

Share of Traditional and Industrial Medications of Total Medication Expenditures in Iran, 2013-2014



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Abstract

Industrial and traditional medications are classified as evitable part of health care systems. In all health care systems, a high share of financial resources is allocated to medications. The aim of this article is to determine the share of industrial and traditional medications from overall cost of health care in rural and urban area of Iran. This cross-sectional descriptive study was conducted on income and expenditure data of households. In this study, respectively 37765 and 38826 households from urban and rural area were surveyed. The household medications cost was extracted from seven medication group. Capacity to pay for each household excluded from deduction of median cost of dietary of overall household costs. Data have been analyzed by excel software. The median cost of medicine in urban and rural area was respectively 352,934.56 and 247850.69 Rial. Share of industrial medicine in urban and rural area was respectively 97.2 and 97.9. Education can help to shift dramatically increase of industrial medication use trend to traditional medicine.

Keywords: Fees; Pharmaceutical; Herbal Medicine; Rural Health; Urban Health; Natural health products

Introduction

The traditional medications besides the industrial medications are considered as an indispensable part of healthcare in many countries and both from the perspective of treatment and prevention of diseases have a significant value in providing health of society [1]. WHO reported that 80% of people in the world have inclination towards using traditional medication or compositions or extracts of them as their primary healthcare preferences. Different studies show that in UK 33%, in France 49%, 46% in Italy, 66 to 75% in Belgium, 20-30% in Germany and 18% of the population in the Netherlands are interested in using complementary treatment or traditional treatment which herbal medications is part of that [2]. Nowadays this idea has been improved that traditional and industrial treatments are not only in contrary but also can be used as complementary and strong motives for implementation of their combination in a balanced way that the positive effects of both will be intensified.

Studies show that in recent years with the findings from the harmful side effects of industrial medications, the trend of using herbal medications has been significantly increased

[3] in developed countries, the amount of using natural health products (NHP), including herbal medicines have indicated a significance increase. In the United States, 40% of adults and 11.8% of children use complementary and alternative medicine and more than 70% of the Canadians use NHP such as herbal medicines frequently during their lifetime [4]. According a study done in Australia, 90.5% of women used complementary and alternative medicine, the most frequent of which are respectively supplements such as vitamins and minerals and secondly herbal medicines [4,5]. More than 70% of the interviewees participating in study in New Zealand had consumed one or more herbal medications during the year before interview [2]. The amount of using herbal medicines is variant among the Asian countries ranging from 22% to 77% [6-11].

The Mediterranean countries are one of the most frequent consumers of these medications i.e. 7.6% to 85.7% [12-15]. The people suffering from chronic diseases such as diabetics, cardiovascular diseases and cancer have more tendencies for using herbal medicine [16]. As an instance, the amount of using this kind of medications among the patients with kidney diseases

in countries such as Thailand, The United States and Malaysia varies from 32 to 77% [17-22]. Despite the high tendency for using traditional medications, some studies reported high amount of using industrial medications. In one study in Iran, the average of prescribed medications varied from 1.4 to 3.8 for each prescription while this have been varied in 91.2% of visits at least one medication, in 8.2% only one and in 61.2% 2items and in 22.5 % more than 3 items had been prescribed. While the average of prescribed medication had been varied between 1.5 to 2 items internationally. The results of some studies show that in 40% of prescriptions more than one item has been prescribed.

The pattern of medication consumption in Iran represents that the people do not follow a logical and standard pattern of use, therefore this illogical pattern not only help patient and health of society but also due to its side effects can lead to challenges and serious problems [23]. Identifying this pattern can help managers and policy makers of the country to have the best decisions for increasing the efficiency of medications and also using proper combinations of traditional and industrial medications for catching the purpose of increasing health in the society. Therefore; the present study has been conducted with the aim of indicating the share of traditional and industrial medications consumption in rural and urban areas of Iran.

