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Archives of Pharmacology and Therapeutics Review Article

Psychosocial Aspects of Drug Prescription: Recognizing These Phenomena to Improve the Quality of Clinical Practice

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Received date: : March 15, 2019 , **Accepted date:** August 20, 2019

Abstract

The psychosocial aspects of pharmacological prescription are the factors that intervene in ways of reacting of the doctor and the patient to the prescription of a drug, as well as the role of social structures that determine it. The role of psychosocial factors in pharmacologic treatment of patients remains unclear and is notably absent in the literature of the discipline of general medicine. Biological (specific) and psychosocial (nonspecific) effects of drugs are not simply additive, but interact with each other. In this scenario, this article briefly reflects on 8 main psychosocial aspects of pharmacological prescription: 1) Compliance; 2) The doctor-patient relationship (the doctor as a drug in itself, the placebo and nocebo effect); 3) The Hawthorne effect (which occurs in addition to the placebo effect); 4) Regression to the mean; 5) Complacency effects (confirmation bias and prescription for complacency); 6) The dependence of the pharmacological prescription (model "consumerist" and "Generation meds"); 7) Influence of the pharmaceutical industry on prescription practices (commercial strategies that present corporate bias); And 8) Cost concerns.

Keywords: Medication adherence; Illness perceptions; Medication beliefs; Communication; Patient Compliance; Physician-Patient Relations; Psychosocial effect modifiers; Placebo; Family Practice; Prescription Drugs/adverse effects; Prescription Drugs/economics

Introduction

The medical prescription corresponds to a complex act, which requires knowledge, professional experience, specific skills, a great sense of responsibility and an ethical attitude. The prescription of medicines by the health professional is the result of a series of considerations and decisions related to the evolution of a disease and the role that drugs play in their treatment. The professional in the prescription must also share the expectations with his patient, provide him with the information he requires, check that he knows the risks to which he is subjected when using a medication and, above all, ensure that the prescribed treatment is within of patient's economic possibilities. From the usual biological framework in the medical training, doctors may not be aware that they face social forces in the determination of health, illness, treatment and recovery, which have a very relevant impact on the clinical work of each day [1].

However, the role of psychosocial factors in pharmacologic treatment of patients remains unclear and is little recognized in practice. The psychosocial aspects of the pharmacological prescription are the

factors that intervene in ways of reacting of the doctor and the patient in front of the prescription of a drug: their thoughts, emotions, behaviors and habitual corporal sensations when facing a pharmacological prescription, as well as role of social structures. It is a subject that has been notably absent in the literature of the discipline of general medicine.

Conventional medical research usually assumes that the biological (specific) effects of the drugs and the psychosocial (non-specific effects that may range from comfort or complacency to the placebo effect) are simply additive and do not interact, but this assumption has never been demonstrated [2].

The number and variety of pharmacological preparations have increased significantly in recent years, in relation to the prevalence of polypharmacy and multimorbidity, and consequently with the increase in health costs, both direct by the use of drugs, and indirectly by their iatrogenia of adverse reactions, drug interactions, and increased morbidity and hospital admissions [3,4].

On the other hand, the professional requirement to perform medicine based on evidence clashes with the tendency of overdiagnosis, overtreatment, multimorbidity and polypharmacy. These evidence-based guidelines, regarding the use of drugs, seem to say in summary, "at least, it is of paramount importance that, in order to maintain our resources, the best possible use of drugs must be made and they used only when have shown that they are of proven clinical efficacy." In addition to using drugs that have been shown to improve symptoms, it is obviously equally important for the patient to understand how to take them and meet them [5, 6].

Overall, then, despite the importance of compliance with pharmacological therapy, and perhaps with the exception of the placebo effect, and only in part, very little emphasis is placed on the psychosocial aspects of drugs, which is unnoticed by doctors and students, and that may be responsible for the patterns of pharmacological prescription [7].

