Observational Study

Pattern of medical pluralism in patients under treatment for lifestyle diseases in a tertiary level hospital in Uttarakhand

Ranjeeta Kumari[1], Priyansh Gupta[2], Bhola Nath[3]

Medical pluralism (MP) can be defined as the employment of more than one medical system or the use of both conventional and complementary and alternative medicine (CAM) for health and illness. A study about the pattern of medical pluralism in patients under treatment for lifestyle diseases would help in understanding the various aspects of use of CAM in such patients for achieving best outcomes. The present study was a cross sectional study which was conducted among the patients under treatment for lifestyle diseases in a tertiary level hospital in Uttarakhand. A total of 125 patients were interviewed for the present study. Most of the participants had Type 2 Diabetes mellitus (47%), and about one fourth had both diabetes and hypertension. About 43% had used CAM at some time since diagnosis. About 40% of the ever users of CAM were using it currently also. Most common modality used was ayurveda, followed by herbal medicines, naturopathy and yoga. A bivariate analysis of sociodemographic characteristics and CAM use showed that no other factor except for the absence of health insurance had a statistical association with the use of CAM. The use and acceptability of CAM by people under treatment for lifestyle diseases is quite high and most of these were self prescribed or taken on the advice of friends and neighbors' etc. The need of the hour is to generate scientific evidence regarding these modalities of treatment so that they can be incorporated scientifically in the treatment regime of patients for maximizing the benefits.

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***Key words* : Medical pluralism, alternative medicine, lifestyle diseases.**

Medical pluralism (MP) can be defined as the employment of more than one medical system or the use of both conventional and complementary and alternative medicine (CAM) for health and illness[1].

Pluralism has always existed in health care systems due to the presence of multiple practitioners to choose from and multiple ways of understanding health and healing[2]. Previous researches in several countries have documented the increased adoption of MP for US and Taiwan[1,3].

Life style diseases such as diabetes mellitus and hypertension, sadly, do not find a 'cure' in the conventional allopathic system of medicine and are amenable for control only, with dedicated and uninterrupted use of prescribed medicines throughout the life of the patient, subjecting them to the daily agony of swallowing a pill. This in turn makes the patients' search for alternative therapies with the hope of finding a cure in a more naturalistic manner[4-6].

Department of Community and Family Medicine, AIIMS, Rishikesh 249201

[1]MBBS, MD (Social and Preventive Medicine), DNB (Social and Preventive Medicine), Associate Professor

[2]MBBS Student

[3]MBBS, MD (Social and Preventive Medicine), DNB (Social and Preventive Medicine), Associate Professor, Department of Community Medicine, VCSGGMS&RI, Srinagar 246174 and Corresponding author

Traditional and complementary/alternative medicine has demonstrated efficacy in areas such as mental health, disease prevention, treatment of non-communicable diseases, and improvement of the quality of life for persons living with chronic diseases as well as for the ageing population[7].

However, medical pluralism is not bereft of the negative impact on the health of the people, mostly because the use of CAM is usually not evidence based and not sought from a Registered Medical Practitioner. There have been reports of adverse effects from ingestion of herbal tea and increased chances of interaction of these alternative remedies with that of allopathic ones when taken simultaneously[7]. Unqualified practice provides suboptimal, often costly and dangerous treatment for patients. On the other hand, evidence based use of these remedies can prove to be very helpful in providing holistic health to the people.

A study about the pattern of medical pluralism in patients under treatment for lifestyle diseases would help in understanding the various aspects of use of CAM in such patients and thus help in designing better integrative treatment regimens to balance the effectiveness, affordability, acceptability, faith and convenience of the therapy regimens for best outcomes.

Methodology :

Study Design : The present study was a cross sectional study which was conducted among the patients under treatment for lifestyle diseases in a tertiary level hospital in Uttarakhand.

