SCOPING REVIEW

Prescription ethics in a low-middle income country: Thematic analysis of research from Pakistan

Tashfeen Ahmad[1], Ceemal Khan[2], Kausar Saeed Khan[3]

Abstract

The ethics of physician prescriptions is a matter of global concern. While commonalities exist in reasons for unethical prescribing practices such as physician incentivization by pharmaceutical companies, the underlying social determinants may be different across countries and socioeconomic strata. This scoping review has collected themes from publications around prescription ethics from Pakistan. Four major themes were identified: 1) Impact – including physical and financial harm to patients, deficit in trust and development of antibiotic resistance, 2) Causes – including personal financial needs, peer pressure, inadequacy of education in ethics and professionalism, lack of evidence for policy-making, and weak regulatory framework, 3) Type – includes unethical practices like excessive, inappropriate/unnecessary, expensive, non-evidence-based, and off-label prescriptions, and prescription of controlled drugs to addicts, and 4) Solution – proposed strategies to curb unethical prescribing practices included education of community and undergraduates, trainees and practicing physicians, improvement in policies/laws on drug dispensation/prescriptions, their enforcement and accountability, as well as making health care accessible. In summary, this review identifies various social determinants of prescription ethics in the context of Pakistan, a low-middle income country, and highlights locally applicable measures to prevent unethical prescribing practices.

Keywords: Ethics, prescriptions, incentive-linked, inducement, enticement, incentivization, Pakistan

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Background and rationale

What is 'prescription ethics?

Medicine is considered a noble profession, and one of the assumptions underlying the public's perception of this nobility is the conscious effort by the physician to do what is best for the patient. Although a fiduciary relation of physicians with patients behoves positioning the patient's interest above one's own, a conflict of interest may compromise this cardinal relation of trust. Physician enticements, inducements, or incentives, as they are variably called, are well-recognised conflicts of interest, and are known to alter prescription patterns for commercial benefit of the involved industrial agency.[1] If left unmanaged, such conflicts of interest are likely to become widespread and start undermining nobility of the medical profession by critically injuring the element of trust weaved in the very fabric of this profession since inception.

The consultation with the physician is a prime encounter for patients, and its culmination is mostly in the form of a prescription for treatment, investigation or lifestyle changes. Receiving this prescription, whether on paper, electronic or verbal, is the goal of patients seeking remedy from ailment, diagnosis, and/or prevention of disease. The physicians thus have a moral obligation to be cognizant of this dependence of patients on the physician about their health and wellness, in addition to exercising their cognitive expertise when generating the prescription. In this power differential, the prescription, which otherwise forms the epitome of benevolence by the physician, can potentially become a tool for self-benefit above patient's best interest when boundaries of ethics are violated.

The above considerations may be collectively termed as 'prescription ethics.

How does conflict of interest relate to unethical prescription practices?

Prescriptions could be deemed unethical if they compromise the bioethical principles of autonomy, beneficence, non-maleficence, and social justice. Conflict of interest is one of the major reasons for unethical prescription practices, as it has the potential to undermine all the above bioethical principles by diverting the physician's prescription decisions from maintaining

[1-2]Department of Surgery, Aga Khan University, Karachi, [3]Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan.
Correspondence: Tashfeen Ahmad. **Email:** Tashfeen.ahmad@aku.edu
ORCID ID: 0000-0002-8046-3974

centrality of the patient to self-benefit. According to a commentary summarizing social science research on conflict of interest, research evidence shows that when people have a stake in the outcomes it results in unintentional and/or unconscious self-serving bias, which indirectly affects choices by influencing how people search and weigh the information to make choices.[2] Thus, when left unchecked, conflicts of interest can lead to prescriptions which are unnecessary, less efficacious or more costly than alternatives, while the physician or their family benefits directly or indirectly from such prescriptions.[3]

How does unethical prescribing violate the ethical principle of primum non nocere?

