ORIGINAL ARTICLE

Pattern of Drug Information Sources Utilized by Medical Practitioners at A Teaching Hospital in Nepal

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Abstract

Introduction: The development of pharmaceutical industry has been adding new knowledge about drugs continuously making it difficult to remember each piece of information. The physicians need to be supplemented with new information using various unbiased and reliable drug information (DI) sources which will promote rationale use of medicines. This study aims to understand the commonly used sources of DI by prescribers at our institute, their usefulness and the need for an independent drug information unit at the institute.

Methods: A cross-sectional descriptive study that included all prescribers presently working at this institute and actively involved in patient care was conducted. Consenting participants were requested to fill in the self-administered questionnaire. Data thus collected were entered using EpiData version 3.1 and were analysed using SPSS version 18.

Results: Filled-in questionnaires were obtained from 147 prescribers. Almost all of the participants (95.80%) used textbooks and Online Medical Sites (OMS) as sources of DI. Among participants using OMS for DI, 80 (58.39%) classified them as sometimes biased. Less than half (41.25%) agreed that they will absolutely be benefitted from having unbiased DI services at the hospital. The participants most commonly (136, 92.50%) had queries related to dosage / administration on a daily basis.

Conclusions: Most prescribers relied on textbooks and OMS for DI which in their opinion had some level of biasness associated with them. They also agreed on the need of independent DI services in the institution to support prescription practices.

INTRODUCTION

The development of pharmaceutical industry has been enriching our knowledge about drugs continuously making it impractical to remember each piece of information.[1] Physicians require supplemental new information using various drug information (DI) sources. DI is a broader concept that incorporates all information on medicines provided by a professional with specific skills and functions in any (verbal, electronic or printed) form.[2] DI can be in response to a request from health care professionals, patients, organizations, committees and members of the public.[3] Based on the querier, it can be specific for either patient or academic or population-based.[4] It focuses on the transfer of knowledge related to drugs, in order to optimize therapeutics for a benefit of patients and of society.[1] The availability of unbiased and reliable sources of DI will help to enhance patient care.[5]

The available DI sources are classified as primary, secondary and tertiary.[1,3] The studies have reported that DI sources can be at times incomplete and / or biased. Having up-to-date knowledge of the relevant drugs for a clinician is a time-consuming task and the time spent for searching information is very small.[6,7] Hence it is essential to understand the pattern of utilization as well

as satisfaction from the sources of DI used by prescribers. Additionally, to address this problem, institutes can establish their own Drug Information Service (DIS), which will encompass the activities of specially trained individuals to provide accurate, unbiased, factual information, primarily in response to patient-oriented drug problems received from various members of the healthcare team.[8]

There has not been any research in this field in our region. The aim of this study was to understand the commonly used DI sources by prescribers at our institute, their usefulness and the need for an independent drug information unit.

METHODS

A cross-sectional descriptive study was conducted at our institute from 1 November 2018 to 1 May 2019 after obtaining ethical approval from the institutional review committee. All prescribers (127 interns, 10 medical officers, 19 residents and 42 faculties) presently working at this institute and actively involved in patient care were included in the study. The list of prescribers was obtained from the institute's administration. A written informed consent was obtained from the participants and they were requested to fill within three working days, failing which they were given additional three days time. The participants failing to submit the questionnaire sheet even after six days of receiving the study questionnaire sheet were labelled as non-responder and excluded from the study. The study questionnaire used consisted of three sections: the general information about the participant, the present practice of seeking DI and the opinion about the necessity of an independent DI unit at the institute. The general information of the participant including their initials, practice, designation and department were noted. For present practice, information about the sources of DI utilized by the participant (yes or no), how likely they felt that the sources they utilize are biased (using a Likert scale of 1-4, 1 being never biased and 4 being always biased), how frequently they had their queries answered by the sources utilized by them (using a Likert scale of 1-5, 1 being never answered and 5 being answered at all instances) were included. The list of sources of DI was provided in the questionnaire. The last section regarding their opinion about the necessity of an independent DI unit at the institute had two questions: likeliness that they will be benefitted by an independent DI unit at the institute (1-not at all, 5- absolutely); types of queries faced by the participants during their day-to-day activities. The questionnaire sheet was validated by experts and pretested at the study site itself. The sources of DI (references) were grouped into four categories. Original articles, case reports, case series, etc. were categorised as primary references. Similarly, review articles, meta-analyses, indexes, abstracts, reprints, etc. were categorised as secondary references. Tertiary references include formulary manuals, standard treatment manuals, drug bulletins, textbooks, reference books and drug compendia.[9] Conferences, drug information services / centres, internet, advertisement to the public and pharmaceutical company sales representatives (SR) were categorised as others.[10] All the data collected were entered using EpiData version 3.1 and were analysed using SPSS version 18.

