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Running head: MEDICATION ADVERTISING ATTITUDES & BEHAVIOR

Attitudes and Self Reported Behavior of Patients, Doctors, and Pharmacists in New Zealand and Belgium Toward Direct-To-Consumers Advertising of Medication

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Attitudes and Self Reported Behavior of Patients, Doctors, and Pharmacists in New Zealand and Belgium Toward Direct-To-Consumers Advertising of Medication

Abstract

Patients’, doctors’, and pharmacists’ attitudes toward direct-to-consumers advertising (DTCA) for medication and their perceptions of its impact on patient self-reported behavior in terms of request for, and consumption of, advertised medication were investigated. Data was obtained in New Zealand, one of only two countries which allow mass-media DTCA for prescription medication, and in Belgium, which does not. Attitudes were relatively negative in both countries, but significantly more positive in New Zealand than in Belgium. The impact of DTCA (both in a positive and a negative sense) on self-reported patient behavior and their interaction with doctors and pharmacists was limited in both countries. Although – as already established in previous work – the informativeness and reliability of DTCA can be much improved, and the attitude of medical professionals towards DTCA is negative in both countries, from the point of view of medical professionals and patients, DTCA does not harm the self-reported relationship between doctors, pharmacists and patients.
Introduction

Direct-to-consumers advertising (DTCA) of medication involves the promotion of medication direct to the consumer through mass media, including television, radio, newspaper and consumer magazines and through personalized communication (such as direct mail) with individual patients, and, increasingly, through both advertising and ‘editorial’ content of Internet sites (Eagle & Kitchen, 2002). While direct-to-consumer (DTC) promotion of non-prescription, over-the-counter (OTC) medication is common in many countries, brand-specific promotion of prescription medicines via mass consumer media is currently permitted only in the United States (US) and New Zealand. However, prescription medication advertising restrictions are under review by several countries (Eagle & Chamberlain, 2004). Limited DTCA commenced in the US in the mid 1980s, but only medication category promotion was permitted rather than individual brand promotion; the US Food and Drug Administration (FDA) further relaxed regulations in this area in 1997 to permit brand-specific promotion of prescription medication (Hoek, Gendall, & Calfee, 2004). New Zealand has technically allowed DTCA of both OTC and prescription medications since 1981 (Hoek & Gendall, 2002a). However, DTCA for prescription medication came into prominence there only after the 1997 American law change (Eagle & Chamberlain, 2003a). Although the requirements for DTCA in New Zealand are very similar to the US situation, there are also some differences (e.g. no explicit “fair balance” requirement, see e.g., Eagle & Chamberlain, 2003a; Hoek & Gendall, 2002a; Mintzes, 2001). In Europe, brand-specific advertising is currently only allowed for OTC medication, not for prescription medication. For this latter category, ads are permitted only when there is no explicit reference to a specific brand, i.e. similar to the pre-1997 US provisions (Reast, Palihawadana & Spickett-Jones, 2004). In 2002/2003, the European Parliament and EU Health Ministers rejected a
proposal of the European Commission to relax DTCA rules and allow further industry DTC information on Aids, diabetes, and asthma (Reast, Palihawadana, & Spickett-Jones, 2004). The debate on whether to allow prescription DTCA is still ongoing (Auton, 2004). As a member country, Belgium adheres to the European legislation, and only allows DTCA for OTC medication (with a few restrictions). The distribution of pharmaceuticals and the commercial system differ between the US on the one hand and Belgium (Europe) and New Zealand on the other. Except for simple things like cough drops and analgesics, both in New Zealand and Belgium, supermarkets cannot carry anything for which a pharmacists’ advice is required. OTC medication is therefore mainly sold through individual pharmacists. The Belgian and New Zealand healthcare systems are state subsidized, in which the patient does not engage directly in the choice or the cost of the prescribed product, because a government system covers (part of) the charge of approved medication. By comparison, a larger part of healthcare is paid for privately in a private commercial system like in the US (OECD, 2005). Allowing DTCA has a potentially larger impact on drug utilization under the first type of healthcare systems. (Auton, 2004)

In the US, pharmaceutical manufacturers spend $4.5 billion on DTCA for prescription medication alone (Hoffman, 2005), putting them among the top advertisers in terms of advertising spending (Sheehan, 2005). The average US citizen may be exposed to more than 30 hours of DTC ads on television alone, which makes DTCA by far the primary source of health communication for consumers (Brownfield et al., 2004). DTCA for prescription medication accounted for 14.5% of the total pharmaceutical promotional spend in 2004 (IMS Health, 2005a), and is the fastest growing health care expense category, growing faster than the spending on R&D between 1997 and 2001 (GAO, 2002). However, promotional expenditure is still
dominated by more “traditional” methods aimed at medical professionals (IMS Health, 2005a). In New Zealand, expenditure on prescription DTCA approximated NZ$17.9 million in 2000, growing 24%, fuelled by 46 prescription products and a 60% growth in television advertising (Coney, 2002; Ministry of Health, 2000). The total DTCA category (for both prescription and OTC medication), grew 42% to NZ$48 million (Ministry of Health, 2000). For Belgium no data on DTCA spending were available. Because DTCA is not allowed for prescription medication, the bulk of pharmaceutical promotional spending concentrates on doctor oriented promotion (Pharma.be, 2005).

In order to contribute to the debate regarding the impact of DTCA, this paper aims to contrast the attitudes and self-reported behavior of doctors, pharmacists and patients toward medication DTCA in a country where DTCA for prescription medication is allowed (New Zealand) with one where it is not (Belgium). Compared with OTC drugs, prescription-only products are generally more toxic and are used to treat conditions that are not easily self-diagnosed and self-managed (Gardner, Mintzes, & Ostry, 2003). Therefore, different reactions of patients and doctors in both countries may be expected. We commence by discussing the pro’s and cons of medication DTCA. Next we focus on our core research question. The literature surrounding the attitudes and self-reported behavior of patients, doctors and pharmacists as a response to DTCA is highlighted, and hypotheses for this study are derived. We then present the results from the empirical study, and conclude the paper with a discussion of the implications of the findings and a suggested future research agenda.

Pro’s and con’s of (prescription) medication DTCA

Before we focus on the perceptions of medical professionals and patients regarding DTCA, we give a brief overview of the debate about the alleged advantages and disadvantages of DTCA.
Although the effects discussed in this section are outside the scope of the study, they provide an important context for understanding the complexities of DTCA.

DTCA is claimed to be an important cause of increasing health expenditure, because it encourages patients to request specific advertised medications from their doctor (Findlay, 2001). The promoted medication is generally more expensive than older, often generic medications in the same therapeutic category (Cline & Young, 2004; Wilkes, Bell, & Kravitz, 2000). In the US, prescription drug spend has tripled over the last 10 years, exceeding $245 billion in 2005 (IMS Health, 2005b). Studies show that DTCA in the US accounts for 12 to 22% of prescription drug spending, and that it has been primarily effective through increasing product class sales, without affecting the relative market share of individual brands (Kaiser, 2003; Rosenthal et al., 2003). Some authors suggest that much of the growth in prescription use is the result of increased uptake of more aggressive treatment regimes and ageing of the population (Findlay, 2001; OECD, 2005). They state that, although it is a fact that the increase in promotional and medication spending coincide (Sheehan, 2003; Auton, 2004), the existence and nature of a causal link between the two has yet to be proven (Findlay, 2002). OECD (2005) data show health expenses are up across all member countries, not just where DTCA is allowed. In New Zealand, total industry sales growth is even declining (RMI, 2002). It has been suggested, though, that DTCA has significantly contributed to the over-spend of the New Zealand health care budget (Nottage, 2003). However, most DTCA advertised drugs are not subsidized by the government and are paid for in full by the patient (Hoek & Gendall, 2002a). In Belgium, the number of OTC medicines sold has not increased since the introduction of DTCA for this category (Pharma.be, 2005).
Proponents of DTCA point out that DTCA drives down prices by facilitating information seeking and stimulating competition (Calfee, 2002; Matthews, 2001). Between 1999 and 2000, average price increases were smaller (6%) for the most heavily advertised drugs than for others (9%) (Sheehan, 2003). However, other studies show DTCA raises the price of medication for consumers (Sheehan, 2003). Pharmaceutical companies may incorporate their DTCA expenses in the price of the medication, making consumers the end payer of DTCA (Gardner, Mintzes, & Ostry, 2003). Hence, the effect on prices remains unclear.