The pharmacological prescription is one of the main facets of the General Practitioner/family doctor (GP). It is fundamental to know the pharmacology of the used drugs, but also the non-pharmacological aspects, phenomena such as the nocebo, Hawthorne, regression to the mean, complacency effects, the psychological meanings (symbols, meanings, beliefs, stigmas), the ethical aspects, the fact that prescription is sometimes a way to confront the doctor's frustration, etc., some of which have been previously described as sources of bias in clinical trials, but are still not given much attention, especially in the prescription of drugs in medicine general [8].

In this context, this article aims to systematize some of the psychosocial aspects of pharmacological prescription, in order to be able to apply them in the routine GP consultation.

Discussion

There are 8 main psychosocial aspects of the pharmacological prescription that will be review in this article: 1 Compliance; 2. The doctor-patient relationship; 3. The Hawthorne effect; 4. Regression to the mean; 5. Complacency effects; 6. The dependence of the pharmacological prescription; 7. Influence of the pharmaceutical industry on prescription practices; and 8. Cost concerns.

Understanding the instructions for taking the drugs

Many patients, around 50%, and even more so in the elderly, do not fully understand the frequency or number of tablets they should take, or for how long they should take the drugs. GPs often observe numerous containers of unused or partially used drugs in the homes of patients.

The clinical improvement or worsening

Among the most common reasons given by patients not to take their drugs are: an improvement of their clinical state that leads to the belief that more treatment is required; or conversely, a worsening of the symptoms attributed to the drug. Among others, they are confounding factors to assess, both on the part of the patient, and the doctor, the effect of a drug, the natural course of a disease, spontaneous remission, regression to the mean, and a multitude of other conceptual, explanatory and moral challenges [9].

The adverse effects of drugs

This situation is especially important in pharmacological groups where most drugs produce side effects, such as in psychotropic drugs.

Discontinuous behavior of the taking of drugs and beliefs

But even without adverse drug effects, patient patients frequently show discontinuous compliance behavior or complete lack of adherence to pharmacological prescriptions, which implies, as mentioned above,

approximately 50% of cases, and not only for psychotropic drugs where non-compliance can occur in two out of three patients, but in the rest of health problems and drugs, such as rheumatoid arthritis or tuberculosis.

Wider recognition of the importance of psychological factors and particular medication beliefs, in driving medication adherence, could have substantial clinical and health economic benefits in many diseases, such as rheumatoid arthritis [10].

The level where the prescription is made and drugs

It seems that the patients cared for in the hospital are particularly affected by the lack of understanding of the instructions for taking the prescribed drugs. It may be that in general medicine, continued care and the closest doctor-patient contact, make the discontinuation and non-compliance of pharmacological treatment may be lower than at the hospital level [11].

Changes in shape of the package and appearance of the tablet

Many health services to strengthen competition among pharmaceutical companies force pharmacies to deliver drugs from cheaper drug providers. In this way, patients face packages of medications that change constantly. The information that patients have about these changes in shape and external appearance is not adequate enough. Many of them feel insecure due to changes in long-term medications. And this situation favors errors in their intake of drugs or their confusion about the suitability of medications in patients, who may believe that they use a "second class" drug or less useful than "first class" drug. This belief, apart from complicating the doctor-patient relationship, influences the results of the treatment [12].

The doctor-patient relationship and the placebo/nocebo effect

The doctor-patient relationship not only influences compliance but has a profound effect on the outcome of any course of pharmacological treatment. On the one hand, the simple reassurance given by GP is often sufficient to improve the patient's symptoms when these are the consequence of stress or worry or tension. In these circumstances, the benefit attributed to the prescribed drug may be due to the tranquilizing effect of the doctor or the doctor-patient relationship ("the physician himself as a drug"). So, the doctor-patient relationship itself can have a therapeutic action [6,13].

To the ways of acting and to the attitude of the doctor towards the drug, rather than to the pharmacological properties of the medication in itself (that is, to the placebo/nocebo effect), important effects can be ascribed to them. The "how" of prescribing is as important as what we prescribe [14]. A pharmacological prescription whose decision is expressed by the doctor with great security, usually has a placebo effect; on the other hand, if the decision is considered to be of doubtful effect, it will often give rise, depending on the general context of the patient's consultation and the characteristics of the patient, to a nocebo effect, with poor therapeutic results or with adverse drug effects (which are not mediated by the medication itself, but psychosocially) [15-19].

