Perception and attitude of religious leaders and outpatients in Dhaka, Bangladesh with regard to Ayurvedic medicine

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Abstract

Objectives: Because of limited medical and financial resources, the use of complementary and alternative medicine (CAM) should be markedly expanded in Bangladesh. From the viewpoint of increasing the use of Ayurvedic medicine (AM) including herbal medicine (HM) more vigorously, new and important recommendations need to be obtained through data comparison among Muslim religious leaders (MRLs), AM outpatients (AMOPTs), and orthodox medicine outpatients (OMOPTs). Therefore, the aim of this study was to confirm the perception and attitude of MRLs, AMOPTs, and OMOPTs toward AM in Dhaka, Bangladesh.

Method: This study was conducted from February to June 2015 by trained staff members using a structured questionnaire. The interview respondents were 150 MRLs, 202 AMOPTs, and 150 OMOPTs in Dhaka, Bangladesh.

Results: More than 85% AMOPTs and MRLs had a person who helped him/her to use AM; however, only 10.3% OMOPTs had such a person. OMOPTs were skeptical but had no one to help them use AM and suggests that OMOPTs were not familiar with using AM. In terms of attitudes, OMOPTs harbored more skepticism than the other two groups.

Conclusions: If OMOPTs had more chances of becoming familiar with AM through someone helping them with its use, then they would use AM more. In addition, to increase the use of AM, appropriate information on its efficacy and safety should be provided to the general public to avoid skepticism.

Introduction

To enact the concept of the Declaration of Alma-Ata in 1978 [1] the World Health Organization (WHO) prepared the WHO Traditional Medicine Strategy 2014-2023 [2]. The main purpose of this strategy is to help member states promote the safe and effective use of traditional medicine (TM).

In Japan, herbal medicine (HM) is used as Kampo, which is covered by universal health insurance [3-5]. Furthermore, to provide evidence-based medicine to patients, a lot of rigorous studies have been conducted on the efficacy and safety of Kampo [6-13].

In Bangladesh, economic growth has remarkably progressed; however, the central government is struggling with difficulties related to public health issues [14-21]. In terms of the resource limitations of healthcare and economical activities, the use of complementary and alternative medicine (CAM) needs to be considerably increased in Bangladesh.

In Bangladesh, a national policy on TM and CAM was issued in 1995. However, national laws and regulations are currently in the development stage. Although a national program was introduced in 1998, national research institutes on TM, CAM, or Ayurvedic medicine (AM) including HM have not yet been established. Whereas HMs are regulated as prescription and over-the-counter drugs, national herbal monographs have not yet been developed. The Drug Administration is in charge of ensuring the implementation of pharmacopeias and monographs, good manufacturing practice (GMP) rules for

conventional pharmaceuticals, and special GMP rules; however, no detailed information about specific mechanisms is available. A registration system for HMs exists; however, the number of registered products is unavailable. A post-marketing surveillance system is currently under development. The Ministry of Health and Family Welfare of Bangladesh adopts various countermeasures to promote the health and welfare of the country.

Therefore, in 2011, a study on the perceptions of Muslim religious leaders (MRLs) and citizens in Bangladesh regarding AM was performed by a team involving two of the current authors [22,23]. We chose not only citizens but also MRLs as respondents because MRLs influence the lives of citizens, including the use of AM. The results showed that MRLs had an adequate perception, satisfaction, and a very positive attitude toward HM and regarded the mass media as having a significant contribution toward its promotion. However, the citizens believed that scientifically sound information on AM should be promptly collected to eliminate the skepticism of younger citizens

in Dhaka. Because of limited medical and financial resources, the use of CAM needs to markedly increase in Bangladesh. The latter studies were conducted in Bangladesh in 2011; however, at that time, we did not collect data from AM outpatients (AMOPTs) or orthodox medicine outpatients (OMOPTs). From the viewpoint of further increasing the use of AM, other important and new recommendations might be obtained through data comparison among MRLs, AMOPTs, and OMOPTs.

Therefore, the aim of this study was to confirm the perception and attitude of MRLs, AMOPTs, and OMOPTs to AM in Dhaka, Bangladesh.

Materials and methods

This study was conducted in Dhaka, Bangladesh from February to June 2015 by face-to-face interviews with trained staff members using a structured questionnaire. The four data-collecting staff members had been trained in collecting data from the respondents. Their interviewing skills were also assessed prior to conducting the interviews.