It has also been proposed that DTCA diverts funds away from other critical priorities, such as research and development (Auton, 2004). The counter claim is that it generates sales revenues that can be spent on new product development (Findlay, 2001; Hoek & Gendall, 2002a).

Critics fear that the promotion of so-called “lifestyle drugs” encourages medicalization or “disease mongering” (Mintzes, 2002; Moynihan, Heath, & Henry, 2002) and failure to undertake other sustainable behavior changes, such as exercise and diet (Auton, 2004). Medical associations in the US and New Zealand criticize DTCA for creating markets where no clinical justifications exists (Hoek & Gendall, 2002a).

Matthews (2001) agrees DTCA probably does increase medical consumption, but asserts this is not necessarily bad. DTCA raises the awareness of possible conditions and available treatment options (Bell, Wilkes, & Kravitz, 2000; Bonaccorso and Sturchio, 2002). Supporters of DTCA for medication thus claim that DTCA helps address under-treatment of some medical conditions (e.g. diabetes, high cholesterol or high blood pressure (Calfee, 2001; Donohue & Berndt, 2004). If DTCA does encourage patients to actively seek treatment for previously undiagnosed conditions, long-term health budgets will be actually reduced (Desselle & Aparasu, 2000; Lichtenberg, 2003) and public health can be expected to be improved (Holmer, 1999).
However, skeptics retort that the overview of treatments is very selective, and often includes only the newest and most expensive brands (Auton, 2004; Findlay, 2001). On the one hand, marketing information regarding new medication is disseminated quickly and patients can reap the benefits of the newest available treatments (Lichtenberg, 2003). On the other hand, the long-term interaction and side effects of new medication are often unforeseeable, putting patients potentially at higher risk (Auton, 2004; Gardner, Mintzes, & Ostry, 2003). Examples of heavily promoted drugs for which unforeseen and previously undisclosed health risks have surfaced are notorious: Vioxx, Benoxaprofen, Fen-Phen, Bextra, and possibly the entire class of Cox-2 inhibitors (Farris & Wilkie, 2005; Gardner, Mintzes, & Ostry, 2003; Handlin et al., 2003). Lasser et al. (2002) project that 20% of new prescriptions medicines receive new black box warnings or are withdrawn from the market because of serious safety concerns within 25 years. Although these incidents cannot necessarily be attributed to DTCA, they raise the issue of the effectiveness of regulatory oversight on DTCA.

In this paper, we focus on the impact of DTCA on patient, physician and pharmacist awareness, attitudes, and self-reported behavior. This is an important issue. Medical professionals and patients are important stakeholders. Their attitudes and perceptions on the usefulness of DTCA and the extent to which it assists in or hampers a better health care is an important element in the debate. By comparing attitudes between two countries in a fundamentally different situation with respect to DTCA, we hope to learn more about how it affects perceptions.

Impact of DTCA on patients’, physicians’ and pharmacist’ attitudes and behavior:

Literature review and hypotheses
DTCA is driven by the pharmaceutical industry’s belief that it will increase brand awareness, enhance brand attitudes, stimulate patient behavior and –eventually – boost brand sales (Matthews, 2001; Perri, Shinde, & Banavali, 1999). In effect, it relies on a “patient pull” strategy by increasing patient inquiries about advertised medication from medical professionals who prescribe or deliver the medication (Baukus, 2004). However, medical professionals in all cases function as an intermediary, and DTC advertisements cannot be effective if they are objected to or negated by pharmacists or physicians (Gönül, Carter, & Wind, 2000). We examine whether DTC ads succeed in their objectives, both from a patient and a medical professional (general practitioners (GPs) and pharmacists) point of view. The pharmaceutical sector is unique, certainly in terms of prescription medicine – i.e. only being accessible via the doctor. Therefore traditional conceptual frameworks regarding persuasion do not provide a full explanation of the processes. In general, it could be expected that as a result of DTCA patient awareness for medication is built, that patients generally favor DTCA, or at least find it useful, and that it has an impact on the patients’ inclination to put pressure on their doctor and/or pharmacist. Medical professionals (physicians and pharmacists) may be much more concerned about possible negative effects and therefore have a more negative attitude toward DTCA. They could also feel more pressurized to prescribe or sell heavily advertised medication, and maybe feel inclined to give in to that pressure. Since buying prescription medication can be considered more of a high involvement decision than buying OTC medication, it can be expected that patient information seeking, attitude building and behavioral responses towards DTCA will generally be more outspoken in New Zealand than in Belgium (see hereafter for specific hypotheses). In the following sections we highlight the previous literature on DTCA-related attitudes and self-
reported behavior of doctors, pharmacists and patients, and we develop hypotheses concerning these attitudes and self-reported behaviors in New Zealand and Belgium.

*DTCA awareness and information reading by patients*

The first step in attracting patients to the brand is to increase awareness and brand name recognition (Baukus, 2004). Awareness of DTC ads is typically high. The FDA (Aikin, Swasy, & Braman, 2004) concluded that about three quarters of American consumers recalled seeing or hearing an advertisement for both prescription and non-prescription medication. Because advertising is common in both New Zealand and Belgium (albeit for a different medication category), we do not expect any differences in awareness of DTCA between the two countries. For awareness to become knowledge and for DTCA to educate consumers, it is essential that patients attend to the message and the information provided. Therefore it is also important to assess to what extent the patients actually read the information provided and if there is a difference between Belgium (non-prescription) and New Zealand (prescription). The extent to which people read advertising information is generally low. Furthermore, since DTCA in New Zealand includes prescription medications that normally treat more serious illnesses than the OTC medication advertised in Belgium, we expect the motivation to read DTCA information to be higher in New Zealand. The following hypotheses are tested:

H1a: *Awareness of DTCA with consumers is high. There is no difference in awareness of DTCA between Belgium (for non-prescription) and New Zealand (for prescription).*

H1b: *The self-reported percentage of DTCA information read is low in both countries, but significantly higher in New Zealand than in Belgium.*
Patient attitudes towards DTC advertised medication and DTCA

The purpose of DTCA is to create more favorable attitudes toward the advertised medication among patients. A majority of patients agree that DTCA provides sufficient information for a discussion with their doctors (Aikin, Swasy, & Braman, 2004). At least eleven different consumer surveys show that consumers believe they benefit from what they see, hear, and read about medication, and they believe they have more choices about their health care than they did before DTCA (McInturff, 2001). Consumers value information on both benefits and risks (Deshpande et al., 2004). Patients and physicians alike feel that DTCA increases public awareness of new treatments, but indicate at the same time that it does not present a fair balance of benefit and risk information (Aikin, Swasy, & Braman, 2004). Consumers also perceive that the quality of benefit information in DTC ads is better than that of risk information (Deshpande et al., 2004; Kaiser, 2001). A content analysis of 23 television DTC ads aired in 2001 revealed that most ads gave consumers somewhat more time to absorb facts about benefits than about risks (Kaphingst et al., 2004). The major concern therefore is that DTCA may not provide adequate risk information (Coney, 2002; Paul, Handlin, & Stanton, 2002). However, most patients are aware of this (Lyles, 2002), and there is a limited amount of evidence that DTCA can actually lead to increased awareness of risks and side effects (Calfee, 2002). Studies have shown that a significant number of consumers believe that DTC ads contain insufficient information, and/or fail to convey important information clearly, if at all (e.g., Smith, 1998; 2000). Only 14% of consumers think DTC ads do an excellent job of informing them about the benefits of the advertised medication (Perri, Shinde, & Banavali, 1999). In a 2002 FDA study, 58% of US patients agreed that DTCA makes medications seem better than they really are (Lewis, 2003). A 2001 UK Consumers Association concluded that only 25% of UK consumers
believed that DTCA, if allowed, would provide unbiased and reliable information about all available treatments (Reast, Paliyawadana, & Spickett-Jones, 2004). Lexchin & Mintzes (2002) argue against the value of DTCA information by referring to the growing incidence of violations of risk disclosure requirements. In support of DTCA, Pfizer (2003) assert there was no evidence that DTCA was abusing regulatory disclosure standards or providing insufficient information.