Materials and Methods

The current study is a cross-sectional- analytic research, in which the share of medications of household health care expenditure has been calculated based on the households' income and expenditure survey in years 2013-2014. The income and expenditure data of urban and rural households is published annually by the statistics center of Iran. The mentioned plan based on the recommendations of the United Nations by means of sampling method, and referring to sample households in urban and rural households has been done.

The sampling method was done in a way that it can be extended to the whole country based on the rural and urban regions. Based on this, there were at least 1000 samples gathered from each province (at least 500 samples from rural and 500 samples from urban areas). Totally in year 2013, 18880 households from urban and 19436 households from rural areas were interviewed in person. In 2014 as well 18885 and 19390 households from urban and rural areas were investigated. In order to calculate this expenditure from the whole family health

expenditure and in order to apply these data to the whole country, the samples from each province was rated and scaled based on the share of each household. The data from households which deviated from the samples with huge difference were disregarded. The household medications expenditure including the medical groups

- A. Treatment medications, supplements, pain killers, serums etc.
- B. Herbal and in house medications
- C. Gelicirin, Paraffin, Vaseline etc.,
- D. Various kinds of herbal essences and extracts.
- E. Contraception treatments (pills, capsules and injections)
- F. Medication for special diseases such as thalassemia etc.
- G. Various kinds of detergents and preservers and also the nutrition expenditure of each household were calculated in 10 edible groups (except Tobacco products).

The out-patient medical services, hospital (in-patient) services, and family healthcare expenditure, medical instruments and expenditures for addiction recovery of each household were also estimated as household health expenditure. In this study, the capacity to pay for each household average of capacity to pay for each province was also calculated based on rural and urban areas which have been calculated from the average fraction of the edibles expenditures of each household from the same province. The analysis of data was done by means of descriptive statistics and by means of Excell2007and stata11.

Results

Table 1 shows the monthly average medication expenditure of a household with the coefficient of variations, the share of traditional and industrial medications from the whole medication expenditure and significant difference between the costs of traditional and industrial medications in rural and urban areas by provinces. Based on the findings, the highest monthly average of expenditures were relatively for Chaharmahal-o-Bakhtiari province (479193 Rials), Fars Province (495610 Rials) and the lowest expenditure for average monthly expenditure were for Lorestan province (124502 Rials) and rural areas of Sistan-o-Balochestan (63783 Rials).

Table 1: monthly average and CV of medication expenditures by province

Province	Urban				Rural				P-value	p-value
	Average	CV	Share of Industrial Medication of Total Expenditures	Share of Traditional Medication of Total Expenditures	Average	CV	Share of Industrial Medication of Total Expenditures	Share of Traditional Medication of Total Expenditures		
Markazi	3,26,561.36	0.02	97.10%	2.90%	2,54,142.92	0.02	95.80%	4.20%	0	0.87
Gilan	4,76,536.40	0.01	98.50%	1.50%	3,99,005.86	0.01	99.40%	0.60%	0	0
Mazandaran	2,72,770.54	0.02	99.60%	0.40%	2,79,933.52	0.02	100.00%	0.03%	0	0

