

ORIGINAL ARTICLE

PRACTICES OF HERBAL MEDICINAL PRODUCTS AMONG
PAEDIATRICIANS OF HAZARA DIVISION

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Background: Herbal medicinal products have gained popularity among physicians and paediatricians of Pakistan. These products are considered 'safe' but concerns exist especially when they are used in children. This study has been carried out to see the practices of paediatricians of Hazara Division about prescription of herbal medicines to children. **Methods:** A total of 64 paediatricians were included in this study in Ayub Teaching Hospital, and DHQ hospitals of Haripur, Abbottabad, Mansehra and Battagram. One specific proforma was administered to doctors having 15 questions about use of herbal medicinal products in children. Data was analyzed using SPSS-20. **Results:** Out of total 64 paediatricians, 71.9% had used herbal medicinal products in children and 37.5% preferred to use these products for common flu and colic, while 25% of respondent consider herbal medicinal products beneficial and 50% consider them safe in children. But 7.8% were not sure if these products are safe in children. Adverse effects with use of herbal medicinal products were observed by 10.9% paediatricians. About 9.4% parents showed concern when doctors were prescribing herbal products, 53% of respondent's do not know if herbal medicinal products are regulated by drug regulatory authority of Pakistan. There is a significant relationship between prescription pattern and product safety ($p=0.001$). **Conclusion:** Trend to prescribe herbal medicines is increasing among paediatricians. The safety and efficacy of herbal products must be evaluated in depth.

Keywords: herbal medicinal products, safety, adverse effects, children

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INTRODUCTION

Herbal medicinal products are used for the treatment and prevention of illness in order to restore the normal physiology of body and contain either herbal substances or herbal preparations or may be both.¹ Herbal medicinal products are part of many cultures in east as well as in the western society for the treatment of various ailments. These products are used as traditional medication in treatment from flu to very complicated diseases and are more prevalent in west Asian countries including Pakistan.² Not only in the Asian countries, the use in more but also use of these products are becoming more day by day.^{3,4} During last decade in USA the supplements containing herbal products have more sale.⁵ Majority of people who use these products consider these product's use to be safe because these are natural.⁶

But with use of these products there are many concerns regarding adverse effects along with safety and efficacy. Also there is issue of products regulation and quality control.⁷ Due to immaturity of different organs as liver and kidney and different physiology and drug metabolism, the dose requirement of children is different as compared to the adults.⁸

This study has been carried out among Paediatricians of Hazara Division to know their concept of prescribing herbal medicinal products to children.

SUBJECTS AND METHODS

This study has been carried out in specialized hospitals of Hazara Division of Pakistan after taking approval from Medical Ethics Committee of Ayub Medical Institution, Abbottabad. Paediatricians working in functional District Headquarters (DHQ) of Hazara Division were included in the study.

A proforma having 15 questions about the use of herbal medicinal products was given to the paediatricians after taking their informed consent and included in the study. The information was obtained anonymously. After adequate time for filling the proforma the same were collected back. The data was analyzed using SPSS-20, and $p<0.05$ was taken as significant.

RESULTS

A total of 64 paediatricians of Hazara Division responded. Doctors who prescribe these products, if they prefer to use them for common infections like flu, 45.7% responded in 'Yes' (Table-1). There was significant relationship between prescription and preference for treatment of common infection ($p=0.03$).

The responses to questions are shown in Table-2. The first question was about the use of herbal medicinal products by the doctor, as 46 (71.9%) responses was 'Yes' and 18 (28.1%) said 'No'.

One question was about if these products are beneficial for the patients as 16 (25%) responded 'Yes' and 45 (70.3%) responded 'No' while 3 (4.7%) were not sure. Regarding the safety of these products in children, 32 (50%) said 'Yes' and 27 (42.2%) marked these products as unsafe while 5 (7.8%) were not sure. There was also one question about the observation of adverse effects of these products as 7 (10.9%) responded 'Yes' and 57 (89.1%) responded 'No'.

Parents counselling is done by 24 (37.5%) doctors before prescription while 10 (15.6%) responded that parents inquired if doctor is going to prescribe herbal medicinal product. Six (9.4%) responded that parents showed concern when these products are prescribed.