There is no dispute that advertisements should provide patients with sufficient information to discuss the advertised medicine with their doctor, who – in the end – still needs to issue a prescription (Calfee, 2002). Nevertheless, many people remain skeptical about the information provided via DTCA. Research suggests that the communication of risk and benefit information is improving since 1997, but is still largely insufficient (Lyles, 2002).

Because DTCA makes information for patients widely available, we expect patients to hold a positive attitude toward the informational effect of DTCA, and find it useful (Mehta & Purvis, 2003). As previously noted, DTCA is also allowed for prescription medication in New Zealand and the illnesses for which medications are advertised are usually more serious than for OTC medication, so freely available information in this area is more precious. Hence, we expect attitudes to be more favorable in New Zealand than in Belgium. On the other hand, arguments have been proposed that DTCA provides only a very selective overview, usually of the newest and most expensive brands, and that it is profit-driven by the pharmaceutical companies. We expect patients to be aware of this, and hold a negative attitude towards the reliability of DTCA as an information source. We expect patients to be more negative in New Zealand, as the consequences of the medication type are more severe. Therefore, we hypothesize the following:

\[ H2: \text{Patients feel DTCA is useful, both for OTC and prescription medication. Attitudes towards the usefulness of DTCA are more positive in New Zealand than in Belgium.} \]
**H3a: Patients believe that DTCA provides them with useful information. Attitudes towards the informativeness of DTCA are more positive in New Zealand than in Belgium.**

**H3b: Patients do not find DTCA to be a very reliable source of information. Patients hold more negative attitudes with respect to the reliability of DTCA in New Zealand than in Belgium.**

**Patient behavior-related outcomes of DTCA**

The ultimate purpose of DTCA is to cause action among consumers, in that they will request and buy the advertised medication (Handlin et al., 2003). Because of the nature of medication and the risks associated with it, we expect patients to seek out additional information before actually buying the medication. If DTCA is successful, patients will see their doctor and/or pharmacist and specifically ask for the advertised medication. Patients are reported to use many information sources in addition to DTCA, on average, consulting 3 to 4 sources. The most important information source remains the doctor (Eagle and Kitchen, 2002), followed by pharmacists and nurses (Aikin, Swasy, & Braman, 2004). Several studies report that about one-third of American adults visit their doctor as a result of seeing a DTCA message (Fetto, 2002; Cline & Young, 2004), although it has to be acknowledged that, according to White et al. (2004, p. 62), “only 13.2% of adults responded to a healthcare advertising message by asking their doctor to prescribe a specific drug”. 33% of patients in the 2002 FDA survey reported that they asked questions of their doctor following a television or radio DTC ad, but only 4% specifically said to have come for a prescription (Aikin, Swasy, & Braman, 2004). As a result of DTCA, patients frequently talk about conditions they have not previously discussed (Calfee, 2003). In the FDA study, 88% of patients asking doctors about advertised medications did in fact suffer from the condition for which the medicine was intended.
Mintzes et al. (2003) studied differences between Canada, which also does not allow prescription DTCA, and the US. They found more patients decided to see their physician and more patients request advertised medication in the US than in Canada. Because of the type of medication advertised, we expect New Zealand patients to turn to their doctor more often, and Belgian patients to mainly consult their pharmacist.

H4: Patients will look for additional information on DTC advertised medication, and New Zealand patients will more intensively look for extra information than Belgian patients.

H5: DTCA causes patients to actively request advertised medication from their doctors and their pharmacists.

Petersen (1999) also shows that DTCA contributes to correct use of prescription medications. In addition, a study by Pfizer (2001) shows that patients who involved themselves in their health care by requesting prescription medications were more likely to remain compliant with the therapy. This effect was especially applicable to patients who were motivated by advertising. Cline & Young (2004), too, suggest that DTCA promotes greater consumer participation in health care. Lexchin and Mintzes (2002) have argued that the evidence presented that DTCA results in improved health outcomes, is weak. In other studies, patients themselves have reported that DTCA affects their compliance in a positive way. About one third of American adults report that they were prompted to refill an existing prescription and/or take their prescribed medication more regularly following a DTC advertisement for the medicine (Calfee, 2002; White et al., 2004). Because we expect patients are more involved with prescription medication than with OTC, we hypothesize the effect will be stronger with DTCA for prescription than for OTC medication:
**H6: Patients report DTCA contributes to compliance with a prescribed therapy. The impact of DTCA on self-reported compliance is higher in New Zealand than in Belgium.**

**Medical professionals’ attitudes toward and behavior with respect to DTCA**

Historically, medical professionals have resisted DTCA for prescription medication (Perri, Shinde, & Banavali, 1999). In 1998, Lancet (1998), a leading British medical journal, ran an editorial in 1998 arguing in favor of DTCA in Europe. Contrarily, a 2000 study of 68 GPs and hospital doctors in the UK found 72% opposed the introduction of DTCA in Europe (Reast & Carson, 2000). A follow-up study confirmed this opposition to DTCA by physicians, most of them considering it unethical (Reast, Paliyawadana, & Spickett-Jones, 2004). In another study, 200 UK GPs stated they widely opposed DTCA, feeling it would increase their workload, increase patient demand for (inappropriate) medication, and increase patient expectations (Lowery, 2003 in Reast, Paliyawadana, & Spickett-Jones, 2004). The American Medical Association (AMA) reports similar reservations. In 1984, it found a majority (84%) of its members opposed DTCA (Auton, 2004). In 2001, 72% of their members still believed that the impact of DTCA on their practice was negative (Lyles, 2002). However, the AMA also recently admitted that DTCA, if used appropriately, can educate patients, increase awareness of treatment options, and contribute to patient communication with physicians and participation in their own healthcare (AMA, 2000). Consequently, the AMA has rejected a proposal to support a ban on DTCA (Lenzer, 2005). Based on a US survey of 2,300 physicians, IMS health reports 52% disapprove of the practice (Yuan & Duckwitz, 2002). A recent FDA study reveals that most physicians are concerned that their patients do not sufficiently understand the risks of DTC advertised medication (Aikin, Swasy, & Braman, 2004). The survey also found a more positive view of DTCA, whereby 40% said the DTCA had a positive effect on their patients and practice,
28% said that there was no effect at all, and 32% said that DTC advertising had a somewhat negative effect. 72% of surveyed physicians believed that DTC advertising raises awareness of possible health treatments. (Aikin, Swasy, & Braman, 2004) A study by Roth (1996) found that pharmacists assessed that one-third of DTC print ads did not present a “fair balance” of information, omitting information that may be useful to consumers. In New Zealand also, physicians disagree on the likely impact of DTCA. Some of the top medical schools have issued reports condemning the practice (Scrip, 2003). In 1999, results of a fax poll published by the Royal College of New Zealand General Practitioners (RCNZGP) suggested that 75% of doctors wanted to see fewer DTC ads or ban DTCA altogether. In 2001, the opposition dropped to 65%, which is still high (Reast, Palihawadana, & Spickett-Jones, 2004). The RCNZGP expressed concerns about the accessibility, accuracy, and balance of DTCA information. Overall, though, the RCNZGP, together with the New Zealand Medical Association, recognizes that the pharmaceutical industry has taken a responsible approach to DTCA and supports its continuation (Hoek & Gendall, 2002b).

