• Research Article

A study on drug utilization and prescription habits of physicians in a government homeopathic hospital in West Bengal, India

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OBJECTIVE: Improper prescribing habits and inappropriate drug use lead to serious health and economic consequences. This study was undertaken to evaluate drug utilization services and prescription patterns of homeopathic doctors in a government homeopathic teaching hospital in India.

METHODS: No standardized homeopathic drug use indicators are available. The researchers used indicators for health care setting (drug availability)-modified prescribing indicators and patient care indicators, based on World Health Organization's core drug use indicators. A cross-sectional, prospective, institutional, observational study of 2-month duration with record analysis was conducted on 600 patients visiting seven different outpatient departments (OPDs) for the first time at Mahesh Bhattacharyya Homeopathic Medical College & Hospital, Howrah, West Bengal, India, using the developed indicators.

RESULTS: Overall availability of prescribed drugs was quite satisfactory (92.28%). Centesimal potencies accounted for the majority of prescriptions (74.76%). There was a poor record of diagnosis (39.17%) except in the OPDs of Gynecology and Obstetrics (68.48%, $P < 0.01$) and Dermatology (64.58%, $P < 0.01$). Records of investigational findings and ongoing therapies, if any, were also poor except OPDs of Gynecology and Obstetrics, and Pediatrics. Structure of prescriptions was maintained satisfactorily in all the OPDs. Though tendency of using 'individualized homeopathy' predominated, there also existed the use of 'polypharmacy'. Mean consultation time was 5.9 min. Labeling was extremely poor and is an area needing improvement. The prescriptions were highly legible.

CONCLUSION: This was a preliminary study, conducted for the first time in homeopathy using newly developed indicators that yield meaningful results. Further studies are necessary in order to evaluate the different factors involved and to plan future interventions to improve the quality of care in healthcare settings.

KEYWORDS: homeopathy; prescriptions, drug; durg utilization; hospital

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1 Introduction

Drugs play a major role in health care, and their use depends on system management policies, the practices of the professional involved, patients' physical and mental states, as well as their individual and cultural practices[1]. Drug utilization can be a complex system of ongoing,

systematic, criteria-based drug evaluation involving the doctor, the patient and the dispenser that ensures the appropriateness of drug use[2]. In 1985, the World Health Organization (WHO) stated that "rational use of drugs requires that patients receive medication appropriate to their clinical needs, in doses that meet their own individual requirement for an adequate period of time and at the lowest cost to them and their community"[3]. Medically inappropriate, ineffective and economically inefficient use of drugs is unfortunately a common occurrence in health care facilities worldwide[4]. The costs of such inappropriate drug use are high in terms of both wasting scarce medical resources and inducing adverse clinical consequences[4]. Globally, more than 50% of all conventional medicines are prescribed, dispensed or sold inappropriately, while 50% of patients fail to take the prescribed drugs correctly[2]. Incorrect drug use incurs severe consequences including adverse drug reactions, drug resistance, protracted illness, serious health and economic consequences, failure of therapy, inappropriate patient demand, reduced access and attendance rates in schools and workplaces due to drug stock-outs, loss of patient compliance and acceptance, and even death[2,4]. The financial cost attributed to inappropriate drug use is unnecessary and often unexpectedly high, particularly in developing countries[4]. The WHO developed and evaluated a number of standardized indicators to investigate this complex subject, namely facility indicators, prescribing indicators and patient care indicators[2,5]. To the best of our knowledge, no information is available on homeopathic drug utilization all over the globe. The use patterns of homeopathic drugs need to be assessed, problems identified, and remedial intervention strategies should be implemented so as to control dangerous deviations from the basic principles of homeopathy.

A prescription is a health care program implemented by a doctor in the form of instructions to take certain medications that govern the plan of care for an individual patient[6]. As medical practice has become more complex, the scope of the term 'prescription' has been broadened to include clinical outcome assessments, laboratory tests, and imaging studies relevant to optimizing the safety or efficacy of medical treatment[7]. A prescription should consist of the following four parts: 'superscription', which includes identification of the patient and prescriber, date, and the symbol Rx (stands from the Latin word '*recipe'*, the imperative form of '*recipere'*, 'to take' or 'take thus'); 'inscription', which includes name of the drug, dilution and dosage; 'subscription', which contains directions for the compounder or dispenser; and 'signatura' (*Spanish*, means 'signature'), which contains directions for the patient, next reporting time, complementary instructions (if any), prescriber's signature, registration number and date[7,8]. In a prescription audit study, these parameters are evaluated for their presence or absence; the number of absent parameters directly correlates to inconsistencies in the prescriptions[8].