The interview respondents included 150 MRLs, 202 AMOPTs, and 150 OMOPTs who were randomly selected and recruited by the trained staff members of the Bangladeshi research team. In terms of recruit of AMOPTs and OMOPTs, the trained staff members of the Bangladeshi research team visited a hospital or an office of practitioner and randomly picked up 202 AMOPTs, and 150 OMOPTs who visited that place. There were no exclusion criteria in this study. The subjects were informed that they were free not to respond to any question that they were not comfortable answering. Their anonymity was preserved. Verbal informed consent was obtained from every participant prior to the interview.

The questionnaire was translated from English into Bengali and was modified for the respondents' understanding before data collection in the field. It was then back-translated to English. The respondents responded to situations and perceptions regarding AM use and satisfaction from AM use. For questions on attitudes toward AM use, a 5-point Likert scale ranging from 1 = "Strongly disagree" to 5 = "Strongly agree" was applied.

Raw data were sent to Nagoya University and analyzed using SPSS version 2.0. χ^2-test and Kruskal-Wallis test were applied.

Prior to data collection, the study protocol was approved on October 23, 2014 by the Ethics Committee of the Graduate School of Medicine, Nagoya University (approval number: 2014-0208).

Results

Table 1 shows the demographics of the respondents. We obtained responses from 150 MRLs, 202 AMOPTs, and 150 OMOPTs. In terms of age, 52.7% MRLs were 35-54 years old, 48.5% AMOPs were 15-54 years old, and 54.7% OMOPTs were 35-54 years old. With regard to gender, 95.3% MRLs, 58.6% AMOPTs, and 78.0% OMOPTs were male. In terms of marital status, 80.0% MRLs, 75.1% AMOPTs, and 78.0% OMOPTs were married. With regard to the amount of use of AM per year, 47.9% MRLs marked 5 to 6 times, 49.5% AMOPTs marked 3 to 4 times, and 45.0% OMOPTs marked 0 times. In terms of the amount of use of OM per year, 38.7% MRLs marked 5 to 6 times, 49.2% AMOPTs marked 1 to 2 times, and 57.9% OMOPTs marked 5 to 6 times. These five items had statistically significant differences. Thus, fraction of young respondents was greater for AMOPTs relative to MRLs and OMOPTs. It was noted that the frequency of the use of AM was higher

for MRLs than AMOPTs which was in turn higher than OMOPTs.

With regard to education, 31.3% AMOPTs and 55.0% OMOPTs had 11 or more years of education. In terms of occupation, 30.7% AMOPTs worked in business, and 34.5% OMOPTs worked in service. These two items had statistically significant differences. With regard to monthly income, 45.1% AMOPTs earned 7000 Taka or less, and 41.0% earned 7000-150000 Taka. On the other hand, 47.5% OMOPTs earned 7000-150000 Taka, and 42.6% earned 7000 Taka or less. There was no statistical significance, but there seemed to be some trend that higher income for OMOPTs relative to AMOPTs. In terms of religion, 95.3% AMOPTs were Muslim, and 4.2% were Hindu. On the other hand, 88.4% OMOPTs were Muslim, and 9.5% were Hindu. There was a statistically significant difference.

Table 2 shows the perception toward AM use in Dhaka, Bangladesh. In terms of the mode of the effect of AM, 62.1% MRLs believed that it was for the prevention of disease. On the other hand, 37.9% AMOPTs believed that it was for the treatment of disease, and 37.4% believed that it was for health promotion. Furthermore, 58.5% OMOPTs believed that it was for health promotion. Moreover, 64.8% MRLs believed that AM worked via disease eradication, and 26.2% believed that AM worked through relaxation. On the other hand, 72.8% AMOPTs believed that AM worked via disease eradication, and 25.2% believed that AM improved the body's defenses. In addition, 30.9% OMOPTs believed that AM worked through improving the body's defenses, and 38.3% believed that AM worked via disease eradication. There were statistically significant differences. Regarding the effectiveness of AM in males and females, 95.9% MRLs, 97.4% AMOPTs, and 96.6% OMOPTs believed that AM was effective in both males and females. There was a statistically significant difference. Thus, these results demonstrate a marked difference in perception of significance of AM along the three groups.

