Study of awareness, attitude, and utilization of Complementary and Alternative Medicine among patients visiting urban and rural health centers

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ABSTRACT
Worldwide there is a recent increase in the usage of Complementary and Alternative Medicine (CAM), which has been defined as a group of diverse medical and healthcare systems, practices and products that are presently not considered to be a part of conventional medicine. The objectives were to assess and to compare the awareness, perspective, and utilization of CAM among urban and rural patients. A cross-sectional study was conducted among 200 out-patients attending the urban and rural health centers with a standardized questionnaire. MS Excel and Epi Info were used for data entry and analysis. The awareness of CAM was 71% of urban patients and 63% of rural patients. Despite the awareness of CAM, the urban patient either liked CAM (32%) or apathetic towards CAM (32%) and rural patients mostly apathetic towards CAM (47%). Both areas of patients (41%) used CAM, of which 36% were urban patients and 46% were rural patients. There is a higher proportion of aware patients in rural areas (73%) used CAM when compared to the usage of CAM by aware patients in the urban area (51%). Despite the usage of CAM, both areas of patients preferred Allopathy. In summary, this study demonstrated that most patients are aware of CAM, but patients were mostly apathetic towards CAM. Around half of the patients utilized alternative medicine.

INTRODUCTION
Alternative medicine has been increasingly used worldwide (Chan, 2003). Complementary and alternative medicine (CAM) has been defined as a group of diverse medical and healthcare systems, practices and products that are presently not considered to be a part of conventional medicine (Singh et al., 2005). India is the birthplace of the oldest systems of medicines, like Ayurveda, Yoga, Siddha, etc. (Prtić-Majić et al., 1996). Nevertheless, there are other countries where alternative medicines originated from. For example, Acupuncture originated from China, Homeopathy originated from Europe (mainly Germany) (Black et al., 1994), and Unani originated from Greece (Ahmad, 2007). Despite the origin of these medicines, surveys have been conducted between 15 countries and depicted that CAM prevalence usage was estimated from 9.8% to 76% (Harris et al., 2012). There is increasing popularity towards CAM in recent years. For example, recently, around 42% of American households have tired CAM. This trend is also seen in Europe, Australia, China and Israel (Pal, 2002). Apart from usage in the Western world, CAM usage is increasing in developing countries, especially in India (Pal, 2002).
According to WHO reports, 80% of world population rely on traditional medicines in their primary healthcare (Chan, 2003). Alternative medicines are commonly used because of: traditional beliefs (Chan, 2003), increase in the prevalence of chronic diseases, increase access to worldwide health information, increase in sense of right to quality of life, the decline in faith of scientific breakthrough for the treatment of disease, increased interest in spiritualism, and concern about adverse effect and cost of allopathy (Pal, 2002). These reasons not only increase the usage of CAM among patients; but also, increases inclination towards CAM. Patients recently prefer CAM more than they have in previous years. Some countries recognize and support alternative medicine systems. Indian Government supports alternative systems of medicines like Ayurveda, Siddha, Unani, Yoga, etc. (Subbarayappa, 1997). Out of these alternative medicine systems, Ayurveda is the most commonly practiced in India, particularly in rural areas (Gogtay et al., 2002).

Allopathic medicine practices and CAM practices run parallel to each other in India (Gogtay et al., 2002). Developed countries, like the United States of America, have an increasing number of US insurers and managed care organizations offering alternative medicine programs (Pelletier et al., 1999). Increased CAM usage had led many US medical schools to offer courses on alternative medicine (Wetzel et al., 1998). Growing popularity towards CAM resulted in both developed and developing countries to recognize and support alternative medicine practices. Due to the recent increase use of CAM, we conducted this study to assess the awareness, attitude, and utilization among patients. In addition, we wanted to compare the perception of CAM among urban and rural patients to see whether there was a difference in their approach towards CAM. Previous studies that have been conducted are among the general population, like in the United States of America study done by Eisenberg et al. or conducted to compare the perspective towards CAM between doctors and patients (Roy et al., 2015). Thereby, this study’s objectives are: to assess and compare the awareness, attitude, and utilization of CAM among rural and urban patients.

