

When Informed Decision Making Meets Health Promotion

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impact paragraph



Making decisions can be difficult. Especially when decisions involve risks or when people feel like they do not know enough. But also, when they do not know what is important to them when making decisions, or when they are not supported enough while making decisions. In healthcare, difficult decisions are highly common. Decision aids are meant to help people to make such decisions in an informed way. They include information about all available options without convincing people to choose one option over the other. Traditionally, (research focused on) decision aids focused on supporting people to make decisions between different treatments or different screening programs. Yet, also decisions related to health promotion and disease prevention (in this impact paragraph both will be referred to as health promotion) can be difficult.

To illustrate, this thesis focused on smoking—a prominent health promotion topic and worldwide still the leading cause of preventable disease and early death. In the Netherlands, smoking kills about 20,000 people a year and costs the Dutch health system about € 2.4 billion per year. To reduce (or eliminate) this problem, Dutch smokers have access to many smoking cessation tools: (1) behavioral support (such as counseling by a general practitioner), (2) nicotine replacement therapy (such as nicotine patches), and (3) smoking cessation medication. All these tools have been shown to help smokers to stop smoking. However, Dutch smokers often stop without using any tool—commonly referred to as stopping 'cold turkey'. This is problematic because stopping without any tool means that smokers have a higher risk of starting smoking again. Interestingly, the decision on how to stop smoking can be difficult: People often do not know enough about these tools, and therefore also do not know which tools match their preferences or needs. People motivated to stop smoking might therefore experience difficulties in choosing the right tool, and instead decide not to use any tool. As a result, they unwittingly limit their chances of stopping smoking. This clearly shows that decision aids for a health promotion topic such as smoking cessation should also be developed and made available to a broad audience.

To respond to the problems described above, the work presented in this thesis was carried out. From a more theoretical starting point: How can researchers combine ideas from behavior change and research focused on decision aids, and what health promotion decision aids are there? And also, from a practical starting point: the development and evaluation of a smoking cessation decision aid.

The smoking cessation decision aid (called *VISOR*) was developed together with smokers, smoking cessation counselors and scientists. I then compared two versions of *VISOR* within a large national study. One version included an interactive feature designed to help smokers discover what matters to them, followed by tailored advice. The other version lacked these features. In this study, I tested whether *VISOR* showed greater effects in terms of people stopping smoking and using smoking cessation tools with those feature(s) added. Also, I

tested if less people were uncertain regarding their decision on how to stop smoking if *VISOR* included this interactive feature(s). In this study no clear effects were found on the number of people stopping smoking, using smoking cessation tools, or uncertainty. However, I was able to identify factors that influenced if people used *VISOR* completely and other factors (than *VISOR*) that influenced the effects. For example, I found that fewer people under the age of 30 and with less than a higher professional education have completed *VISOR*. The added interactive feature(s) also seemed to result in more people not finishing *VISOR*. Interestingly, another interesting factor that I identified during this study was the stage of decision making participants were in right before they used *VISOR*.

Scientific Relevance

In this thesis, I contributed to a field that has not been covered often in the literature around decision aids: decision aids applied to health promotion, specifically smoking cessation. This thesis—and its parts—therefore not only function(s) as a traditional thesis, but also as a call for action to further this relevant and interesting line of research. For example, I published one of the chapters as a discussion paper to encourage cooperation between experts in (health) behavior change and decision aids. Moreover, this thesis also provides the first broad literature review of health promotion decision aids that has also been published as a scientific paper. Not only does this literature review provide a starting point for further research, but it has also enabled me to formulate recommendations to advance the field of health promotion decision aids. Ultimately, these recommendations can lead to innovations in science, and my literature review provides a first basis for those innovations. Within this thesis, I was also able to shed more light on one specific decision aid element (the interactive feature(s) described earlier). These features helped users figure out what matters to them in relation to smoking cessation (for example, how likely it is that people will stop smoking using a specific tool). And even though, adding this interactive feature did not seem to be overly helpful, my study provides an interesting basis for scientific innovations. For example, I found that participants' stage of decision making might play an interesting role in the field of decision aids. This finding can be used to design attractive and more helpful decision aids or other decision support interventions in the future. For example, interventions could be tailored to individuals' stages of decision making to ensure that users use the entire intervention as intended. These findings can therefore be used to drive interesting innovations in science and ultimately to develop helpful interventions with a wider reach.

Next to this thesis, I used traditional scientific outlets to promote my findings, such as scientific articles, (poster) presentations at (inter)national conferences, and symposia that I organized together with other researchers. As my research was rooted in both behavioral sciences and the research behind decision aids, I specifically focused on conferences that are attended by experts in both areas.