With regard to satisfaction of AM use, as shown in Table 3, 89.9% MRLs, 99.5% AMOPTs, and 60.0% OMOPTs reported benefit from AM. In contrast, 4.1% MRLs, 62.2% AMOPTs, and 0.0% OMOPTs reported harm from AM. Furthermore, 4.1% MRLs, 36.7% AMOPTs, and 8.9% OMOPTs were very satisfied with AM, and 93.2% MRLs, 62.7% AMOPTs, and 88.4% OMOPTs were satisfied with AM. Moreover, 93.9% MRLs, 99.0% AMOPTs, and 57.5% OMOPTs said that they would recommend AM to others. Of note, 88.6% MRLs, 85.6% AMOPTs, and 10.3% OMOPTs had a person who helped them use AM, whereas, 70.9% MRLs, 100.0% AMOPTs, and 78.5% OMOPTs believed that the government should take more initiative in promoting AM. Furthermore, 87.4% MRLs, 98.9% AMOPTs, and 6.4% OMOPTs believed that if the treatment cost was the same, they would choose AM. These differences were statistically significant. Overall, this section represents greater degrees of satisfaction of the MRLs and AMOPTs compared to OMOPTs.

Regarding the attitudes toward AM, as shown in Table 4, 73.5% MRLs agreed, and 17.7% had not decided whether the AM provider gave good information on maintaining a healthy lifestyle. Furthermore, 70.1% AMOPTs strongly agreed, and 27.9% agreed that the AM provider gave good information on maintaining a healthy lifestyle. Moreover, 56.0% OMOPTs had not decided, and 42.7% agreed that the AM provider gave good information on maintaining a healthy lifestyle. In addition, 74.5% MRLs agreed that HM had fewer side effects. Moreover, 71.7% AMOPTs strongly agreed that HM had fewer side effects. Regarding side effects, 69.3% OMOPTs agreed that HM had fewer side effects. Furthermore, 77.2% MRLs agreed, and 13.4%

Table 1. Demographic data of respondentsin Dhaka, Bangladesh.

		Sex								Testa
		Religious leaders		Outpatients of Ayurvedic medicine		Outpatients of Orthodox medicine		Total		
		n	%	n	%	n	%	n	%	
Age	15-34	52	34.7%	98	48.5%	40	26.7%	190	37.8%	**
	35-54	79	52.7%	73	36.1%	82	54.7%	234	46.6%	
	55 or more	19	12.7%	31	15.3%	28	18.7%	78	15.5%	
	Total	150	100.0%	202	100.0%	150	100.0%	502	100.0%	
Gender	Male	143	95.3%	116	58.6%	117	78.0%	376	78.0%	**
	Female	7	4.7%	82	41.4%	33	22.0%	122	22.0%	
	Total	150	100.0%	198	100.0%	150	100.0%	498	100.0%	
Marital status	Married	120	80.0%	136	75.1%	111	74.0%	367	76.3%	**
	Unmarried	30	20.0%	38	21.0%	25	16.7%	93	19.3%	
	Widow	0	0.0%	7	3.9%	11	7.3%	18	3.7%	
	Divorced/separated	0	0.0%	0	0.0%	3	2.0%	3	0.6%	
	Total	150	100.0%	181	100.0%	150	100.0%	481	100.0%	
Education	Dakhil	6	4.0%							-
	Alim	30	20.1%							
	Fajil	14	9.4%							
	Kamil	99	66.4%							
	Total	149	100.0%							
	No education			52	29.5%	20	13.4%	72	22.2%	**
	Primary			41	23.3%	26	17.4%	67	20.6%	
	6-10			28	15.9%	21	14.1%	49	15.1%	
	11 and more			55	31.3%	82	55.0%	137	42.2%	
	Total			176	100.0%	149	100.0%	325	100.0%	
Occupation	Madrasa teacher	82	55.8%							-
	Imam	33	22.4%							
	Muazzin	4	2.7%							
	Others	28	19.0%							
	Total	147	100.0%							
	Service			43	24.0%	51	34.5%	94	28.7%	**
	Business			55	30.7%	42	28.4%	97	29.7%	
	Housewife			49	27.4%	24	16.2%	73	22.3%	
	Jobless			4	2.2%	13	8.8%	17	5.2%	
	Others			28	15.6%	18	12.2%	46	14.1%	
	Total			179	100.0%	148	100.0%	327	100.0%	
Monthly income (in Taka[b])	<10000	51	34.7%							-
	10000-20000	84	57.1%							
	>20000	12	8.2%							
	Total	147	100.0%							
	<7000			55	45.1%	60	42.6%	115	43.7%	n.s.
	7000-15000			50	41.0%	67	47.5%	117	44.5%	
	>15000			17	13.9%	14	9.9%	31	11.8%	
	Total			122	100.0%	141	100.0%	263	100.0%	
Religion	Islam	150	100.0%							
	Islam			181	95.3%	130	88.4%	311	92.3%	*
	Hindu			8	4.2%	14	9.5%	22	6.5%	
	Buddhism			0	0.0%	2	1.4%	2	0.6%	
	Christian			0	0.0%	1	0.7%	1	0.3%	
	Others			1	0.5%	0	0.0%	1	0.3%	
	Total			190	100.0%	147	100.0%	337	100.0%	
No of use of Ayurvedic medicine a year	0	15	10.6%	1	0.5%	67	45.0%	83	16.8%	**
	1-2	27	19.0%	45	22.3%	51	34.2%	123	24.9%	
	3-4	26	18.3%	100	49.5%	23	15.4%	149	30.2%	
	5-6	68	47.9%	46	22.8%	8	5.4%	122	24.7%	
	6 or more	6	4.2%	10	5.0%	0	0.0%	16	3.2%	
	Total	142	100.0%	202	100.0%	149	100.0%	493	100.0%	