Case definitions for the present study :

- **Lifestyle diseases :** For the purpose of present study, patients under treatment for diabetes or hypertension or both were included.
- **CAM :** According to the definition used by the Cochrane Collaboration, 'complementary and alternative medicine' is a broad domain of healing resources that encompasses all health systems, modalities, practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period[8]. For the purpose of present study, any treatment modality other than the allopathic medicine prescribed, were considered as CAM.
- **Currently using CAM :** Operational definition was those persons who were taking CAM at the time of interview for data collection.

Study population & inclusion criteria : Patients over 18 years of age, irrespective of the gender, under treatment for diabetes or hypertension or both presenting to the OPD were included.

Exclusion criteria : Those patients not willing to participate, severely ill or hard of hearing were excluded from the study due to obvious reasons.

Sample size :

Prevalence of CAM in diabetes mellitus as reported in a study in Lebanon has been reported to be 38%[9].

The sample size for the study was calculated using the formula[10].

$$n = \frac{Z^2_{1-\alpha/2pq}}{L^2} \qquad Z(0.05) = 1.96$$

n = required sample size; p (prevalence rate) = 38.0

q = 100-p = 62

L = least permissible error (absolute precision)= 5%

Desired confidence level= 95%

$$\text{Hence sample size} = \frac{(1.96)^2 \times 38 \times 62}{5 \times 5}$$

$$= 361.88 \simeq 362$$

Since the total number of patients under treatment for diabetes or hypertension or both in the OPD was about 190, (for a period of preceding two months at the time of sending the proposal) which is less than the calculated sample size, following formula given by Kish, L (1965)[11] was used to calculate the final sample size:

Sample size = n / [1+(n/population)]

= 362 / [1+(362/190)]

=124.6 ≃125

Therefore a total of 125 patients were interviewed for the present study.

Sampling Technique : The hospital selected for the present study caters to patients from the whole state of Uttarakhand, specially the hilly areas as well as the adjoining districts of Uttar Pradesh, such as Bijnor, Bareilly, Moradabad etc. The patients attending the Medicine OPD at the hospital and meeting the inclusion criteria were interviewed, consecutively till the completion of the sample size.

Tools of Data collection : A structured questionnaire was administered to the patients while they were waiting in the waiting area. The questionnaire consisted of sociodemographic variables, treatment related variables and CAM related variables along with factors determining the adoption of CAM. The questionnaire was pilot tested on a group of patients and modified accordingly before starting the study to assess the suitability of the questionnaire.

Statistical analysis : The data was checked for completeness, and responses were coded and entered into Microsoft excel 2010. Frequencies and percentages were used to assess the prevalence, types, mode and patterns of CAM. Chi-square test was used to chart comparisons of categorical and continuous variables between groups. A p-value of 0.05 was used to determine statistical significance.

Ethical consideration : Ethical clearance for the study was obtained from the Institutional ethical committee of the present institute.

Results :

This study included 125 patients of Diabetes and/ or hypertension, who were interviewed at the tertiary level hospital in the state of Uttarakhand. The average age of subjects was observed to be around 57 years with a standard deviation of 11.5 years. The study sample comprised of 58% males and 42% females. (Not shown in table)

It was observed that most of the participants had Type 2 Diabetes mellitus (47%), and about one fourth had both diabetes and hypertension (Fig 1).

An exploration of details of treatment of DM1 patients showed that both of them had a family history, they had

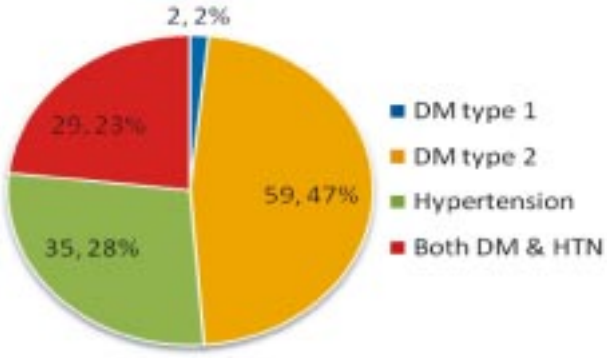

Fig 1 — Distribution of participants according to the diagnosis

never interrupted their treatment, yet both of them reported having complications.An enquiry of treatment characteristics of patients with different diagnosis showed that about 40% of the DM2 patients had interrupted treatment at some point of time. The proportions were similar for patients having both DM and Hypertension (Table 1).