The term *'primum non nocere'* meaning 'above all, do no harm' is an old adage used to highlight the important consideration of possible harm from physician's actions.[4] Often attributed to Hippocrates, albeit without substantial evidence, this term has prevailed over time in medical ethics codes and literature. Generally, medical recommendations have some probability of harm such as adverse events from medications thus some harm is unavoidable, hence the term has been challenged as an imperative.[5] Thus, the physician's responsibility is to weigh the possible harms against the benefits of the management options, and recommend the option/s with greater overall benefit for the patient/community. Considering the preceding discussion, conflict of interest results in bias towards self-benefit in the physicians' decision-making and thus jeopardizes the centrality of the patient. Prescriptions of medicines which are unindicated, medicines known to have more adverse events in presence of safer alternatives, and more expensive medicines in presence of cheaper alternatives, respectively add risk of unnecessary harm, avoidable harm and financial harm. Notably, the harmful impact of unscrupulous prescribing, especially of antibiotics, may extend beyond individual patients to the whole population[6] as well as animal and other life forms. Thus, emergence of antibiotic-resistant bacteria including the so-called "superbugs" has far-reaching consequences on the eco-system and affects the environment in general.[7]

Can motivation for unethical prescribing vary across societies?

Where health care is run on a business model, for example in raging private practices in most South Asian countries without universal health coverage, it may be construed that the system promotes unethical prescribing for business reasons, but even in Sri Lanka which has government-regulated universal health coverage[8] substantial unethical prescribing is reported, attributed to lack of training in ethics.[9] At a personal level, individual physicians may or may not be members of the community where they practice medicine, but actively engage with the community members for their health thus they, and often their families, experience societal influences. Their personal/family financial goals and expectations can influence vocational decisions, and in case of physicians whose livelihood comes from patient care, the decisions translate into impact on societies through cumulative individual prescriptions. Income level has been a commonly used method to stratify societies though this is dependent on quantitative financial data and does not reflect deeper societal aspects.[10] Thus, societal aspects likely contribute to the finding of greater number of medicines including antibiotics, received by patients from socioeconomically deprived communities compared to those from more affluent communities.[11] While such variations in prescription metrics may be explained partly by biological variations such as different disease rates and immune status, societal or economical factors are important sociocultural forces influencing physician prescription practices.

Owning the perspectives

Unethical prescribing is a social behaviour, and social behaviours are driven by micro-, meso-, exo-and macro-systems encompassing personal, cognitive and biological factors as well as sociocultural, societal and environmental triggers.[12] Such factors differ between societies, and therefore manifest as differences in prescription patterns and behaviours across different societies.

It appears that gaining deep understanding of prescription ethics requires a study of how social factors interplay with prescription practices locally and across societies.[3,11] In the context of Pakistan, a reflexive thematic analysis of local research literature can provide insight about the sociocultural factors driving unethical prescribing practices in Pakistan. Thus, the aim of this review is to identify themes from a social science perspective in publications from Pakistan on prescription ethics.

Methodology

This study was designed as a qualitative study, entailing a scoping review of published literature from Pakistan and a thematic analysis to identify the main prevalent themes around prescription practices, physician inducements and conflict of interest in the local context. The approach to thematic analysis advocated by Braun and Clarke initially in 2006 and updated in 2024 [13,14] was adopted. In

short, this approach has six steps, 1) becoming familiar with the data, 2) coding, 3) identifying themes, 4) reviewing themes, 5) refining themes, and 6) write-up of report. As this review was intended to identify themes from research publications of broad types from Pakistan, the method needs to be able to accommodate variable research designs. For this purpose, the thematic analysis approach used here offers advantages over other methods such as 'thematic decomposition analysis' [15], 'grounded theory' [10,16], and 'interpretative phenomenological analysis' [17] in that it is less theoretically bounded, and hence more flexible.[13] Notably, thematic analysis can be designed to adopt an essentialist, realist, constructivist or contextualist approach.[13] For this review a contextualist method was employed to study the local context from a low-middle income country's perspective which is otherwise weakly represented in the global body of research, through publications from Pakistan. By elucidating meanings from experiences while considering social context and limits of reality, the contextualist method banks on critical realism [18] falling in between the span from essentialism to constructionism.

Data items

This narrative (scoping) review was conducted between April and August 2024 on articles indexed in PubMed® with date of publication ranging from August 14, 1947 to June 30, 2024, with 'Pakistan' in the authors' address field. Research articles, review papers, protocols and commentaries were considered eligible. Literature search was conducted using the search term "(ethics OR ethical OR unethical OR conflict of interest OR harm*) AND (prescription* OR prescrib*) AND (inducement OR incentiv* OR enticement OR irrational) AND Pakistan[AD]". The 22 resulting articles were screened for relevance to the focus of this review from their background, results and/or discussion, and 11 articles were selected. Among these, one article 19 was a commentary on another article on this subject by the same author, so the latter was included. The Reflexive Thematic Analysis Reporting Guidelines (RTARG) 14 were adhered to. The protocol of this review was not submitted to any public repository of study protocols. Ethics approval was not sought because this work does not involve human or animal research subjects, and the literature reviewed is available in public domain.

