

Pharmaceutical Drug Promotion and Rational Drug Use: Assessment of Healthcare Workers Perspective

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Background: Pharmaceutical drug promotion has the potential to improve rational drug use by creating awareness among healthcare workers and patients as well as increasing access to life-saving medicines. This study aimed to determine whether pharmaceutical drug promotion can improve rational drug use among healthcare workers.

Methods: Semi-structured questionnaires were filled by selected dispensers and prescribers in central Uganda. Forms of pharmaceutical drug promotion, sources of drug information, and views on the influence of drug promotion on rational drug use were investigated. Associations amongst selected variables were tested at bivariate and multivariate levels.

Results: Of the 383 participants enrolled in the study, 49.6% were dispensers. More dispensers (49.0%, 92/188) favored 1 on 1 discussion whereas prescribers (32.0%, 61/191) preferred continuous medical education. Most dispensers (85.6%, 161/188) and prescribers (68.6%, 131/191) reported that drug promotion influences their choice of drug use, with most (dispensers: 85.1%, 160/188 vs prescribers: 72.3%, 1/191) admittedly relying on drug promotion as their primary source of drug information.

Conclusion: Pharmaceutical drug promotion influences prescription and dispensing practices among health workers, and it should be strictly regulated to ensure accurate and essential information for health workers while prioritizing rational use of medicines.

Keywords: pharmaceutical industry, drug promotion, rational prescribing, rational dispensing

Introduction

Pharmaceutical drug promotion could, arguably, improve rational drug use by creating awareness among healthcare workers and patients and increasing access to life-saving medicines.¹ However, the profound unethical nature of the practice, the profit-driven motivation behind it, and the aggressive nature of its intensity have overshadowed the importance it has on information dissemination about medicines, medical conditions, and laboratory testing.² In the US, where direct-to-consumer promotion is practiced, some reports indicate the result being better-informed consumers of medical information.³ Currently, pharmaceutical drug promotion is the industry's greatest spending, with an estimated US\$29.9b spent in 2016 on drug promotion activities,^{2,4} and its estimated growth is 14% per year.⁵

Far from the belief in the pharmaceutical industry that drug promotion provides health workers with educational and scientific information for better treatment practices,⁶ it spurs outrageous returns on investment, driving huge profit margins for pharmaceutical investors. For context, a study found that pharmaceutical spending on drug promotion was twice that of Research and Design (R&D) for new medicines in the US, the world's biggest pharmaceutical market.⁷

Regulation regarding medicinal drug product promotion is still a big issue throughout the world. Pharmaceutical companies often treat regulatory requirements with contempt and are constantly lobbying for deregulation, even in countries where Direct-to-consumer advertising (DTCA) is widely practiced like the US and New Zealand.⁵ In Uganda, all drug advertising materials – including medicine brochures, must be approved by the National Drug Authority (NDA)

before use. The guideline for advertising NDA drugs specifies that promotional materials and approaches aimed at healthcare professionals should differ from those aimed at the general public. The guideline, however, does not address the use of pharmaceutical sales representatives, whose claims about a specific medicine may not align with the claims on the drug brochures and other promotional materials approved for use by the NDA.⁸ The World Health Organization (WHO) has set regulatory precedence for national regulatory bodies to follow in regulating pharmaceutical drug promotion under their jurisdiction. According to these guidelines, the WHO defines drug promotion as all informational and persuasive activities by manufacturers and distributors, the effect of which is to induce the prescription, supply, purchase and/or use of medicinal products.⁹

Pharmaceutical drug promotion is a broad term used synonymously with drug marketing, which is defined as what an organization or firm usually should do to create and exchange values with customers.¹⁰ Similarly, advertising is one of the approaches used in pharmaceutical drug promotion and it involves the publication of promotional literature in electronic or internet media.¹¹

Rational prescribing and dispensing have been identified as critical concerns in Uganda's healthcare system.^{12,13} Healthcare professionals in Uganda face numerous challenges that may undermine rational prescribing and dispensing practices. These include inadequate training, lack of access to up-to-date information on drugs, and inadequate resources to support proper dispensing of medicines and monitoring of patients.¹⁴ One study at a community health center in western Uganda revealed that 74% of antibiotic prescriptions for children were irrational.¹⁵ Similarly, a study assessing the overall rational drug use using WHO indicators at a teaching hospital revealed noncompliance in all areas; for example, 90.73% (WHO standard is 100%) of respondents reported noncompliance in recording prescriptions, and 61.88% (WHO standard is <30%) reported encountering antibiotics.¹³ One of the consequences of irrational drug use is the high cost of treatment, as a study showed that as many as 94.3% of patients could not afford their prescribed antidiabetic medicines.¹⁶