No of use of Orthodox medicine a year	0	2	1.7%	5	2.6%	3	2.1%	10	2.2%	**
	1-2	17	14.3%	94	49.2%	4	2.8%	115	25.3%	
	3-4	42	35.3%	55	28.8%	39	26.9%	136	29.9%	
	5-6	46	38.7%	29	15.2%	84	57.9%	159	34.9%	
	6 or more	12	10.1%	8	4.2%	15	10.3%	35	7.7%	
	Total	119	100.0%	191	100.0%	145	100.0%	455	100.0%	
		Mean	10‰	90‰	Mean	10‰	90‰	Mean	10‰	90‰
Expenditure of Ayurvedic medicine a year[b]		1026.7	300	2000	1152.6	200	2550	376.4	000	1230
Expenditure of Orthodox medicine a year[b]		3575.8	560	7000	2748.1	500	5000	3707.3	560	5000

[a]Kruskal-Wallis test for Age, Monthly income, No. of use of Ayurvedic medicine, and No. of use of Orthodox medicine

χ2-test for gender, Marital status, Education, Occupation, Religion

[b]1USD =70 Taka

**P < 0.01, *P < 0.05

Table 2. Perception on Ayurvedic medicine (AM) use in Dhaka, Bangladesh.

		Respondents								Test
		Religious leaders		Outpatients of Ayurvedic medicine		Outpatients of Orthodox medicine		Total		
		n	%	n	%	n	%	n	%	
AM including HM is effective for -	Only male	2	1.4%	2	1.0%	2	1.4%	6	1.2%	n.s.
	Only female	4	2.7%	3	1.5%	3	2.0%	10	2.1%	
	Both male and female	140	95.9%	189	97.4%	142	96.6%	471	96.7%	
	Total	146	100.0%	194	100.0%	147	100.0%	487	100.0%	
Mode of effect of AM including HM	Prevention of disease	90	62.1%	45	23.1%	39	26.5%	174	35.7%	**
	Treatment of diseases	31	21.4%	73	37.4%	20	13.6%	124	25.5%	
	Promotion of health	18	12.4%	74	37.9%	86	58.5%	178	36.6%	
	Others	6	4.1%	3	1.5%	2	1.4%	11	2.3%	
	Total	145	100.0%	195	100.0%	147	100.0%	487	100.0%	
How AM including HM works?	Eradicate disease	94	64.8%	147	72.8%	46	30.9%	287	57.9%	**
	Improve body defense	7	4.8%	51	25.2%	57	38.3%	115	23.2%	
	Keep relax	38	26.2%	1	0.5%	37	24.8%	76	15.3%	
	Remove bad effect of Orthodox medicine	1	0.7%	3	1.5%	3	2.0%	7	1.4%	
	Cures symptoms only	5	3.4%	0	0.0%	6	4.0%	11	2.2%	
	Total	145	100.0%	202	100.0%	149	100.0%	496	100.0%	

χ2-test was used

**p < 0.01

had not decided whether AM involved natural plant formulas, which were healthier than taking drugs given by medical doctors. Moreover, 71.7% AMOPTs strongly agreed, and 26.3% agreed that AM involved natural plant formulas healthier than such drugs. On the other hand, 88.0% OMOPTs agreed on such plant formulas healthier than such drugs. In addition, 80.5% MRLs agreed, and 10.7% strongly agreed that people would be more likely to use AM if there were more AM clinics. Furthermore, 77.8% AMOPTs strongly agreed, and 20.2% agreed that people would be more likely to use AM if there were more AM clinics. On the other hand, 84.7% OMOPTs agreed, and 13.3% had not decided whether people would be more likely to use AM if there were more AM clinics. Moreover, 79.01% MRLs agreed, and 10.1% strongly agreed that AM built up the body's own defenses. Furthermore, 76.6% AMOPTs strongly agreed, and 21.3% agreed that AM built up the body's own defenses. On the other hand, 66.7% OMOPTs agreed, and 28.7% had not decided whether AM built up the body's own defenses. These responses consistently reflected the positive attitudes of AMOPTs toward AM compared to MRLs and OMOPTs. Next we addressed the questions regarding the potential factors influencing