Data analysis and generation of themes

Articles were read to identify themes around the topic of each article. The articles were summarized, and the themes compiled and listed as emerging themes linked to each article. The articles, summary and the emerging themes are listed in Table 1.

Table-1. Final list of article s selected for review, with their emerging themes.

No	Authors	Title	Summary	Emerging themes
1	S Nishtar, 2006 [20]	The Gateway paper. Health Systems in Pakistan – A Way Forward.	This is a landmark report by the Pakistan Health Policy Forum proposing reforms in the health system in the country. It includes a section on pharmaceutical marketing and identifies its impact on promoting unethical practices, the need for enforcement of existing laws and SOPs, and for monitoring of adverse drug reactions	Pharmaceutical marketing practices promote unethical prescribing practices and irrational drug use due to conflict of interest.
2	D. K. Rohra et al. 2006 [21]	Critical evaluation of the claims made by pharmaceutical companies in drug promotional material in Pakistan.	In this audit of drug promotion materials, the authors compared information projected in marketing material with scientific data. They found that 18% of reviewed advertisements were misleading/unjustifiable. Pharmaceutical representatives were the primary source of drug information for GPs; 90% of them reported that drug promotion influenced their prescribing pattern. Authors suggest that lack of mechanism to monitor pharmaceutical promotion leads to irrational prescribing	1. Evaluation of drug promotional claims made by pharmaceutical companies in Pakistan 2. Impact of pharmaceutical promotion on prescribing behaviour of general practitioners (GPs)
3	U. T. Siddiqui et al., 2014 [22]	Attitudes of medical students towards incentives offered by pharmaceutical companies- perspective from a developing nation- a cross-sectional study.	This cross-sectional study assessed the attitudes of medical students in Pakistan towards incentives offered by pharmaceutical companies. It found a high level of acceptability of such incentives, with over 80% of students favouring pharmaceutical sponsorship of student events. Private medical school students exhibited greater mistrust towards drug information from pharmaceutical companies compared to public medical school students. The study highlights the need to incorporate formal guidelines regarding interactions with pharmaceutical industry in the medical curriculum.	1. Acceptability of pharmaceutical company gifts and incentives among medical students 2. Comparison of attitudes between public and private medical schools 3. Need to incorporate guidelines on physician-pharmaceutical interactions in medical curriculum