RESULTS

There were 198 prescribers currently working at our institute. Three faculties were not available during the data collection period. After contacting 195 prescribers, filled-in questionnaires were obtained from 147 prescribers (response rate 75.38%) which included 101 interns (68.7%), four Medical Officers (2.7%), 12 Residents (8.2%), 24 Lecturers (16.3%), four Associate Professors (2.7%) and two Professors (1.4%). Four claimed that they have not searched for any DI in the last six months. Among the participants who had searched for DI in the last six months, almost all (95.80%) admitted that they have consulted textbooks and / or online medical sites as a source (Table 1).

Table. 1 Sources consulted for DI (As one participant may have consulted more than one source, the percentage will not add up to 100. n= 143)

Type of reference	Sources consulted	Frequency	Percent %
Tertiary	Textbooks	137	95.80
Secondary	Online medical sites (Medscape, UpToDate, WebMD, Websites of medical associations)	137	95.80
	Health magazines	46	32.17
	Review article	45	31.47
	Newspaper	34	23.78
	Systematic review	25	17.48
	Meta-analysis	17	11.89
	Cochrane database	14	9.79
Primary	Observational Studies (Cohort study, Case-control studies, descriptive studies)	45	31.47
	Randomised Control Trials	25	17.48
	Non-randomized Controlled Trials	10	6.99
Others	Online non-medical sites (Google, Wikipedia, etc)	112	78.32
	Medical representatives	74	51.75

The participants were also asked how often they felt that the sources used by them were biased. The majority of the respondents felt that online medical sites are sometimes biased (58.39%). A similar proportion of participants that used online non-medical sites as sources of DI (57.38%) felt that these sources are sometimes biased. Some of the respondents also felt that sources like review articles, meta-analyses, non-randomized control trials, observational studies, online non-medical sites, newspapers, health magazines and medical representatives are always biased (Figure 1).

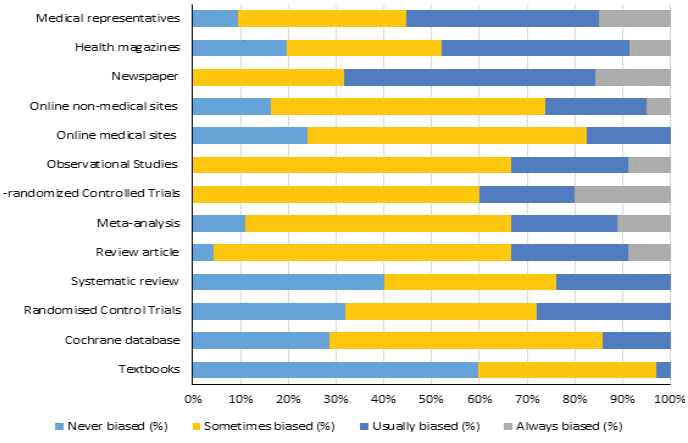

Figure 1: Level of biasness of the sources of DI

Most of the participants also admitted that the DI they used did not answer their queries at all instances. Only 33 (24.09%) participants reported that textbooks answered their queries at all instances. The majority of the participants (31, 41.89%) admitted that SR solved their queries in less than 40% of instances (Figure 2).

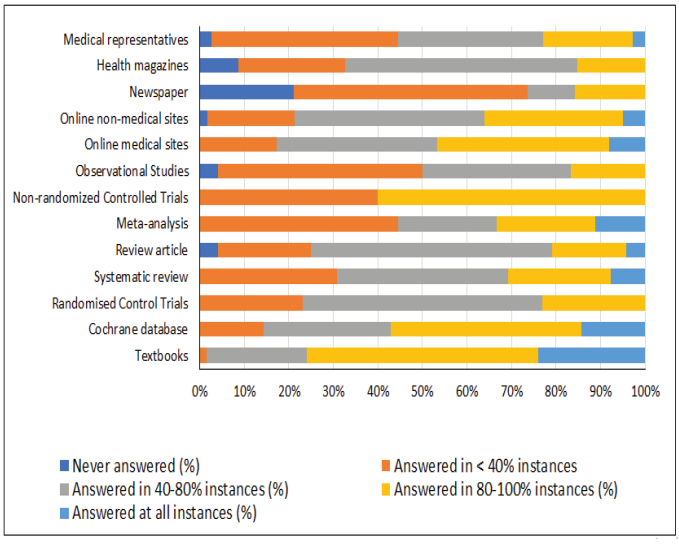

Figure 2: Instances when queries are answered using different DI sources

The participants were also asked if they felt they will be benefitted by having an independent DIS at the hospital and what common drug queries they have. Less than half of the participants (41.25%) believed that they will absolutely be benefitted from DIS at the hospital followed by probably benefitted (33.78%). Most of the participants had queries related to dosage and administration of drugs

(92.50%) followed by adverse drug reactions (82.50%) (See Table 2).

