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Abstract

Background: In Australia, where direct to consumer advertising of prescription medicines is prohibited, pharmaceutical companies can sponsor disease awareness advertising targeting consumers. This study examined the impact of disease awareness advertising exposure on older women's reported behavioural intentions. Method: Women were approached in a shopping centre and randomly assigned mock advertisements for two health conditions. Disease information and sponsors were manipulated. Results: Two hundred and forty-one women responded to 466 advertisements. Almost half reported an intention to ask their doctor for a prescription or referral as a result of seeing the advertisement, but more reported they would talk to their doctor and ask about treatments and tests. Participants were more likely to report an intention to ask for prescriptions if they perceived the health condition to be severe and themselves susceptible or if they had viewed advertisements containing limited information on the disease. Discussion: Disease awareness advertising may stimulate demand for prescription medicine products. This has serious implications for general practitioners and regulators

Keywords

exposure, following, intentions, advertising, awareness, women, disease

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

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Disease awareness advertising

Women's intentions following exposure

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Background
In Australia, where direct to consumer advertising of prescription medicines is prohibited, pharmaceutical companies can sponsor disease awareness advertising targeting consumers. This study examined the impact of disease awareness advertising exposure on older women's reported behavioural intentions.

Method
Women were approached in a shopping centre and randomly assigned mock advertisements for two health conditions. Disease information and sponsors were manipulated.

Results
Two hundred and forty-one women responded to 466 advertisements. Almost half reported an intention to ask their doctor for a prescription or referral as a result of seeing the advertisement, but more reported they would talk to their doctor and ask about treatments and tests. Participants were more likely to report an intention to ask for prescriptions if they perceived the health condition to be severe and themselves susceptible or if they had viewed advertisements containing limited information on the disease.

Discussion
Disease awareness advertising may stimulate demand for prescription medicine products. This has serious implications for general practitioners and regulators.

Keywords: doctor-patient relations; education, health (to lay people); public health policy; public health

There is growing concern from advisory and advocacy groups in Australia, as well as in other countries, regarding the influence of the pharmaceutical industry on the prescribing habits of doctors.[1,2] Concern has centred around marketing practices that directly influence doctors' prescribing behaviour,[3,4] as well as pharmaceutical promotions that directly target consumers.[5,6]

While direct-to-consumer advertising (DTCA) of prescription medicines is illegal in Australia, pharmaceutical companies are allowed to engage in disease awareness advertising (DAA) via a range of media. Disease awareness advertising in Australia is currently regulated by the industry body Medicines Australia. Edition 16 of the Code of Conduct recently came into effect with a specific section (Section 12.7) on 'Disease education activities in any media'.[7] The guidelines state that advertisements cannot include the name of a specific prescription medicine but may include disease information such as the symptoms and prevalence of a disease.[7]

International research into the effects of DAA demonstrate that it can increase consultation rates as well as prescriptions for the advertiser's product.[8,9] A recent survey of Australian general practitioners[10] reported in the popular medical press found a pharmaceutical mass media campaign coincided with increased patient requests about the advertiser's product.

Disease awareness advertising has been labelled as disease mongering – 'widening boundaries of treatable illness in order to expand markets for those who profit from treatments'.[3] Disease awareness advertising has been criticised for promoting health conditions with vague or nonspecific symptoms, or exaggerating the prevalence of a condition and using fear appeals, such that consumers are encouraged to identify themselves as having the condition or being at greater risk of contracting it.[1] While DAA can be eye catching and emotive, it often provides very limited disease information,[11] which is the same criticism received by DTCA.[12]

The pharmaceutical industry, and its proponents, argue that advertising to consumers provides education about health conditions and treatment options, and can assist in earlier diagnosis and treatment, improved patient-doctor relationships, and enhanced medication compliance.[13,14] There is also the argument of the potential for the pharmaceutical industry to advertise conditions that have high levels of underdiagnosis such as diabetes.[15]

The purpose of this study was to determine the impact of DAA on the behavioural intentions of older Australian women, including their intention to seek further information, and/or request a prescription or referral from their doctor. The study also examined perceptions of the severity of, and their susceptibility to, two advertised health conditions.