Lack of reliable information, poor healthcare worker training, and coercive marketing by pharmaceutical companies are identified as contributing factors to irrational drug use.¹² Furthermore, some studies suggest that the widespread use of drugs promotion by pharmaceutical companies may negatively influence prescribing behavior by doctors.^{6,17} However, some studies refute this claim and instead counterclaim that drug promotion improves physicians' knowledge, especially regarding recent medical advancements, leading to overall better decision-making for their patients.¹⁸ Coupled with this, pharmaceutical drug promotions are ranked as important sources of information when prescribing by physicians.¹⁹

This study aimed to determine the potential of drug promotional tactics for promoting rational drug use among health workers in Uganda, the different information and promotional strategies deployed by pharmaceutical companies, the influence of drug promotion on the sources of information prescribers and dispensers frequently use in decision-making and the factors influencing the opinion of health workers on the use of pharmaceutical drugs to improve rational drug use in Uganda were investigated.

Materials and Method

Study Design

This was a cross-sectional study carried out among selected prescribers and dispensers in medical outlets from October to November 2023 using a self-administered semi-structured questionnaire.

Study Setting

The study was carried out in medical outlets operating in the Kampala and Wakiso districts in Uganda. Kampala and Wakiso are located in central Uganda and have a combined population of at least 6.5 million inhabitants as of 2022. The medical outlets included both public and private medical centers, clinics, and hospitals licensed under the different health professionals' councils; pharmacies; and "Class C" drug shops licensed by the National Drug Authority (Uganda). Class C drug shops are those licensed to sell over-the-counter (OTC) medicines without a prescription or pharmacist's presence.

Inclusion Criteria

The inclusion criteria for the study were:

Healthcare workers of any specialty (nurses, midwives, pharmacists, physicians, surgeons, and others) aged 18 and above,

Healthcare workers practicing either as prescribers or dispensers at the time of the study,

Healthcare workers stationed in a medical outlet in the Wakiso or Kampala districts in central Uganda, and

Healthcare workers who consented to participate in the study.

Exclusion Criteria

Healthcare workers who practice in specialized clinics, such as Hypertension, Diabetes, and Ear Nose and Throat (ENT) clinics, where only a limited range of medicines are likely to be prescribed, were excluded from the study.

Data Collection

Multistage sampling was used to select the participants. The first stage involved city divisions with the Wakiso and Kampala metropolitan areas. The second stage involved health facilities within the selected divisions. Simple random sampling was used to select the study participants from the chosen healthcare facilities. Data were collected using a self-administered semi-structured questionnaire preprogrammed into the Kobo toolbox© data collection tool on a mobile device upon successful pretesting. Questions were generated based on the research objectives during questionnaire development. Further modifications were made following a pretest of the questionnaire in 30 volunteers selected purposely from hospitals and pharmacies. During data collection, questionnaires were completed by the participants in the presence of research assistants who were pharmacists and had prior experience in research data collection using semi-structured questionnaires. The semi-structured questionnaire collected the following information: demographic data, the different drug promotional strategies used by pharmaceutical companies, the sources of drug information healthcare workers are exposed to, and the views of healthcare workers on the impact of drug promotion on the rational use of medicines. For clarity purposes, novel or new drugs are those that have never been approved for use in Uganda before, while commonly used drugs are those that are widely recognized and have been used for some time in Uganda.

Independent Variables

Categorization of health care workers, dispensers, and prescribers.

Dependent Variables

- Forms of pharmaceutical drug promotion.
- Sources of drug information.
- Views of participants on the influence of drug promotion on rational drug use.

Data Analysis

The data analysis was performed using STATA version 18 software. The collected data were extracted from the Kobo toolbox website, downloaded into Microsoft Excel™ and cleaned. We then carried out bivariate analysis using a chi-square test for selected variables and a Poisson regression model for multivariate analysis to determine associations between the dependent and independent variables.

Results

This study enrolled 383 participants, 55.4%) of whom were female, with the majority (66.6%) aged between 25 and 40 years. The highest proportion (42.3%) of the participants had a university degree, and the majority (48.9%) of the respondent dispensers were working in pharmacies. See [Table 1](#).