such attitudes. 82.6% MRLs agreed, and 11.4% strongly agreed that the more knowledge a person had on AM, the more likely he/she would use it. Furthermore, 70.7% AMOPTs strongly agreed, and 26.8% agreed on the potential effect of the knowledge. On the other hand, 72.7% OMOPTs agreed, and 26.0% had not decided about the potential effect of the knowledge. Moreover, 73.2% MRLs agreed, and 16.1% strongly agreed that parents could influence youths to use AM by exposing them to it. Furthermore, 65.3% AMOPTs strongly agreed, and 30.1% agreed that parents could influence youths to use AM by exposing them to it. On the other hand, 82.7% OMOPTs agreed, and 17.3% had not decided whether parents could influence youths to use AM by exposing them to it. In addition, 73.8% MRLs agreed, and 15.4% strongly agreed that people could be influenced to use AM if friends were using it. Furthermore, 65.3% AMOPTs strongly agreed, and 27.0% agreed that people could be influenced to use AM if friends were using it. On the other hand, 78.0% OMOPTs agreed, and 20.0% had not decided about the potential influence from friends. Moreover, 72.5% MRLs agreed, and 12.8% strongly agreed that teachers could influence youths to use AM by exposing them to it. Furthermore, 56.6%

Table 3. Satisfaction on Ayurvedic medicine (AM) use in Dhaka, Bangladesh.

		Respondents								Test
		Religious leaders		Outpatients of Ayurvedic medicine		Outpatients of Orthodox medicine		Total		
		n	%	n	%	n	%	n	%	
Did you get benefit from AM?	Yes	133	89.9%	200	99.5%	90	60.0%	423	84.8%	**
	No	15	10.1%	1	0.5%	60	40.0%	76	15.2%	
	Total	148	100.0%	201	100.0%	150	100.0%	499	100.0%	
Did you get harm from AM?	Yes	6	4.1%	139	62.2%	0	0.0%	145	29.2%	**
	No	142	95.9%	62	30.8%	148	100.0%	352	70.8%	
	Total	148	100.0%	201	100.0%	148	100.0%	497	100.0%	
Were you satisfied with AM?	Very satisfied	6	4.1%	65	36.7%	10	8.9%	81	18.6%	**
	Satisfied	137	93.2%	111	62.7%	99	88.4%	347	79.6%	
	Dissatisfied	4	2.7%	1	0.6%	3	2.7%	8	1.8%	
	Total	147	100.0%	177	100.0%	112	100.0%	436	100.0%	
Did you recommend AM to others?	Yes	138	93.9%	198	99.0%	84	57.5%	420	85.2%	**
	No	9	6.1%	2	1.0%	62	42.5%	73	14.8%	
	Total	147	100.0%	200	100.0%	146	100.0%	493	100.0%	
Does anybody help you using AM?	Yes	124	88.6%	161	85.6%	15	10.3%	300	63.3%	**
	No	16	11.4%	27	14.4%	131	89.7%	174	36.7%	
	Total	140	100.0%	188	100.0%	146	100.0%	474	100.0%	
Government should take more initiatives to promote AM	Yes	105	70.9%	196	100.0%	117	78.5%	418	84.8%	**
	No	1	0.7%	0	0.0%	8	5.4%	9	1.8%	
	Existing initiatives are enough	42	28.4%	0	0.0%	24	16.1%	66	13.4%	
	Total	148	100.0%	196	100.0%	149	100.0%	493	100.0%	
If treatment cost is same, which will you choose?	AM	125	87.4%	180	98.9%	9	6.4%	314	67.5.%	**
	Orthodox medicine	18	12.6%	2	1.1%	131	93.6%	151	32.5%	
	Total	143	100.0%	182	100.0%	140	100.0%	465	100.0%	