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4	A. A. Naqvi et al., 2019 [23]	Interactions and conflicts of interests between prescribers and medical sales representatives (MSRs) regarding prescribing and drug promotion practices in Karachi, Pakistan.	This cross-sectional study explored the interactions and conflicts of interest between prescribers and medical sales representatives (MSRs) in Karachi, Pakistan, focussing on prescribing and drug promotion practices. The findings revealed that while MSRs perceived that prescriber generally followed ethical practices, prescribers themselves reported a higher rate of seeking evidence-based information behind promoted drugs. Additionally, the study highlighted the expectation of inducements from both sides, with MSRs anticipating gifts and prescribers expecting free lunches and overseas holidays. These findings suggest potential ethical concerns and the need for increased transparency in drug promotion practices.	Pharmaceutical drug promotion practices, ethical standards, patient wellbeing, drug marketing and promotion, interactions between prescribers and MSRs, conflicts of interest, irrational prescribing, adverse drug reactions
5	A. H. Gillani et al., 2022 [24]	Community pharmacists' perception and exposure to drug promotion in Pakistan: a cross-sectional study.	This cross-sectional study investigates the perception of pharmacists towards pharma gifts and the training they received in Pakistan. It finds that a small number of respondents were given ethical training and that most perceive low-cost promotional gifts from the industry to be beneficial to patients. The study also suggests that higher age was significantly associated with appropriate teaching and that a low percentage of pharmacists perceived that information provided by MRs had educational value.	Drug promotion, Pharmacist perception, gifts, ethical training
6	M. N. Noor et al., 2022 [25]	Impact of a multifaceted intervention on physicians' knowledge, attitudes and practices in relation to pharmaceutical incentivization: protocol for a randomised control trial.	This protocol for a mixed method study pertains to a randomized controlled trial of a multifaceted intervention to assess the impact on private general practitioners' (GPs) knowledge, attitudes, and practices regarding pharmaceutical incentivization. The intervention consists of emotive and educational seminars on medical ethics, while the control group receives seminars on general medical topics. The primary outcome measure is GPs' prescribing practices, while secondary outcomes include their knowledge and attitudes regarding conflict of interest. A novel standardized pharmaceutical representatives (SPSR) method will be used to collect data on GPs' practices, along with pre- and post-intervention surveys and qualitative interviews.	Pharmaceutical incentivization, conflict of interest, medical ethics, general practitioners, proposal for educational interventions on medical ethics for general practitioners
7	M. Khan et al., 2023 [26]	Incentivisation practices and their influence on physicians' prescriptions: A qualitative analysis of practice and policy in Pakistan.	This study investigates the relationship between the pharmaceutical industry and physicians in Pakistan, focussing on the practice of incentivization and its impact on prescribing behaviours. The authors conducted interviews with physicians and medical sales representatives, and analysed relevant policies from regulatory bodies and the World Health Organization. They found that incentivization is widespread and often involves financial, material, professional, social, or familial benefits. They also identified gaps and inconsistencies in existing policies, which contribute to the normalization of this practice. The authors call for strengthened regulations and enforcement mechanisms to address the issue of physician-induced demand and ensure ethical prescribing practices.	Conflicts of interest, pharmaceutical industry, physician-induced demand, regulation, policy
8	M. N. Noor et al., 2024 [27]	What happens when private general practitioners receive incentivization offers from pharmaceutical sales representatives? A qualitative study in Pakistan.	This qualitative study investigates responses of general practitioners to pharmaceutical incentivization using mock standardized pharmaceutical sales representatives and qualitative interviews. It finds that general practitioners can react by either accepting the offered deal leading to distortion of prescribing practices, remaining indeterminate, rejecting it, and/or disallowing the sales representatives to access them.	Pharmaceutical incentivization, conflict of interest, impact on prescribing practices
9	M. S. Khan et al., 2024 [28]	"Caught in Each Other's Traps": Factors Perpetuating Incentive-Linked Prescribing	This mixed method study investigates incentive-linked prescribing among primary care physicians in for-profit practices in Pakistan. It identifies three factors perpetuating this practice: gaps in	Incentive-linked prescribing, conflict of interest, financial pressures on doctors, pharmaceutical marketing

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		Deals Between Physicians and the Pharmaceutical Industry.	understanding of conflicts of interest and loss of values among doctors; financial pressures on doctors operating in a privately financed health system; and aggressive incentivization by pharmaceutical companies.	
10	A. H. Gillani et al., 2024 [29]	Effect of pharmaceutical promotion and incentives offered by pharmaceutical companies on the prescribing pattern of medical students: a cross-sectional study from a developing nation Pakistan.	This cross-sectional study evaluates medical students' exposure to pharmaceutical promotions (PP), their attitudes toward industry marketing strategies, and the effect of these interactions on their future prescribing patterns. The study was conducted through an online survey during COVID-19 lockdowns and targeted medical students in Punjab, Pakistan. Results indicated a strong general preference for PP among students, highlighting the need for educational interventions on the ethical aspects of such interactions.	Medical students' perceptions of pharmaceutical promotions and the ethical implications of their interactions with pharmaceutical companies
11	M. N. Noor et al., 2024 [30]	Healthcare consumers' perceptions of incentive-linked prescribing: A scoping review.	This scoping review explores healthcare consumers' perceptions of the financial relationships between physicians and pharmaceutical companies, focussing on the potential harms of incentivized prescribing on patient health.	Incentive-linked prescribing (ILP), patient health impact, physician-pharmaceutical relationships, patients' trust in physicians

Table 2: Main themes with examples from the themes..