Initial prescription medication advertising generated a number of complaints that the activity would adversely impact on doctor-patient relationships. In New Zealand, half of doctors believe that DTCA disrupts their relationships with patients; but 39% report it has no impact (Hoek & Gendall, 2002b). There has been a change to the relationship many patients seek with their doctors and pharmacists. The commencement of prescription DTCA in the US and in New Zealand coincided with moves toward a more information-sharing based relationship between doctors and patients (Assa-Eley & Kimberlin, 2005; Cohodes, 1995; Dutta-Bergman, 2005; Weiss, 1985). Doctors and pharmacists do recognize this change and many appear to welcome it (Allison-Ottery et al., 2003; Cegala et al., 2004; RMI, 2000). According to an FDA (Aikin,
Swasy, & Braman, 2004) survey, 92% of physicians reported having had a discussion about an advertised drug initiated by a patient. 41% of physicians feel DTC exposure benefits (their relationship with) patients, whereas 18% thought it caused any problems. Benefits included better discussions (53%) and greater patient awareness and information (52%). Potential problems include the time needed to correct misconceptions (41%) and requests for unnecessary medication (26%). (Aikin, Swasy, & Braman, 2004) In summary, although results are mixed, medical professionals’ views toward DTCA appear to be becoming more positive, particularly in countries that have had some experience with it. Opposition to DTCA seems to have waned since its introduction in New Zealand and the US, but is still strong in Europe (Hoek & Gendall, 2002a; Reast, Paliwawadana, & Spickett-Jones, 2004). There is little empirical evidence that DTCA will disrupt the relationship doctors and pharmacists have with their patients.

Based on the above-mentioned results, we expect that doctors and pharmacists will hold a positive attitude about the informational capacity of DTCA. Even more so than patients, we expect doctors and pharmacists to be wary of DTCA because of the reliability of the information provided and we expect them to feel the consequences are aggravated when DTCA for prescription medication is allowed. Hence, the following hypotheses are tested:

*H7a: Doctors and pharmacists believe DTCA provides patients with useful information. New Zealand doctors and pharmacists are more positive about the informativeness of DTCA than Belgian ones.*

*H7b: Doctors and pharmacists do not find DTCA to be a very reliable source of information for patients. New Zealand doctors and pharmacists are more negative about the reliability of DTCA than Belgian ones.*
H8a: Doctors and pharmacists believe DTCA can contribute to participative decision making with patients. New Zealand doctors and pharmacists are more positive about this effect than Belgian ones.

H8b: Doctors and pharmacists believe patients requesting DTC advertised medication are more difficult. New Zealand doctors and pharmacists are more negative about this effect than Belgian ones.

The existing literature (see e.g. Hollon, 1999; Medawar, 1998), cites numerous instances of DTCA campaigns which could have led to inappropriate prescribing. Studies reported that when patients mention DTCA, many physicians feel some pressure to prescribe something (Auton, 2004; Lewis, 2003), and that patients who request a prescription for a specific medication were more likely to receive one (Hollon, 1999; Mintzes et al., 2002). A 2002 FDA study concluded that 57% of physicians reported to feel a little or somewhat pressured to prescribe advertised medication upon patient request, 8% report feeling very pressured (Lewis, 2003). From a patient’s perspective, DTC advertising is hardly causing tension in the doctor’s office. A vast majority of patients say their doctor was open to discussion when they brought up a DTC ad (Aikin, Swasy, & Braman, 2004; Calfee, 2001). Doctors, too, often welcome the inquiries, as it gives them an opportunity to give their patients other health recommendations, not necessarily just a prescription. According to the FDA, 91% of physicians state their patients did not try to influence the course of treatment in a way that would have harmed the patient. (Aikin, Swasy, & Braman, 2004) Because of the type of medication involved, we expect doctors to feel more pressured in New Zealand than Belgium, while the reverse should hold true for pharmacists. We also expect doctors not to give in to this pressure.
H9: DTCA causes pressure on doctors and pharmacists to prescribe or deliver advertised medication requested by patients. Doctors in New Zealand (vs. Belgium) feel more pressure, whereas pharmacists feel more pressured in Belgium (vs. New Zealand).

H10: DTCA does not cause doctors to alter their prescription behavior and pharmacists to alter their advice and selling behavior, neither in Belgium, nor in New Zealand.

Research method

Three different questionnaires were constructed and mailed to GPs, pharmacists and patients. The questions were developed from a range of sources, including (with permission) the FDA 1999 and 2000 studies, and from a consumer study of Prevention Magazine (Slaughter, 2002). The questionnaires were constructed both in Dutch (for Belgium) and English (in New Zealand). However, due to the different legal situations in the two countries, questions about actual DTCA for prescription medication in New Zealand were changed to questions for non-prescription medication for Belgium. A number of hypothetical questions concerning DTCA for prescription medication for Belgium were then added. Random samples from doctors and pharmacists were obtained from commercial databases in both countries. The “doctors” category was restricted to doctors in general practices. For patients, a stratified random sample of adults aged 20+ was drawn from the New Zealand Electoral roll. In Belgium, a snowball sample was used to contact patients. We chose to question adults only. A questionnaire together with a reply paid envelope was enclosed with a covering letter explaining the origin, purpose and intention of the survey (for further details regarding data collection, see e.g., Eagle & Chamberlain, 2003a; 2003b). Data collection was anonymous to keep social desirability bias in answering the questions under control.
Sample sizes and response rates are shown in Table 1 and the profile of respondents in Tables 2 and 3. Table 2 indicates that in the New Zealand patient’s sample, females and individuals 65 or older are overrepresented (Statistics New Zealand, 2001). The Belgian sample is representative of the Dutch-speaking population for gender and age profile (FOD, 2005a). In both counties, higher educated people are strongly overrepresented (FOD, 2005b; Statistics New Zealand, 2001). Table 3 presents the demographic profile of responding GPs and pharmacists. The gender profiles of GPs are representative of the Dutch-speaking Belgian (NIS, 2003) and of the New Zealand population of registered GPs (NZMA, 2004). About half the GPs graduated more than 25 years ago, representative of the Belgian population (NIS, 2003). In New Zealand, GPs who graduated no later than 1980 are overrepresented (NZMA, 2004). No demographic data were available for pharmacists in Belgium or New Zealand.

In both countries, more than half of the questioned patients have visited their doctor within the last 3 months. For almost one third of respondents, it has been at least 6 months. The pattern did not differ significantly between New Zealand and Belgium. Thus, the two patient samples are reasonably comparable in terms of medical consumption and doctor visits.

Although the Belgian patient sample is small, results from our study did not differ significantly from those found in 1997 and 2001 in national surveys (Scientific Institute of Public Health, 1997; 2001) of over 10,000 respondents aged 15 and older in terms of frequency of doctor visits, subjective health perceptions (largely positive), percentage of patients suffering from a chronic illness (52.7%), and percentage of patients reporting to take at least one medicine per day for any kind of medication in general (52.2%) and for prescription medication in particular (49.6%) (respondents in our survey reported significantly lower usage of non-prescription medicines, but this is likely due to the fact that minerals, vitamins and homeopathic
medication were not included in our study). The relatively small sample of Belgian patients appears to have medical characteristics and habits that are fairly similar to those reported in large-scale representative studies.

Results

In this section, we present results for patients, pharmacists and GPs in New Zealand and Belgium. Where results are reported as significant, we have always applied an \( \alpha = 0.05 \) threshold. Detailed significance and power levels are provided in the tables.

**DTCA awareness and information reading by patients**

Consumer DTCA awareness is high. In both countries, about 80% of respondents recalled seeing or hearing DTCA within the last three months. Most respondents who recalled seeing DTCA in the last three months, report seeing it on television, which is the primary vehicle for DTCA activity (Table 4). New Zealand respondents listed television more frequently than Belgian respondents. Magazines are the next most frequently recalled source (with more respondents listing it in Belgium than in New Zealand), followed to a lesser extent by newspapers and radio. Overall, Internet and email advertising score very low on recall, with Internet being more frequently recalled in Belgium than in New Zealand. H1a is largely confirmed.

