

Patients' knowledge and practices on the drug regimens prescribed at the National Traditional Medicine Hospital: a call for a systematic approach to drug information services

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ABSTRACT

Introduction: The World Health Organisation estimates that only half of all medicines dispensed are used appropriately. The Bhutanese Traditional Medicine (BTM) system is no exception. **Objectives:** We studied the patients' knowledge on the usage of traditional medicine regimens prescribed to them, their medication adherence and possible adverse events. **Methods:** This was a cross-sectional study conducted using an interviewer-administered questionnaire at the National Traditional Medicine Hospital, Thimphu in 2017. A simple random sampling was used. Ethical approval was sought from Research Ethics Board of Health, Thimphu. **Results:** A sample of 402 patients were studied. The mean age of the respondents was 45 years (± 15 years) and 333 (82.8%) were old cases presenting to the hospital. The knowledge on the correct timing of the medicine, how to take the medicine and what to avoid while on those medicines were understood only by 62.7%, 34.6% and 22.9% respectively. Only 351 (87.3%) patients received verbal information on the usage of drugs from the dispensers, of which 119 (29.6%) said the information was not clear or not adequate. Failure to take medicines on time was reported by 224 (67.3%) among old cases. Undesirable events reported while using BTM were giddiness, vomiting, skin irritation, diarrhoea and fainting episodes. **Conclusions:** The drug information system and monitoring of medication adherence and adverse drug events require adoption of more effective tools and methods.

Keywords: Traditional medicine; Drug information service; Medication adherence; Patient safety.

INTRODUCTION

The World Health Organization estimates that more than 50% of all medicines are prescribed, dispensed, or sold inappropriately while about 50% of patients fail to take their medicines adequately^{1,2}. Drug information is of crucial importance to ensure patient safety especially in an era when the safety of traditional medicines are questioned^{3,4}. Drug information includes information on the use, dosage, side effects, drug interactions and other important information⁵. Drug information comes in various forms – medication slips, advice by healthcare providers, drug information leaflets and through mass media. Giving more drug information enhances medication adherence⁶ and the patient-physician relationship⁷.

The Bhutanese Traditional Medicine (BTM) system has undergone rapid expansion since its establishment in 1967^{8,9}. BTM is very much relevant and popular¹⁰ especially for those with chronic diseases⁸. The practice of BTM is rooted in the millennia-old four medical tantras^{11,12} and much of the drug information in

these texts is accessible only to traditional medicine practitioners (*drungtshos* and *smenpas*). The medicines must as well be taken in doses, timings and combinations as prescribed in the texts.

The study was carried out to understand the level of patients' knowledge, practices and their adherence to the traditional medicine regimens prescribed to them by the *drungtshos*. We also report on some of the potential adverse drug reactions with the consumption of BTM.

METHODS

Study design and setting

This was a cross-sectional survey conducted at the National Traditional Medicine Hospital (NTMH) in Thimphu. BTM is well integrated into the healthcare delivery system and BTM and allopathic medicine are offered from the same roof^{13,14}. There are three level facilities for the delivery of BTM: the Basic Health Unit and Outreach Clinics at the primary level, the district and general hospitals in the secondary level and the regional referral hospitals and the NTMH at the tertiary level^{14,15}.

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Study population, sample size and sampling method

Thimphu is the district with the largest population where one-sixth of the country’s 0.7 million people resides¹⁵. It also caters to people from other districts who visit the NTMH to avail advanced treatment and therapeutic services. In 2016, the NTMH provided services to 34,481 cases¹⁴.

Assuming that 50% of the people availing TM services had adequate knowledge on medication regimens, with a confidence level of 95%, degree of accuracy of 5% and a dropout rate of 10%, the sample size was calculated at 422.

A simple random sampling method was used in the study. Every weekday, fifteen patients were interviewed soon after they had collected their prescribed drugs. Drug information is predominantly given by *smenpas* when they dispense the drugs. Duplication of respondents was avoided by careful check of patient identity and registration numbers. Those with hearing and speech impairment were excluded.