Azarbaijan sharghi	4,18,706.94	0.02	98.10%	1.90%	4,29,482.72	0.02	98.60%	1.40%	0	0
Azarbaijan gharbi	2,17,436.26	0.02	94.70%	5.30%	2,09,287.96	0.02	97.70%	2.30%	0	0
Kermanshah	3,07,331.29	0.02	94.60%	5.40%	2,64,028.63	0.02	98.40%	1.60%	0	0
Khozestan	3,97,368.23	0.02	99.30%	0.70%	2,07,889.21	0.02	99.10%	0.90%	0	0
Fars	4,35,533.29	0.03	97.30%	2.70%	4,95,610.51	0.07	99.00%	1.00%	0	0
Kerman	3,99,332.75	0.03	98.70%	1.30%	2,20,975.99	0.02	99.10%	0.90%	0	0
Khorasan razavi	1,90,946.58	0.02	94.40%	5.60%	1,88,983.25	0.02	91.90%	8.10%	0	0
Esfahan	4,36,629.74	0.02	96.40%	3.60%	3,67,434.78	0.02	96.70%	3.30%	0	0
Sistan balochestan	1,84,536.67	0.03	99.60%	0.40%	63,783.45	0.02	96.80%	3.20%	0	0
Kordestan	2,29,610.10	0.04	97.20%	2.80%	1,69,690.15	0.03	96.00%	4.00%	0	0
Hamedan	2,25,101.13	0.03	97.80%	2.20%	2,03,938.11	0.05	99.70%	0.30%	0	0
Chaharmahalbakhtiari	4,79,193.93	0.04	96.80%	3.20%	3,35,464.50	0.04	94.90%	5.10%	0	0
Lorestan	1,24,502.94	0.04	94.80%	5.20%	74,679.41	0.03	95.70%	4.30%	0	0
Ilam	1,88,992.29	0.04	93.70%	6.30%	1,45,147.15	0.02	95.40%	4.60%	0	0
Kohceloye	2,05,495.21	0.02	95.60%	4.40%	1,86,228.41	0.02	96.60%	3.40%	0	0
Boshehr	3,20,472.39	0.02	96.90%	3.10%	1,73,350.73	0.02	93.00%	7.00%	0	0.9
Zanjan	1,66,501.78	0.02	97.70%	2.30%	1,42,300.95	0.02	99.70%	0.30%	0	0
Semnan	2,63,083.51	0.02	99.90%	0.10%	2,91,323.60	0.02	99.90%	0.10%	0	0
Yazd	1,90,441.49	0.02	92.10%	7.90%	2,54,267.53	0.02	95.30%	4.70%	0	0
Hormozgan	3,75,062.64	0.04	97.60%	2.40%	2,10,108.16	0.02	96.10%	3.90%	0	0
Tehran	4,75,935.82	0.03	97.10%	2.90%	2,57,887.24	0.02	99.70%	0.30%	0	0
Ardebil	2,23,021.54	0.02	100.00%	0.00%	1,64,385.63	0.02	100.00%	0.00%	0	1
Ghom	2,94,217.32	0.02	97.70%	2.30%	3,94,125.00	0.01	99.30%	0.70%	0	0
Ghazvin	2,77,998.45	0.02	99.90%	0.10%	1,96,202.20	0.02	99.60%	0.40%	0	0
Golestan	2,51,851.30	0.02	96.60%	3.40%	2,09,146.95	0.02	99.00%	1.00%	0.01	0
Khorasan shomali	2,11,030.89	0.03	98.30%	1.70%	1,77,146.81	0.02	98.00%	2.00%	0	0
Khorasan jonobi	1,51,478.36	0.02	82.40%	17.60%	1,16,467.78	0.02	83.50%	16.50%	0	0
Alborz	3,42,473.01	0.03	96.60%	3.40%	1,42,907.21	0.02	93.20%	6.80%	0	0
Total	3,52,934.56	0.03	97.20%	2.80%	247850.69	0.04	97.90%	2.10%	0	0

The highest share of industrial medications expenditures in urban areas has been related to Ardabil province (100%) and in rural areas was related to Mazandaran and Ardabil (100%). The biggest share of traditional medications expenditure of the total medications expenditure in rural and urban areas has been relatively 17.6% and 16.5% for the South Khorasan province. Findings indicated there was a significance difference between the cost of industrial medications in rural and urban areas of 31 provinces. For traditional medications except Boushehr (p-value: 0.9), Markazi (p-value: 0.87%) and Ardabil (p-value: 1), province, the difference has been statistically significant.

Table 2 shows the monthly average cost of household's industrial medications and coefficient of variances in urban and rural areas. Data indicates that the average of household industrial medications expenditure of an urban household is more than rural areas, furthermore; there is a significance difference between monthly average of household industrial medications expenditure in rural and urban areas. Table 3 shows the monthly average cost of household's traditional medications and coefficient of variances in urban and rural areas. Based on this information, the average of traditional medications expenditure is higher in urban areas moreover

there is a significance difference between averages of household traditional medications expenditure of two regions.

Table 2: Monthly average and CV of household industrial medication expenditure in urban and rural area.