χ^2-test was used
**p < 0.01

AMOPTs strongly agreed, and 32.7% agreed on the teachers' influence about the exposure. On the other hand, 73.2% OMOPTs agreed, and 24.2% had not decided whether teachers could have such an influence. In addition, 73.6% MRLs agreed, and 14.9% strongly agreed that people who believed in the physical, mental, and spiritual aspects of health were more likely to use AM. Furthermore, 46.1% AMOPTs agreed, and 32.6% had not decided whether people who believed in them were more likely to use AM. On the other hand, 54.7% OMOPTs had not decided, and 38.7% agreed that people who believed in them were more likely to use AM. Moreover, 73.6% MRLs agreed, and 12.2% strongly agreed that those who feared the discomfort of treatment from medical doctors were more likely to use AM. Furthermore, 57.1% AMOPTs had not decided, and 14.6% agreed that those with such a fear were more likely to use AM. On the other hand, 38.0% OMOPTs had not decided, and 35.3% agreed that those with such a fear were more likely to use AM. In addition, 77.0% MRLs agreed, and 13.5% strongly agreed that AM was not harmful. Furthermore, 50.0% AMOPTs had not decided, and 14.6% agreed that AM was not harmful. On the other hand, 52.0% OMOPTs agreed, and 44.7% had not decided whether AM was not harmful. Moreover, 77.4% MRLs agreed, and 11.6% strongly agreed that people were motivated to use AM mostly by television, radio, and the mass media. Furthermore, 71.2% AMOPTs strongly agreed, and 24.7% agreed with such an effect of the media. On the other hand, 90.7% OMOPTs agreed with such an effect of the media. These differences were statistically significant.

Discussion

The results of this study show that the cost of AM seems to be cheaper than the cost of OM. However, with regard to monthly income, there were no statistically significant differences among AMOPTs and OMOPTs. In addition, approximately 50% AMOPTs were 15-34 years old; on the other hand, the majority of OMOPTs were 35-54 years old. In terms of education, OMOPTs had a higher level of education compared to AMOPTs. From the viewpoint of the perception of AM use in Dhaka, the majority of MRLs believed that AM's mode of effect was prevention of disease. More than one third of AMOPTs believed that it was for disease treatment and health promotion. On the other hand, the majority of OMOPTs believed that AM was for health promotion. Furthermore, whereas the majority of MRLs and AMOPTs believed that AM works via disease eradication, 38.0% AMOPTs believed that AM works through improving the body's defenses, followed by disease eradication (30.9%). This demonstrates that there was a large gap in the perception of AM among OMOPTs and the other two groups. The purpose of this study was not only to confirm differences among MRLs, AMOPTs, and OMOPTs but also to confirm that the differences in demographic characteristics were large; this is one of the limitations of this study. However, we think that the difference in the demographic characteristics between the three groups has a meaning.

The results of this study also showed that more than 50% AMOPTs perceived harm from AM; however, the scores regarding satisfaction were higher than for MRLs and OMOPTs. Moreover, 98.9% and 87.4% AMOPTs and MRLs, respectively, would have used AM as the first choice if the cost of treatment was the same. This means that AMOPTs and MRLs trusted the efficacy of AM more. More than 85% AMOPTs and MRLs had a person who helped him/her use AM; however, only 10.3% OMOPTs had such a person. This suggested that OMOPTs had more skepticism through not having a person who helped in using AM and were not familiar with using AM. If they had more chance to be

Table 4. Attitudes of the citizens on Ayurvedic medicine (AM) in Dhaka, Bangladesh.