**MATERIALS AND METHODS**

A cross-sectional study was carried out among rural and urban patients attending the institution’s Urban and Rural health and training centers. The study was carried out for a period of two months from July to Aug 2016. A sample size of 200 was estimated based on the use of alternative medicine which was 38.7% in the study by Roy et al. Sample size of 200 included 100 patients from rural and urban health centre. Both male and female patients above 18 years attending the center were handed out a pre tested semistructured questionnaire, which included questions related to sociodemographic profile and awareness, attitude and use of CAM. Written informed consent was taken from the participants. Data entry and analysis was done using MS Excel and Epi Info.

**RESULTS**

A total of 200 participants were included from both centers in the study. More than half of participants were females in both urban 61% and rural 63% areas. The proportion of those aged equal and above 30 years of age was 74% and 79% in urban and rural areas. Married patients and people belonging to the Hindu religion constituted the majority of study population in both areas. Majority of the patients belonged to Social Class II in an urban area 73% whereas, the distribution was almost equal among those in rural areas. The proportion of smokers and alcohol users were 36% and 46% in urban and rural areas. The details have been summarized in Table 1.

**Awareness of alternative medicine among rural and urban patients:**

Urban patients were more aware of CAM (71%) when compared to rural patients (63%). However, this difference was not statistically significant. This summarized in Table 2. ($X^2 = 1.45$, $p$ value=0.228).

**Association between selected demographic factors and awareness of alternative medicine among rural patients**

In rural area, female patients 57% had higher awareness, when compared to males. Above the age of 30 yrs 78% were more aware when compared to those below 30 years of age. The above differences were not statistically significant (p>0.05). More than half of the married patients 65% and Hindus 61%, who constituted the major study population, were aware of CAM. Among the smokers and alcohol users, all were aware about CAM; whereas, the majority of the non-smokers and non-alcohol users 69% were unaware of CAM. The awareness was high among all classes of the people except for Class II.

**Association between selected demographic factors and awareness of alternative medicine among urban patients**

The results in urban area were similar to the results of rural area. In urban area, female patients 58% had higher awareness, when compared to the males.
Table 1: Demographic details of the study participants in urban and rural areas (total n=200).

| Demographic details | Urban (n=100) (%) | Rural (n=100) (%) |
|---------------------|------------------|------------------|
| Sex                 |                  |                  |
| Male                | 39%              | 37%              |
| Female              | 61%              | 63%              |
| Age group           |                  |                  |
| <30                 | 26%              | 21%              |
| ≥30                 | 74%              | 79%              |
| Marital Status      |                  |                  |
| Married             | 79%              | 93%              |
| Unmarried           | 14%              | 2%               |
| Widow & Widower     | 7%               | 5%               |
| Religion            |                  |                  |
| Hindu               | 88%              | 96%              |
| Muslim              | 4%               | 0%               |
| Christian           | 8%               | 4%               |
| Social Class        |                  |                  |
| I                   | 2%               | 18%              |
| II                  | 73%              | 32%              |
| III                 | 17%              | 25%              |
| IV                  | 8%               | 18%              |
| V                   | 0%               | 7%               |
| Smoking             |                  |                  |
| Yes                 | 36%              | 46%              |
| No                  | 64%              | 54%              |
| Alcohol Use         |                  |                  |
| Yes                 | 36%              | 46%              |
| No                  | 64%              | 54%              |

Majority of the patients above the age of 30 years of age (70%) were aware of CAM. The above differences were not statistically significant (p>0.05). Majority of the married patients (73%) and Hindus (70%) were aware of CAM. Among the smokers and alcohol users, all were aware about CAM. The awareness was high among non-smokers and non-alcohol users when compared to patients from the rural center. The awareness was high among all classes of the patients, who visited the urban center. Majority of the patients belonging to Class II in the urban area were aware of CAM (71%); whereas, in the rural area, most of them were unaware of CAM (53%).

Comparison of attitude towards alternative medicine between rural and urban patients

In urban area, most patients liked CAM 46% when compared to the patients 38% who did not like it. In rural area, 34% of patients said they like CAM; whereas, 18% said they disliked it. Majority of the patients 44% had no opinion in the rural area. More urban patients 14% were willing to try CAM when compared to rural patients 4%. This has been depicted in Figure 1. The traditional belief was the reason given among 30% of urban patients and 22% of rural patients, who liked alternative medicine. Among those who did not like alternative medicine, the reason given by 13% of urban patients and 15% of rural patients was that they felt it was ineffective.