Table 2. Types of drug queries (N = 147)

Types of Drug Queries	Frequency	Percentage
Dosage / Administration	136	92.50
Adverse drug reaction	121	82.50
Contraindications	119	81.25
Interactions	108	73.75
Indications	107	72.50
Cost/availability	81	55.10
Efficacy	79	53.75
Drug therapy	74	50.34
Poisoning	62	42.50
Pharmacokinetics	42	28.75
Pharmacodynamics	40	27.50
Others	17	11.25

DISCUSSION

Most of the participants (75%) responded within the completely filled questionnaire. A similar response rate was reported in a study from India in which 100 out of 125 clinicians completed the questionnaire.[11] An online study conducted in Utah among pharmacists had a response rate of 15.19%.[12] Almost all participants admitted that they have consulted tertiary sources like textbooks and / or secondary sources like online medical sites (OMS) as a source of DI. Spiller et al[13] reported in their study that 75% of physicians considered medical books (like physician drug reference) extremely useful. A study done by Schjott et al[14] also reported that the studied DICs utilized tertiary reference to answer drug queries in 124 (50.8%) instances.[14] Behera et al[3] reported that websites were commonly used references for answering drug query received by them. As our study centre is a medical college with undergraduate (MBBS) and postgraduate (MD / MS) programs, easy accessibility to textbooks and preference of faculties for answers from textbooks could have led to higher utilization of textbooks for DI. The easy availability of OMS due to mobile phones and internet facilities, the need for answers in a short time, technology-friendly nature of young participants included in this study could also have led to similar utilization of OMS by participants in our study. A study from Pakistan also reported that 28% of doctors included in their study spent half an hour studying drug information.[15]

The majority of the respondents felt that both medical and non-medical online sites are sometimes biased. This would help them to be critical of the information they receive and would verify using some other sources as well. Though participants realised that the sources could be biased, they were still found to be using them. Of many possible reasons, this could have occurred due to the easy availability of these sources, and the short time required to get answers to their queries. Internet search engines are frequently sought sources of information and there is a substantial risk that these search engines may contain biased and unreliable information.[16] A study conducted by Law et al[17] reported that when Canadian version of Google® is used to seek for DI, non-medical site like Wikipedia® is commonly displayed at first. Riley et al[18] has reported that non-medical sites lack information related to medicines in terms of accuracy and completeness.

Only 33 (24.09%) participants reported that textbooks answered their queries at all instances. The study from Scandinavia also reported that only one type of source of information is not sufficient.[14] Gitanjali et al reported that drug advertisements published in Indian and British editions of the British Medical Journal also contained inadequate scientific information.[19] Tertiary sources of DI like the European summaries of product characteristics were also reported to be deficient by several studies as information related to prescribing medicines in special situations was inadequate.[20-22] This could have been found in our study as information related to cost, drug interactions, off-label uses, new instructions with respect to dosage and administration and availability is commonly not found in textbooks. It was reported that to remain up-to-date with DI relevant to their daily practice by a clinician, she / he was expected to require to spend more than 600 hours in a month.[6] However, it is estimated that physicians spend about 12 minutes searching for DI.[7] Majority of the participants (31, 41.89%) admitted that MR solved their queries in less than 40% of instances. Anderson et al reported in their study that 57% of the physician surveyed relied on pharmaceutical industry sources like company mailings and MR for information related to new medicines.[23] In a study from Brazil it was reported that most of the participants (62, 57%) found SR somewhat useful.[13]

There are various purposes for which a DI can be sought. It can be requested to address specific concerns during patient care, for educational purposes, or to support decision-making for a broad population.[4] DI prepared in response to a request will usually answer the question of interest and can be related to any aspect of medicine (dose, indication, adverse reactions, toxic effects, availability, therapeutic guidelines, etc.).[3] In our study, most of the participants (61, 41.25%) believed that they will absolutely be benefitted from DIS at the hospital.

DIS can provide its service to the general public, clinicians, students, faculties, preceptors, alumni, law enforcement and attorneys. The history of DIS services dates back to 1996 AD in Nepal and by 2020, there are studies reporting the existence of six DIS in Nepal.[24] The concept of DIS is still relevant in this internet age.[16,25] A study from Indianapolis in 1999 estimated that over three months period, the service provided by their DIS had 57.76 practitioner hours saved, which had a monetary value of US$ 5,548.08.[26] Most of the participants had queries related to dosage and administration of drugs (136, 92.50%) which was also reported by a study conducted in Saudi Arabia and Ethopia.[27,28] Behera et al reported that queries related to antimicrobial use was most commonly received (25, 45.46%) by at their DIC.[3]

Based on our findings, we would like to make some recommendations. Continued medical education sessions should be conducted for prescribers to create awareness regarding biasness of different DI sources and help them to critically analyse these sources. A study to understand the functioning of DIS in Nepal would be preferable so that an effective DIS could be established at our centre.

There are some limitations of this study. Though to minimise the recall bias of participants, we limited the data collection from prescribers who had sought DI within the last six months, some recall bias could still exist. Higher response rate could have been achieved with an on-site filling of questionnaires either by the participants or by the researchers themselves, multiple follow-ups and reminders to the excluded prescribers.

CONCLUSIONS

The prescribers were found to use different DI sources, commonly textbooks and OMS. The prescribers are aware that the sources of DI they commonly use have the potential to be biased. Most of the prescribers agree that they will be benefitted from an independent DIS at the institute. The drug query related to dosage and administration is most commonly sought DI by the prescribers at this institute.

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