Placebo response is associated with reward expectancy and relief of anticipatory anxiety, while nocebo response is related to lack of reward/positive expectancy and to increase of anticipatory anxiety. Placebo-nocebo responses are mediated through changes in various cortico-subcortical networks and psychophysiological systems [20]. This situation can lead to an overvaluation of the drug, both by the doctor and by the patient, and lead to alterations in the doctor-patient relationship and to distortions in the prescription that lead to polypharmacy, and to iatrogenesis [21]. Even when a true pharmacological effect can be expected, this is modified considerably by the doctor-patient relationship, which acts as a placebo or nocebo effect with respect to the results obtained with the prescribed drug [13,22] suggesting that placebo effects are probably an important aspect of any treatment [23].

Giving a pill is the tangible expression of attending and giving help. The pill is a gift. The giver waits for specific behavior of the receiver. "You must take the pill as prescribed. If you does so, and follows the doctor's orders, if you obey, there is a promise that he will improve." Thus, this exchange of the prescription is a complex issue; it is a ritual. There are many elements in this exchange: promise and expectation of giving and receiving, of instructing, of evolving, of caring for and accepting care, and others, that are not within the active ingredients of pharmacology. The prescription indicates relationship.

For specific patients, the style of this transaction must be accommodated to ensure the success of the transaction [24]. Whether the drug is proven effective, although it depends in part on the prescription process, also depends on what patient expectations the doctor wanted to hear.

The pills have colors and shapes and flavors, and sometimes smells. Some are purposely made bitter, since "they are more effective". Others are sweet which reflects the nature of the interaction. Still others have no flavor. Some are large and difficult to swallow. Whether if we think that the drug affects a specific receptor in an organic system, as if we do not think about it, they can produce "adverse effects". "Adverse effects" can be

defined as unwanted effects, sometimes undesirable, that are opposite to the desired effects of the drug. Few drugs lack adverse effects. This fact greatly interferes with prescription habits, because on the one hand the patient is told that we want him to take that drug, and at the same time is told that although we do not want it, it could have adverse effects. Thus, in a very real sense, the pharmacological prescription has a symbolic sweet-bitter character [25].

Besides that the pharmacological prescription alters the doctor-patient relationship [13], it also happens the other way around: the doctor-patient relationship modifies the prescription. There are occasional tense moments of disengagement between doctor and patient that can occur abruptly and in the continuum of relatively safe relationships. After experiencing such intense moments in the consultation, these patients do not necessarily leave their regular visits to the doctor. But, usually, there are no longer the same intense and anxious approaches in the prescription itself [26].

These moments suppose a "flash"; they are simply a certain kind or moment of the doctor-patient relationship. It happens when we are aware of something that emerges abruptly, and gives rise to a new understanding between the two. These moments occur in the normal consultation of general medicine, based on the knowledge of the patient and the continuous relationship with the patient [27]. And from them the prescription can take a different meaning.

The "Hawthorne effect"

The "Hawthorne effect" is often referred to as a possible explanation for positive results in intervention studies. It is used to refer to the change in behavior due to the attention given or when a special response is given. Sometimes, the term seems to be used as a social equivalent to the "placebo effect" [28]. But, this effect occurs in addition to the decrease in the experience of the symptoms due to the placebo effect [29].

The responses or behaviors of the individuals are modulated to be in agreement with the opinion of the social group. There remains an open question about whether such changes really reflect modified perception, or whether they are simply the result of a fake agreement, indicating a submissive acceptance [30,31]. This effect can confuse the doctor and the patient about the interpretation of the results of a pharmacological treatment, for example regarding improvements in pain, patient global satisfaction, fatigue, etc. [32], and consequently provoke inappropriate and iatrogenic future pharmacological prescriptions, at least in certain subgroups of vulnerable patients.