Very little information is available on the utilization of homeopathy in India. A study by Singh *et al*[9] in 2005 concluded that in case of normal and major ailments, preference for homeopathy is 12.7% and 11.4% respectively in the Indian population. They preferred homeopathy for the reasons of 'no side effect' and low cost. Slow progress and non-availability of practitioners were the main reasons for not preferring homeopathy[9].

In West Bengal, as of April 1, 2011, there are 12 degree-granting homeopathic medical colleges and hospitals, 305 state homeopathic dispensaries (SHDs), 105 block primary health centers (BPHCs), 135 primary health centers (PHCs), and 975 Gram Panchayat Dispensaries (GPDs)[10]. Out of these, 4 homeopathic medical colleges and hospitals and all the SHDs, BPHCs, PHCs, and GPDs are run by the state government, and others by private organizations. Additionally, there are 100 homeopathic clinics under National Rural Health Mission (NRHM), 14 specialty clinics (only outpatient departments (OPDs)) and 4 homeopathic wings (with OPD and inpatient department facility) funded exclusively by the Department of Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH), Government of India[10]. There is also the National Institute of Homeopathy Kolkata, undertaken by the Government of India, as well as 7 private homeopathic teaching hospitals. The Central Council for Research in Homeopathy, Department of AYUSH, Government of India also runs one clinical research unit (CRU) and one regional research institute (RRI) in West Bengal. As of March 31, 2011, there are a total of 41 944 registered homeopathic practitioners in West Bengal[10].

Out of US dollar 6.1 billion budget allocated to the Ministry of Health & Family Welfare in 2013-2014, US dollar 0.78 billion has been allocated for medical education, training and research, of which, US dollar 0.175 billion to the Department of AYUSH for mainstreaming Ayurveda, Unani, Siddha and Homeopathy through the National Health Mission. In the last financial year 2012-2013, budget allocation by the Government of West Bengal for homeopathy was about US dollar 11.5 million, out of which US dollar 0.57 million was allocated to Mahesh Bhattacharyya Homeopathic Medical College & Hospital (MBHMC&H). Expenditure for drugs accounted for US dollar 4 101.5 (7.14%). Hence the present study was conducted to understand the appropriateness of utilization of these US dollar 4 101.5 for medical care. It is a part of monitoring and supervision of current treatment practices, drug use behavior, and an effort to compare the performance of individual facilities within MBHMC&H, in order to better understand the drug use situation in the hospital setting, and improve patient care services. The drug use indicators

may be used to measure the impact of the interventions undertaken, and problems in performance. They can help health planners, managers and researchers to make basic comparisons between healthcare and prescribing practices in different areas or at different time[11].

2 Materials and methods

2.1 Study setting and design

A cross-sectional, prospective, institutional, observational study with record analysis was conducted on 600 patients visiting different OPDs, i.e., Male Medicine, Female Medicine, Gynecology and Obstetrics, Pediatrics, Surgery, Dermatology and Ear-Nose-Throat (ENT) at Mahesh Bhattacharyya Homeopathic Medical Collage & Hospital, Howrah, West Bengal, India for the first time. The sample size of 600 was chosen according to the recommendation of the WHO for studying the specified indicators[5]. The study was of 2-month duration (February to March, 2013) from the date of inception of the project.

2.2 Participant recruiting

Inclusion criteria were patients visiting the above-mentioned outpatient facilities for the first time, completing their physician's consult, giving written informed consent, and being ready to share their prescription information. Exclusion criteria were patients who were too sick for consultation, unable to read patient information sheets, unwilling to stay after the doctor's visit, and not giving consent to join the survey. A flowchart of this study is shown in Figure 1.