With regard to whether patients who notice DTCA read all the information (“small print”) provided in an advertisement, 21% of respondents in Belgium and 27% in New Zealand report not reading any information or not even noticing it. This means that up to 73% of patients would read at least some of the information. Less than 20% read all of it. Results did not differ significantly between countries. Consequently, H1b is not confirmed.
Patient attitudes toward DTC advertised medication and DTCA

The perception in both countries of the usefulness of DTCA for prescription and non-prescription medicines is shown in Table 5. Most patients in the two countries do not find DTCA for prescription medication very useful, whereas they do agree that DTCA for non-prescription medication is useful. Table 5 also reveals that consumer perceptions of the usefulness of DTCA are more positive in New Zealand than in Belgium for both types of medicine. Hence, H2 is confirmed for the between-country difference and for OTC medication. To measure attitudes of patients toward DTCA in more detail, we presented a list of statements regarding DTCA to each group, where they were asked to indicate their level of agreement with each statement, ranging from 1 = strongly disagree to 5 = strongly agree. Statements were both positively and negatively worded. In New Zealand, statements were scored for prescription medication, whereas in Belgium, DTCA for non-prescription medication was concerned. We pooled the data from both countries and extracted two factors from the list of statements, together explaining 41.3% of variance. The first factor can be called “informational effect of DTCA for consumers”, including 7 items such as e.g., “Advertising provides patients with information they have a right to know” and “Advertisements give patients enough information to decide whether to discuss it with a doctor” (Cronbach’s α = .816). The second factor is called “reliability of DTCA as an information source”, containing 3 items (“Advertisements make medications seem better than they really are”, “Advertisements do not give enough information about risks and negative effects”, and “Advertisements are profit driven on the part of the medication manufacturers”) (Cronbach’s α = .617). The scores of the items loading significantly high on one (but not on the other) factor were averaged.
In Table 6, the mean scores of the summated scale are given for both factors for patients, per country. A higher score represents a more positive attitude. Attitudes toward DTCA are ambivalent to negative. Patients were not convinced of the information function DTCA could serve (in contrast to H3a) and moreover felt that DTCA was not a reliable source of information (which confirms H3b). In support of H3a, Belgian patients had a significantly more negative attitude toward the informational benefits of DTCA than their New Zealand counterparts. In contrast to H3b, Belgian respondents also tended to agree more that DTCA misleads patients, although the difference was not significant.

**Patient behavior-related outcomes of DTCA.**

Overall, less than 5% of respondents report consulting print media or toll-free numbers after seeing or hearing DTCA, less than 10% search for further information online, and 15 to 20% report consulting a doctor or pharmacist. A slightly larger number of patients consulted a doctor or pharmacist for a new versus an existing condition. Results did not differ significantly between Belgium and New Zealand, although the percentage of people who turned to general practitioners, print media, toll free numbers and the Internet tended to be higher in New Zealand. Thus, H4 is only partially confirmed. GPs on average estimate only 4 to 5% of their patients ask them about an advertised medicine. Only 1% of patients made inquiries about medication seen on the Internet. This is substantially less than the percentage of patients reporting consulting their doctor about advertised medication (15 to 20%). It is possible that patients overestimate and doctors underestimate the impact of DTCA.

For patients asking about medication, doctors say these inquiries mostly (in 70 to 80% of cases) take place during a regular appointment, i.e. one that was made to discuss other matters. Patients, too, reported largely discussing advertised medication only during a regular
appointment. Of those patients who did consult their doctor following DTCA, at least 75% say they specifically referred to the product they saw advertised. Percentages in New Zealand and in Belgium did not differ significantly. 86% of New Zealand pharmacists reported only few patients consulted them about advertised prescription medication. They, like the Belgian pharmacists, reported being far more frequently consulted concerning advertised non-prescription medication. This could be explained by the assumption that advice regarding prescription medication has already been provided by a doctor. Nearly all pharmacists reported only very few patients asked about medication seen on the Internet. H5 is partially confirmed. DTCA causes some patients to discuss advertised medication with their doctors and pharmacists, but the effect does not seem to hold on a large scale.

A very large group of patients (about 90%) report that DTCA does not or would not change the frequency with which they take or refill their medication. However, a small fraction (4-10%) reports it makes them take or refill their medication more regularly. Although only 6.5% of Belgian patients asserted if DTCA for prescription medication were allowed, it would encourage them to refill their prescription more often, this percentage was significantly higher than in New Zealand. H6 is not supported. Self-reported compliance has not strongly improved because of DTCA, and is not higher in New Zealand than in Belgium.

Medical professionals’ attitudes toward patients asking for advertised medications.

Based on the procedure used for patients, the attitude toward the informativeness and reliability of DTCA was also measured with doctors and pharmacists. The same two factors were extracted, explaining respectively 46.4% (GPs) and 40.6% (pharmacist) of variance. Cronbach’s $\alpha$ for the “informativeness” factor was .748 for GPs and .803 for pharmacists; for the “reliability” factor .577 for GPs and .680 for pharmacists. Again, the scores of the items loading
significantly high on one factor were averaged. The results are presented in Table 7. Like patients, medical professionals in general do not have a very positive attitude towards the information benefits of DTCA (in contrast to H7a) and even a very negative one toward its reliability (confirms H7b). For both aspects, attitudes are significantly more negative in Belgium than in New Zealand (the difference for ‘reliability’ is not significant for pharmacists). H7a and H7b are only partially confirmed. Attitudes toward informativeness and reliability of DTCA are not positive, but they are more positive in New Zealand than in Belgium.

To explore GPs’ and pharmacists’ attitudes toward patients asking about advertised medication, we presented a list of statements to them and asked to what level they agreed with each of the statements on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Again, we pooled data from both countries and extracted two factors, explaining 57.88% (GPs) and 53.13% (pharmacists) of the variance. The first factor refers to the “degree to which DTCA contributes to participative decision making” between patients and doctors/pharmacists. It includes 4 items, such as “Patients with background information about pharmaceutical products have more meaningful discussions with me” and “I treat it as an opportunity to talk to them about the various alternative options for management of their condition”, and has reasonable reliability (Cronbach’s α = .654 (GPs) and .545 (pharmacists). The second factor relates to the “degree to which patients who ask about advertised medications are more difficult” and summates the scores of “It wastes time when I have to explain why advertised medicine is not right” and “I find patients who wish to discuss particular medications they have seen advertised are more demanding than traditional patients” (Cronbach’s α = .618 (GPs) and .613 (pharmacists)). Table 8 presents the attitudes of GPs and pharmacists toward patients asking about medication they have seen or heard advertised. In general, attitudes are neutral to positive. Although GPs and
pharmacists are generally not convinced of the informational capacity of DTCA, they do tend to agree that patients who come to them with questions about advertised medication are better informed. Both for GPs and pharmacists, attitudes are more positive in New Zealand than in Belgium. H8a is largely confirmed. Respondents also do not find these patients more time consuming and demanding. Belgian pharmacists are more positive than their New Zealand counterparts; the between-country difference for GPs is not significant. H8b is partially confirmed.

We questioned pharmacists and GPs about the level of pressure they felt to provide the medication when requested and asked them about their reaction to this request. When patients ask for an advertised medicine, GPs and pharmacists report feeling little pressure to provide the requested medicine, as shown in Table 9. More than half the doctors and pharmacists reported feeling only a little or no pressure. There was no significant difference in pressure felt by GPs or pharmacists between Belgium and New Zealand. Hence, H9 is not confirmed.

Consistent with patients’ perceptions, most GPs report they only rarely give in to patient requests for advertised medicine (Table 10). GPs and patients both report that most patients did not receive the medicine they asked about. However, New Zealand GPs do report to give in to patient requests significantly more often than in Belgium. This was again confirmed by the patients. Belgian GPs will more frequently recommend other medicine, both prescription and OTC, than in New Zealand. Patients report that, in almost every case, GPs discussed the medication and treatment options with them, and took the time to explain why the discussed medication was not prescribed or recommended. The most frequently cited reason was that the medication was not right for the patient and a different medication was called for. Almost half the GPs questioned reported frequently recommending lifestyle changes, although patients did
not report this. The difference is probably due to the fact that patients could choose only one option, and doctors were asked to comment on everything they did.