Pharmaceutical Sales Representatives (PSRs) were the most common form of drug promotion used by healthcare workers (dispensers: 93.1%; prescribers: 96.3%). See [Table 2](#). Dispensers and prescribers appeared to have similar

Table I Background Characteristics of Participants (n=383)

Characteristics		Number (%)
Sex	Male	171 (44.6)
	Female	212 (55.4)
Age	<25	73 (19.1)
	25–40	255 (66.6)
	>40	55 (14.4)
Work Category	Dispenser	188 (49.6)
	Prescriber	191 (50.4)
Profession of dispensers	Pharmacy technician	53 (28.2)
	Enrolled nurse	43 (22.9)
	Pharmacist	35 (18.6)
	Registered nurse	22 (11.7)
	Nursing Assistant	21 (11.2)
	Others (specify) ^a	14 (7.4)
Profession of prescribers	General practitioner	88 (46.1)
	Clinical officer	40 (20.9)
	Specialist doctors	36 (18.9)
	Midwife	27 (14.1)
Highest level of Education	Secondary education	6 (1.6)
	Certificate	84 (21.9)
	Diploma	107 (27.9)
	University Degree	162 (42.3)
	Others (Specify)	24 (6.3)
Place of work (Dispensers)	clinic	8 (4.3)
	Drug shop	51 (27.1)
	Hospital	23 (12.2)
	Medical center	14 (7.4)
	Pharmacy	92 (48.9)
Place of work (Prescribers)	Clinic	27 (14.1)
	Hospital	99 (51.8)
	Medical center	65 (34.0)

Notes: The median age of the participants was 28.0 years (Q1–Q3; 26.0–32.0 years), and the mean age (SD) was 30.0 years $\pm$ 6.6 years. Others^a include; laboratory technicians, procurement officers, and psychiatric nurses.

proportions of individuals exposed to any given form of drug promotional practice. The least common form of drug promotional practice in either category of healthcare workers was clinical trials (dispensers: 11.2%; prescribers: 20.4%). However, there was a difference in the preference for drug promotional approaches between prescribers and dispensers. More dispensers preferred one-on-one discussions with PSRs (49.0%), whereas prescribers preferred continuing medical education (CME) (32.0%). In either category of healthcare workers, similar observations were made when interacting with PSRs. In either category, the PSRs spontaneously mentioned drug's indication (dispensers: 97.9%; prescribers: 94.2%), drug's dosage (dispensers: 92.0%; prescribers: 95.8%), drug's interaction (dispensers: 27.1%; prescribers: 37.2%) and drug's common adverse effects (dispensers: 32.4%; prescribers: 37.7%). In addition, most of the dispensers

Table 2 Drug Promotional Strategies for Health Care Workers in Uganda

Variable		Dispenser, n (%), N = 188	Prescriber, n (%), N = 191
Forms of drug promotion healthcare workers were exposed to in the past 1 year	PSR ^a #	175 (93.1)	184 (96.3)
	Clinical trials*	21 (11.2)	39 (20.4)
	Flyers*	124 (66.0)	155 (81.2)
	Radio Advertisements#	62 (33.0)	82 (43.0)
	Television advertisement#	86 (45.7)	95 (49.7)
	Newspaper advertisements**	51 (27.1)	85 (44.5)
	Journal advertisements**	38 (20.2)	70 (36.6)
Preferred form of drug promotion**	Sample of medicines	25 (13.3)	44 (23.0)
	Branded items and gifts	51 (27.1)	40 (20.9)
	CMEs ^b	20 (10.6)	61 (32.0)
	I–I discussion with PSR ^a	92 (49.0)	46 (24.1)
During promotion by PSR, there was spontaneous mention of;	Indication#	184 (97.9)	180 (94.2)
	Dosage #	173 (92.0)	183 (95.8)
	Contraindication#	83 (44.1)	92 (48.2)
	Precaution of use#	89 (47.3)	99 (51.8)
	Drug interaction*	51 (27.1)	71 (37.2)
	Adverse effects#	61 (32.4)	72 (37.7)
PSR answered questions on Contraindications, precautions, and adverse effects*	Yes	10 (5.3)	21 (11.0)
	No	148 (78.7)	157 (82.2)
	No question asked	30 (16.0)	13 (6.8)

Note: ^aPharmaceutical sales representative, ^bContinuous medical education. *P value<0.01, **p value<0.001. For #, the p-value is greater than 0.05.

(78.7%) and prescribers (82.2%) did not have their questions about medical contraindications, precautions, or adverse effects of a drug marketed answered by the PSR. See [Table 2](#).

As [Table 3](#) shows, the highest proportion of dispensers and prescribers use clinical guidelines as their main source of drug information. The second most commonly used source of drug information among both dispensers and prescribers

Table 3 Sources of Drug Information Among Healthcare Workers in Uganda

Characteristics		Dispenser, n (%), N = 188	Prescriber, n (%), N = 191
Sources ever used	Promotional materials#	122 (64.9)	120 (62.8)
	Medical journals and textbooks#	109 (58.0)	118 (61.8)
	Clinical guidelines#	164 (87.2)	168 (88.0)
	Professional colleagues*	122 (64.9)	105 (55.0)
Best-ranked source for new drugs	Medical journals	59 (31.4)	87 (45.5)
	Clinical guidelines	50 (26.6)	45 (23.6)
	Professional colleagues	22 (11.7)	5 (2.6)
	Promotional materials	53 (28.2)	35 (18.3)
	Others ^a	4 (2.1)	19 (10.0)

(Continued)

Table 3 (Continued).