		Respondents								Total		test
		Religious leaders		Outpatients of Ayurvedic medicine		Outpatients of Orthodox medicine						
AM provider gives good information on maintaining a healthy lifestyle	Strongly disagree	2	1.4%	0	0.0%	0	0.0%			2	0.4%	**
	Disagree	2	1.4%	0	1.0%	2	1.3%			6	1.2%	
	Haven't decided	26	17.7%	2	1.0%	84	56.0%			112	22.7%	
	Agree	108	73.5%	55	27.9%	64	42.7%			227	46.0%	
	Strongly agree	9	6.1%	138	70.1%	0	0.0%			147	29.8%	
	Total	147	100.0%	197	100.0%	150	100.0%			494	100.0%	
Herbal medicine has less side effects	Strongly disagree	1	0.7%	0	0.0%	1	0.7%			2	0.4%	**
	Disagree	2	1.3%	0	0.0%	1	0.7%			3	0.6%	
	Haven't decided	23	15.4%	2	1.0%	42	28.0%			67	13.5%	
	Agree	111	74.5%	54	27.3%	104	69.3%			269	54.1%	
	Strongly agree	12	8.1%	142	71.7%	2	1.3%			156	31.4%	
	Total	149	100.0%	198	100.0%	150	100.0%			497	100.0%	
AM involves natural plant formulas which are healthier than taking drugs given by the medical doctors	Strongly disagree	0	0.0%	0	0.0%	0	0.0%			0	0.0%	**
	Disagree	2	1.3%	0	0.0%	1	0.7%			3	0.6%	
	Haven't decided	20	13.4%	4	2.0%	12	8.0%			36	7.2%	
	Agree	115	77.2%	52	26.3%	132	88.0%			299	60.2%	
	Strongly agree	12	8.1%	142	71.7%	5	3.3%			159	32.0%	
	Total	149	100.0%	198	100.0%	150	100.0%			497	100.0%	
People would be more likely to use AM if there were more AM clinics	Strongly disagree	1	0.7%	0	0.0%	1	0.7%			2	0.4%	**
	Disagree	2	1.3%	1	0.5%	2	1.3%			5	1.0%	
	Haven't decided	10	6.7%	3	1.5%	20	13.3%			33	6.6%	
	Agree	120	80.5%	40	20.2%	127	84.7%			287	57.7%	
	Strongly agree	16	10.7%	154	77.8%	0	0.0%			170	34.2%	
	Total	149	100.0%	198	100.0%	150	100.0%			497	100.0%	
AM build up the body's own defenses	Strongly disagree	0	0.0%	0	0.0%	2	1.3%			2	0.4%	**
	Disagree	3	2.0%	0	0.0%	2	1.3%			5	1.0%	
	Haven't decided	13	8.8%	4	2.0%	43	28.7%			60	12.1%	
	Agree	117	79.1%	42	21.3%	100	66.7%			259	52.3%	
	Strongly agree	15	10.1%	151	76.6%	3	2.0%			169	34.1%	
	Total	148	100.0%	197	100.0%	150	100.0%			495	100.0%	
The more knowledge a person has on AM, the more likely he/she use it	Strongly disagree	1	0.7%	0	0.0%	0	0.0%			1	0.2%	**
	Disagree	1	0.7%	1	0.5%	1	0.7%			3	0.6%	
	Haven't decided	7	4.7%	4	2.0%	39	26.0%			50	10.1%	
	Agree	123	82.6%	53	26.8%	109	72.7%			285	57.3%	
	Strongly agree	17	11.4%	140	70.7%	1	0.7%			158	31.8%	
	Total	149	100.0%	198	100.0%	150	100.0%			497	100.0%	
Parent(s) can influence youth's AM use by exposing them to it	Strongly disagree	2	1.3%	0	0.0%	0	0.0%			2	0.4%	**
	Disagree	1	0.7%	0	0.0%	0	0.0%			1	0.2%	
	Haven't decided	13	8.7%	5	2.6%	26	17.3%			44	8.9%	
	Agree	109	73.2%	59	30.1%	124	82.7%			292	59.0%	
	Strongly agree	24	16.1%	132	67.3%	0	0.0%			156	31.5%	
	Total	149	100.0%	196	100.0%	150	100.0%			495	100.0%	
People can be influenced to use AM if friends are using it	Strongly disagree	1	0.7%	0	0.0%	0	0.0%			1	0.2%	**
	Disagree	4	2.7%	0	0.0%	3	2.0%			7	1.4%	
	Haven't decided	11	7.4%	15	7.7%	30	20.0%			56	11.3%	
	Agree	110	73.8%	53	27.0%	117	78.0%			280	56.6%	
	Strongly agree	23	15.4%	128	65.3%	0	0.0%			151	30.5%	
	Total	149	100.0%	196	100.0%	150	100.0%			495	100.0%	
Teacher can influence youth's AM use by exposing them to it	Strongly disagree	0	0.0%	0	0.0%	1	0.7%			1	0.2%	**
	Disagree	4	2.7%	0	0.0%	2	1.3%			6	1.2%	
	Haven't decided	18	12.1%	21	10.7%	36	24.2%			75	15.2%	
	Agree	108	72.5%	64	32.7%	109	73.2%			281	56.9%	
	Strongly agree	19	12.8%	111	56.6%	1	0.7%			131	26.5%	
	Total	149	100.0%	196	100.0%	149	100.0%			494	100.0%	