When patients did not receive the requested medicine from their GP, a great number of GPs (80 to 85%) report most of these patients fully agreed with the doctor’s recommendation (no significant difference between countries). Only some GPs found their patients a bit reluctant to accept the recommendation, and almost no-one estimated their patients were disappointed enough to seek a second opinion. This is again in line with what patients report. 75% of patients were totally satisfied with their doctor’s reaction. Patients who were not satisfied mostly reported not to have taken any action to express or diminish their dissatisfaction. New Zealand GPs estimated fewer patients were disappointed than Belgian GPs did. Table 11 shows that most pharmacists report to have given patients a requested non-prescription medicine more than half of the time. This number is higher in Belgium (72%) than in New Zealand (53%). New Zealand pharmacists, on the other hand, more frequently state to have recommended patients to consult their doctor or to have recommended another medicine. Lifestyle changes are not frequently recommended in either country. When patients did not receive the medicine they asked about, about 80% of pharmacists in both countries stated patients in most cases agreed with the pharmacist’s recommendation. According to pharmacists, a small proportion of patients was mildly disappointed, but accepted the recommendation anyway and only a very small group was disappointed enough to perhaps seek a second opinion. Patients confirmed that they were on average satisfied with their pharmacists’ reaction. H10 is partially confirmed. There appears to be some effect of DTCA on prescription and selling behavior by doctors and pharmacists.
Discussion

About 80% of patients are aware of medication DTCA, in that they claim to recall having seen or heard it in the last 3 months. Consistent with AC Nielsen’s breakdown of pharmaceutical spending on DTCA (Eagle & Chamberlain, 2004), most respondents recalled seeing the ad(s) on television. These results are similar to previous studies in the US (Slaughter, 2002; Aikin, Swasy, & Braman, 2004). The percentage of patients reporting that they notice and read at least some information in DTC ads is high. Contrary to expectations, patients did not report reading more information if a prescription medication is concerned than for non-prescription medication.

Although similar to those in other studies (e.g., Aikin, Swasy, & Braman, 2004; Menon et al., 2003; Slaughter, 2002), the high numbers in our study could be partly due to the fact that the figures are self-reports. Critics (e.g. Handlin et al., 2003) argue that most consumers do not read – and certainly do not understand – the disclosure in DTC ads.

Overall, patients are relatively negative in their attitudes regarding DTCA for medication. While they still have a reasonably neutral perception of its usefulness, their opinions on the informativeness and certainly the reliability of DTCA are more negative. Although this goes against results found by, for instance, Miller & Waller (2004) in Australia, and Calfee (2003) and Deshpande et al. (2004) in the US, it does confirm the findings of several other US studies that indicate that patients do not hold very positive attitudes toward DTCA for medication (e.g., Aikin, Swasy, & Braman, 2004; Lewis, 2003; Reast, Palihawadana, & Spickett-Jones, 2004; Wilkes, Bell, & Kravitz, 2000). The FDA (Aikin, Swasy, & Braman, 2004), who suggests that patient attitudes toward DTCA are a key driver of information search, also concluded that these attitudes have declined since 1999.
The generally negative attitudes of patients in both New Zealand and Belgium toward DTCA may explain why only very few of them seem to use this information when making decisions about their health care. The number of patients reporting to consult other sources of information, especially the Internet, upon seeing a DTC advertisement, was much smaller than expected. Doctors and pharmacists were the most frequently consulted source as result of DTCA, but frequencies were very low and well below the one-third found in other studies (e.g., Calabro, 2003; GAO, 2002; White et al., 2004). GPs report only 1% of their patients consults them about Internet-advertised medication. Less than 10% of the patients in this study state they refer to the Internet as a result of DTCA. An FDA (Aikin, Swasy, & Braman, 2004) study, reports 38% of US patients searched the net in response to DTCA. Some (US) studies have found up to 80% of all patients go online for health related information (Von Knoop et al., 2003). Either these numbers are significantly lower in the countries under study, or, more likely, the Internet search is not motivated by DTCA per se but rather by patients seeking greater knowledge of medical conditions overall. Maybe the habit of searching the Internet as such is more common in the US than in the countries studied here.

A small number of patients (5 to 10%) acknowledged that DTCA could motivate them to comply with ongoing treatments. However, this number is a lot smaller than what was found in other studies (e.g., White et al., 2004). About 90% of patients declared that DTCA makes no difference in their compliance for advertised medication. The benefits of DTCA in terms of compliance seem very limited. We did not specify the question further (e.g. distinguish between types of medicines) and therefore cannot comment on whether adverse effects may occur, as Lexchin & Mintzes (2002) suggest.
The attitudes of medical professionals toward DTCA are also generally rather negative. The same general picture as in the patient group arises: while they are still reasonably neutral about the informativeness of DTCA, they hold a very negative opinion about its reliability. This is in line with the many studies that show that medical professionals are, in general, highly opposed to DTCA for medication (e.g., Yuan & Duckwitz, 2002; Reast, Palihawadana & Spickett-Jones, 2004). However, the extent to which they feel DTCA is instrumental in making patients participate in therapeutic decision-making is less negative, and doctors and pharmacists do not seem to hold the view that patients asking about DTCA pose an extra burden on their practice. This supports the assessments made in previous studies that the attitude of medical professionals is gradually changing towards a more participative style and do not object to the fact that DTCA-information is used by patients during consultation (see e.g., Auton, 2004; Hoek & Gendall, 2002b; Aikin, Swasy, & Braman, 2004). Most medical professionals reported very low levels of consultation based on DTCA, as well as feeling minimal pressure by patients to prescribe advertised medicine when requested. Where patients did talk to their doctor about an advertised medicine, the vast majority of these consultations occurred during a regular appointment, i.e. an appointment made to discuss other matters. The influence of DTCA as a spur for patients to consult a medical professional, used both in favor (early detection of illnesses and increased quality of life) and against (unnecessary doctor visits) DTCA for medication, seems to be modest, and Calfee’s (2003) argument that patients frequently talk about conditions not previously discussed in this study seems to be an overstatement.

Doctors and patients confirm that most of the time, patients do not receive the medicine they asked about if it is not the appropriate one. The number of patient requests resulting in an actual prescription of the medication is below that found in a number of US studies (e.g., Aikin, Swasy,
& Braman, 2004). Pharmacists tend to give in to patient requests more often than GPs. Most medical professionals feel that, when they do not give patients a requested medicine, patients largely agree with their recommendation. Patients in most cases are satisfied with doctors’ responses, even though they do not always receive requested medication. In brief, we found no evidence that DTCA would harm the doctor/pharmacist – patient relationship, or that DTCA would lead to the inappropriate delivery of advertised medication, at least not in the perception of medical professionals and patients. Of course, the question remains – in the small percentage of cases when medical professionals do supply medication when asked – whether that medication is really necessary and whether it would have been offered had the patient not asked for it.

The results show that with respect to a number of important issues and characteristics, there is no difference between the two countries. The vast majority of patients in both countries state that they are aware of DTCA for medication and that they read at least some of the information provided. In both countries medical professionals also moderately agree with the statement that DTCA contributes to patients’ participation in decision making, and they feel that they do not create additional pressure, requests or burden. Doctors and pharmacists in both countries only report small percentages of patients specifically asking for DTCA medication, with no significant between-country difference. In a similar context, Calabro (2003) also reports the percentage of patients requesting a specific medication from doctors did not differ between the US and France, Germany and the UK. The level of pressure felt by medical professionals to provide the requested medicine to patients is low (at least based on self-reports), and more importantly, not significantly higher in New Zealand. If New Zealand doctors prescribe the requested medicine more often than in Belgium, it is not because they feel more pressure to do
If Belgian pharmacists provide the requested medicine more often than in New Zealand, again they do not feel more pressure to do so. With regard to medical consumption, compliance was not reported to be higher in New Zealand than in Belgium, and Belgian patients did not expect their compliance rate to improve if DTCA for prescription medication would be allowed.