Method

The study design included the development of mock magazine advertisements for two health conditions (*Figure 1*). Women were selected as the target group as they have higher magazine readership in Australia and generally have greater involvement in seeking health information and making health decisions. The age range of 45 years or over was chosen to facilitate the selection of targeted health conditions for the advertisement stimuli.

The health conditions were osteopaenia, which is a state of early bone loss that can potentially increase the risk of developing osteoporosis;[16] and fibromyalgia, which is thought to be a disorder of the central nervous system associated with intensified pain due to abnormal sensory

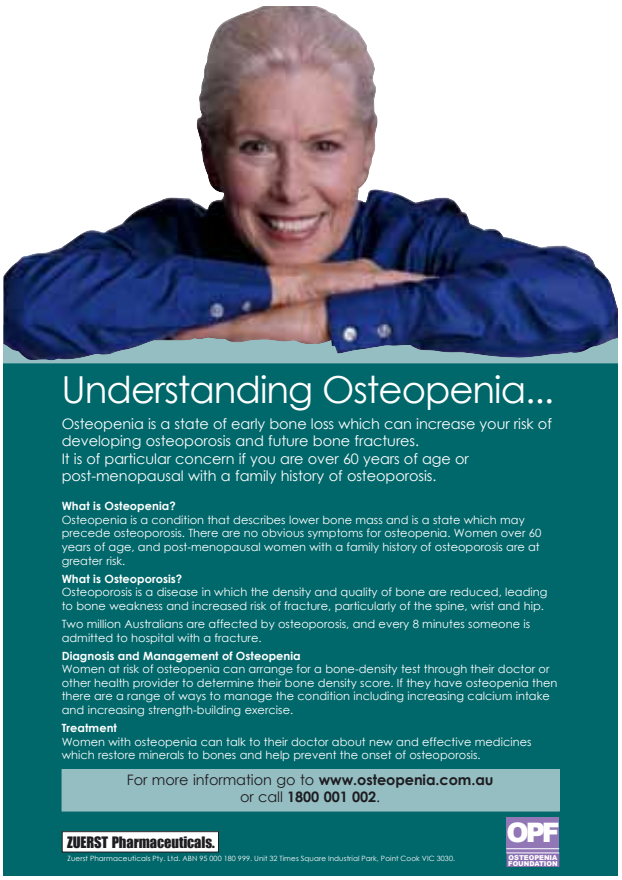

Figure 1. Mock magazine advertisements for osteoporosis and osteopenia

processing.[17] Both conditions have been subject to controversy regarding their clinical importance, and there is concern that they may attract disease mongering.[18,19] The authors were not able to find evidence of education or promotion targeting consumers about these conditions in Australia.

There are three potential prescription medicine categories for the prevention of osteoporosis in postmenopausal women, and Australian clinical guidelines recommend the use of two of these for reducing the risk of osteoporotic fractures by increasing bone mineral density in postmenopausal women at risk.[20] It is therefore feasible that pharmaceutical companies would sponsor Australian awareness advertising about osteopaenia to encourage women to undertake bone density testing and preventive treatment, as has occurred in the United States of America (USA).[19,21]

There are no specific Australian guidelines for diagnosis or management of fibromyalgia, although the American College of Rheumatology classification criteria are commonly used.[22] There is some evidence for treatment with prescription medicines including amitriptyline, fluoxetine as well as serotonin and norepinephrine reuptake inhibitors; however, a multidisciplinary approach including patient education is recommended.[22] Prescription medicine advertising for the treatment of fibromyalgia (eg. pregabalin) has occurred in the USA;[18] the growing recognition of the condition in Australia suggests it could be a target country for disease advertising by pharmaceutical companies.

The mock advertisements included similar images and quantity of text as is found in current DAA in Australian magazines.[12] Two different manipulations were applied to the advertisements: the amount of information provided and the sponsor logos. For the information manipulation, participants received either limited information (brief descriptions of the symptoms, and how to seek further information) or more detailed information (fuller descriptions of the symptoms, causation, diagnosis and management as well as how to seek further information). For the sponsor manipulation, fictional logos at the bottom of the advertisement varied between nonprofit, pharmaceutical company and a combination of these two (cosponsored).

Research assistants approached women in a commercial shopping centre in the Wollongong (New South Wales) metropolitan area during retail hours over 5 consecutive days in November 2008. Refusals and ineligible respondents were recorded.