An assessment of the use of CAM/ allopathic medicines for the chronic lifestyle diseases showed that most people (90%) started the treatment with allopathic medicines. It was also observed that about 43% had used CAM at some time since diagnosis. Currently, only 17% of the patients were using CAM for the treatment of their diseases (Table 2).

About 40% of the ever users of CAM were using it currently also, the proportion being higher in males as compared to females. The most common modality used was ayurveda. Only 31% of the ever users had consulted a doctor/ practitioner before using CAM and approximately equal number had told the treating physician about the use of CAM. About 44% wanted to use it again, while an equal proportion decided against it.Yet, more than half of ever users wanted to recommend it to others (Table 3).

An exploration regarding the perception of ever users showed that about half of them had used CAM in an attempt to find another solution for their disease. Another one fourth of the users had a belief in its advantages. An enquiry about the feeling after use of CAM revealed that about half of the users reported no change in their disease status (Table 4).

About 36% of never users stated that they did not feel the need of using CAM for their illness; another 15% said that they did not use it since their doctor had not prescribed it. Others either did not have a belief in it or were not interested in other modalities. 48% of the never users of CAM replied affirmatively when they were asked for future use of CAM, 19.7% were indecisive while the rest 32% denied (Table 5).

A bivariate analysis of sociodemographic characteristics and CAM use showed that no other factor except for the absence of health insurance had a statistical association with the use of CAM (Table 6).

Table 1 — *Details of the treatment characteristics in patients with different diagnosis*

Variables	DM2 (59) Number (%)	Hypertension (35) Number (%)	Both DM & Hypertension (29) Number (%)
Age in years (Mean, SD)	48.3, 12.2	49.6, 13.1	53.9, 10.5
Duration of disease in years (Median, IQR)	4, 1.75 to 10	4, 1.25 to 9	7, 2 to 9
Family History	18 (30%)	8 (23%)	9 (31%)
Complications	38 (64.4%)	14 (40%)	17 (58.6%)
Type of treatment :			
Continuous	36 (61%)	14 (40%)	18 (62%)
Interrupted	23 (39%)	21 (60%)	11 (38%)
Reason of interruption :			
No benefit	-	2 (9.5%)	0
Relieved	8 (34.8%)	7 (33.3%)	5 (45.4%)
Inaccessible	7 (30.4%)	1 (4.8%)	-
Costly	5 (21.7%)	2 (9.5%)	3 (27.3%)
Side effects	3 (13.0%)	1 (4.8%)	-
Don't want to get habitual	-	3 (14.3%)	-
Others	2 (forgot, can't take daily) (8.7%)	5 (less belief, personal reasons, forgot, doctor didn't tell about continuous use) (23.8%)	3 (don't like medicines, personal reasons, lack of money) (27.3%)

Table 2 — *Distribution of Complementary and Alternative Medicine (CAM) related variables*

Variables		Number (125)	Percentage
Modality at start	Allopathic	113	90.4%
	CAM	12	9.6%
CAM since diagnosis (Ever users)		54	43.2%
CAM in previous year		38	30.4%
Currently using CAM		21	16.8%

Table 3 — *Characteristics related to use of CAM among ever users of CAM according to gender*