No	Theme	Examples
1	Impact from unethical prescribing	A. Compromised patient safety, adverse events B. Compromised quality of patient care C. Increased treatment cost D. Increase in antibiotic resistance E. Trust deficit
2	Causes of unethical prescribing	A. Conflict of interest B. Personal financial needs C. Peer influence D. Incentives a. Promotional items b. Paid trips c. Free meals d. Financial incentives e. Material incentives E. Misleading drug promotions F. Lack of awareness/training in bioethics G. Lack of data from research H. Lack of regulation and enforcement
3	Types of unethical prescribing	A. Excessive prescribing B. Prescription of inappropriate/unnecessary medications C. Prescription of expensive brands D. Failure to adhere to guidelines E. Off-label prescriptions F. Prescription of controlled drugs
4	Solution to unethical prescribing	A. Education – all levels B. Development of local guidelines C. Regulation a. Authorization to prescribe b. Adherence to approved essential drug list and generic names c. Monitoring of adverse events D. Enforcement of SOPs and policies E. Improving accessibility of health services

Results and discussion

The emerging themes identified were further refined, and thereby four main themes surfaced. These are listed along with examples from the articles in Table 2.

Following is a discussion of each main theme. Quotations from relevant articles have been reproduced without any embedded references for simplicity; readers are referred to the quoted articles for the complete texts with their references.

THEME 1: Impact of unethical prescribing practices

Articles from Pakistan discussed several effects of incentive-linked prescribing practices. There was a clear assertion of compromise in patient safety due to inappropriate medicines and cumulative adverse events from polypharmacy. The overall quality of care received by patients is thus negatively affected by unethical prescriptions.

"Evidence suggests that doctors' exposure to such activities has a negative impact on the quality and quantity of drugs they prescribe, resulting in lower quality of care, unjustified risks to patients and more costly prescriptions. Concerns are that if the DP [drug promotion] is inducing doctors to prescribe specific drugs if it is driving pharmacists to dispense expensive drugs when less costly drugs might be better in some cases." .[24]

Thus, when prescriptions contain brand names instead of generic, and more costlier ones at that, financial burden increases on the patient, often without their awareness.

"Incentive-linked prescribing occurs when doctors accept personal benefits from pharmaceutical companies in return for prescribing medicines specified by the companies; these medicines are often unnecessary and overly costly for patients".[28]

The average number of prescribed medications per patient encounter is a WHO indicator of rational medicine use, along with percentage of encounters with antibiotic prescriptions and percent of medicines prescribed by generic name.[31] When it comes to antibiotics, their excessive and unindicated i.e. irrational prescriptions contribute to emergence of drug resistance, which has impact on the population.

"…the reportedly high under-dosage and early discontinuation are leading to the emerging threat of Multiple Drug Resistance; this is being complicated by the re-emergence of tuberculosis in patients with HIV/AIDS. Increase in the number of mycobacterial isolates in the Pakistani population is also alarming." [2]

This has global impact by promoting multidrug resistant organisms making treatment options in future patients very limited. Moreover, the drug resistant organisms can affect animals and their health also, rendering unethical prescriptions as a global environmental hazard.

"…pharmaceutical incentivisation has important implications for antimicrobial resistance, as to achieve pharmaceutical targets, GPs may prescribe antibiotics to patients with common self- resolving ailments like cold and influenza." [25]

Medicine is considered a noble profession, and this perception has emerged from the trust which has built up from high regard to ethics and professionalism practised by medical professionals. When patients realize unethical prescribing by their physician it decreases their trust, tarnishing not only the image of the individual physicians for their patients, but of the very profession for the community. Deficit of trust towards physicians can adversely affect health seeking behaviour as well as compliance, and thereby the health status of the community.

"Trust in physicians is considered a key strength of any healthcare system. In settings, where HCCs [health care consumers] lack trust in physicians, a decreased adherence to the treatment recommended by physicians is noted." [30]

THEME 2: Causes of unethical prescribing practices

Ethics and professionalism occupy limited space in the curricula of the postgraduate training institutes, medical colleges and pharmacy schools, thus understanding of the ethical implications of incentive-linked prescribing is poor among trainee residents, medical students [22] and pharmacists .[24]

"Our study displayed that an overwhelming majority of students were in favour of pharmaceutical company sponsored events and educational seminars. Medical students are in a particularly interesting position with respect to interactions with pharmaceutical companies: technically, they are part of the general population who are free from direct marketing of pharmaceutical products. However, they are often targeted by marketing from pharmaceutical companies through sponsorship of medical student societies." [22]

After medical school, graduating physicians who do not get into specialty training positions may adopt general practice. In the context of low-middle income countries, health care infrastructure can put physicians in low-

earning placements, generating financial stress.