Overexpression of symptoms, in contrast to the usual Hawthorne phenomenon, whether related to conscious or unconscious factors, defines the negative effect of Hawthorne, which must be distinguished from the nocebo effect, defined as an increase in the experience of the symptoms.

For example, the negative effect of Hawthorne can make patients who appear to be completely relaxed assess the intensity of their pain by 11 on a 10-point scale. The negative effect of Hawthorne is due to multiple factors, including the desire to receive greater consideration or a priority management status; the concern about not meeting the criteria to receive a new treatment or being included in a therapeutic trial; the conformism related to cultural factors or circumstances (for example, avoiding the cancellation of a surgical procedure in the case of a last minute improvement); a desire to be taken seriously by family and friends; a search for secondary benefits; the use of evaluation to express frustration at being sick or bitter when receiving a lower level of support; a gap between the expectation of complete relief and the true effectiveness of the treatments.

The sequence of a strong Hawthorne negative effect before prescription of the treatment followed by a strong Hawthorne effect after the start of treatment may make a greater contribution than the placebo effect to improvements produced by treatments, for example in pain treatments [29,33].

Regression to the mean

Regression to the mean describes the tendency for an extreme measurement on one occasion to become less extreme when measured again. Regression to the mean may affect clinical results [34]. The interpretation of clinical results in pharmacology should avoid certain drawbacks so that they are useful when it comes to guiding pharmacotherapy decisions, and an important problem is the regression to the mean. Because certain disease states tend to increase and decrease in severity and because patients tend to present themselves for treatment when the activity of the disease is high, the expected course of the disease is improvement. Therefore, any treatment initiated will seem to decrease the activity of the disease.

They are examples of diseases in which inadequate recommendations have been made for drug therapy based on clinical trials that ignored the problem of regression to the mean, vasospastic angina, rheumatoid arthritis, chronic congestive heart failure and kidney stones. Pharmacotherapy studies in diseases such as these should be performed with concurrent placebo controls instead of that each patient acts as their own control and this is equally applicable to evaluations of

pharmacological treatments in individual patients in GP consultation [35].

Complacency effects

Confirmation bias is the tendency to favor, seek, interpret, and remember, information that confirms one's beliefs or hypotheses, disproportionately giving less consideration to possible alternatives. It is a type of cognitive bias and a systematic error of inductive reasoning. People show this tendency when they gather or remember information selectively, or when they interpret it biased. The effect is stronger on issues with emotional content and firmly rooted beliefs. They also tend to interpret ambiguous evidence as supporting their existing position. Some psychologists use the term "confirmation bias" to refer to any way in which the person avoids rejecting a belief, either in the search for evidence, in the interpretation of it, or in the moment of remembering it.

This effect is responsible for ineffective medical treatments: if a patient recovers, the doctor considers the treatment to be successful instead of looking for alternative explanations such as that the disease had exhausted its natural course, or they can defend that treatment by positive anecdotal evidences, and treat the scientific evidence in a highly critical way, interpreting them selectively or ignoring unfavorable information [36].

This effect is related to the so-called Social Acceptance or Social Complacency bias effect, where the answers to a question or evaluation tend to be systematically altered in the direction that is perceived as "good or desirable", while those considered socially undesirable tend to omitted [37].

An example would be Hormone Therapy (HRT) in postmenopause: since the beginning of the use several lines of evidence suggested that it increased the risk of breast cancer. Many clinicians justified the use of hormone replacement therapy in the fact that breast cancer, in users of HRT, was early diagnosis and had lower mortality than in the general population. However, this fact was also explained by the better control to which the population using HRT is subjected. In addition, it was said that the highest risk of breast cancer was justified by the existence of a lower cardiovascular risk and osteoporotic fractures. The publication of epidemiological studies that supposed the best evidence to take into account, and that confirmed the link between the relationship of HRT and breast cancer, however, did not initially modify the previous general concept.

Within the effects of complacency as psychosocial aspects of pharmacological prescription, this term may have also another meaning: prescribing medications that are not the product of a consultation (this is known as compliant prescriptions or corridor prescriptions). The excessive use of medicines, sometimes for complacency, contributes to perpetuate or accentuate the erroneous expectations of the patient and the doctor that health problems are always solved with drugs and that each symptom or sign must lead to a pharmaceutical intervention [21].