However, there are some important differences between the two countries. Most of them point at a more positive attitude toward DTCA in New Zealand than in Belgium, and some of them suggest behavioral differences. DTC advertisements for both prescription and non-prescription medicines are considered more useful by patients in New Zealand than in Belgium. New Zealand doctors, pharmacists and patients give higher scores to the informational effect of DTCA and New Zealand doctors have a less negative perception of the reliability of DTCA than their Belgian counterparts. New Zealand doctors are also more positive about the effect of DTCA on the participation of patients in the consulting process. The fact that New Zealand attitudes toward DTCA are more positive could be due to experience with the practice and with patients asking for prescription medication. All in all, based on the New Zealand results compared to the Belgian ones, prescription medication DTCA seems to lead to significantly more positive perceptions of medical professionals and patients. This more positive attitude does seem to lead to more information-seeking by New Zealand patients, but not to doctors and pharmacists feeling pressured, in any case not more than in Belgium. Medical professionals report not to alter their prescription or selling behavior, and patients confirm that. However, New Zealand doctors report to give in to a patient’s request for DTC-advertised medicines significantly more often than Belgian ones, while Belgian doctors more often claim to prescribe a different medication. The opposite is true for pharmacists. This difference could be due to the type of medication for which DTCA is allowed.
Conclusion, limitations and further research.

The basic research question of this paper was to explore what were the attitudes and self-reported behavior of medical professionals and patients and to what extent there were differences between Belgium, a country in which DTCA is limited to OTC medication, and New Zealand that allows DTCA also for prescription medication, in the attitudes and self-reported behavior of medical professionals and patients with respect to DTCA. Both medical professionals and patients appear to be skeptical about the informativeness and reliability of DTCA, although attitudes in New Zealand, a country that has a far more liberal legislation on DTCA, is consistently more positive. Although the general level of information-seeking is low, patients seem to look for more extra information in New Zealand than they do in Belgium. Medical professionals seem to appreciate or at least accept this: they report to have a relatively favorable attitude towards the effect DTCA has on participation in the consulting process. Although doctors in New Zealand are inclined to give in more frequently to the requests of patients of for specific types of prescription medicines, medical professionals in both countries seem to agree that DTCA does not cause more pressure and does not lead them to changing their prescription or selling behavior. Patients appear to agree. If we assume that the between-country differences are due to the experience with DTCA for prescription medication in New Zealand as opposed to Belgium, it seems the practice has only affected attitudes in a positive way. We did not find a strong indication that DTCA changes patient, pharmacist or doctor self-reported behavior, for the better or for the worse.

This study confirms the negative attitudes of patients and medical professionals regarding the quality of the information and the reliability of DTCA found in other studies. Most agree that manufacturer-sponsored advertising might not be the best way to distribute medical information
among the general public. On the other hand, the study also confirms the acceptance of medical professionals of the DTCA practice and the resulting more active participation of patients in the consultation process. DTCA does not seem to have harmed the self-reported relationship between medical professionals and their patients.

DTCA seems to cause limited pressure on self-reported prescription and selling behavior. However, even though medical professionals and patients both report only a small percentage of patients asked for and received advertised medication, there is an impact, which could be large in absolute numbers. Many would say that the practice of DTCA would not (continue to) exist if pharmaceutical companies did not feel its impact on sales and profitability. The effects of DTCA on public health and health care budgets could not be derived from this study. However, the opinions and attitudes of the important stakeholder groups studied here are, on the whole, quite negative.

This study has a number of limitations. First of all, the results obtained are all based on the perception of medical professionals and patients. Although we tried to limit the effect of social desirability by using an anonymous, written questionnaire, it cannot be excluded. For many issues (like the amount of pressure and response, and the perception of informativeness of advertisements), perceptions are important, but they do not replace actual (prescription and selling) behavior of doctors and pharmacists. Therefore, a more thorough investigation of prescription (doctors) and selling behavior (pharmacists) is needed. In addition, the respondent samples used for this survey were fairly, but not completely, representative of the respective populations. Possibly due to the complexity of the questionnaire, highly educated patients were overrepresented and this could have biased results. We did not investigate possible differences between types of consumers based on demographic or other characteristics. We felt this would
need a level of detail not permitted by the Belgian sample sizes and the already extensive analyses performed. This would be an interesting line of further research, though, as Eagle & Chamberlain (2003b) have already found some differences between patients suffering and not suffering from illnesses. We also did not distinguish between types of advertisements and conditions targeted (other than OTC vs. prescription), or ad medium. Furthermore, differences in attitudes and behavior between New Zealand and Belgium can to a certain extent be attributed to differences between DTCA regulations, but causal inferences should be made with caution. To a certain extent the differences found may also be attributable to country-specific differences regardless of the influence of DTCA rules. Further research should go into more detail about the longitudinal evolution of awareness, attitudes and behavior as regulations change further. There is also the question of to what extent patients are able to distinguish between DTCA for prescription and non-prescription medication. Through the Internet, patients worldwide can access promotional material for prescription medication, even if DTCA is technically prohibited in their country (Sheehan, 2005). We were surprised to find that almost one third of Belgian respondents claimed to recall DTCA for prescription medication. It appears, however, these respondents wrongfully considered the non-prescription medications advertised as prescription type, and the question rises to what extend this misinterpretation has influenced our results. The important question of to what extent general medical consumption, public health, and health insurance costs and expenses are affected by different DTCA regulations warrants further research, but was outside the scope of this study. We also cannot comment on whether DTCA awareness improves the actual understanding and knowledge of the information provided. There is a paucity of data on comprehension of DTCA (for exceptions, see e.g., Kaiser, 2001; Kaphingst et al., 2005). Research on particular advertisements and patients’ comprehension of
various pieces of information within those advertisements would provide useful information. Specifically, knowledge tests of risk and benefit information for a variety of medication with a variety of risk profiles would shed light on the way consumers and patients actually process these advertisements. Patient surveys provide data on how much of the information patients reads when interested in the drug and how easy or difficult it is to read that information, but does not provide information on how much of the brief summary patients actually understood. Finally, DTCA represents a small percentage of the promotional spend by pharmaceutical companies. The relative importance of various marketing efforts is an interesting area for further research.
References


Hoek, J., & Gendall, P. (2002a). To have or not to have? Ethics and regulation of direct to consumer advertising of prescription medication. *Journal of Marketing Communications, 8* (2), 71-85.


Pfizer (2003). *Comments of Pfizer Inc. in the matter of consumer-directed promotion*. (www.pfizer.com)


<table>
<thead>
<tr>
<th></th>
<th>New Zealand</th>
<th></th>
<th>Belgium</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Patients</td>
<td>GPs</td>
<td>Pharmacists</td>
<td>Patients</td>
<td>GPs</td>
<td>Pharmacists</td>
</tr>
<tr>
<td>Surveys sent out</td>
<td>5000</td>
<td>1000</td>
<td>1000</td>
<td>180</td>
<td>230</td>
<td>200</td>
</tr>
<tr>
<td>Respondents</td>
<td>1314</td>
<td>272</td>
<td>274</td>
<td>115</td>
<td>50</td>
<td>54</td>
</tr>
<tr>
<td>Response rate</td>
<td>26.3%</td>
<td>27.2%</td>
<td>27.4%</td>
<td>63.9%</td>
<td>21.7%</td>
<td>27.0%</td>
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</table>

Table 1: Sample Sizes and Response Rates
Table 2: Patient Respondent Profile

<table>
<thead>
<tr>
<th>% of respondents</th>
<th>New Zealand</th>
<th>Belgium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>(p&lt;.001)</td>
<td>(p=.090)</td>
</tr>
<tr>
<td>Male</td>
<td>36.0%</td>
<td>42.6%</td>
</tr>
<tr>
<td>Female</td>
<td>64.0%</td>
<td>57.4%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>(p&lt;.001)</td>
<td>(p=.053)</td>
</tr>
<tr>
<td>Under 65</td>
<td>77.0%</td>
<td>88.7%</td>
</tr>
<tr>
<td>65 or older</td>
<td>23.0%</td>
<td>11.3%</td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td>(p&lt;.001)</td>
<td>(p&lt;.001)</td>
</tr>
<tr>
<td>High school</td>
<td>65.4%</td>
<td>30.4%</td>
</tr>
<tr>
<td>Higher education</td>
<td>34.6%</td>
<td>69.6%</td>
</tr>
</tbody>
</table>

