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### Convincing through conversation

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*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2018

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Donné, L. (2018). *Convincing through conversation: Unraveling the role of interpersonal health communication in health campaign effectiveness*. Rijksuniversiteit Groningen.

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# **Convincing through conversation**

Unraveling the role of interpersonal health communication in  
health campaign effectiveness

**Lennie Donné**



**university of  
 groningen**

faculty of arts

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The research reported in this dissertation has been carried out under the auspice of the Center for Language and Cognition Groningen (CLCG) of the Faculty of Arts of the University of Groningen.



Groningen Dissertations in Linguistics 172

ISSN: 0928-0030

ISBN: 978-94-034-1006-7 (printed version)

ISBN: 978-94-034-1005-0 (digital version)

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Cover design by Susan Mertens

Printed by IPSKAMP printing



rijksuniversiteit  
 groningen

# Convincing through conversation

Unraveling the role of interpersonal health communication in health  
 campaign effectiveness

## Proefschrift

ter verkrijging van de graad van doctor aan de  
 Rijksuniversiteit Groningen  
 op gezag van de  
 rector magnificus prof. dr. E. Sterken  
 en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op  
 donderdag 25 oktober 2018 om 12.45 uur

door

**Lennie Donné**

geboren op 23 juli 1988  
 te Bergen (Limburg)

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# **Chapter 1**

General introduction



Despite a multitude of mass media health campaigns (e.g., Snyder et al., 2004), many people engage in unhealthy behaviors such as smoking, alcohol abuse, and unsafe sex. Interpersonal communication about health issues has been found to crucially influence health behavior and its determinants such as attitudes or behavioral intentions (Chatterjee, Bhanot, Frank, Murphey, & Power, 2009; Van den Putte, Yzer, Southwell, De Bruijn, & Willemsen, 2011). Interpersonal health communication generated by health campaigns may thus mediate campaign effects on health behavior (Southwell & Yzer, 2007). Engaging in a discussion about a health campaign may for instance lead to the discovery or boosting of social norms, thus influencing health behavior (Hornik & Yanovitzky, 2003). Furthermore, health campaigns have been found to have a more positive influence on health intentions when the campaign is discussed than when the campaign is not discussed (Dunlop, Kashima, & Wakefield, 2010).

Although there is increasing attention for the possible role of interpersonal health communication on health campaign effectiveness (e.g., Jeong & Bae, 2017), two important issues have remained relatively understudied: (1) which factors influence the *occurrence* of interpersonal health communication, and (2) which factors influence the *effectiveness* of interpersonal health communication.

The main objective of this dissertation is to provide a better understanding of factors influencing the occurrence and the effectiveness of interpersonal health communication. To that end, we first investigated interpersonal health communication that is not generated by a health message (Chapter 2). After that, we focused on interpersonal health communication generated by two types of health messages: complex messages (Chapter 3) and narrative messages (Chapter 4). In addition, we zoomed in on the content of actual health message-generated conversations (Chapter 5).

In the following sections, the theoretical context of this dissertation is presented, after which the research questions are introduced.

## 1.1 Interpersonal health communication

Every day people are exposed to information on different health topics like alcohol abuse, smoking, drugs, or healthy eating. Often, this health information is presented in mass mediated health campaigns, which can take the form of TV commercials, billboards, or internet campaigns. But even though the primary goal of mass mediated health campaigns is to influence people's health behavior, effect sizes are only small (Snyder et al., 2004). The field of health communication therefore increasingly moves away from the assumption that mass communication messages themselves are primarily responsible for effects on health behavior (Helme et al., 2011), and recognizes that other factors should be taken into account as well.

One of the ways in which health communication scholars shift from an emphasis on a direct influence of mass mediated health messages on health behavior is by acknowledging that health communication is a social phenomenon (Hornik & Yanovitzky, 2003; Bandura, 2004). People do not operate as isolates, but they often interact with other people during or after processing a message, which may stimulate social interaction (Helme et al., 2011). Helme and colleagues indeed found that young adults often watch public service announcements (PSAs) on safe sex in the company of others, mainly friends and significant others, which often leads to discussions of these PSAs. Dunlop, Cotter, and Perez (2014) found that a third of smokers who were interviewed indicated to have received interpersonal pressure to quit smoking from, for instance, friends and family with whom they watched an anti-smoking advertisement. Often, thus, there is not (only) a direct pathway in which health messages may influence health behavior, but also a socially mediated pathway where interpersonal discussion promotes knowledge, changes attitudes and eventually guides behavior (Bandura, 2004).