Characteristics		Dispenser, n (%), N = 188	Prescriber, n (%), N = 191
Least ranked source for new drugs	Medical journals	18 (9.6)	15 (7.9)
	Clinical guidelines	28 (14.9)	11 (5.8)
	Professional colleagues	29 (15.4)	47 (24.6)
	Promotional materials	109 (58.0)	116 (60.7)
	Others ^a	4 (2.1)	2 (1.0)
Believe promotional material is a primary source of drug information for old drugs**		108 (57.4)	71 (37.2)
Believe promotional material is a primary source of drug information for new drugs#		142 (75.5)	139 (72.8)

Notes: Others^a includes WHO guidelines, Medscape, the Internet, and Wikipedia. *P value<0.01, **p value<0.001. For #, the p-value is greater than 0.05.

was promotional material like drug information leaflets, drug brochures, etc (dispensers: 64.9%; prescribers: 62.8%). However, a greater proportion of dispensers (64.9%) tended to consult professional colleagues for drug information than did prescribers (55.0%), who tended to rely on medical journals and textbooks more than dispensers did (dispensers: 58.0%; prescribers: 61.8%).

In the ranking of drug information sources, both dispensers and prescribers ranked medical journals as the best source of drug information for new or novel drugs (dispensers: 31.4%; prescribers: 45.5%). See Table 3. Although pharmaceutical drug promotion was the second most preferred source of information for new drugs with dispensers (28.2%, 53/188), it was less preferred among prescribers (18.3%, 35/191). For the least ranked sources of drug information for commonly used or established (old) drugs, both dispensers (58.0%, 109/188) and prescribers (60.7%, 116/191) had the highest proportion of drugs choosing promotional materials. A greater proportion of dispensers (57.4%, 108/188) still considered promotional material to be a primary information source for commonly used drugs, although a minority of the prescribers (37.2%, 71/191) thought so. The majority of both dispensers (75.5%, 142/191) and prescribers (72.8%, 139/191) considered promotional material a primary information source for new drugs. However, this difference was not statistically significant (p=0.540).

In this study, the majority of dispensers (91%, 171/188) and prescribers (97.0%, 185/191) understood the concept of rational drug use, as shown in Table 4. A greater proportion of healthcare workers in both categories believed that pharmaceutical drug promotion can improve rational drug use (dispensers: 77.1%; prescribers: 82.2%), although this

Table 4 Views of Healthcare Workers on the Impact of Drug Promotion on Rational Drug Use

Characteristic	Dispenser, n (%), N = 188	Prescriber, n (%), N = 191
Understand the concept of rational drug use*	171 (91.0)	185 (97.0)
Think drug promotion improves rational drug use#	145 (77.1)	157 (82.2)
Choice of medicine influenced by drug promotion**	162 (86.2)	131 (68.6)
Rely on pharmaceutical drug promotion as a drug information source*	160 (85.1)	138 (72.3)

(Continued)

Table 4 (Continued).

Characteristic		Dispenser, n (%), N = 188	Prescriber, n (%), N = 191
Preferred form of drug promotion*	PSR	119 (63.3)	102 (53.4)
	Media and journal adverts	17 (9.0)	32 (16.8)
	Conferences and seminars	52 (27.7)	57 (29.8)
Drug promotion makes medicine prescribed/dispensed more rational#	Agree	132 (81.5)	98 (74.8)
	Disagree	2 (1.2)	7 (5.4)
	Undecided	28 (17.3)	26 (19.8)
Do you prescribe/dispense a marketed medicine after;**	Consulting professional colleagues	38 (23.5)	11 (8.4)
	Consulting drug literature	75 (46.3)	96 (73.3)
	Immediately following drug promotion	49 (30.2)	24 (18.3)

Notes: Characteristics—the preferred form of drug promotion; if drug promotion makes drug choice more rational; and if a health worker prescribed/dispensed a marketed medicine category—were analyzed for those who indicated that their choice of medicine is influenced by drug promotion (dispensers; 162 and prescribers; 131). *P value<0.01, **p value<0.001. For #, the p-value is greater than 0.05.

difference was not statistically significant. However, most dispensers (85.6%) and prescribers (68.6%) reported that drug promotion influences their choice of drug use, with most admittedly relying on drug promotion as their primary source of drug information (dispensers: 85.1%; prescribers: 72.3%). For those who answered that drug promotion influences their choice of medicine, most of them chose pharmaceutical sales representatives (dispensers: 63.3%; prescribers: 53.4%) as their preferred form of drug promotion. The same proportion of dispensers and prescribers also indicated that pharmaceutical drug promotion (dispensers; 81.4% vs prescribers; 74.8%) makes drug choice more rational. However, the majority of them admitted that they only dispensed or prescribed the promoted medicine after consulting with the drug literature first (dispensers: 46.2%; prescribers: 72.7%). See Table 4.