2.3 Questionnaire development and testing

No universally accepted standardized health care facility indicators, prescribing indicators and patient care indicators were available in homeopathy. Five experts with adequate research expertise (Munmun Koley, Subhranil Saha, Shubhamoy Ghosh, Jogendra Singh Arya and Gurudev Choubey) were involved in the development of the trial questionnaire through four iterative Delphi rounds, provided with a yes/no Likert scale, based on WHO-designed core drug indicators[5].

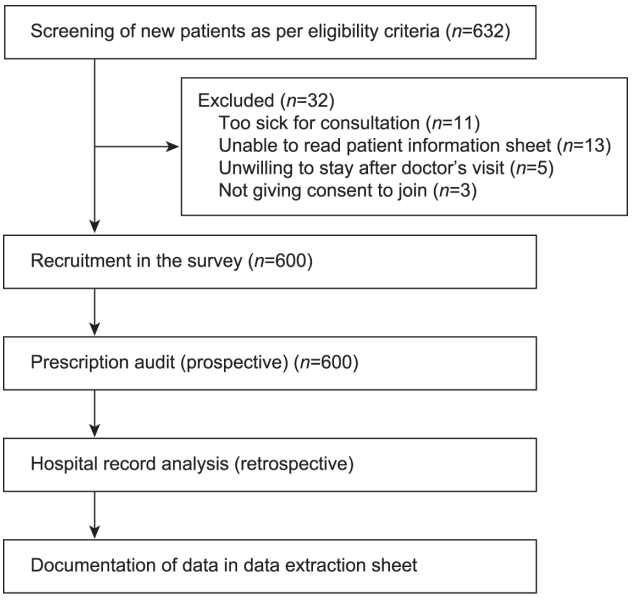

Figure 1 Flowchart of the study

A priori, pilot testing was conducted on 15 patients to evaluate the usefulness of the newly developed questionnaire. Availability of drugs from the hospital pharmacy was the health care facility indicator. A total of nine indicators were selected as prescribing indicators: average number of drugs per encounter; encounters with either individualized classical homeopathic approach or complex homeopathic approach (polypharmacy)[12]; maintenance of proper case record; prescription structure; diagnosis; ongoing therapy; investigation reports (if any); and legibility of the prescription. Seven patient care indicators were selected: (1) mean consultation and (2) dispensing time; (3) drugs actually dispensed; (4) drugs adequately labelled; (5) patients understanding of direction of prescription with knowledge of correct dosage; (6) understanding of what to do in adverse events; and (7) overall patient satisfaction with the care received. Data were extracted utilizing this study tool from prescriptions and available hospital records, and then analyzed. Although the 2-month study period may have been influenced by seasonal diseases in prescribing patterns, according to the WHO, a sample obtained at a given moment will show basically the same results as one involving a longer time period[1].

The independent variables of this study were age and gender of the patients, education status, and type of professionals involved in dispensing drugs. The dependent variables were percentage of actually dispensed drugs, average dispensing time, average consultation time, patient knowledge, and labeling pattern of drugs. The audit involved documentation of current drug regimens and analysis of case notes. No patients' identifiable information was required, ensuring anonymized protection of patient's privacy. Also the filled-in questionnaires by the research assistants were concealed by putting those inside opaque envelops, which were sealed at the survey site. All these were sent to the data analyst. The study was approved by the Institutional Ethics Committee of M. B. H. Medical College and Hospital, Government of West Bengal. Patient information sheets were provided to the participants to achieve full cooperation. Though the survey did not intend to intervene anyway with the treatment being provided by the institutional doctors, written consent was obtained from all the participants. The survey matter was also explained verbally to all the participants by the research assistants.

2.4 Statistical analysis

The statistical analysis was done by using different

statistical calculation websites. Descriptive analysis was presented in the form of absolute values, percentages and mean values; comparisons were made between the proportions of two groups of each department by using a Z test, with P value of 2 tail < 0.05 as significant.

3 Results

3.1 Socio-demographic data

Table 1 shows the socio-demographic data of the patients in this trial. Mean age of the participants in this survey was 37.63 years (standard deviation = 10.9). Females predominated (58%). Bengali was the first language of most patients (98%). Patients were mostly urban residents (62.2%) and married (58.7%). Level of education among the participants was poor; 39.3% belonged to the 8th standard or below. Among the different diseases encountered in different OPDs, chronic suppurative otitis media was found to have the maximum prevalence of 67.4% in the OPD of ENT.