Area	Amount of Household	Average of Medication Expenditure	CV	p-value
Urban	17232401	343038.55	0.03	0
Rural	6143612	242635.02	0.04	
Total	23376013	316650.81	0.03	

Table 3: Monthly average and CV of household traditional medication expenditure in urban and rural area.

Area	Amount of Household	Average of Medication Expenditure	CV	p-value
Urban	17232401	9896.01	0.09	00/0
Rural	6143612	5215.66	0.08	
Total	23376013	8665.94	0.09	

Lorenz curve for household medication expenditure (For both rural and urban areas) is shown in Figure 1,2. Inequality in the expenditure (medication consumption) distribution is obvious. But one can see that traditional medications consumption Distribution is more unequal than the industrial medications. Totally, the monthly average of urban household medication expenditure has been estimated as 352934Rials 97/2% of which was related to industrial medications. For rural household, has been estimated as 247850Rials, 97/9 of which was related to industrial medications

Discussion

The current study has been conducted with the aim of investigating the amount of traditional and industrial medications consumption in rural and urban areas. The findings of this study showed that generally the industrial medications consumption has been significantly more than traditional medications. In this respect, share of traditional medications has been estimated less than 3% of total household medication expenditures. Nowadays 20% of prescriptions in developed countries and 80% in developing countries are related to traditional medications [24] which have a significant difference with the current study. This gap can be due to many reasons. First of all it can be due to considering some derivatives of herbal medications as industrial medications in current study, compared to the mentioned research.

The second reason can be due to the registration of data related to household traditional medications expenditure. This can also because of the fact that individuals although using herbal products won't name them as medication. The WHO report shows that 70 to 80% of the world population for their primary care relies on uncommon medications which are mostly herbal [2,25]. The field studies in the country as well show that the share of traditional medications has been significantly high. Result of a study in Shahkord indicated that the rate of traditional medications consumption in pregnant women has been 51.9%. studies in Iran show that 71.5% of the population use traditional medications, 70% of men and 73.5% of Iranian women are traditional medications consumers, this shows that in Iran, similar to other developing countries or less developed in contrast to developed countries people have more have more inclination to use traditional medications [2].

The next reason can be because of the willingness of the physicians to prescribe industrial medications, based on WHO report Iran from the perspective of using industrial medications is among the 20 first countries of the world and in the Asia has the second stance after China [23]. The results of a study in khuzestan showed that averagely in each prescription 2/6

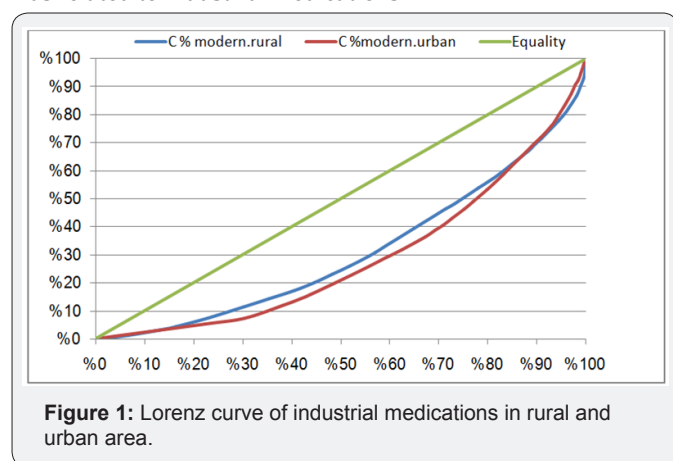


Figure 1: Lorenz curve of industrial medications in rural and urban area.