People who believe in the physical, mental and spiritual aspects of health are more likely to use AM	Strongly disagree	4	2.7%	0	0.0%	1	0.7%	5	1.0%	**
	Disagree	1	0.7%	1	0.5%	5	3.3%	7	1.4%	
	Haven't decided	12	8.1%	63	32.6%	82	54.7%	157	32.0%	
	Agree	109	73.6%	89	46.1%	58	38.7%	256	52.1%	
	Strongly agree	22	14.9%	40	20.7%	4	2.7%	66	13.4%	
	Total	148	100.0%	193	100.0%	150	100.0%	491	100.0%	
Those who fear the discomfort of treatment from medical doctors are more likely to use AM	Strongly disagree	6	4.1%	11	5.6%	4	2.7%	21	4.2%	**
	Disagree	2	1.4%	25	12.6%	30	20.0%	57	11.5%	
	Haven't decided	13	8.8%	113	57.1%	57	38.0%	183	36.9%	
	Agree	109	73.6%	29	14.6%	53	35.3%	191	38.5%	
	Strongly agree	18	12.2%	20	10.1%	6	4.0%	44	8.9%	
	Total	148	100.0%	198	100.0%	150	100.0%	496	100.0%	
AM are not harmful	Strongly disagree	0	0.0%	18	9.2%	0	0.0%	18	3.6%	**
	Disagree	6	4.1%	28	14.3%	4	2.7%	38	7.7%	
	Haven't decided	8	5.4%	98	50.0%	67	44.7%	173	35.0%	
	Agree	114	77.0%	39	19.9%	78	52.0%	231	46.8%	
	Strongly agree	20	13.5%	13	6.6%	1	0.7%	34	6.9%	
	Total	148	100.0%	196	100.0%	150	100.0%	494	100.0%	
People are mostly motivated to use AM by television, radio and mass media	Strongly disagree	6	4.1%	0	0.0%	0	0.0%	6	1.2%	**
	Disagree	2	1.4%	1	0.5%	0	0.0%	3	0.6%	
	Haven't decided	8	5.5%	7	3.5%	9	6.0%	24	4.9%	
	Agree	113	77.4%	49	24.7%	136	90.7%	298	60.3%	
	Strongly agree	17	11.6%	141	71.2%	5	3.3%	163	33.0%	
	Total	146	100.0%	198	100.0%	150	100.0%	494	100.0%	

χ^2-test was used

**$p < 0.01$, *$p < 0.05$

familiar with the AM through the help of another person, then, they might use it more.

With regard to attitudes, the results of this study also showed that AMOPTs were the most positive toward AM and that MRLs were also positive; however, OMOPTs were not so positive. In addition, in terms of the influence of parents, friends, and teachers, as a whole, more than 90% respondents believed that their parents influenced the use of AM, followed by friends (87.1%) and teachers (83.4%). This also suggests that a person who supports the use of AM is very important in increasing its use. OMOPTs harbored more skepticism than the other two groups. Therefore, to increase the use of AM, appropriate information on its efficacy and safety should be delivered to the general public to avoid skepticism.

In this research, we focused on the difference among MRLs, AMOPTs, and OMOPTs to enhance the usage of AM more. On the other hand, in 2010 we conducted the similar research to confirm the basic perceptions of AM by citizens in Dhaka [23]. The research demonstrated that in terms of effectiveness of AM, the younger generation in Dhaka seemed to be more skeptical to AM than the elder generation in Dhaka, even though the younger generation were more satisfied with AM than the elder generation. Based on the results, with viewpoint of enhancement of usage of AM in Dhaka, we recommended that scientifically sound information on AM should be collected rigorously and brought to the citizens vigorously to remove the skeptical feeling of AM from younger citizen in Dhaka.

In addition, we conducted a study in Japan, and it demonstrated that there was a large gap in the perception of medical terms between citizens and healthcare workers [24-26]. The gaps between the basic recognition of the medical terms by laypeople and that estimated by medical doctors suggest that the possibility that patients cannot recognize much more difficult terms should be considered [24]. In addition, compared with medical doctors, pharmacists tend to overestimate patients' recognition level of medical terms [25]. Furthermore, the level of medical term recognition by patients was much higher when estimated by nurses than when estimated by medical doctors. As members of team care, pharmacists and nurses must consider that patients find technical medical terms to be more difficult than anticipated and that patients are aware of these terms only to a certain extent while receiving healthcare information, such as drug information [26]. Through these results in Japan, we believe that it is critical to address these perception gaps to enhance medical care, which includes AM, in Bangladesh as well.

This study was conducted in Dhaka; however, this type of study should be expanded to other cities in Bangladesh and other countries in Asia with the objective of increasing the use of AM.

We hope that this study will help increase the use of AM, including HM, in not only Bangladesh but also worldwide.

Acknowledgments

Conflicts of interest

The authors declare that they have no conflicts of interest.

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