3.2 Drugs prescribed and their availability

Table 2 shows that 449 or 74.8% of all drugs prescribed from the hospital OPDs were centesimal potencies; 4.5% was decimal, 17.2% was 50 millesimal potencies, 3.2% mother tinctures/solutions/powders, and only 1.9% was external application. This trend of prescription was prevalent in all the OPDs, with highest centesimal potency prescription (89, 100%) in the OPD of surgery, and lowest (42, 41.2%) in ENT. Fifty millesimal potencies were prescribed highest in the OPD of ENT (50, 49.0%); no 50 millesimal potencies were prescribed in the OPDs of Male Medicine, Gynecology and Obstetrics, and Surgery. Highest number of decimal potency prescriptions was obtained from Female Medicine OPD (16, 18.8%), and none from the OPDs of Surgery, Gynecology and Obstetrics, Dermatology and ENT. Maximum number of external application was seen in the OPD of ENT (10, 9.8%) in the form of Mullen oil. Drugs in crude form were chiefly prescribed from the OPDs of Male and Female Medicine (9, 10.2% and 9, 10.6% respectively); no such drugs were prescribed from the Pediatrics, Surgery, Dermatology and ENT OPDs. Overall availability of prescribed drugs from the hospital pharmacy was high, with 574 out of 622 prescribed (92.3%). Centesimal potencies were of highest availability (96.6%); others ranged between 35.7% – 90%. All the drugs (100%) prescribed from the OPDs of Obstetrics and Gynecology, Pediatrics and Surgery were available from the hospital pharmacy; however, availability was low (72.9%) among prescribed drugs for Female Medicine. Availability of decimal potencies was especially poor (35.7%).

3.3 Distribution of availability of drugs prescribed

Table 3 shows that availability of drugs was significant statistically in all the OPDs. All the drugs prescribed from the OPDs of Gynecology and Obstetrics, Pediatrics and Surgery were available.

3.4 Distribution of record of diagnosis

Table 4 shows that the OPD of Gynecology and Obstetrics records the highest (68.5%) number of provisional and/or confirmatory diagnosis in the prescription (Z = 4.310 466; two-tailed P < 0.01). Record of diagnosis was not significant in the OPDs of Male and Female Medicine and ENT.

Table 1 Socio-demographic data

Data items	Values
Age (mean ± standard deviation, years)	37.6±10.9
Bengali first language (*n* (%))	588 (98%)
Gender (male/female, *n* (%))	252 (42%):348 (58%)
Education level (*n* (%))	
8th standard or below	236 (39.3%)
9th - 10th standard	155 (25.8%)
11th - 12th standard	109 (18.2%)
Graduate or above	100 (16.7%)
Habitat (urban:rural, *n* (%))	373 (62.2%):227 (37.8%)
Marital status (married:unmarried, *n* (%))	352 (58.7%):248 (41.3%)
Maximum prevalence of diseases encountered in different OPDs (*n* (%))	
Male Medicine: hypertension	47 (53.4%)
Female Medicine: osteoarthritis	45 (60%)
Gynaecology and Obstetrics: dysfunctional uterine bleeding	56 (60.9%)
Pediatrics: respiratory tract infection	42 (61.8%)
Surgery: piles	50 (56.2%)
Dermatology: eczema	58 (60.4%)
ENT: chronic suppurative otitis media	62 (67.4%)

OPD: outpatient department; ENT: Ear-Nose-Throat.