Fifteen (23.4%) responded yes that parents demand these products to be prescribed for their children. There was another question about the reading of content of these prescription, as 54 (84.4%) responded 'Yes' while 10 (15.6%) responded 'No'. In response to search of literature about herbal medicinal products, 35 (54.7%) responded 'Yes' while 29 (45.3%) responded 'No'. About more than one content of the herbal medicinal product, 39 (60.9%) knew and 22 (34.4%) did not know.

In response to the question if doctor has got any interest to study about these products as majority of pharmaceutical companies are now making these products, only 21 (32.8%) responded as 'Yes' while 43 (67.2%) seemed not to be interested in studying the pharmacokinetics/pharmacodynamics of these products.

Drug Regulatory Authority of Pakistan (DRAP) regulates the pharmaceutical industry in Pakistan. Interestingly majority of doctors (53.1%) did not know if DRAP regulates these products, while 4.7% were not sure. Quality control is one of the major steps in drug manufacturing. In response to question if these drugs pass quality control, 68.8% were not aware and 7.8% were not sure.

Table-1: Prescription vs preference

Prescription	Preference		Total
	Yes	No	
Yes	21 (45.7%)	25 (54.3%)	46
No	3 (16.7%)	15 (83.3%)	18
Total	24 (37.5%)	40 (62.5%)	64

Table-2: Response to questions

S. No	Questions	Percentages		
		Yes	No	Not sure
1	Have you ever prescribed herbal medicinal products to children?	71.9	28.1	0
2	Do you prefer to prescribe herbal medicinal products for common infections as ARI/cough/appetite?	45.1	54.9	0
3	Do you think herbal medicinal products are more beneficial for the patients?	25	70.3	4.1
4	Do you consider herbal medicinal products safe in children?	50	42.2	7.8
5	Have you ever observed any adverse effect with use of herbal medicinal products?	10.9	89.1	0
6	Do you counsel the patient/parents that you are giving herbal medicinal products?	37.5	62.5	0

7	Have ever parents inquired that if you are prescribing herbal medicinal products?	15.6	84.4	0
8	Do ever parents show concern that you are prescribing herbal medicinal products?	9.4	90.6	0
9	Do ever parents demand to write some herbal medicinal products for their children?	23.4	76.6	0
10	Have you ever read the contents of herbal medicinal products on packing of medicine?	84.4	15.6	0
11	Have you ever searched literature about herbal medicinal products?	54.7	45.3	0
12	Do you know herbal medicinal products contain more than one active component?	60.9	34.4	4.7
13	Have you ever got interest to study the pharmacokinetics/pharmacodynamics of the active components of herbal medicinal products?	32.8	67.2	0
14	Do you know herbal medicinal products are regulated by DRAP (Drug Regulatory Authority of Pakistan)?	42.2	53.1	4.7
15	Do you know if herbal medicinal products pass quality control tests?	33.4	68.8	7.8

DISCUSSION

In clinical practice herbal medicinal products are very much in as in most of the countries these products are called 'alternate' medications. These drugs are not only prescribed by the doctors but parents also buy the drugs over the counter and use as remedy in treatment of various paediatric issue as infantile colic, flu and cough.

Srdjenovic *et al*⁹ in their study took 41 herbal based products used for children and did analysis for residual solvents and ethanol. Ethanol exceeded the labelled content in 60% products and it was present in 88% of products meant for use in children less than 2 years of age. In lieu of WHO proposed ethanol content in products, i.e., <0.5%, the blood alcohol levels in children using these medications were exceeding the toxicological levels even with use of a single dose. Their study showed serious concerns for the children using the herbal medicinal products as called for strict quality control and guidelines. In our study 34.4% of paediatricians were not even aware that if herbal medicinal products contain more than one content and 68.8% were not aware that if these products even go through quality control. This is huge percentage and there must be guidelines on use of these products.