Study tool and data collection

A questionnaire was designed to collect the basic details and their knowledge on usage and practices related to medicines prescribed, and potential adverse drug reactions to those medicines. The patients’ knowledge was tested on four themes important for the principles of BTM: the indication of the medicine; when to take the medicine; how to take the medicine and what to avoid while on those medicines. The knowledge was scored on a scale of 1 to 3 – does not know, knows partially and knows fully – by trained *drungtshos* who collected the data.

The questionnaire was pretested at Paro District Hospital in the first week of November 2017 and minor changes were made to improve its face and content validity. Data were collected in the last week of November and December 2017.

Data entry and analysis

The data entry and analysis were done using a trial version of IBM SPSS 23.0 and STATA Version 13 (StataCorp, Stata Statistical Software, licenced Khesar Gyalpo University). Descriptive analysis was used to summarize each variable.

Ethics consideration

Ethical approval for the study was obtained from the Research Ethics Board of Health, Ministry of Health, Bhutan. Written informed consent was obtained before the interview.

RESULTS

Population characteristics

There were 402 valid questionnaires (response rate of 95.3%) collected. Of those, 333 (82.8%) were old cases and 69 (17.2%) were new cases presenting to the NTMH. The mean age of the respondents was 45 years (± 15 years). The basic details are shown in Table 1.

Table 1. The characteristics of patients interviewed from those attending the National Traditional Medicine Hospital, Thimphu in November-December 2017

	n	%
Sex		
Male	203	50.50
Female	199	49.50
Age groups		
18 to 24 years	28	7.0
25 to 34 years	91	22.6
35 to 44 years	97	24.1
45 to 54 years	71	17.7
55 to 64 years	57	14.2
65 years and older	58	14.4
Occupation		
Farmer	195	48.5
Civil servant	67	16.7
Private/business	59	14.7
Student	27	6.7
Corporate employee	21	5.2
Monastic institutions	16	4.0
Unemployed	17	4.2
Education level		
Uneducated	208	51.7
Non-formal/monastic education	25	6.2
Primary school	20	5.0
Secondary school	85	21.1
Undergraduate or higher	64	16.0

Knowledge and patient behaviour with BTM regimens

Three hundred and fifty-one patients (87.3%) reported that they received verbal information on the four principles related to BTM prescription from the dispensers (*smenpas*) (Table 2). Overall, 119 patients (29.6%) reported that the amount of drug information given was inadequate (Table 3).

Among those who had been previously prescribed traditional medicine regimens, 224 (67.2%) responded that they sometimes failed to take the medications as instructed but the majority (303; 91.0%) completed the treatment regimen. The reasons for failure to consume medicines according to instructions and patient behaviour in such events are shown in Table 3.

Table 2. Patient’s knowledge on the Traditional Medicine regimens prescribed among those attending the National Traditional Medicine Hospital, Thimphu in November-December 2017

	Knows fully		Knows partially		Doesn’t know	
	n	%	n	%	n	%
Indication of the medicine	318	79.1	81	20.2	3	0.7
When to take the medicine	252	62.7	148	36.8	2	0.5
How to take the medicine*	139	34.6	256	63.7	7	1.7
What things to avoid during medication period†	92	22.9	273	67.9	37	9.2

*Some medicines are to be taken in relation to meals, some to be dissolved in water, etc based on specific instructions in the Four Medical Tantras.