However, insights were also promoted by making use of more innovative ways to spread knowledge. Almost all articles were published open access (and promoted on social media), and study materials, data, and preprints were made available openly online. In this way, this innovative line of research that I followed during the work presented in this thesis, was made accessible to other scientists more quickly.

Societal Relevance

As the direct focus of this thesis was on individual (smoking cessation) decision making, people motivated to stop smoking are the first and foremost group to benefit from the research presented in this thesis. Logically, I also focused on them the most and they were involved in all development steps of *VISOR*. Unfortunately, the large national study did not show a clear effect of *VISOR* on smoking cessation. It should be noted that smokers that used *VISOR* in the large national study might still have profited from using it, as I tested *VISOR* among two groups and both groups received a version of *VISOR* (with or without the interactive feature(s)). And in fact, even the group that received *VISOR* without the additional elements achieved higher smoking cessation rates than found in the study that tested the only other smoking cessation decision aid in the Netherlands.

Next to this potential impact, I also reached many people motivated to stop smoking through mass media channels. For example, I developed and carried out a social media campaign including posts specifically designed to promote *VISOR*. This social media campaign made it clear that smokers can decide for themselves how they want to stop smoking and that there are many available tools to help. The needs assessment carried out for the development of *VISOR* showed that smokers are generally not familiar with all the tools that can help them stop smoking. Since changes in behavior often require awareness, this social media campaign may have already created this awareness, especially due to the wide reach of social media. As all social media posts are still online, this effect can also be realized after this project has been completed.

Also, even smokers that were not directly involved in the studies (or were reached by our recruitment strategies) can benefit from the work presented in this thesis. For example, I took part in multiple science communication initiatives, such as the "*Maffe Mensen Podcast*". The podcast aims to make the insights from the communication and behavioral sciences more accessible to a broader public. In this podcast, I not only presented my work, but also described easy-to-follow steps to make an informed decision about smoking cessation. People wishing to stop smoking, can easily find this podcast online even after the completion of this project.

Ultimately, the newly generated knowledge can also be used to directly improve decision support for people motivated to stop smoking in the future. For example, I have found that information about how effective tools are can often be misunderstood by smokers. People motivated to stop smoking often referred to how likely *one* person is to stop smoking using tools, while experts mostly speak in terms of groups. Helping more people to understand such information better will enable them to make a more informed decision regarding smoking cessation in the future. In *VISOR* I showed end users images made up of icons representing groups of smokers. The number of smokers who successfully stopped smoking over the long term differed depending on whether they used smoking cessation tools or not. In this way I made sure to deliver the effectiveness information so that it is accessible to the 'average smoker' as well. This is just one of the examples on how I used the input given by the (potential) end users to ensure that the information would be as accessible as possible. In the long run this accessible information may help more smokers to stop smoking. These ideas could be used to improve other health education materials aimed at smoking cessation as well. Therefore, organizations such as the Trimbos Institute (the Dutch institute for mental health and addiction) can use this information that was uncovered to make their own materials more accessible. For this purpose, the *VISOR*-team is already in contact with the Trimbos Institute, for example.

Moreover, healthcare providers can also benefit from these findings as they often communicate with patients/clients about smoking cessation. Therefore, I included the needs of healthcare providers in my research early on and they were also updated throughout the development process. Not only by traditional outlets (see *Scientific Relevance*), but, for example, also by hosting an expert meeting at the Trimbos Institute. With this expert meeting I not only collected important input for *VISOR*, but already spread important information uncovered throughout the project presented in this thesis. Just as organizations, healthcare providers can use my findings to make their communication more accessible. For this it is important that they also find out about these findings. This could be implemented, for example, by including the findings in the teaching of the students. For example, a lecture could be provided to nursing students to provide the newest generation of healthcare providers with this new knowledge. During the project, I was already contacted by students who missed this content, which shows that this is worth exploring.

Policy makers and commercial parties could also benefit by using my findings to improve their smoking cessation offerings. My findings could be used to improve *VISOR* based on the generated insights and an updated version could be implemented and disseminated nationally after another careful test of its effects.

Finally, helping smokers to stop smoking will also improve public health in the long term and help achieve a smoke-free generation in the future. Smoking has major consequences for

public health and the costs of healthcare, for example because passive smoking also has a negative impact on people's health. The research presented in this thesis therefore also indirectly benefits the general public—especially because we found that *VISOR* helped smokers to stop smoking.