Among prescribers, promotional materials were chosen 0.73 (95% CI: 0.61, 0.87) times more often than other sources of the best-ranked source of information for old drugs compared to dispensers, while controlling for other variables. See Table 5. In addition, pharmaceutical drug promotion was reported to influence the choice of medicine prescribed/dispensed by 0.88 (95% CI: 0.81, 0.95) times more among prescribers than dispensers when other variables were controlled for.

As Table 5 shows, a Pharmaceutical Sales Representative (PSR) was 0.97 (95% CI: 0.87, 1.08) times more preferred as a drug promotion strategy than media and journal advertisements among prescribers when other variables were

Table 5 Poisson Regression Model for Selected Characteristics

Characteristics	Unadjusted			Adjusted		
	IRR ^a	95% CI ^b		IRR ^a	95% CI ^b	
Constant				3.19	2.73	3.72
Best rank for sourcing information on old drugs						
Others				Ref ^c		
Medical Journals**	0.77	0.74	0.81	0.70	0.63	0.78
Promotion material**	0.76	0.66	0.88	0.73	0.61	0.87
Pharmaceutical drug promotions influence your choice of medicine prescribed/dispensed						
No				Ref ^c		
Yes**	0.85	0.80	0.92	0.88	0.81	0.95

(Continued)

Table 5 (Continued).

Characteristics	Unadjusted			Adjusted		
	IRR ^a	95% CI ^b		IRR ^a	95% CI ^b	
Preferred forms of pharmaceutical drug promotion						
Media and journal advertisements				Ref ^c		
Conferences seminars*	0.92	0.83	1.02	0.88	0.79	0.99
Pharmaceutical sales representatives#	0.88	0.81	0.97	0.97	0.88	1.08
Preferred marketing form when interacting with PSRs						
Samples of medicine				Ref ^c		
Branded items and gifts#	0.88	0.80	0.97	0.92	0.82	1.03
CMEs#	1.07	0.98	1.17	1.06	0.96	1.18
I–I discussion**	0.81	0.74	0.89	0.84	0.76	0.93
Spontaneous mention of Indication						
No				Ref ^c		
Yes*	0.86	0.75	0.99	0.85	0.74	0.98

Notes: ^aincidence rate ratio, ^bconfidence interval, and ^creference. Poisson regression models were adjusted for variables with p values less than 0.05 in the bivariate analysis. The p values shown here are for the adjusted Poisson regression model. *P value<0.01, **p value<0.001. For #, the p-value is greater than 0.05.

controlled for. Consequently, the most preferred forms of interaction with the PSR among prescribers appear to be CMEs and one-on-one discussions with the PSR, which are 1.06 (95% CI: 0.96, 1.18) and 0.84 (95% CI: 0.76, 0.93) times, respectively, more preferred than giving of the medicine while controlling for other variables.

Discussion

This study aimed to determine the different forms of drug promotional strategies used by pharmaceutical companies targeting healthcare workers, the influence of drug promotion on drug information sources used by healthcare workers when choosing their patients' medication, and health workers' views on the impact of drug promotion on rational drug use. This was done to determine the potential of pharmaceutical drug promotion for promoting rational drug use among healthcare workers.

This study revealed that pharmaceutical sales representatives were the most common drug promotional strategy prescribers and dispensers were exposed to during their routine practice, and a clinical trial was the least common. Pharmaceutical sales representatives have previously been reported to be the mainstay of pharmaceutical drug promotion.¹¹ These methods are often referred to as the “detailing” approach and provide more details about medicines than other promotional options, such as television and media advertisements. Pharmaceutical sales representatives are often seen favorably among physicians because they provide an opportunity to interact with and discuss more in-depth information about medicines, provide a better background about the pharmaceutical company, and establish a rapport based on mutual trust and benefits.²⁰ In Uganda, it's important to note that the relationship between PSR and healthcare professionals is largely unregulated, a common phenomenon in low-income countries. Physicians in other healthcare settings have often emphasized the need for a preparatory course, integrated into the school curriculum, to prepare medical students on how to best handle their interaction and relationship with pharmaceutical companies through their PSRs. Ethical practice regulation by the respective associations of medical and allied healthcare professionals currently provides the backbone of regulation of the behavior of health professionals in the face of pharmaceutical drug promotion.²¹

