-medicate their child were also investigated. The most common reason was found to be perception of illness (35%) that might be due to previous experience of sickness or some knowledge. This practice may lead to misdiagnosis and may prolong the child sickness. Perception of illness was also found among main reasons in another study conducted in Vietnam [30]. Another common reason was lack of time, perhaps this might be due to working status of both parents and they could not get enough time to visit physician/health care facility. Other reasons included were economical constraint, high consultation fee of physician as seen in another study conducted in Sudan [13].

Another factor which enforced the parents to self-medicate was the presence of left over medicine after previous use. This is also a common practice to safe left-over medicine to save money and time. The use of left over medicine is not a good practice as majority of parents has no knowledge about the disease condition for which they were going to use previous medicine. Also, most of the parents were not aware of the proper storage and stability of drugs especially in case of antimicrobials.

In addition, parents were also using the previous prescription to treat the symptoms of ailments similar to previously treated. Such findings were also reported by other studies [9]. This practice is also inappropriate because every time same symptom or complaint does not necessarily mean the same previous disease. Again, the reason behind the said practice might be the high consultation fee, lack of time and unavailability of health facility in nearby. Parents are needed to be educated regarding this issue.

It is also a common practice in our community that whenever a child became sick parents seek advice from other family members or friends. Another common practice in our community is to directly purchase the medicine from medical store /pharmacy by telling symptoms of the ailment. This practice must be discouraged as it may lead to misdiagnosis and lead to serious consequences. In present study previous prescriptions were the commonly used source of information for drug use i.e., 50%. This finding is similar to other studies conducted by Ref. [1,31].

As far as the attitude of parents towards self-medication was concerned 54% of parents consulted physician in case of no recovery. That was a positive attitude in order to avoid serious consequences. In this study 82% of parents respond that their child condition never worsens after self-medication. This high response rate was probably due to the reason that participants were quite conscious about their child health and in case of no recovery after self-medication they preferred to consult physician. This was a positive attitude. It was also observed that 18% of respondents agreed that their child's condition worsen after self-medication, the reason behind might be the wrong assessment of ailment, wrong medicine selection or inappropriate dose of medicine.

Intimation of self-medication to physician is very important as it helps the physician to make correct decision of medicine selection for the properly diagnosed ailment. It was revealed that 63% of participants informed the physician about self-medication. This attitude was positive. On the other hand, 10% of participants were those who never disclosed self-medication to the physician and 11% were those who at times informed the physician. This attitude was highly negative as it might lead to serious consequences. Self-medication either safe or not is a query worldwide. In this study, out of total 56% participants were agreed that self-medication is unsafe for their children.

Conclusions

Results of present study showed that self-medication prevalence in children by their parents is high i.e., 77.25%. It was observed that educated parents usually practiced it due to some knowledge of disease and medicines. It was observed that out of total 400 parents 43% considered self-medication safe whereas 56% considered it unsafe for their children. Child recovery after self-medication was reported by 57% of parents. Worsening of child sickness after self-medication was reported by 18% of parents.

References

1. Jasim AL (2014) Parental self-medication of antibiotics for children in Baghdad city. International Journal of Pharmacy and Pharmaceutical Sciences 6: 485-489.
2. Oshikoya KA, Njokanma OF, Bello JA, Ayorinde EO (2007) Family self-medication for children in an urban area of Nigeria. Paediatric and Perinatal Drug Therapy 8: 124-130.
3. Montastruc JL, Bagheri H, Geraud T, Lapeyre-Mestre M (1996) Pharmacovigilance of self-medication. Therapie 52: 105-110.
4. Eticha T, Mesfin K (2014) Self-medication practices in Mekelle, Ethiopia. PLoS ONE 9: e97464.
5. Loyola Filho AID, Lima-Costa MF, Uchôa E (2004) Bambuí Project: a qualitative approach to self-medication. Cadernos de Saude Publica 20: 1661-1669.
6. Almasdy D, Sharrif A (2011) Self-Medication Practice with Nonprescription Medication among University Students: a review of the literature. Archives of Pharmacy Practice 2: 95-100.
7. Hughes CM, McElnay JC, Fleming GF (2001) Benefits and risks of self-medication. Drug Safety 24: 1027-1037.
8. World Health Organization (2000) Guidelines for the regulatory assessment of Medicinal Products for use in self-medication.