Table 2 Drugs prescribed and their availability in the hospital pharmacy

OPD	Prescribed number of drugs (*n* (%))/available number of drugs (*n* (%))					
	Potencies			Mother tinctures/ solutions/powders	External application	Total
	Decimal	Centesimal	50 millesimal			
Male Medicine (*n* = 88)	7 (7.9)/0 (0)	81 (92.1)/ 72 (88.9)	0 (0)/—	9 (10.2)/ 9 (100)	0 (0)/—	97 (15.6)/ 79 (81.4)
Female Medicine (*n* = 75)	16 (18.8)/ 5 (31.2)	50 (58.8)/ 45 (90)	9 (10.6)/ 4 (44.4)	9 (10.6)/ 7 (77.8)	1 (1.2)/ 0(0)	85 (13.7)/ 62 (72.9)
Gynecology and Obstetrics (*n* = 92)	0 (0) /—	92 (97.9)/ 92 (100)	0 (0)/—	2 (2.1)/ 2 (100)	0 (0)/—	94 (15.1)/ 94 (100)
Pediatrics (*n* = 68)	5 (7.3)/ 5 (100)	50 (72.5)/ 50 (100)	13 (18.8)/ 13 (100)	0 (0)/—	1 (1.5) / 1 (100)	69 (11.1)/ 69 (100)
Surgery (*n* = 89)	0 (0) /—	89 (100)/ 89 (100)	0 (0)/—	0 (0)/—	0 (0) /—	89 (14.3)/ 89 (100)
Dermatology (*n* = 96)	0 (0)/—	61 (63.5)/ 61 (100)	35 (36.5)/ 33 (94.3)	0 (0)/—	0 (0)/—	96 (15.4)/ 94 (97.9)
ENT (*n* = 92)	0 (0)/—	42 (41.2)/ 40 (95.2)	50 (49.0)/ 46 (92)	0 (0)/—	10 (9.8)/ 0 (0)	102 (16.4)/ 86 (84.3)
Total (*n* = 600)	28 (4.5)/ 10 (35.7)	465 (74.8)/ 449 (96.6)	107 (17.2)/ 96 (89.7)	20 (3.2)/ 18 (90)	12 (1.9)/ 1 (8.3)	622 (—)/ 574 (92.2)

OPD: outpatient department; ENT: Ear-Nose-Throat.

Table 3 Frequency distribution of availability of drugs prescribed in different OPDs

OPD	Total number of drugs prescribed	Available from hospital (*n* (%))	*Z* score; *P* value (2 tailed)
Male medicine (*n* = 88)	97	79 (81.4)	− 3.172 9; 0.001
Female medicine (*n* = 75)	85	62 (72.9)	− 4.931 4; 0.000
Gynecology and Obstetrics (*n* = 92)	94	94 (100)	2.784 1; 0.005
Pediatrics (*n* = 68)	69	69 (100)	2.388 6; 0.016
Surgery (*n* = 89)	89	89 (100)	2.709 8; 0.006
Dermatology (*n* = 96)	96	94 (97.9)	1.984 4; 0.047
ENT (*n* = 92)	102	86 (84.3)	− 2.450 9; 0.014
Total (*n* = 600)	622	574 (92.3)	—

P<0.05, considered as statistically significant. OPD: outpatient department; ENT: Ear-Nose-Throat.

Table 4 Frequency distribution of record of diagnosis in prescription of different OPDs

OPD	Total number of prescriptions	Diagnosis recorded (*n* (%))	*Z* score; *P* value (2 tailed)
Male medicine (*n* = 88)	88	30 (34.1)	− 0.540 3; 0.589
Female medicine (*n* = 75)	75	28 (37.3)	− 0.194 8; 0.849
Gynecology and Obstetrics (*n* = 92)	92	63 (68.5)	4.148 1; 0.000
Pediatrics (*n* = 68)	68	7 (10.3)	− 1.549 5; 0.121
Surgery (*n* = 89)	89	10 (11.2)	− 1.786 1; 0.073
Dermatology (*n* = 96)	96	62 (64.6)	3.579 8; 0.000
ENT (*n* = 92)	92	35 (38.0)	− 0.135 8; 0.888
Total (*n* = 600)	600	235 (39.2)	—

P<0.05 was considered as statistically significant. OPD: outpatient department; ENT: Ear-Nose-Throat.