Variables		Males (29) Number (%)	Females (25) Number (%)	Total (54) Number (%)
Currently using		13 (44.8%)	8 (32.0%)	21 (38.9%)
Modalities used under CAM	Ayurveda	14 (48.3)	10 (40.0%)	24 (44.4%)
	Herbal medicine	10 (34.5%)	12 (48.0%)	22 (40.7%)
	Naturopathy	10 (34.5%)	2 (8.0%)	12 (22.2%)
	Homeopathy	4 (13.8%)	7 (28.0%)	11 (20.4%)
	Yoga	5 (17.2%)	1 (4.0%)	6 (11.1%)
	Others (Unani, Siddha, Spiritual healing)	0	0	0
Consulted doctor/ practitioner		7 (24.1%)	10 (40.0%)	17 (31.5%)
Told treating physician		11 (37.9%)	5 (20.0%)	16 (29.6%)
Who motivated	Friends	7 (24.1%)	6 (24.0%)	13 (24.1%)
	Media	7 (24.1%)	3 (12.0%)	10 (18.5%)
	Family beliefs	6 (20.7%)	4 (16.0%)	10 (18.5%)
	Neighbour	7 (24.1%)	2 (8.0%)	9 (16.7%)
	Health practitioner	1 (3.4%)	3 (12.0%)	4 (7.4%)
	Others	4 (13.8%)	7 (28%)	11 (20.4%)
Usefulness of CAM	Not useful	7 (24.1%)	10 (40.0%)	17 (31.5%)
	Of limited usefulness	6 (20.7%)	8 (32.0%)	14 (25.9%)
	Not sure/unable to assess	5 (17.2%)	1 (4.0%)	6 (11.1%)
	Very useful	11 (37.9%)	6 (24.0%)	17 (31.5%)
Again use	Y	16 (55.2%)	8 (32.0%)	24 (44.4%)
	N	9 (31.0%)	15 (60.0%)	24 (44.4%)
	Undecided	4 (13.8%)	2 (8.0%)	6 (11.1%)
Side effects		4 (13.8%)	5 (20.0%)	9 (16.7%)
Recommend to other	Y	17 (58.6%)	12 (48.0%)	29 (53.7%)
	N	10 (34.5%)	10 (40.0%)	20 (37.0%)
	Undecided	2 (6.9%)	3 (12.0%)	5 (9.3%)

Table 4 — *Perception related to CAM among ever users of CAM*

Variables		Males (29) Number (%)	Females (25) Number (%)	Total (54) Number (%)
Reasons for use	Another solution	12 (41.4%)	14 (56.0%)	26 (48.1%)
	Belief in Advantages	8 (27.6%)	5 (20.0%)	13 (24.1%)
	Accessible and affordable	3 (10.3%)	2 (8.0%)	5 (9.3%)
	Experiment	1 (3.4%)	2 (8.0%)	3 (5.6%)
	Allopathic has side effects	1 (3.4%)	2 (8.0%)	3 (5.6%)
	CAM has no side effects	1 (3.4%)	1 (4.0%)	2 (3.7%)
	Lost hope with current treatment	2 (6.9%)	1 (4.0%)	3 (5.6%)
	Others	2 (6.9%)	1 (4.0%)	8 (14.8%)
Expec-tation	Complete cure	15 (51.7%)	15 (60.0%)	30 (55.6%)
	Low BP/ glucose level	16 (55.2%)	9 (36.0%)	25 (46.3%)
	Prevent progression	1 (3.4%)	4 (16.0%)	5 (9.3%)
	No expectation	1 (3.4%)	0 (0.0%)	1 (1.9%)
	Others	1 (3.4%)	1 (4.0%)	2 (3.7%)
Feeling after use	No change	18 (62.1%)	10 (40.0	28 (51.9%)
	Good psychological condition	4 (13.8	5 (20.0%)	9 (16.7%)
	Physically worse	4 (13.8%)	5 (20.0	9 (16.7%)
	Disappearance of several symptoms	3 (10.3%)	3 (12.0%)	6 (11.1%)
	Rise of several symptom	2 (6.9%)	3 (12.0%)	5 (9.3%)
	Strengthening	0	2 (8.0%)	2 (3.7%)
	Others	0	1 (4.0%)	1 (1.9%)
Is condition controlled		13 (44.8%)	10 (40.0%)	23 (42.6%)
If Y, which modality	Allopathic medicines	9 (31.0%)	6 (24.0%)	15 (27.8%)
	CAM	3 (10.3%)	1 (4.0%)	4 (7.4%)
	Both	1 (3.4%)	3 (12.0%)	4 (7.4%)

