

Review

Quality of pharmaceutical advertising and gender bias in medical journals (1998–2008): a review of the scientific literature

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ABSTRACT

Objective: To review the scientific literature on pharmaceutical advertising aimed at health professionals in order to determine whether gender bias has decreased and the quality of information in pharmaceutical advertising has improved over time.

Methods: We performed a content analysis of original articles dealing with medical drug promotion (1998–2008), according to quality criteria such as (a) the number, validity and accessibility of bibliographic references provided in pharmaceutical advertising and (b) the extent to which gender representations were consistent with the prevalence of the diseases. Databases: PUBMED, Medline, Scopus, Sociological Abstract, Eric and LILACS.

Results: We reviewed 31 articles that analyzed advertising in medical journals from 1975–2005 and were published between 1998 and 2008. We found that the number of references used to support pharmaceutical advertising claims increased from 1975 but that 50% of these references were not valid. There was a tendency to depict men in paid productive roles, while women appeared inside the home or in non-occupational social contexts. Advertisements for psychotropic and cardiovascular drugs overrepresented women and men respectively.

Conclusions: The use of bibliographic references increased between 1998 and 2008. However, representation of traditional male-female roles was similar in 1975 and 2005. Pharmaceutical advertisements may contribute to reinforcing the perception that certain diseases are associated with the most frequently portrayed sex.

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Calidad de la publicidad de fármacos y sesgos de género en las revistas de medicina (1998–2008): revisión de la literatura científica

RESUMEN

Palabras clave:

Publicidad

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Objetivo: Revisar la literatura científica sobre publicidad farmacéutica dirigida a los profesionales sanitarios para determinar si han disminuido los sesgos de género y ha mejorado la calidad de la información a lo largo del tiempo.

Metodología: Análisis de contenido de artículos originales sobre publicidad farmacéutica en revistas médicas (1998–2008), en relación con criterios de calidad como: a) número, validez y accesibilidad de las referencias bibliográficas utilizadas; b) consistencia entre los sexos representados en la publicidad de fármacos y la prevalencia de la enfermedad. Bases de datos: PUBMED, Medline, Scopus, Sociological Abstract, Eric y LILACS.

Resultados: Los 31 artículos revisados, publicados entre 1998 y 2008, analizan la publicidad en revistas médicas en el periodo 1975–2005. El número de referencias bibliográficas aumentó desde 1975, pero el 50% no eran válidas. Hay una tendencia a la representación de los hombres desempeñando roles productivos remunerados, mientras que las mujeres aparecen dentro del ámbito doméstico o en contextos no laborales. La publicidad para tratamientos psicótrópos sobrerrepresenta a las mujeres, y la de tratamientos cardiovasculares a los hombres.

Conclusión: La frecuencia de referencias bibliográficas aumenta entre 1998 y 2008, pero los roles de género representados en 2005 son similares a los de 1975. La publicidad farmacéutica puede contribuir a reforzar la percepción de que ciertas enfermedades se asocian con el sexo más frecuentemente representado.

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Introduction

Due to the increasingly global and fragmented context in which they work, physicians are partially dependent on the flow of information conveyed through advertising. Marketing strategies work in two ways: on the one hand, pharmaceutical advertising simplifies

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messages and thus facilitates understanding of information usually requiring specialized knowledge; on the other hand, pharmaceutical advertising is both an authority figure and a stakeholder, as it is currently the most important source of financial support for medical journals as well as their main form of publicity. Although all advertisements have a commercial purpose and thus generally low credibility, medicinal drug promotion is an important filter of medical knowledge due to its indirect control over the media.¹

Marketing strategies target the medical community and, to increase sales, do not always offer neutral information.^{2–4} To influence the perceptions and decisions of the physicians at whom such publicity is directed, reality is redefined through the use of partial and/or biased images of the target and is related to data on the benefits derived from certain properties of the drug.⁵ This redefinition is sometimes further accentuated by the use of information in the advertisement which is not always supported by bibliographic references.⁶

To provide a basis for a code of conduct in advertising, the World Health Organization (WHO) established their Ethical Criteria for Medicinal Drug Promotion.⁷ The pharmaceutical advertisement validity indicators used refer to the inclusion of approved scientific data, the number of bibliographic references and the accessibility of these references to physicians, as well as coherence between the epidemiological data presented in the advertising claims and the research findings.⁷ A tendency to increase the amount of scientific data included in medicinal drug promotion according to the WHO criteria has been observed over time.^{8,9}