Lombardia *et al*¹⁰ studied the safety of complementary and alternative medicine in children by analysis of adverse effects in children as the safety of these products is not known when marketed for use. Their study included 206 children with adverse effects and out of these, 69 had serious adverse effects, subcutaneous tissue and skin being the most commonly involved. Products containing more than one component reported more adverse effects. In our study 10.9% paediatricians observed the adverse effects with use of these products while 34.4% did not know if herbal medicinal products contain more than one component. Lombardia *et al*¹⁰ study showed that products with multiple contents can cause more adverse effects.

Lucasa *et al*¹¹ in one of their systemic reviews concluded that though variety of complementary and alternative medicines are used for management of acute respiratory infections in children yet are being used more commonly in South Asian countries.

Lewanda *et al*¹² included children with down syndrome for use of dietary supplements as parents of these children want their child to get well soon and grow normally. They found that majority of parents give supplements to their children with Down syndrome and most of the ingredients are concerning with unknown adverse effects. So parents should be informed by the doctors with potential hazards of these drugs. In our study 23.4% paediatricians responded that parents demand the doctor to prescribe herbal medicinal products for their children. Only 37.5% of paediatricians counsel the parents that they are prescribing herbal medicinal products while 15.6% paediatricians response that parents inquire if their child in being given other medication. Though these products are prescribed by doctors, yet in our study 9.4% respondent parents show concern if their child is being given herbal medicinal product.

Allgaier *et al*¹³ calculated the exposure risk of pyrrolizidine alkaloids which are common plant toxins directed against insect herbivores. These alkaloids are hepatotoxic and also mutagenic and may be carcinogenic in human beings. Exposure to these products is there with use of herbal medicinal products. In our study 50% of paediatricians responded that they consider herbal medicinal products to be safe for use in children and also 25% responded that these products are beneficial for the children whereas it was seen that they can be harmful. There should be national guidelines for use of these herbal medicinal products in children to save them from adverse effects.

Ahmed *et al*¹⁴ studied the effects of herbal medicines in pregnant women and neonates. They found increased use of these products in pregnancy though there were adverse effects not only in women using these products but also symptoms in 52.7% of neonates and serious cardiac defect in one baby. In contrast one case series in Nigeria by Ajibade¹⁵ showed beneficial effects of nutraceutical products in children with neurological and behavioural problems ranging from autism to neurodevelopmental delay. It was case series of a few patients. In comparison 25% of our study respondents termed herbal medicinal products to be beneficial in children!

In India, Keosaian *et al*¹⁶ checked blood lead levels of children who used Ayurvedic medicines. They also checked blood lead levels in children whose parents were putting *kohl* as cosmetic. Most of the parents reported giving Ayurvedic medicine for various health issues, cough and cold being the most common. The blood lead levels were higher with use of cosmetics. In

Pakistan similar traditions are followed. So herbal medicinal products and *kohl* use are the main risk factors for elevated lead levels in children.

Liang *et al*¹⁷ in their systemic review included Taiwanese children about use of traditional Chinese herbal remedies which were being used for respiratory and digestive system problems along with other ill-defined conditions. In our study, 71.9% of the participant doctors used these herbal medicinal products while 45.7% prefer to use them for common respiratory infections with significant relationship between prescription and preference for common infection treatment ($p=0.03$).

Not only are these herbal medicinal products used in China and South Asia but also in Middle East. One study by Alharbi *et al*¹⁸ in Saudi Arabia showed that 59.3% of caregivers were using these herbal medicines for treatment of respiratory infections when they visited the hospital. In our study the doctors responded that 23.4% of parents demand these products to be prescribed for their children.

The herbal medicinal products are not only used in children but also in adults for chronic disease like diabetes mellitus. A study by Kamran *et al*¹⁹ done in Peshawar Pakistan, showed that majority of patients use complementary and alternate medications containing herbal extracts with confidence and belief.

This study is based only on knowledge, attitude and practices, and opinion has been taken only from the paediatricians working at district level. To know better about such practices and preferences, the study should include the paediatricians from the teaching and tertiary care institutes at provincial and national level. Interventional studies should be done for better understanding the effectiveness and related adverse effects of these products.

CONCLUSION

Herbal medicinal products have been prescribed frequently, and there is preference of paediatricians for using in common ailments in Hazara Division. As these products are being prescribed to children also, their harmlessness and beneficence should be considered seriously.

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