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Direct-to-Consumer Ads for Medical Devices: What Do People Understand and Remember?

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Introduction

I am a faculty member at Duke University, Director of the Medical Cognition Laboratory, and Senior Fellow at the Duke Center for the Study of Aging. My expertise is in cognitive science – how people understand, remember, and use information.

I am not here today to argue for or against direct-to-consumer advertising of medical devices. Instead, I am here to report research on how people understand and remember information in DTC ads. This research has not been funded by any medical device company, advertising agency, advocacy group, or government agency.

Basic Question

The basic question is – How do people understand medical device information? The answer is – with difficulty.

There are many possible reasons for this difficulty – for example, there can be a heavy information load, complex and technical information, and so forth.

However our focus today is on "cognitive accessibility." Cognitive accessibility is the ease with which people can find, understand, remember, and use medical device information, and do so in a safe and effective manner (Day, 2006). Cognitive in-accessibility occurs whenever people have trouble with any one or more of these processes.

Research Approach

Research in my lab examines a wide variety of medical device information sources including television, the internet, and hardcopy. DTC occurs in all these environments, but today the focus is on broadcast ads that appear on television and/or the internet.

The basic research approach has three phases, based on our past work with prescription drug ads.

Cognitive Analysis Phase. We obtain quantitative measures about how information is presented, calculate cognitive accessibility scores, and compare the cognitive accessibility of information about benefits vs. risks.

Enhanced Display Phase. We keep the same information, but provide it in more cognitively accessible ways, based on well-established cognitive principles.

Test Phase. We perform cognitive experiments to test the effects of the Original and Enhanced versions on various cognitive processes such as attention, memory, comprehension, problem solving, decision making, behavior, and ultimately health outcomes.

Many cognitive principles underlie this work, including various language properties, chunking of information, location of information, speaking speed, and divided attention, as I'll describe shortly.

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Cognitive Analyses of Medical Device Ads

We have been collecting television ads for prescription drugs continuously since the year 2000. We are currently comparing features of medical device ads to the hundreds of drug ads already in our database.

We examined ads for a wide variety of medical devices, such as stents, joint replacement, implantable defibrillators, breast implants, and drug-device combinations. Of special interest is the treatment of benefits vs. risks.

Benefits

Considerable time is spent on benefits in the ads and they are generally presented in cognitively accessible ways – the language is relatively simple, spoken at normal or slow speed, with short sentences, helpful pauses, relatively few visual distractions, and/or provided in locations known to facilitate cognitive processing.

Risks

In many ads, no risks are provided at all. In other cases, only nonspecific references to risk are mentioned, e.g., "There are potential risks." When risks are provided, they are generally presented in ways that decrease their cognitive accessibility. For example, the language is complex, without helpful pauses, accompanied by visual distractions, and/or provided in locations known to impede cognitive processing.

Example: Joint Replacement

Of particular interest to older adults are joint replacement devices. We examined six such ads. One had no risks at all, the rest mentioned nonspecific risks, and only one had multiple specific risks.

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Variability

There is more variability across medical device ads than drug ads. For example, in drug ads the benefits are usually provided in both visual and oral form and specific risks are usually given orally, either by voice-over or an on-screen character. In device ads, there is often a strong "testimonial" aspect, relying heavily on visual images of an individual able to do wonderful things after getting/using a medical device; in one case, these images are so strong that no there is no oral expression of the benefits at all.

Cognitive Experiment

To examine how consumers understand and remember information in medical device ads, we conducted a laboratory experiment. People saw an ad for a weight-loss device, then participated in a series of cognitive tasks (only some reported here). This particular ad was selected in part because it contained both specific benefits and risks.

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Basic Information

Nearly everyone knew the name of the device and what it is used for (its indication). Although the ad mentioned who should not use the device (its contraindications), participants knew very little about this information.

Free Report Task

Participants were asked to report both the benefits and risks provided in the ad. Consistent with our research on drug ads, they reported twice as many benefits as risks.

Recognition Task

When asked whether specific benefits and risks were given in the ad, there were dramatic differences in knowledge about these two types of information. For example, when asked about information actually in the ad, benefit performance was nearly perfect, while risk performance was at about chance level.

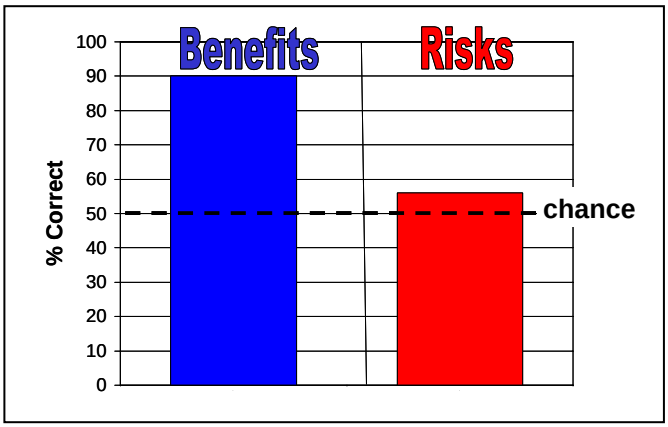

Figure 1 – Percentage correct recognition for benefits vs. risks (for items actually in the ad).

Interpretation

To interpret these results, we examined how benefits and risks were provided in the ad (using cognitive accessibility factors such as those noted above). Overall, the benefits were provided in more cognitively accessible ways than risks. Furthermore, risk presentation violated some well-known, evidence-based principles of human cognition.

Conclusions

Overall, risk information is seriously disadvantaged relative to benefits in medical device ads – the techniques used to present them often render them lower in cognitive accessibility. Although these cognitive accessibility problems are widespread, there are some exceptions – for some factors in some ads. We plan to increase the cognitive accessibility in fictious medical device ads – to determine what information people can understand and remember.

Recommendations

An evidence-based approach is needed to evaluate ads in terms of cognitive accessibility factors such as those described here. Separate analyses of benefits and risks are needed, to ensure that there are no major discrepancies in their cognitive accessibility. Ads with unfavorable cognitive accessibility scores – known to decrease comprehension and memory – can then be modified. Otherwise, risk information will be **physically present, but functionally absent.**

Reference

Day, R.S. (2006) Comprehension of prescription drug information: Overview of a research program. *Proceedings of the American Association for Artificial Intelligence, Argumentation for Consumer Healthcare. aaai.org.*