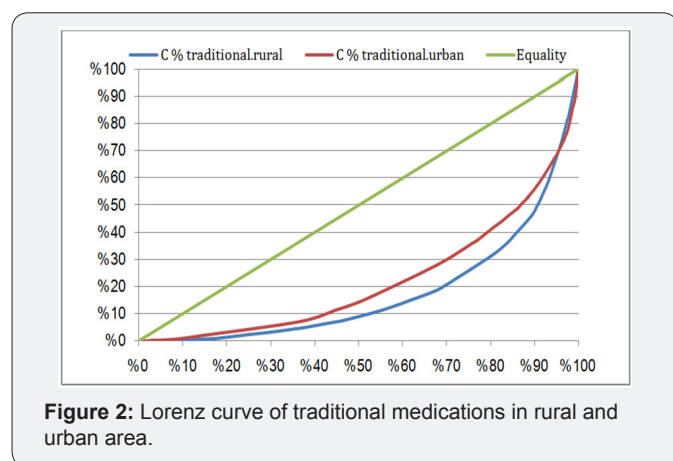


Figure 2: Lorenz curve of traditional medications in rural and urban area.

medications has been prescribed which is higher than the international average [26]. In a study in Ahvaz the average of the prescribed medications has been 3/1 per prescription [27]. This has evidences in other countries as well. In a study by Pavian the findings showed, more than 3 items had been prescribed. The Fadar study also indicated the average of 3/8 items per prescription and the medical groups of anti-inflammation-NSAID, antihistamines have been the most prevalent medications [28]. The studies show that in recent years the prescribed medications have increased up to 33%. Almost 24% of Scottish had received 4 items per prescription.

Another important finding of this study is the share of traditional medications from the total household medication expenditure in urban areas in comparison to the rural areas, and the share of modern medications from the total household medication expenditure in rural areas in comparison to urban areas with the significant difference has been higher ($p\text{-value} < .05$), the reason of this difference can be due to some factors such as access, social, economic and cultural issues. In fact the belief in using the traditional medications has a correlation with the culture of that society. The findings from a study showed that even though the high tendency toward using of such medications, the high price of them is a reason to limit the consumption. The results showed that among 65.8% of people, who had used traditional medications, the high percentage has been related to middle income population (44.9%) and lowest amount has been related to the lowest income population (18.4%) [3]. The studies show that generally the beliefs, gender, being urban or rural, age and level of education have a high influence on the individuals inclination toward using traditional medications for the prevention or treatment of their diseases [3,6,29,30].

The findings showed that the elderly have 83% more willingness toward using the traditional medications and 89.4% of the females referred to the health centers have a positive attitude towards using traditional medications. Moreover, being natural, and as a consequence the belief of being healthy and having no harm, about the traditional medications are among the other reasons for having fans [13,31,32]. The findings of a study in Virginia indicated that 45.2% of the rural women had used herbal medication at least once during their pregnancy [25].

In the united states 4 of 10 adults (25%) and 1 of 9 children (11.8%) had used complementary or alternative treatment during one year and children whose parents had used traditional medications were almost 5 times more than whose parents had not used these products eager to use them, therefore cultural and educational issues are significant as the influential factors in using these medications. In this study the Alaska AB-Originals adults and whites were more eager to use these medications compared to the Asians or blacks which was respectively 50.3%,

43.1%, 39.9% and finally 25.5% [31]. The rate of traditional medications consumption among the pregnant women in middle Asia is various from between 22.3% to 82.3% [33].

This study like any other study has its own delimitations; due to being national and implementing by the statistic center of Iran and at the same time not having the researchers in the data collection process are among most limitation of the study. Although the statistic center of Iran has approved the stability and constructs validity of the data and sampling method, the next issue is lack of similar studies in the national level in order to have a comparison among provinces. Limited sampling has also been among the rural and urban challenges which are the result of lack of required timing and budget. Although as previously mentioned the statistic center of Iran has approved and confirmed the validity of the data both in rural and urban areas.

Conclusion

The amount of traditional medications consumption from the perspective of the demand, depends on the individuals and household's belief on these products which it influenced by the living environment and culture. In the field of supply, as well, the perspective of prescribers such as physicians and related facilities through the country are significant. The dramatically increasing trend of industrial medications can be shift toward boosting traditional medications consumption in both supply and demand chain by teaching. The health system by means of acquiring sufficient knowledge about these facts has to redirect the trend and patterns towards improvement of health in the society.

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