3.5 Prescribing indicators of different OPDs

Table 5 reflects different prescribing indicators. In almost every encounter, a single drug was prescribed; however, the statistics varied a little in Male Medicine, Female Medicine and ENT OPDs. 'Individualized homeopathy' approach was highest in pediatrics (68, 100%) and dermatology (96, 100%) OPDs, followed by Gynecology and Obstetrics (85, 92.4%), Surgery (82, 92.1%), and ENT (82, 89.1%), but considerably infrequent in Male Medicine (55, 62.5%) and Female Medicine (47, 62.7%), where 'complex homeopathy' was adopted (33, 37.5% and 28, 37.3% respectively). Overall, trend of single medicine prescription was quite high (515, 85.6%). Patients' identification, signature of doctor and date, and authorized stamps were found in each prescription in every OPD (600, 100%). Highest diagnosis was recorded in the OPD of Gynecology and Obstetrics (63, 68.5%), and least in Pediatrics OPD (7, 10.3%), with a modest record overall (235, 39.2%). The trends of mentioning ongoing therapies (if any) in the prescriptions were highest in Dermatology OPD (76.9%), lowest in Female Medicine (43.1%), overall 59.4%. Again, the habit of noting down investigational findings in the prescriptions was highest in the OPD of Gynecology and Obstetrics (84.1%), lowest in Surgery (39.3%), and overall 68.8%. Legibility of the prescriptions was quite satisfactory (553, 92.2%); however, a few were legible with effort, or illegible (47, 7.8%), most of which originated from the OPD of Surgery.

Case histories were recorded mostly in hospital case record forms (437, 72.8%); also separate case record registers were maintained for the remaining cases (163, 27.2%). While prescribing, full names of drugs were mentioned in 239 occasions (38.4%), abbreviations in 314 cases (50.5%), and common names in 69 cases (11.5%). Concomitant advice was given to 240 patients (40%), but mostly verbally (144, 60%). Follow-up was recommended to 348 patients (58%), but again verbally (268, 77.0%) to most of them. The prescriptions of Surgery OPD accounted for the highest number of erasers (that is words were crossed out and re-written, 68, 74.7%).

3.6 Patient care indicators

Table 6 shows that overall, average consultation time was 5.93 min; highest in the OPD of Gynecology and Obstetrics (8.68 min), and lowest in Surgery (2.66 min). Average dispensing time was 0.79 min. 92.9% of prescribed drugs were dispensed from the hospital pharmacy. Adequate labeling of drugs was extremely poor, only 5.8%. Understanding of the directions of the prescriptions including knowledge of correct dosage was highest in the OPDs of Gynecology and Obstetrics, Pediatrics and Surgery (100% each), and lowest, but still quite high in male medicine (77, 87.5%). However, a mixed scenario was obtained regarding the patients' understanding of directions in case of adverse events, if any. Only 33 (37.5%) and 28 (37.3%) patients of Male Medicine and Female Medicine OPDs had a fair idea about this, whereas it was considerably high in the OPDs of Dermatology (96, 100%) and Gynecology and Obstetrics (88, 95.7%). Patient satisfaction was highest in the OPD of Dermatology (91, 94.8%) and lowest in Surgery (67, 75.3%).

4 Discussion

Overall availability of drugs was quite satisfactory. Centesimal potencies accounted for the majority of prescriptions; homeopathic doctors were somewhat reluctant to use other scale potencies. Less frequently prescribed was crude organic dosage in comparison to high dilutions. Almost always, dispensing of centesimal potencies was preferred in solid carriers (cane sugar globules No. 30). Availability of drugs prescribed in the Female Medicine OPD was somewhat lower relative to other OPDs. There was a poor record of diagnosis except in the OPD of Gynecology and Obstetrics. Records of investigational findings and ongoing therapies, if any, were also poor except OPDs of Gynecology and Obstetrics and Pediatrics. Structure of prescriptions was maintained satisfactorily in all the OPDs. Though tendency of using 'individualized homeopathy' predominates, there also exists the use of 'polypharmacy' in the OPDs of Medicine; however, no OPD was found using 'same formula in all patients'. Consultation time was comparatively less in Surgery OPD. Labeling was extremely poor and is an area that needs more attention. In fact, except for drugs in 50 millesimal potencies, which were few in number, labeling was rarely used. Patients' understanding of adverse events should be enhanced to the extent possible. The record of concomitant advice and follow-up suggestions was poor. The prescriptions were highly legible.