Table 2: Awareness regarding alternative medicine among urban and rural patients.

| Area   | Awareness present | Awareness absent | Chi-square | p-value |
|--------|-------------------|------------------|------------|---------|
| Urban  | 71                | 29               | 1.45       | 0.228   |
| Rural  | 63                | 37               |            |         |

Data was collected from the survey among patients, which is demonstrated as a bar graph. Urban patients 46% and rural patients 34% liked CAM. Majority of the rural patients 44% had no opinion.
Patients in rural areas had 1.51 times higher chance of utilizing alternative medicine when compared to urban patients. This difference was not statistically significant, as seen in Table 3.

Association between selected demographic factors and utilization of alternative medicine among urban patients

In urban areas, males 54% had higher utilization of CAM compared to female 46% patients. Those aged above 30 years of age 57% had higher utilization. These differences were not statistically significant. Proportion of patients not utilizing CAM was more among married patients 52% and those belonging to the Hindu religion 54%. The utilization practice was higher among nonalcohol users and nonsmokers 67%. Patients belonged to Class I showed higher utilization pattern 72% compared to other classes. Patients belonging to Class III had lower utilization pattern has been depicted in Figure 2.

Association between selected demographic factors and utilization of alternative medicine among rural patients

In rural area, the overall utilization pattern was low compared to urban patients. Nonutilization was more among female patients 65% when compared to males. Those belonging to the age group of more than 30 years 66% showed lesser utilization pattern. The unmarried 71% showed a higher nonutilization pattern when compared to married patients 62%. Higher nonutilization was seen among alcohol users 69% and smokers 83%. Similar to an urban area, rural patients belonged to Class I 100% had the highest utilization pattern patients belonging in Class V 0% had no utilization pattern.

Utilization of alternative medicine among different classes of patients in urban and rural areas

Utilization patterns were acquired from the survey and compiled into a bar graph to show the difference in utilization of Complementary and Alternative Medicine (CAM). The patients belonging to Class I from urban (72%) and rural (100%) areas showed the highest utilization pattern compared to other classes utilization pattern.

Type of alternative medicine used among urban and rural patients

Most commonly used CAM was home remedies, which was 16% in urban and 30% in rural. Siddha was the next most used, 13% urban patients and 12% rural patients followed by Ayurveda, where 4% of urban patients and 6% of rural patients used it. This has been depicted in Figure 3.
combination with Allopathic medicine, was seen in 10% of rural patients and 3% of urban patients. This is also shown in Table 4. In both areas, patients preferred Allopathic Medicine (80% of urban patients and 75% of rural patients). However, 12% of urban patients and 11% of rural patients preferred both medicines in combination. In both areas, patients were advised by family members regarding CAM (19% of urban patients and 20% of rural patients).

**Table 4: Utilization pattern of alternative medicine among urban and rural patients.**

| Number of CAM* used | Urban(%) | Rural(%) |
|--------------------|----------|----------|
| Single             | 36%      | 38%      |
| Multiple           | 0%       | 8%       |

**Proportion of aware patients using alternative medicine**

A higher proportion of aware patients in rural areas (73%) used Alternative medicine when compared to the aware patients in the urban area (51%).

**DISCUSSION**

In our study, there were a total of 200 participants, which includes 74 were males and 124 were females; similar to Chatterjee *et al.* study, which includes 200 of which 80 were males and 120 were females. Among the religious groups, Hindus was the majority consisting of 92% (urban: 88, rural: 96); whereas, Hindu was majority consisting of 58% in the study by *Roy et al.* The proportion of smokers and alcohol users were 36% and 46% in urban and rural areas, respectively. However, in the study conducted by *Roy et al.*, smokers were around 44% and alcohol users were around 51%.

The traditional belief was the reason given among 30% of urban patients and 22% of rural patients, who liked Alternative Medicine. On the contrary, in a study by *Singh et al.*, CAM was preferred as a safe form of medical care by 23.4% of participants. From a total of 200 patients, 41% of patients (46% rural and 36% urban) utilized CAM. On the other hand, a study done by *Roy et al.* had 28% of patients utilized CAM, by *Zaman et al.* had 39% patients utilized CAM, and by *Furlow et al.* had 54.5% patients had utilized CAM. Patients in the rural areas had 1.51 times higher chance of utilizing CAM when compared to urban patients. However, this difference was not statistically significant. ($X^2 = 2.07, p$ value=0.15).