Reported p-values result from binomial tests with country population proportions for the same categories (FOD, 2005a; 2005b; New Zealand Statistics, 2001).
Table 3: General Practitioners and Pharmacist Respondent Profile

<table>
<thead>
<tr>
<th>% of respondents</th>
<th>New Zealand</th>
<th>Belgium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GPs</td>
<td>Pharmacists</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>65.5%</td>
<td>61.5%</td>
</tr>
<tr>
<td>Female</td>
<td>34.5%</td>
<td>38.5%</td>
</tr>
<tr>
<td><strong>Graduated</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980 or before</td>
<td>44.7%</td>
<td>56.4%</td>
</tr>
<tr>
<td>1981 or after</td>
<td>55.3%</td>
<td>43.6%</td>
</tr>
</tbody>
</table>

Reported p-values result from binomial tests with country population proportions for the same categories (NIS, 2003; NZMA, 2004).
Table 4: *Media in which Patients recalling DTCA within the last three Months recalled the Advertisement(s)*

<table>
<thead>
<tr>
<th>% of respondents recalling DTCA in last three months</th>
<th>TV</th>
<th>Radio</th>
<th>Magazine</th>
<th>Newspaper</th>
<th>Internet</th>
<th>Email</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand (n=955)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95.29%</td>
<td>21.57%</td>
<td>49.32%</td>
<td>28.90%</td>
<td>4.92%</td>
<td>3.98%</td>
<td>2.83%</td>
<td></td>
</tr>
<tr>
<td>Belgium (n=93)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87.10%</td>
<td>18.28%</td>
<td>65.59%</td>
<td>31.15%</td>
<td>11.83%</td>
<td>3.23%</td>
<td>5.38%</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>.001</td>
<td>.459</td>
<td>.003</td>
<td>.644</td>
<td>.005</td>
<td>.721</td>
<td>.173</td>
</tr>
</tbody>
</table>

Reported p-values result from between-country $\chi^2$ test (df=1).

Between-country difference respondents recalling DTCA within last three months (total): $p=.062$ (df=1).
Table 5: Usefulness of DTCA for Medication Perceived by Patients

<table>
<thead>
<tr>
<th>% of respondents</th>
<th>Prescription medication</th>
<th>Non-prescription medication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Zealand (n=1263)</td>
<td>Belgium (n=115)</td>
</tr>
<tr>
<td>Not useful</td>
<td>50.99%</td>
<td>56.52%</td>
</tr>
<tr>
<td>Unsure</td>
<td>15.68%</td>
<td>27.83%</td>
</tr>
<tr>
<td>Useful</td>
<td>33.33%</td>
<td>15.65%</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>p</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Reported p-values result from between-country $\chi^2$ test (df=2).
### Table 6: Patient attitudes toward DTCA

<table>
<thead>
<tr>
<th>Mean score</th>
<th>New Zealand (n=1285)</th>
<th>Belgium (n=115)</th>
<th>New Zealand (n=1281)</th>
<th>Belgium (n=115)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informational effect of DTCA for consumers</td>
<td>3.11</td>
<td>2.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p&lt;.001</td>
<td></td>
<td>Reliability of DTCA as an information source</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.96</td>
<td>1.88</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p=.203</td>
<td>(power 35%)</td>
</tr>
</tbody>
</table>

Reported p-values result from independent samples t-test between countries.
Table 7: *Doctors and pharmacists attitudes toward DTCA*

<table>
<thead>
<tr>
<th></th>
<th>GPs</th>
<th>Pharmacists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Zealand (n=270)</td>
<td>Belgium (n=50)</td>
</tr>
<tr>
<td>Informational effect of DTCA for consumers</td>
<td>2.94</td>
<td>1.95</td>
</tr>
<tr>
<td></td>
<td>p&lt;.001</td>
<td>p&lt;.001</td>
</tr>
<tr>
<td>Reliability of DTCA as an information source</td>
<td>1.55</td>
<td>1.32</td>
</tr>
<tr>
<td></td>
<td>p=.001</td>
<td>p=.112 (power 54.2%)</td>
</tr>
</tbody>
</table>

Reported p-values result from independent samples t-test between countries.
Table 8: Doctors and Pharmacist Attitudes toward Patients asking about Advertised Medication

<table>
<thead>
<tr>
<th>Mean score</th>
<th>GPs New Zealand (n=271)</th>
<th>Belgium (n=50)</th>
<th>Pharmacists New Zealand (n=273)</th>
<th>Belgium (n=53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree to which DTCA contributes to participative decision making</td>
<td>3.53</td>
<td>2.95</td>
<td>3.73</td>
<td>3.54</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>&lt;.001</td>
<td></td>
<td>p= .030</td>
<td></td>
</tr>
<tr>
<td>Degree to which patients are more difficult as a result of DTCA</td>
<td>3.02</td>
<td>2.91</td>
<td>3.05</td>
<td>2.42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>.446</td>
<td></td>
<td>p&lt; .001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(power 17.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reported p-values result from independent samples t-test between countries.
### Table 9: Degree of Pressure felt to Provide Requested Medicine

<table>
<thead>
<tr>
<th></th>
<th>mean score</th>
<th>GPs</th>
<th>Pharmacists</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand</td>
<td>2.47</td>
<td>2.39</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>2.35</td>
<td>2.33</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>.502</td>
<td>.715</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>15.2%</td>
<td>10.8%</td>
<td></td>
</tr>
</tbody>
</table>

1 = no pressure, 5 = extreme pressure.

Reported p-values result from independent samples t-test between countries.
Table 10: *General Practitioner Actions in Response to Patient Request for Advertised Medication*

<table>
<thead>
<tr>
<th>% of GP responses</th>
<th>Give requested medicine</th>
<th>Recommend other prescription medicine</th>
<th>Recommend other OTC medicine</th>
<th>Recommend lifestyle changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Zealand (n = 257)</td>
<td>New Zealand (n = 253)</td>
<td>New Belgium (n = 48)</td>
<td>New Belgium (n = 47)</td>
</tr>
<tr>
<td>Rarely*</td>
<td>42.80%</td>
<td>36.36%</td>
<td>86.61%</td>
<td>23.23%</td>
</tr>
<tr>
<td>Sometimes*</td>
<td>34.24%</td>
<td>47.83%</td>
<td>9.45%</td>
<td>30.71%</td>
</tr>
<tr>
<td>Most of the time*</td>
<td>22.96%</td>
<td>15.81%</td>
<td>3.94%</td>
<td>46.06%</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

| p                 | .001                    | .024                                   | <.001                       | .369                      |

* Rarely = Less than 25% of the time; Sometimes = 25% to less than 50% of the time; Most of the time = 50% or more of the time.

Reported p-values result from between-country χ² test (df=2).
Table 11: *Pharmacist Actions in Response to Patient Request for Advertised Non-Prescription Medicine*

<table>
<thead>
<tr>
<th>% of pharmacist responses</th>
<th>Give requested medicine</th>
<th>Recommend consulting doctor</th>
<th>Recommend other OTC medicine</th>
<th>Recommend lifestyle changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand (n = 269)</td>
<td>New Belgium (n = 53)</td>
<td>New Belgium (n = 53)</td>
<td>New Belgium (n = 53)</td>
<td>New Belgium (n = 53)</td>
</tr>
<tr>
<td><strong>Rarely</strong>*</td>
<td>11.90%</td>
<td>55.60%</td>
<td>43.66%</td>
<td>60.08%</td>
</tr>
<tr>
<td><strong>Sometimes</strong>*</td>
<td>34.94%</td>
<td>34.70%</td>
<td>48.13%</td>
<td>23.88%</td>
</tr>
<tr>
<td><strong>Most of the time</strong>*</td>
<td>53.16%</td>
<td>9.70%</td>
<td>8.21%</td>
<td>16.04%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td><em>p</em></td>
<td>.008</td>
<td>.025</td>
<td>.023</td>
<td>.059</td>
</tr>
</tbody>
</table>

* Rarely = Less than 25% of the time; Sometimes = 25% to less than 50% of the time; Most of the time = 50% or more of the time.

Reported p-values result from between-country $\chi^2$ test (df=2).