Dependence of pharmacological prescription

The growing trend of a "consumerist" model of the doctor-patient relationship and of the general perception of people, together with an exaggerated curative belief in technology, leads to an increase in the demand for pharmacological prescriptions.

One could say that it is a "psychosocial dependence", although in some cases it is also physiological, of drugs in our society, particularly in some segments of the population. This "psychosocial dependence on drugs" is by no means limited to psychotropic drugs, much less to opiates or illicit drugs, although the inadequate and repeated prescription of psychotropic drugs, including benzodiazepines, and minor and major opiates, is very frequent [38], but refers to a generalized desire to receive pharmacological prescriptions as the end of any kind of reason for consultation with the doctor, and includes the requirement and over prescription of antibiotics, proton pump inhibitors, statins, etc. Drugs are part of everyday life for many people. This is the "inflation of drug use" or the "social use of drugs" [14].

The patient can demand these prescriptions in the case; perhaps less and less frequently, that the doctor does not favor repeating them spontaneously and repeatedly. For the doctor and for the patient there is no other "effective" option to respond to the reason for consultation than with drugs. And the patient not only demands it, but suffers if it is not prescribed, sometimes begging for the inappropriate drug - as, for example, an elderly patient with lung cancer can do it when the doctor does not prescribe a statin for prevention primary.

We are dealing with the "Generation meds": millions of people, including children who have been treated with drugs for years - for anxiety, depression, hyperactivity, lack of attention in class, etc. So that, psychosocial dependence has permanently masked one's emotions and the behaviors, and it has created generations of people who cannot live without drugs [39].

Influence of the pharmaceutical industry on prescription practices

The commercial strategies have been based on the results of clinical trials sponsored by pharmaceutical companies. Most of them presented distortions in their planning, presentation or interpretation that favored the sponsor's medications, that is, the corporate bias. Comparison drugs can be used in clinical trials that are not used in real practice in this type of patients, or the recommended doses in comparison drugs are not used. There can be "errors" or statistical defects that are obviated in the massive scientific marketing strategies and that can touch even ethical limits [40].

Cost concerns

African Americans have higher rates of nonprescription drug utilization than white Americans, but lower rates of prescription drug use. About half of the households cannot always afford needed prescriptions, and ability to pay is related positively to Medicaid coverage [41]. More children and working-age Americans are going without prescription drugs because of cost concerns. In 2007, one in seven Americans under age 65 reported not filling a prescription in the previous year because they couldn't afford the medication, up from one in 10 in 2003. Rising prescription drug costs and less generous drug coverage likely contributed to the growth in nonelderly Americans (from 10 percent in 2003 to 14 percent in 2007) who went without a prescribed medication. These patients are the most vulnerable people: those with low incomes, chronic conditions and the uninsured [42].

Cost may limit access to essential medications within certain patient population such as hepatitis C virus patients, obstetric care, tuberculosis treatment and antiretroviral treatment for HIV-positive people, or hypertension. Some of the coping strategies could reduce patients' persistence and adherence with medication therapy, which could lead to adverse health outcomes [43-46], besides being a cause of reduction in food consumption, the use of credit, and even force the removal of children from school to manage the deficit of expenses [47].

Conclusions

Psychosocial effects occur very frequently (if not always; in each medical consultation) and are clinically significant but under recognized in clinical practice. Non-specific aspects, phenomena and responses to treatment pharmacologic are pervasive when treating diseases in general medicine. Subjects treated with an active drug may respond in part due to non-specific aspects of the treatment, those not related to the effect of the medication itself. Medications are an important part of medicine, both because of its real and symbolic effects. It is necessary to use them with knowledge and humility. They do not always act in the same way in different individuals for a multitude of reasons, including the patient's situation and expectations, and not just for the genetic substrates that affect drug recipients. Physicians should be able to recognize these phenomena and master tactics on how to manage these effects to enhance the quality of clinical practice.

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