"The majority of the GPs saw lower-than-expected income as an important factor leading them to rely on pharmaceutical incentivization…" [27]

While facing difficulties in personally coping with finances, they may review their current means to earn a living as they are vulnerable to influence by peers earning much more through 'arrangements' with pharmaceuticals.[28]

"[Vignette: A physician…] finds that the income he earns from patient consultations alone is not enough to provide for his family. When a female patient aged 50 comes to see him for symptomatic relief of a runny nose, sneezing, and itchy eyes (without fever) for the past two days, he prescribes antibiotics even though the patient does not ask for any specific medications. He knows that antibiotics are not necessary in this case. He undertakes irrational prescribing of antibiotics approximately ten times per week…." .[28]

The primary ethical issue with such arrangements is conflict of interest.

"A conflict of interest arises when a physician, under the influence of incentives offered by pharmaceutical firms, prescribes medicines without due consideration for appropriateness of need, socio-economic status of the patient or the quality of medicines; it is this hospitality-based incentive-intense marketing that adversely affects medical practice and treatment decisions of physicians."[20]

Physicians are known to receive gift items, paid trips including family vacations, as well as substantial material and monetary incentives.

"We identified five broad categories of incentives, often referred to as 'activities' by MSR [Medical Sales Representatives]: financial, material, professional or educational, social or recreational, and familial." [26]

Although physicians, when asked directly, may deny receiving such incentives, medical sales representatives report that some physicians actually demand them.

"… most of the sales representatives (63%) reported prescribers exploring the prospects of gifts and drugs samples as they reflected on to their experience with more than a third proportion (38%) mentioning the demands of expensive gifts such as laptops, ACs, furniture and renovation of the clinic. Moreover, a similar proportion of MSRs (39%) also shared their account of interaction with prescribers expecting free lunches, paid holidays trips, air tickets to be offered." [23]

Such practices, at both physician and medical sales representative's sides, require control at government and institutional levels which in turn requires evidence from research data. Overall, there is dearth of research in local context to provide evidence upon which guidelines and policies could be made, and educational interventions planned. A crucially important aspect is the lack of effective legislation. Due to ambiguous terminology in policies, unethical marketing practices continue, and physician incentivization proceeds unabated.

"It is well-known that certain pharmaceutical companies engage in unethical practices in order to enhance their market share. Unfortunately, the additional costs incurred in such activities get added up in the final retail price, which pose an additional burden for poor consumers, whereas at other times, commercial interests outweigh safety concerns. Rule 10 of the Drug Act 1976 (Licensing, Registration and Advertising) holds the manufacturer responsible for updating safety information on drugs; additionally, legal provisions also exist that mandate inclusion of 'black box warnings' on the package. However, in many cases, these are disregarded" [20]

Moreover, apart from incentivization, the drug promotional materials which are often the main source of information for general practitioners, can convey misleading information and thereby promote irrational prescribing.

"Sixty two out of 345 (18%) reviewed advertisements were adjudged to be misleading / unjustifiable, which were again classified as ... exaggerated … ambiguous … false … or … controversial… .

…the primary source of information (approximately 78%) about the newly launched drugs for the GPs was found to be the pharmaceutical representatives." [21]

THEME 3: Types of unethical prescribing practices

The articles reviewed uncovered several types of incentive-linked prescribing practices which raise ethical concerns. The average number of medicines per prescription is higher than the expected international average, reflecting excessive drug prescription. This implies that some of the medications are unwarranted, and inappropriate for the patient.

"The doctor asked for a 1.5-ton split air conditioner and committed to prescribing all the products from the list for PKR 50,000 every month." [27]

Even when indicated, the prescribed brands are often

more expensive than other alternatives when the prescriptions are influenced by the pharmaceutical company producing that brand.[24,25] This results in additional, avoidable financial burden on the patient.

"There is evidence that GPs who engage in pharmaceutical incentivisation are likely to prescribe unnecessary and/or more expensive medicines to patients, further contributing to an increased financial burden on them." [25]

Unnecessary / unindicated prescriptions occur when prescribers ignore current treatment guidelines developed in the local context. Such prescribing is unethical because expectation for their effectiveness is unfounded, and patients are placed at risk of harm from adverse events associated with the prescribed medicines. As already reported, such is also the case when incentive-linked prescriptions include off-label use, i.e. medications not approved for the patient's problem/s. About a quarter of pharmacists in a study reported that they would be willing to dispense antibiotics for an off-label indication due to false bombardment of information.[24] Moreover, in a resource-constrained health care system, 'defensive overprescribing' may occur.