†The restrictions include the consumption of selected vegetables, spices, meat or alcohol on a case by case basis according specific instructions in the Four Medical Tantras

Table 3. Patients’ perception on the quality of drug information system in BTM and their practices on the Traditional Medicine regimens prescribed among those attending the National Traditional Medicine Hospital, Thimphu in November-December 2017

	n	%
Inadequate amount of drug information§		
Benefits of medicines	52	12.9
Duration of medicine course	46	11.4
Timing of medication	45	11.2
What to avoid when on those medications	40	10.0
Failure to take medicines according to instructions**		
Forgetfulness	188	56.5
Polypharmacy	21	6.3
Language barrier to understand instructions	18	8.0
Patient behaviour when forgotten to take a medication dose††		
Take the dose when remembered	149	44.7
Skipped the dose	59	17.7
Take with the next dose	37	11.1
Seek <i>drugtsho</i> ’s advice	16	4.8
Patient behaviour when symptoms resolve before the completion of medication course‡‡		
Complete the course	303	91.0
Stop the course and save the medicines for future use	77	23.1
Give the remaining medicines to others	15	3.7
Give the remaining medicines to the hospital	4	1.0
Threw away the remaining medicines	3	0.9

§It will not add up to total as multiple responses were allowed.

**It will not add up to total as multiple responses were allowed.

††It will not add up to total as multiple responses were allowed.

‡‡It will not add up to total as multiple responses were allowed.

Undesirable events with BTM

Among old cases interviewed, eight persons (2.4%) reported undesirable events. Five reported giddiness, four vomiting, two skin irritation, and one diarrhoea and one fainting episode.

DISCUSSION

This is the first study on the quality of drug information services in the delivery of Bhutanese Traditional Medicine. BTM requires its highly scholastic and textual recommendations to be followed both by the BTM physician and the patient for the medicines to be effective^{9,11}. In BTM, all illnesses are caused by imbalances in the three humours – wind, bile and phlegm. Medicines are prescribed to restore balance of this disturbance. This comes with what, how and when of the drugs when it is given to the patients. What medicine is appropriate will be decided by the *drungtsho* based on the patients' nature and condition. How and when to take these medicines is also specific to the condition.

Given the specificities that come with giant volumes of the Four Medical Tantras, the practice of BTM till now has remained unchanged and drug information is given the old way – verbal explanation. This method, as shown in our sample, is not the most effective method. There is no system of giving drug information leaflet or the use of modern technology such as media or internet⁵. The curriculum for training of traditional medicine physicians has very limited courses on effective communication skills¹⁶. Thus, BTM is in an urgent need to adopt a systematic approach to drug information services⁵.

BTM is given free of cost as a complementary and alternative medicine by the Royal Government of Bhutan as mandated by the National Health Policy and the Constitution of the country^{17,18}. Given the limited resources and sustainability of health financing^{13,19}, BTM needs to identify the challenges to the issue of drug compliance for those that are supplied through the essential medicines list²⁰. While polypharmacy²¹ cannot be avoided in situations that require correction of the many humoral imbalances, effective communication, especially with the elderly health seekers is crucial in ensuring rational use of the prescribed medicines^{22,23}. An adoption of the use of objective medication adherence assessment tools will be of great service.

This is the first study that sheds some light on undesirable events following the use of traditional medicines^{3,4}. Adverse drug reactions in BTM is linked to over or under correction of the humoral imbalances or the failure to adhere to the text in the processes of identification of medicinal plants, collection, storage and manufacturing of medicines by the Menjong Sorig Pharmaceuticals²⁴.

The rate of such events was minimal but significant given that all medicines are multi-ingredient recipes²⁵. We suggest that the Department of Traditional Medicine Services and the Drug Regulatory Authority develop a mechanism to monitor and report adverse drug events such as the use of Naranjo's algorithm²⁶.

CONCLUSIONS

The quality of drug information services and monitoring of medication adherence and adverse drug events is poor and requires diversification and adoption of appropriate modern tools.

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AUTHORS CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

KJ: concept, analysis of data, study design, manuscript drafting and critical reviews

DG: concept, analysis of data, study design, manuscript drafting and revisions

ST: concept, analysis of data, study design, manuscript drafting and revisions

TD: concept, analysis of data, study design, manuscript drafting, critical reviews and revisions

Authors agree to be accountable for all respects of the work in ensuring that questions related to the accuracy and integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

None

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