In addition, this study showed that prescribers and dispensers preferred one-on-one Discussions and CMEs with the PSRs to other methods, such as gifts and branded items. This is because some physicians consider gifts from the pharmaceutical industry to be unethical and because they purchase their decisions. Some studies have reported that gifts may lead to unfavorable prescription practices and may lead to irrational drug use among health workers.²² This study corroborates previous observations about the increased use of pharmaceutical sales representatives by pharmaceutical companies to promote drugs to health workers. Pharmaceutical drug promotion using sales representatives provides

better opportunities for regulation and ethical drug promotion, which may eventually lead to more rational drug use. Medical doctors share this view in other healthcare settings.²³

The most commonly used source of information by both categories of health workers was clinical guidelines, especially the Uganda clinical guidelines, with promotional materials being the second most commonly used source. When asked to rank the sources of information for new drugs, promotional material was ranked the least common by both dispensers and prescribers. However, most of the health workers, in both categories, agreed that promotional materials are an important source of information for new drugs. These findings mirror those from a similar study performed elsewhere.²⁴ Although healthcare workers do not typically admit that pharmaceutical drug promotion is their primary source of information for drug decisions, the influence it has on their prescribing and dispensing patterns has been well-established.²⁵

Our study showed that promotional material is not among the best-ranked sources of novel or new drug information, contrary to findings from a different setup.²⁶ The majority of the promoted medicines in low-income countries such as Uganda are generic, and no new studies have been performed on them.²⁷ This could explain why promotional materials were not considered important sources of new drug information. However, the influence of drug promotion on clinical guidelines, published literature, and other sources of drug information cannot be overstated.²⁸ An older study was done to determine whether promotional materials provide truthful and valid reports in the affirmative. However, there was a plot twist. A closer examination of the supporting published literature found that the majority of these studies (80%) were pharmaceutical industry-sponsored.²⁹ This could present an unethical conflict of interest—especially for me-too drugs, which underscores the scientific validity of these studies, and their eventual clinical application in patient care when choosing patient medications.²⁸

This study revealed that the majority of health workers understood the concept of rational drug use, and most of them believed that pharmaceutical drug promotion improved rational drug use. With pharmaceutical sales representatives being their most preferred form of drug promotion, they indicated that they rely on pharmaceutical drug promotion for drug information. Although they did not rank drug promotion as the preferred source of drug information, it could be because healthcare workers are often unwilling to openly admit that drug promotions are their primary source of drug information due to ethical concerns.³⁰ Relying on drug promotion has been shown to increase the number of prescriptions written by health workers for that medicine, sometimes at the expense of the extra costs incurred by the patient.³¹ However, since most health workers indicated that they prescribed or dispensed a marketed medicine after consulting the drug literature, there is a possibility of a more covert indirect influence of drug promotion on rational drug use. Similar observations were made in a Nigerian study.³² The approach of using pharmaceutical drug promotion to encourage rational drug use should consider the influence exerted by professional colleagues, especially consultants and other senior healthcare workers.³³ In addition, although pharmaceutical sales representatives are most preferred among health workers, conferences and seminars are just as important, and this has been highlighted in other studies.³⁴ Regarding accepting drug promotion, studies have shown that it is more than just the message and the drug being detailed. The channel used, the reputation of the company, and the rapport with the PSR are just as important.³⁵ There seems to be an interplay among the company's reputation, rapport with PSR, and ethicality of the drug promotion approach in determining physicians' acceptance of drug promotion.³⁶

Conclusion

Both categories of healthcare workers reported pharmaceutical drug promotion to influence drug prescription and dispensing practices. Pharmaceutical drug promotion is a heavily funded but inadequately regulated investment in the pharmaceutical industry worldwide which does not seem to be going away. This investment can be channeled in the right direction with an adequate show of responsibility from the industry's side. Furthermore, there is a need for healthcare professionals to exercise heightened vigilance, preparedness, and discernment when engaging with pharmaceutical companies to ensure that drug promotion activities align with the ultimate goal of rational drug use. By adopting a more astute and informed approach, health workers can effectively navigate the complex landscape of pharmaceutical marketing, make informed decisions, and prioritize patient needs above commercial interests.

Ultimately, this will lead to better health outcomes, enhanced patient care, and a more responsible use of pharmaceutical resources. To gather more evidence on the potential of drug promotion in promoting rational drug use among healthcare workers, it would be helpful to conduct a more analytical study, with clearly differentiated groups of exposed and non-exposed drug promotion groups in a cohort or case-control fashion. This study should also include pharmaceutical drug promoters and regulatory agencies as respondents since they are key stakeholders in drug promotion practices.

Abbreviations

CME, Continuing Medical Education; ENT, Ear, Nose, and Throat; NDA, National Drug Authority of Uganda; POM, Prescription Only Medicine; PSR, Pharmaceutical Sales Representative; WHO, World Health Organization.