However, another marketing strategy used to achieve greater impact is the incorporation into advertising of images that segment the consumer according to socio-demographic characteristics,¹⁰ which may represent a further problem for validity^{11,12} when inconsistent with research findings.¹³ Specifically, the estimated prevalence of a disease among groups at risk occasionally seems exaggerated and thus misleading. Furthermore, the potential population base that could benefit from the medication is broadened through the use of inappropriate frames that include non-risk groups, to whom the therapeutic indications do not apply. This phenomenon is known as disease mongering.^{1,14}

As a field of innovative research focused on the biological, physiological and sociological differences between women and men and how such differences affect diseases and their diagnoses and treatments, gender-based medicine shares with evidence-based medicine the hypothesis that inaccuracies exist in the production and dissemination of knowledge, as well as in medical practice, as regards rigor, transparency and subjective judgement.^{15,16} The media act as socialising agents and transmit messages that contribute to the social construction of disease. The quantitative and/or qualitative representation of both sexes in pharmaceutical advertisements is a focal point of interest in research on gender bias,^{11,12} since if such representations are inconsistent with reality they may reinforce the perception that certain illnesses are associated with the most frequently portrayed sex. Such is the case with advertisements for migraine treatments, in which images of women predominate.¹⁷

Despite the social changes experienced by women and men since the 1970s, the view of medicine as a gendered organization and male-dominated culture has had a powerful effect on gender imagery for women. This perspective has served to point to medicine as a cultural system tending to reinforce a gender identity based on traditional sex roles of women in society.¹¹ The accuracy of knowledge transfer through pharmaceutical advertising is essential to avoid gender bias in medical practice and to achieve quality drug prescription according to knowledge-based evidence.¹⁸

The aim of this study was to review the scientific literature available on pharmaceutical advertising directed at health professionals (1998–2008) in order to determine whether gender bias

has decreased and the quality of information in pharmaceutical advertising has improved over time. Clarification of these questions would allow health professionals to determine the current credibility of this information. As quality information criteria, we considered the findings of articles published on (a) the number, validity and accessibility of bibliographic references provided in pharmaceutical advertisements, and (b) the relationship between the sexes portrayed in the advertisements and the sex-prevalence of the diseases treated by the drugs advertised.

Methods

Original articles analyzing pharmaceutical advertising in medical journals and published between 1998 and 2008 were located using Boolean search techniques in the bibliographic databases PUBMED, Medline, Scopus, Sociological Abstracts, ERIC and LILACS. The key words differed depending on the thesaurus of the bibliographic source consulted. Thus, in PUBMED, Medline and Scopus, the key words “Advertising and Medical Journals” and “Advertising and Drug Industry” were used, while in Sociological Abstracts and ERIC, the key words were “Advertising and Medical Journals”, and “Advertising and Medication”. The search terms used in LILACS were “*Publicidad y Revistas Médicas*” (“Advertising and Medical Journals”) and “*Publicidad de medicamentos e Industria farmacéutica*” (“Medicinal drug advertising and the Pharmaceutical industry”). We selected all articles containing these key words both in their titles and in their abstracts. Articles without an abstract were excluded since they are not usually original studies and tend to be editorials, letters, practice guidelines or comments.

All original articles written in Spanish, English and Italian concerning pharmaceutical advertising aimed at health professionals and published in medical journals between 1998 and 2008 were included.

Excluded from the study were those articles focusing on advertising aimed directly at the consumer, advertising carried by media other than medical journals or popular science magazines, advertising ethics, or other marketing techniques used by the pharmaceutical industry as tools for ongoing medical training through sponsorship of courses and congresses.

A total of 1,715 articles were obtained, of which 552 did not provide an abstract. Of the remaining 1,163 articles, 1,132 were omitted in accordance with the exclusion criteria described in the preceding paragraph (fig. 1).

A content analysis was carried out of the 31 original articles finally selected, for which an information compilation protocol was established and applied, comprising the following variables:

- 1) Scientific evidence in support of the advertising claims:
 - Number of bibliographic references.
 - Availability of the references in scientific bibliographic databases.
 - Consistency between the contents of the claims and the scientific evidence published, measured through the agreement between the content of the message and knowledge of the drugs supported by scientific papers.
- 2) Sex-gender representation variables used in the analysis of advertising images developed in the original articles:
 - Number of women and men portrayed.
 - Occupational roles represented at work by sex.
 - Family roles represented in the domestic environment by sex.
- 3) Medicinal drugs advertised.
- 4) Journals from which advertising was analyzed by the articles reviewed.
- 5) Specialty of the medical journal containing the advertising.
- 6) Date of publication of the articles analyzed.
- 7) Country of origin of the journals analyzed.

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