Table 5 — *Reasons for not using CAM among never-users of CAM*

Responses	Males (44) Number (%)	Females (27) Number (%)	Total (71) Number (%)
Reasons for not using :			
Do not need it	18 (40.9%)	8 (29.6%)	26 (36.6%)
Doctor didn't prescribe	7 (15.9%)	4 (14.8%)	11 (15.5%)
Do not believe in it	7 (15.9%)	2 (7.4%)	9 (12.7%)
Slow in action	5 (11.4%)	2 (7.4%)	7 (9.9%)
Don't know any source	3 (6.8%)	1 (3.7%)	4 (5.6%)
Inaccessible	2 (4.5%)	1 (3.7%)	3 (4.2%)
Relieved by allopathic	2 (4.5%)	3 (11.1%)	5 (7.0%)
Not interested	2 (4.5%)	3 (11.1%)	5 (7.0%)
Additional expenses & useless	2 (4.5%)	2 (7.4%)	4 (5.6%)
No one Advised its use	1 (2.3%)	3 (11.1%)	4 (5.6%)
Never heard of it	0 (0.0%)	2 (7.4%)	2 (2.8%)
Mainstream medicine is best	1 (2.3%)	1 (3.7%)	2 (2.8%)
Afraid of interaction of CAM with allopathic medicines	0	1 (3.7%)	1 (1.4%)
Doctor told not to take any other medicine	0	1 (3.7%)	1 (1.4%)
CAM is not evidence based	0	0	0
Other	3 (6.8%)	2 (7.4%)	5 (7.0%)
Consider CAM in future :			
Yes	25 (56.8%)	9 (33.3%)	34 (47.9%)
No	13 (29.5%)	10 (37.0%)	23 (32.4%)
Can't say	6 (13.6%)	8 (29.6%)	14 (19.7%)

Examination of association between sociodemographic characteristics and practice of continuous or interrupted treatment showed that no other factor except the place of residence was associated with it (Table 7).

No significant association was found out between the presence of complications and age of the patient or the duration of illness in the respondents in the present study (Table 8).

Discussion :

The present study reported that the prevalence of ever use of CAM by the respondents was 43.2%, whereas the current use was only 16.8% which was in accordance with the findings of various other studies around the world[9,16,18-20,22,23]. It was also noticed that people have more faith on the allopathic system of medicine for the treatment of chronic diseases in the current set up since it was observed that majority had initiated their treatment by this modality.

The modality of CAM commonly used in the present study comprised of alternative medical systems as classified by NCCAM which included Ayurveda, Naturopathy and Yoga[17]. Apart from this, biologically based therapies in the form of herbal medicines were also used. Other modalities such as body based methods (chiropractic & massage) and mind-body medicine in the form of meditation and spiritual healing were not used at all.

India has a rich cultural heritage with a very strong, deep rooted presence of the various modalities of treatments prevalent all over the country, which have sustained the test of time. Other countries all over the world provide CAM through CAM providers which make it more robust, scientific and reliable, whereas in our scenario, most of the patients used it without being prescribed by a CAM provider and primarily on the advice of friends, neighbours, relatives etc. or through information on media. This has been reported in few studies from other countries as well[21].

To complicate the matters further, patients refrained

Table 6 — *Association of sociodemographic characteristics with CAM use for lifestyle diseases*

Variables		Users(54) Number(%)	Non users(71) Number (%)	Chi square value	P value
Gender	Males	29 (53.7%)	44 (62.0%)	0.856	0.35
	Females	25 (46.3%)	27 (38.0%)		
Locality	Urban	26 (48.1%)	32 (45.1%)	0.116	0.73
	Rural	28 (51.9%)	39 (54.9%)		
Religion	Hindu	49 (90.7%)	64 (90.1%)	0.017	0.89
	Others	5 (9.3%)	6 (8.5%)		
Type of family	Nuclear	26 (48.1%)	35 (49.3%)	0.031	0.85
	Joint	28 (51.9%)	36 (50.7%)		
Marriage status	Single (Single, Widow, separated)	4 (7.4%)	6 (8.5%)	0.45	0.83
	Married	50 (92.6%)	65 (91.5%)		
Addiction status	Addicted	12 (22.2%)	14 (19.7%)	0.116	0.73
	Not addicted	42 (77.8%)	57 (80.3%)		
Health insurance	Present	7 (13.0%)	20 (28.2%)	4.15	0.04
	Absent	47 (87.0%)	51 (71.8%)		