In *Roy et al.* majority were males (57%) utilizing CAM, similar to this study finding where in the urban areas, 54% males used CAM. In this study *Roy et al.* had nonsmokers and non-alcoholic use alternative medicine more than smokers and alcoholics had used. In the current study, home remedies (23%) was used the most, followed by Siddha (12.5%), Ayurveda (5%), Homeopathy (2.5%), Yoga (1.5%), and others (0.5%). On the other hand, Ayurveda was most frequently used in studies conducted by *Roy et al.* (36%) and by *Zaman et al.* (28%). This study (19.5%), *Roy et al.* study (43%) and *Zaman et al.* study (78%), patients were advised by their family members about CAM; whereas, in *Singh et al.* (51.9%) of the CAM users were either advised by someone other than family to try the alternate product/treatment modality or were influenced by advertisements in the local newspapers, books or magazines. In this study, both rural and urban areas CAM was mostly used to treat Upper Respiratory Tract Infections (URTI).

In addition, 13% of urban patients used alternative medicine to treat myalgia. However, in *Singh et al.* study, use of CAM was mainly for Diabetes Mellitus (22.1%), headaches (22.1%) and arthritis or joint pains (18.2%). In *Roy et al.*, patients used CAM mostly for fever (38%) and skin ailments (28%). In the current study, both areas of patients preferred Allopathic Medicine (80% of urban patients and 75% of rural patients). However, 12% of urban patients and 11% of rural patients preferred both medicines in combination. This is in contrast to *Singh et al.* study where the participants who used CAM, only 14.3% expressed a preference for modern (allopathic) medicine, 51.9% preferred CAM and 32.5% would choose to use both modern medicine and CAM.

Despite the varied findings, overall, the patients utilized alternative medicine in most of the studies. Examples of these studies are study was done by *Roy et al.* (2015), a study conducted by *Chatterjee et al.* (2012), study by *Singh et al.* (2004), a study was done by *Zaman et al.* (2007), and a study conducted by *Furlow et al.* (2008). This is an indication that physicians should acknowledge the views and utilization of CAM by their patients. Thereby, help improve the quality of care and prevent any adverse effects from treatment interaction among Allopathy and CAM.

**CONCLUSIONS**

In conclusion, 71% of urban patients were aware of alternative medicine; whereas, in 63% of rural patients were aware. Even though patients were
aware, urban patients either liked alternative medicine (32%) or had no opinion about alternative medicine (32%) and rural patients mostly had no opinion towards alternative medicine (47%). 41% of both areas of patients used alternative medicine, of which 36% were urban patients and 46% were rural patients. In both areas, alternative medicine was commonly used to treat upper respiratory tract infection. 15% of urban patients and 19% of rural patients used CAM to treat upper respiratory tract infections.

Additionally, around 13% of urban patients used CAM to also treat myalgia. The types of alternative medicines used are home remedies (23%), Siddha (12.5%), Ayurveda (5%), Homeopathy (2.5%), Yoga (1.5%), and others (0.5%). Patients not only used CAM alone for treatment; but have also, used CAM in combination with Allopathic medicine for treatment, which was seen in 10% of rural patients and 3% of urban patients. Aware patients in the rural area (73%) had a higher proportion of CAM usage when compared to the CAM usage by aware patients in urban area (51%). A small proportion of urban patients (12%) and of rural patients (11%) preferred both medicines in combination. Regardless of the usage of CAM, both areas of patients preferred Allopathy to CAM of which were 80% of urban patients and 75% of rural patients. The study may be biased since samples were only taken from patients coming to Allopathy health centers.

Further research may be conducted in Complementary and Alternative medicine health care centers to assess and compare their views on Complementary and Alternative medicine. There is a lack of study of the effectiveness of CAM as compared to Allopathy. A prospective study can be conducted on the effectiveness of different treatments in different health conditions. Another prospective study can be conducted to assess any interactions between Allopathy and CAM. Furthermore, increasing research studies in Complementary and Alternative Medicine may help physicians improve treatment and quality of care towards patients and may avoid any adverse effects from treatment interactions between Allopathy and CAM.

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Conflict of Interest

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