These results show that through studies using these newly developed indicators for homeopathy, it may be possible to evaluate the conditions of medication services offered by an institution or an area. Thus the prescribing indicators can be used to help the health care settings obtain better organizational structure, improve pharmaceutical prescribing, and overall raise the level of healthcare practices in West Bengal, India. Drug use indicators in a government homeopathic health facility have been developed and implemented in this study. Some indicators may need to be revised or updated. Many homeopathic physicians were averse or indifferent towards writing diagnoses on prescriptions. Thus, a prescription management regulation needs to be promulgated for homeopathic practitioners. Though conventional diagnosis is not necessary for an effective homeopathic prescription, it clarifies medico-legal concern and prognostic values. Besides, appropriate use of drugs always bears socio-economic and clinical

Table 5 Prescribing indicators of different OPDs

Prescribing indicator	OPDs (*n* (%))							Average or total
	Male Medicine (*n* = 88)	Female Medicine (*n* = 75)	Gynae. & Obs. (*n* = 92)	Pediatrics (*n* = 68)	Surgery (*n* = 89)	Dermatology (*n* = 96)	ENT (*n* = 92)	
Average number of drugs per encounter	1.10	1.13	1	1.01	1	1	1.11	1.05
Encounters with individualized homeopathy approach	55 (62.5)	47 (62.7)	85 (92.4)	68 (100)	82 (92.1)	96 (100)	82 (89.1)	515 (85.6)
Encounters with 'complex homeopathy' approach	33 (37.5)	28 (37.3)	7 (7.6)	0 (0)	7 (7.9)	0 (0)	10 (10.9)	85 (14.5)
Proper case record maintained	75 (85.2)	68 (90.7)	88 (95.7)	56 (82.4)	70 (78.7)	96 (100)	92 (100)	545 (90.4)
Patient identification, signature of doctor and date, authorized stamp found	88 (100)	75 (100)	92 (100)	68 (100)	89 (100)	96 (100)	92 (100)	600 (100)
Diagnosis recorded	30 (34.9)	28 (37.3)	63 (68.5)	7 (10.3)	10 (11.2)	62 (64.6)	35 (38.0)	235 (39.2)
Ongoing therapy, if any, mentioned properly	26/58 (44.8)	22/51 (43.1)	41/61 (67.2)	19/30 (63.3)	28/41 (68.3)	50/65 (76.9)	10/24 (41.7)	196/330 (59.4)
Investigation reports, if any, mentioned properly	31/53 (58.5)	44/63 (69.8)	37/44 (84.1)	26/31 (83.9)	11/28 (39.3)	40/60 (66.7)	18/22 (81.8)	207/301 (68.8)
Easily legible prescriptions	88 (100)	75 (100)	92 (100)	68 (100)	50 (56.2)	96 (100)	84 (91.3)	553 (92.2)

OPD: out patient department; ENT: Ear-Nose-Throat.

Table 6 Patient care indicators in different OPDs

Patient care indicator	Male Medicine	Female Medicine	Gynae. & Obs.	Pediatrics	Surgery	Dermatology	ENT	Average or total
Mean consultation time (min)	6.09	6.53	8.68	6.65	2.66	4.21	6.72	5.93
Mean dispensing time (min)	—	—	—	—	—	—	—	0.79
Drugs actually dispensed	79 (81.4)	62 (72.9)	94 (100)	69 (100)	89 (100)	94 (97.9)	86 (84.3)	574 (92.3)
Drugs adequately labelled	4 (5.1)	4 (6.5)	0 (0)	13 (18.9)	0 (0)	5 (5.2)	7 (6.9)	33 (5.8)
Patients understand direction of prescription with knowledge of correct dosage	77 (87.5)	66 (88)	92 (100)	68 (100)	89 (100)	93 (96.9)	81 (88.0)	566 (94.3)
Patients understand what to do in adverse events	33 (37.5)	28 (37.3)	88 (95.7)	58 (85.3)	68 (76.4)	96 (100)	76 (82.6)	447 (74.5)
Patients satisfied with the care they received	71 (80.7)	68 (90.7)	86 (93.5)	57 (83.8)	67 (75.3)	91 (94.8)	79 (85.9)	519 (86.5)

OPD: out patient department; ENT: Ear-Nose-Throat.

implications[13]. For Indians, poor homeopathic research and development, easy availability of over-the-counter drugs, patients' expectations, potential profits of prescription and poor (almost none) management of 'polypharmacy' and 'same formula in all patients' can seriously affect the appropriate use of homeopathic drugs.