9. Sontakke DS, Magdum A, Jaiswal K, Bajait C, Pimpalkhute S (2015) Evaluation of parental perception about self-medication and other medicine use practices in children. European J Pharm Med Res 2: 179-185.

10. Alele PM, Musoke P, Nicollette N (2015) 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 2: 165-171.

11. Du Y, Knopf H (2009) Self-medication among children and adolescents in Germany: Results of the National Health Survey for Children and Adolescents (KiGGS). British Journal of Clinical Pharmacology 68: 599-608.

12. Eldalo AS (2013) Saudi parent's attitude and practice about self-medicating their children. Archives of Pharmacy Practice 4: 57-62.

13. Eldalo AS, El-Hadiyah TM, Yousif MA (2013) Sudanese parents' knowledge, attitudes and practice about self-medication to their children: Qualitative study. Saudi Journal for Health Sciences 2: 103-107.

14. Escourrou B, Bouville B, Bismuth M, Durrieu G, Oustric S (2010) Self-medication in children by parents: A real risk? A cross-sectional descriptive study. La Revue du Patrician 60: 27-34.

15. Yu M, Zhao G, Lundborg CS, Zhu Y, Zhao Q, et al. (2014) Knowledge, attitudes, and practices of parents in rural China on the use of antibiotics in children: A cross-sectional study. BMC Infectious Diseases 14: 112.

16. Garofalo L, Di Giuseppe G, Angelillo IF (2015) Self-medication practices among parents in Italy. BioMed Research International 2015.

17. Haider S, Thaver IH (1995) Self-medication or self-care: implication for primary health care strategies. Journal Pakistan Medical Association 45: 297-298.

18. Tibdewal S, Gupta M (2005) Mother's use of medication in their children of preschool age. Indian Journal of Public Health 49: 27-29.

19. Pereira FS, Bucaretchi F, Stephan C, Cordeiro R (2007) Self-medication in children and adolescents. Jornal de Pediatria 83: 453-458.

20. Cruz MJ, Dourado LF, Bodevan EC, Andrade RA, Santos DF (2014) Medication use among children 0-14 years old: population baseline study. Jornal de Pediatria 90: 608-615.

21. Mohanna M (2010) Self-medication with antibiotic in children in Sana'a City, Yemen. Oman Medical Journal 25: 41-43.

22. Salami KK, Adesanwo OJ (2015) The practice of self-medication for treatment of illnesses for under-five children by mothers in Ibadan, Nigeria. Research Journal of Drug Abuse 2: 2.

23. Oshikoya KA, Njokanma OF, Bello JA, Ayorinde EO (2008) The use of prescribed and non-prescribed drugs in infants in Lagos, Nigeria. J Med Sci 8: 111-117.

24. Al-Azzam S, Al-Husein B, Alzoubi F, Masadeh M, Ali M (2007) Self-medication with antibiotics in Jordanian population. International Journal of Occupational Medicine and Environmental Health 20: 373-380.

25. World Health Organization (1998) The role of the pharmacist in self-care and self-medication. Geneva, WHO.

26. Abrha S, Molla F, Melkam W (2014) Self-medication practice: the case of Kolladiba Town, North West Ethiopia. IJPSR 5: 670-677.

27. Selvaraj K, Kumar SG, Ramalingam A (2014) Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. Perspectives in Clinical Research 5: 32-36.

28. Osemene KP, Lamikanra A (2012) A study of the prevalence of self-medication practice among university students in Southwestern Nigeria. Tropical Journal of Pharmaceutical Research 11: 683-689.

29. Aoyama I, Koyama S, Hibino H (2012) Self-medication behaviours among Japanese consumers: sex, age, and SES differences and caregivers' attitudes toward their children's health management. Asia Pacific Family Medicine 11: 7.

30. Le TH, Ottosson E, Nguyen TKC, Kim BG, Allebeck P (2011) Drug use and self-medication among children with respiratory illness or diarrhoea in a rural district in Vietnam: a qualitative study. Journal of Multidisciplinary Healthcare 4: 329-336.

31. Shehnaz SI, Sreedharan J, Khan N, Issa KJ, Arifulla M (2013) Factors associated with self-medication among expatriate high school students: a cross-sectional survey in United Arab Emirates. Epidemiology, Biostatistics and Public Health, p: 10.