"…health system constraints that shape private GPs' decisions on receiving personal benefits from prescribing antibiotics …[include] …inadequate access to diagnostic tools to establish the clinical need for antibiotics, making it easier for doctors to justify defensive overprescribing" [25]

Another important aspect highlighted was free availability of 'controlled' drugs such as narcotic analgesics 20 which opens avenues for drug abuse while the poor 'control' can involve physicians and pharmacists in perpetuation of drug abuse.

THEME 4: Ensuring ethical prescribing practices

The marketing and incentivization practices by the pharmaceutical agencies as reported by physicians and medical sales representatives are in violation of several applicable guidelines by the Drug Regulatory Authority of Pakistan, the Pakistan Medical and Dental Council and the World Health Organization.[26]

"First, some clearly stated policies were being ignored by pharmaceutical companies and physicians; for example, taking financial incentives with linked prescription targets is not permitted according to PM&DC, DRAP and WHO policies and yet, it is a widespread practice. This level of noncompliance suggests that, firstly, there is weak enforcement of the policies, specifically the PM&DC and 2017 DRAP policies given the WHO guidelines are not legally-binding on Member States (Box 1); and secondly, that the consequences for noncompliance outlined in these policies are not sufficient to deter deviant behaviour" .[26]

The reviewed articles also propose several possible ways to prevent the problem of unethical prescribing practices. Thus, considering the medical education landscape, there is tremendous scope for improving the teaching of ethics and professionalism across all career levels.[24] However, considering the prevalent culture of disregard for ethical norms, educational initiatives may not suffice.

"You see, it is all commercial now. Forget the concept that 'he will become a doctor and is going to serve, etc.' That mentality is finished. Today, it is all commercial"

"… on ethics, however much you teach, the nature of the person will not change, as when a person becomes greedy then he does not remember what he has studied. If he wants money, he just wants money ..." [28]

Thus, stricter measures may be warranted through enforcement of regulations. Existing regulations need to be revised to make them unambiguous, and their enforcement made more practicable. Thus, stricter control on prescriptions and drug dispensation, and adoption of essential drug list have been suggested as some of the basic components of the policies.

"Our study has several important implications for research in low- and middle-income countries. It enhances our understanding of how pharmaceutical companies and GPs (and physicians more broadly) bypass existing guidelines, laws, and policies restricting the provision of incentives from pharmaceutical companies to medical doctors." [27]

Another important aspect highlighted was the ethical aspect of social justice. Some of the unethical prescribing practices are perpetuated due to inequity in accessibility to appropriate health services.

"The most important question in the context of pharmaceuticals, therefore, relates to the manner in which issues of irrational use and misuse on the one hand, and under-use due to lack of access or affordability, on the other, are effectively addressed by policy-makers.".[20]

Lastly, availability of essential medicines needs to be ensured. Both percent of medicines prescribed from essential medicines list or formulary as well as percent of key medicines available to patients are WHO indicators of rational drug use 31. Thus, improving access to quality health services including key medicines is also expected

to reduce such practices.

Generalizability

Research results are considered generalizable when results or findings obtained from a sample are applicable to a broader population.[32] Notably, this study was not performed with an intention to arrive at conclusions generalizable to other countries. Its specific focus was the local context thus its generalizability is limited to Pakistani. The literature covered private practice, hospital practice, rural and urban settings within Pakistan, and is therefore likely to represent prescribing practices across the country adequately. Notably, some of the issues identified in the Pakistani literature are likely to be present in other low-middle income countries also, hence some of the results may potentially be applicable in the latter's contexts.

Conclusion

This thematic analysis included research articles on unethical prescribing practices published from Pakistan between 2006-2024 reviewed to determine local factor in the context of Pakistan, a low-middle income country. It shows that the practice of unethical prescribing results from lack of awareness and insufficient regulation or enforcement thereof, coupled with lack of research data providing evidence to guide policies. Apart from physical and financial patient harm, trust deficit and global impact such as increasing antibiotic resistance has been highlighted. Strategies such as education, effective regulation with monitoring for compliance, as well as improved access to health services fulfilling the ethical imperative of social justice have been proposed to achieve a shift from incentive-linked to ethical prescribing practices.

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