Consenting participants were randomly assigned an advertisement for one health condition and then received an advertisement for the other health condition with the same sponsor and with information manipulation. Participants viewed the advertisements and completed the questionnaires independently and were debriefed regarding the hypothetical nature of the advertisements.

This study was approved by The University of Wollongong Human Research Ethics Committee.

A score was created for perceived severity of the condition, which included responses to three bipolar adjective scales for how 'distressing, serious and inconvenient' it would be to experience the condition. Cronbach's alpha for the three item

scale was 0.822, indicating an appropriate level of internal consistency. Data was analysed with SPSS V15. Descriptive analysis was conducted and nonparametric tests were used as the data was not normally distributed.[23]

Results

A total of 977 women were approached to participate in the study, with 30% agreeing. However, only 82.5% of those who agreed were eligible. A total of 241 women aged 48–85 years (median age 64) participated in the survey. The demographic profile of participants was similar to women in this age group in the Wollongong local government area and Australian census data (except that a greater proportion of participants in the study had higher levels of educational attainment).

Questionnaires were completed for a total of 466 advertisements: 232 on fibromyalgia and 234 on osteopaenia, and most participants rated the advertisements as easy to understand. Only 36% of participants agreed that they or someone they knew well had suffered from fibromyalgia, but 64% agreed that they or someone they knew well had suffered from osteopaenia.

Behavioural intentions

Forty-nine percent of the participants agreed that they would ask their doctor for a prescription or referral as a result of seeing the advertisement, and the majority agreed that they would take other actions (*Table 1*).

Contingency table analysis indicated a statistically different result between reported behavioural intentions for the two different health conditions: participants viewing the advertisement for osteopaenia were more likely to report an intention to talk to their doctor about the condition (p=0.029) and to ask their doctor about treatments or tests (p=0.024) (*Table 2*).

Behavioural intentions did not differ significantly between the sponsor manipulations. Participants who viewed low information advertisements were more likely to report an intention to ask their doctor for a prescription or a referral (p=0.036) than those who viewed high information advertisements (*Table 3*). Mann-Whitney U tests showed that participants who intended to ask for a prescription or referral were more likely to be older (p<0.001), and less educated (p<0.001).

If the participant or someone they knew well had suffered from the advertised health condition then they were significantly more likely to agree that they would take action compared with those without personal experience of the condition (*Table 4*). This was particularly the case for intention to ask for a prescription or referral, with 57.3% of participants with personal experience reporting this intention compared with 39.3% of those without (p<0.001).

Perceived severity and susceptibility

Participants perceived both conditions to be severe (mean score of 4.53 for fibromyalgia and 4.42 for osteopaenia on a six point scale). There was no significant difference between scores for the two conditions. When asked to rate how likely it would be that they would experience the advertised conditions (on a six point scale), participants perceived themselves to be susceptible to both conditions (mean score of 3.40 for fibromyalgia and 3.88 for osteopaenia) but significantly more susceptible to osteopaenia (p=0.007). Just over 25% of participants estimated that it was very likely that they would experience fibromyalgia in the future, whereas 36% estimated that it was very likely that they would experience osteopaenia. Participants who nominated an intention to ask their doctor for a prescription or a referral were significantly more likely to perceive higher susceptibility to the health conditions (mean score 4.14 compared with 3.12 for participants who did not intend to ask: p<0.001) and have higher severity scores (mean score of 4.77 compared with 4.28: p<0.001).

Discussion

Participants who viewed the advertisements with less disease information were more likely to express an intention to ask their doctor for a prescription or a referral. This finding may concern GPs as it indicates the potential for industry DAA to stimulate patient requests for prescription medicines – this has been found in overseas studies of DAA.[8,9] Such requests may cause tension in patient-doctor relationships and valuable

Table 1. Behavioural intention by advertisement

Behavioural intention	Percentage – including all advertisements (n=466)
As a result of seeing this advertisement would you…?	
Talk to your doctor about the condition	77%
Ask your doctor about treatments or tests	73%
Look for information as directed by the advertisement	64%
Look for information from other sources	55%
Ask your doctor for a prescription or a referral	49%
Do nothing	23%