Data Sharing Statement

The dataset for this project is available in an Excel sheet and will be provided upon request to the corresponding author, Churchill Akena.

Ethics Approval and Consent to Participate

This study obtained ethical approval from the Research and Ethics Committee, School of Health Science, Makerere University (HS3012ES). Participants provided written informed consent for this study using a formal consent form.

Consent for Publication

All the authors have read and approved the submission of this manuscript.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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References

1. Menkes D. NZ needs to join the rest of the world and ban prescription medicine ads. *2019*;1:1.
2. Schwartz LM, Woloshin S. Medical marketing in the United States, 1997-2016. *JAMA*. *2019*;321(1):80–96. doi:10.1001/jama.2018.19320
3. Ventola CL. Direct-to-Consumer Pharmaceutical Advertising: therapeutic or Toxic? *PT*. *2011*;36(10):669–684.
4. Kornfield R, Donohue J, Berndt ER, Alexander GC. Promotion of Prescription Drugs to Consumers and Providers, 2001–2010. *PLoS One*. *2013*;8(3):e55504. doi:10.1371/journal.pone.0055504
5. Donohue JM, Cevasco M, Rosenthal MB. A decade of direct-to-consumer advertising of prescription drugs. *N Engl J Med*. *2007*;357(7):673–681. doi:10.1056/NEJMsa070502
6. Spurling GK, Mansfield PR, Montgomery BD, et al. Information from Pharmaceutical Companies and the Quality, Quantity, and Cost of Physicians' Prescribing: a Systematic Review. *PLoS Med*. *2010*;7(10):e1000352. doi:10.1371/journal.pmed.1000352