WHO suggested that within one year, a longer time period plus a large number of cases should ideally be used in order to minimize bias due to seasonal variations or interruptions in the drug supply cycle. Both prospective and retrospective methods were used in our study. Factors such as staffing pattern (presence or absence of a physician), geographic location, local socio-economic levels and medical policy all affect the indicators. A study in Uganda had shown that distribution of printed education materials alone resulted, briefly, to very small or non-existent improvements; however, implementation of standard treatment guidelines (STGs), followed by training and supervision was more effective than distributing STGs alone[13].

Another study evaluated the impact of academic detailing and a computerized decision supporting system (CDSS) on clinicians' prescribing behavior for patients with community acquired pneumonia (CAP). The CDSS initially had a significant impact over and above the academic detailing, but the impact appeared to wane over time. It may be assumed to be an initial fascination of a novel system, and other ways should be found to sustain the impact over time[13]. The effect of academic and administrative interventions on indicators needs to be evaluated in future studies. Administrative interventions may bring temporary effects, while the academic intervention can play a long-term effect. Further education and training of physicians and pharmacists may be undertaken to improve prescribing trends.

Prescribing performance indicators that rely on clinical documentation will always be difficult to collect when clinical documentation is known to be poor. However, poor documentation is also an indicator of poor patient care. It is a long-standing medico-legal principle that failure to document clinical care is interpreted as a failure of care[14].

Nevertheless, it is important to state that these are indicators of performance derived from the prescription records and case notes. They are not absolute measures and poor performance as evaluated thus should be an indication for investigation and not automatic castigation. When an OPD appears to have performed poorly, it ought to investigate whether the problem is of erroneous data collection, poor organization of service, or poor medical performance. Our data on reproducibility of the data collection tool suggests that erroneous data would not be the explanation[14].

Indicators are not exact measures; there will be some variation for good reasons reflecting the difficulty of any guideline being relevant to all cases[14]. At present, as no standardized and validated measures for homeopathic drug utilization exist, we do not know what degree of variation is appropriately acceptable in representing high quality care. However, wide variations from evidence-based practice in many OPDs cannot be considered acceptable, and should be a justification for investigation and action. If these data are to be used for national benchmarking, OPDs achieving a low standard should be encouraged to achieve at least the standards of the better performing OPDs[14].

A previous study of general practice by Rokstad *et al*[15], conducted in November 1988 and 1989 in the regions of Møre and Romsdal in central Norway, revealed records of diagnosis in prescriptions for all first visit of 90 458 consultations. A postal survey conducted by Deroukakis[16] in 2002 examined the differences between medical (Faculty of Homeopathy) and non-medical homeopaths (Society of Homeopaths) with regard to the selection of potency. They differed most significantly on greater use of LM potencies, greater consideration of pathology by non-medical homeopaths and greater use of lower potencies in case of aggravation by medical homeopaths. However, there appeared to be a general agreement on the philosophical aspects of potency prescription.

Our study used newly-developed indicators to demonstrate sub-optimal levels of prescribing, and highlight target areas for improving the quality of prescribing practice. Utilization of these indicators in future studies may facilitate audit of prescribing and medication review. In the future, additional indicators assessing the importance of prescribing may be developed to cover a greater range of prescribing. The authenticity of the findings was warranted by original paper prescriptions collected from different OPDs. The study has a number of limitations. Firstly, it was an OPD-based study excluding indicators among inpatients in hospitals. The cited studies in our reference are in different healthcare systems with different socio-demographic and cultural values. Therefore, the conclusions from this study may not be generalizable to other homeopathic hospitals at different areas, states or countries. Additionally, the findings from this study may be subjected to confounding factors, such as age composition of the study sample, availability and accessibility of drugs in the study area etc.[4] Inter-hospital variation of performance was not studied; however, the indicators should provide a means of improvement for those hospitals not achieving optimal standards of prescribing performance. The indicators included measures of both descriptive and appropriateness of prescribing. Data capture occurred once for each patient and reflected currently available information. The accuracy of the clinical data was not investigated and was accepted

as correct. Education and training programs may be undertaken among the OPD doctors to improve prescription habits and drug utilization[4].

5 Conflict of interests

The authors declare that they have no competing interests.

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