Table 2. Behavioural intention by condition type

Behavioural intention	Condition type		χ^2
As a result of seeing this advertisement would you…?	**Fibromyalgia (n=232)**	**Osteopenia (n=234)**	**p value**
Talk to your doctor about the condition	73.1%	81.7%	0.029
Ask your doctor about treatments or tests	68.3%	77.8%	0.024
Look for information as directed by the advertisement	63.1%	65.5%	0.596
Look for information from other sources	55.0%	55.5%	0.916
Ask your doctor for a prescription or a referral	45.1%	52.5%	0.123
Do nothing	25.0%	20.6%	0.291

Table 3. Behavioural intention by information manipulation

Behavioural intention	Information level		χ^2
As a result of seeing this advertisement would you...?	**High (n=110)**	**Low (n=356)**	***p* value**
Talk to your doctor about the condition	73.8%	78.5%	0.311
Ask your doctor about treatments or tests	66.7%	75.0%	0.092
Look for information as directed by the advertisement	58.5%	66.1%	0.155
Look for information from other sources	48.1%	57.4%	0.092
Ask your doctor for a prescription or a referral	39.8%	51.7%	0.036
Do nothing	25.8%	21.9%	0.432

Table 4. Behavioural intention by personal experience

Behavioural intention	With personal experience	Without personal experience	χ^2 *p* value
As a result of seeing this advertisement would you...?			
Talk to your doctor about the condition	83.1%	71.4%	0.004
Ask your doctor about treatments or tests	77.9%	68.1%	0.022
Look for further information as directed by the advertisement	69.0%	58.8%	0.028
Look for further information from other sources	61.4%	49.1%	0.010
Ask your doctor for a prescription or referral	57.3%	39.3%	0.000
Do nothing	16.8%	28.6%	0.006

consultation time may be spent re-educating patients, as has been found for DTCA.[24] A recent survey found that the majority of Australian GPs who received patient requests about a medication as a result of DAA were opposed to these advertising campaigns.[10]

The results have important implications for regulation in Australia as they indicate that DAA can stimulate patients' intention to make requests to doctors for prescription medicine products, particularly if limited disease information is provided. While the effect of the more specific guidelines for DAA in Medicines Australia's Code of Conduct, edition 16 are yet to be determined, regulators should provide more guidance to advertisers regarding types of disease information and the level of detail that should be provided. More prescriptive guidelines are provided in other countries such as the United Kingdom.[25]

Just over one-quarter of participants estimated that it was very likely that they would experience fibromyalgia in the future, whereas international data suggests that 2–10% of women have the condition.[26] Similarly, 36% estimated that it was very likely that they would experience osteopaenia, however, an Australian study of women aged over 50 years found a prevalence of 15%.[27] While participants were not asked about their perceived susceptibility to the conditions before being shown the stimuli, the results suggest that providing more detailed prevalence and risk factor information in DAA may help consumers to more accurately identify their susceptibility. Participants that reported an intention to ask for a prescription or referral perceived a higher level of susceptibility to, and severity of, the health conditions. These results provide some support for the argument that DAA can be seen as disease mongering and can inflate perceptions of the prevalence of the advertised disease.[3]

Study limitations

A limitation of this study is that participants' involvement with the stimuli would be different to how they would view magazine advertisements in a 'real life' context. Further research is required to determine whether reported intentions to speak with GPs and request a prescription or referral articulate into actual behaviour.

Other limitations include sampling by intercept method which attracts a level of response bias and results may not be representative of all Australian women in this age group. Due to the limited nature and size of the sample, the findings should be interpreted with caution and may not be generalisable to the Australian population. It is possible that participants confused the advertised condition 'osteopaenia' with the better known condition 'osteoporosis'. This may have led to a greater perceived severity and susceptibility to the condition, increased agreement for personal experience with the condition, and intention to take action.

Further studies are required with true DAA for a range of health conditions, utilising larger and more representative samples to confirm these results. However, results of this study indicate the potential for DAA to influence patients to request prescription medicine or a referral from their doctor. In the current study, the effects were most pronounced in older, less educated women, along with those reporting personal experience with the health condition and those viewing advertisements with limited disease information. Medicines Australia has the opportunity to provide more detailed guidance regarding the amount and types of disease information to be included in industry DAA to help ensure it is of greater educational value, and does not serve as a method of stimulating demand for prescription medicines.

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