Table 7 — *Association between sociodemographic characteristics and practice of continuous or interrupted treatment*

Variables		Continuous treatment (70) Number (%)	Interrupted treatment (55) Number (%)	Chi square value	P value
Age	≤50	22 (31.4%)	22 (40.0%)	0.984	0.32
	>50	48 (68.6%)	33 (60.0%)		
Residence	Urban	38 (54.3%)	20 (36.4%)	3.946	0.047
	Rural	32 (45.7%)	35 (63.6%)		
Family	Nuclear	35 (50.0%)	26 (47.3%)	0.091	0.763
	Joint	35 (50.0%)	29 (52.7%)		
Marital status	Single (Unmarried, widow, divorced)	6 (8.6%)	4 (7.3%)	0.07	0.79
	Married	64 (91.4%)	51 (92.7%)		
Addiction	Yes	13 (18.6%)	13 (23.6%)	0.476	0.49
	No	57 (81.4%)	42 (76.4%)		
Health insurance	Yes	11 (15.7%)	16 (29.1%)	3.22	0.07
	No	59 (84.3%)	39 (70.9%)		

Table 8 — *Association between age of the respondent and duration of illness and presence of complications as reported by them*

Variables		Complications		Chi square value	P value
		Yes (71) Number (%)	No (54) Number (%)		
Age	≤50	25 (35.2%)	19 (35.2%)	0.00	0.99
	>50	46 (64.8%)	35 (64.8%)		
Duration of illness	<5 year	31 (43.7%)	29 (53.7%)	2.57	0.27
	5-10 years	23 (32.4%)	18 (33.3%)		
	>10 years	17 (23.9%)	7 (13.0%)		

from disclosing about the use of CAM with their care providers, which has been commonly reported in other studies as well[22]. This could lead to drug interactions with other medicines such as herbal and ayurvedic medicines, as has been reported in other studies[16].

Patients expect a complete cure from disease condition after the use of CAM, which may be due to unsupervised self prescription of CAM leading to an escalation of their expectations, stemming out from ignorance. This emanates a mixed response from the use of CAM, which ranges from no change or worsening of symptoms to better psychological states and feeling of strength.

CAM use in other studies has been reported to be less authoritarian, more empowering and having more personal autonomy. It has also been stated to be effective, leading to better regulation of blood glucose level and leading to better psychological relaxation[6,21]. These responses were also obtained in the present study.

Examination of association of sociodemographic characteristics with CAM use did not show any association in the present study except for a negative association with the presence of health insurance. Other studies have reported a higher likelihood of the use of CAM in females, higher education, income and age[18,19]. This may have been due to lower power of the study due to a smaller sample size, which lead to an inability to observe associations among different factors.

Limitations :

The sample size of the study was reduced with reference to finite population formula, due to limited number of patients that were reporting to the OPD, as the hospital was in its formative years when this study was undertaken. Also the period of data collection was limited to two months only as a part of short term studentship project of ICMR. Also for similar reasons, design effect could not be applied and patients had to be enrolled consecutively. The results of association between two variables therefore need to be seen cautiously.

Conclusion :

It is concluded that the ever use of CAM by people under treatment for lifestyle diseases is quite high, which reflects their faith and acceptability. However most of this prescription is unsupervised and also not evidence based. It is therefore imperative that evidence may be generated regarding effectiveness of CAM in lifestyle diseases and for prescribing it scientifically, at least for those who have faith in it and find it more acceptable, for an integrated approach towards lifestyle diseases.

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