7. Gagnon M-A, Lexchin J. The Cost of Pushing Pills: a New Estimate of Pharmaceutical Promotion Expenditures in the United States. *PLoS Med.* 2008;5(1):e1. doi:10.1371/journal.pmed.0050001
8. NDA. NDA Guidelines: control of Publication and Advertisements related to drugs. In: Authority ND, editor. *DID/GDL/028*. Uganda: National Drug Authority, Uganda; 2020;1:1.
9. World Health Organization. *Ethical Criteria for Medicinal Drug Promotion*. 1988; Available from: https://apps.who.int/iris/bitstream/handle/10665/38125/924154239X_eng.pdf. Accessed April 5, 2023.
10. Silk AJ. *What is Marketing?* Harvard Business Press; 2006.
11. Jacob NT. Drug promotion practices: a review. *Br J Clin Pharmacol.* 2018;84(8):1659–1667. doi:10.1111/bcp.13513
12. Boniface M, Nambatya W, Rajab K. An Evaluation of Antibiotic Prescribing Practices in a Rural Refugee Settlement District in Uganda. *Antibiotics.* 2021;10(2):172. doi:10.3390/antibiotics10020172
13. Akunne AA, Lam WI, Ezeonwumelu JO, Ebosie JC, Udechukwu BE. Assessment of rational prescribing in general outpatient department of Kampala International University teaching hospital, Western Uganda. *Pharmacol Pharm.* 2019;10(01):48–60. doi:10.4236/pp.2019.101005
14. Jitta J, Whyte SR, Nshakira N. The availability of drugs: what does it mean in Ugandan primary care. *Health Policy.* 2003;65(2):167–179. doi:10.1016/S0168-8510(03)00003-4
15. Abeja CJ, Niyonzima V, Byagamy JP, Obua C. Antibiotic prescription rationality and associated in-patient treatment outcomes in children under-five with severe pneumonia at Bwizibwera health center IV, Mbarara District, South-Western Uganda. *Pneumonia.* 2022;14(1):3. doi:10.1186/s41479-022-00095-0
16. Obakiro SB, Kiyimba K, Napyo A, et al. Appropriateness and affordability of prescriptions to diabetic patients attending a tertiary hospital in Eastern Uganda: a retrospective cross-sectional study. *PLoS One.* 2021;16(1):e0245036. doi:10.1371/journal.pone.0245036
17. Muwanguzi TE, Yadesa TM, Agaba AG. Antibacterial prescription and the associated factors among outpatients diagnosed with respiratory tract infections in Mbarara Municipality, Uganda. *BMC Pulm Med.* 2021;21(1):374. doi:10.1186/s12890-021-01739-5
18. Layton MR, Sritanyarat W, Chadbunchachai S, Wertheimer AI. Sources of information for new drugs among physicians in Thailand. *Pharm World Sci.* 2007;29(6):619–627. doi:10.1007/s11096-007-9112-4
19. Thriemer K, Katuala Y, Batoko B, et al. Antibiotic Prescribing in DR Congo: a Knowledge, Attitude and Practice Survey among Medical Doctors and Students. *PLoS One.* 2013;8(2):e55495. doi:10.1371/journal.pone.0055495
20. Al-Areefi MA, Hassali MA, b Mohamed Ibrahim MI. Physicians' perceptions of medical representative visits in Yemen: a qualitative study. *BMC Health Serv Res.* 2013;13(1):331. doi:10.1186/1472-6963-13-331
21. McGivern G, Wafula F, Seruwagi G, et al. Deconcentrating regulation in low- and middle-income country health systems: a proposed ambidextrous solution to problems with professional regulation for doctors and nurses in Kenya and Uganda. *Human Res Hea.* 2024;22(1):13. doi:10.1186/s12960-024-00891-3
22. Othman N, Vitry AI, Roughead EE, Ismail SB, Omar K. Doctors' views on the quality of claims provided by pharmaceutical representatives: a comparative study in Malaysia and Australia. *J Uni Med Sci.* 2015;10(4):471–480. doi:10.1016/j.jtumed.2015.03.002
23. Gul R, Saeed H, Saleem Z, et al. Perceptions of and barriers to ethical promotion of pharmaceuticals in Pakistan: perspectives of medical representatives and doctors. *BMC Medical Ethics.* 2021;22(1):2. doi:10.1186/s12910-020-00569-0
24. McGettigan P, Golden J, Fryer J, Chan R, Feely J. Prescribers prefer people: the sources of information used by doctors for prescribing suggest that the medium is more important than the message. *Br J Clin Pharmacol.* 2001;51(2):184–189. doi:10.1111/j.1365-2125.2001.01332.x
25. Kersnik J, Klemenc-Ketiš Z, Petek-Ster M, Tusek-Bunc K, Poplas-Susic T, Kolsek M. Family doctors' views of pharmaceutical sales representatives: assessment scale development. *Family Prac.* 2011;28(4):456–460. doi:10.1093/fampra/cm105
26. Saito S, Mukohara K, Bito S. Japanese practicing physicians' relationships with pharmaceutical representatives: a national survey. *PLoS One.* 2010;5(8):e12193. doi:10.1371/journal.pone.0012193
27. Devasenapathy N, Singh K, Prabhakaran D. Conduct of clinical trials in developing countries: a perspective. *Curr Opin Cardio.* 2009;24(4):295–300. doi:10.1097/HCO.0b013e32832af21b
28. Leonardo Alves T, Lexchin J, Mintzes B. Medicines Information and the Regulation of the Promotion of Pharmaceuticals. *Sci Eng Ethi.* 2019;25(4):1167–1192. doi:10.1007/s11948-018-0041-5
29. Cardarelli R, Licciardone JC, Taylor LG. A cross-sectional evidence-based review of pharmaceutical promotional marketing brochures and their underlying studies: is what they tell us important and true? *BMC Family Prac.* 2006;7(1):13. doi:10.1186/1471-2296-7-13
30. Parker RS, Pettijohn CE. Ethical Considerations in the Use of Direct-To-Consumer Advertising and Pharmaceutical Promotions: the Impact on Pharmaceutical Sales and Physicians. *J Bus Ethics.* 2003;48(3):279–290. doi:10.1023/B:BUSI.0000005783.58142.6e
31. Rosenthal MB, Berndt ER, Donohue JM, Epstein AM, Frank RG. Demand Effects of Recent Changes in Prescription Drug Promotion. *Forum Health Econ Policy.* 2003;6(1). doi:10.2202/1558-9544.1044
32. Fadare JO, Oshikoya KA, Ogunleye OO, et al. Drug promotional activities in Nigeria: impact on the prescribing patterns and practices of medical practitioners and the implications. *Hosp Pract.* 2018;46(2):77–87. doi:10.1080/21548331.2018.1437319
33. Prosser H, Almond S, Walley T. Influences on GPs' decision to prescribe new drugs—the importance of who says what. *Family Prac.* 2003;20(1):61–68. doi:10.1093/fampra/20.1.61
34. Zaki NM. Pharmacists' and physicians' perception and exposure to drug promotion: a Saudi study. *Saudi Pharm J.* 2014;22(6):528–536. doi:10.1016/j.jsps.2014.02.008
35. Wright RF, Lundstrom WJ. Physicians' Perceptions of Pharmaceutical Sales Representatives: a Model for Analysing the Customer Relationship. *J Med Marketing.* 2004;4(1):29–38. doi:10.1057/palgrave.jmm.5040140
36. Al-Areefi MA, Ibrahim MIM, Hassali MAA, Alfadl AA. Relationships between physicians' characteristics and practice-setting factors and their attitude towards drug promotion. *J Pharm Health Serv Res.* 2019;10(3):325–332. doi:10.1111/jphs.12284

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