In research differentiating the role of mass media campaigns and campaign-generated conversations in mass media campaign effectiveness it has been

argued that campaigns may be more suitable to raise awareness, whereas conversations may potentially change behavior (Jeong & Bae, 2017). Conversations, or interpersonal communication in general, may therefore be a promising tool for influencing determinants of health behavior (e.g., Duggan, 2006; Noar, Carlyle & Cole, 2006; Frank et al., 2012). Carl and Duck (2004) argue that people are more likely to be influenced by messages that trigger discussion with significant others. Valle, Yamada, and Matiella (2006) found that fotonovelas on the topic of dementia had a greater impact on older Latino adults when accompanied by discussions. Hwang (2012) found that both campaign exposure and conversations about a campaign may affect determinants of health behavior directly, and that campaign exposure positively predicted conversations about the campaign. Related to this finding, Seo and Matsaganis (2013) found that interpersonal communication works as an independent ‘information channel’ for health information and may also mediate the relationship between media messages and health behavior for some types of health behaviors.

In this dissertation, we use the term *interpersonal health communication* (following Duggan, 2006) to refer to the exchange of messages between people (Burlison, 2010) about health issues in a non-institutionalized, everyday setting (Cline, 2003).

## **1.2 Effects of interpersonal health communication**

In general, effects of interpersonal communication triggered by health campaigns can occur on two levels (Hornik & Yanovitzky, 2003; Van den Putte et al., 2011): Interpersonal communication may increase the reach and frequency of exposure to the content of the health message, and it may influence behavioral determinants through social discussions among members of a community. Effects of interpersonal health communication on health behavior may also occur on both levels simultaneously (Egbert, Miraldi, & Murniadi, 2014).

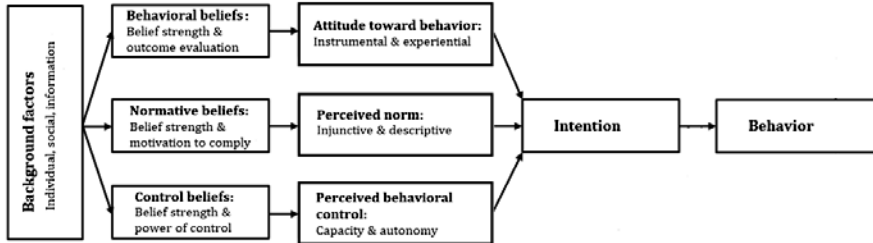
### **1.2.1 Increase of reach and frequency**

First, interpersonal communication can increase the reach and frequency of a message. In other words, message content is further disseminated to a larger audience than the audience that was exposed to the initial message. This may occur when people who were exposed to a message talk about this message to people who were not (Dunlop et al., 2010; Van den Putte et al., 2011). Information is expected to spread most quickly when diffused through social connections among members of a population (Southwell & Yzer, 2007). This idea has already been prominent in several classical theories. The two-step flow theory (Katz & Lazarsfeld, 1955), for instance, describes how information from media messages is channeled through interpersonal networks in two steps: First, the information in the media message is received and interpreted by *opinion leaders*, who then, through interpersonal communication, pass this information on to a broader audience consisting of people who were not exposed to the message themselves. Through word-of-mouth communication (e.g., Matos & Rossi, 2008), for instance, people verbally share their experience about a product or service with one another. According to the diffusion-of-innovations theory (Rogers, 1962), new ideas are often spread through interaction in the interpersonal network.

### **1.2.2 Influence on behavioral determinants through discussions**

Conversations on health messages may not only increase the spreading of health information, but they may also stimulate discussions between members of a community, such as friends and family members. According to theories of behavioral prediction, such as the reasoned action approach (Fishbein & Ajzen, 2010, see Figure 1.1), behavior is influenced by behavioral intentions, which is in turn predicted by attitudes, perceived norms, and perceived behavioral control. Fishbein and Yzer (2003) point out that even though health communication ultimately aims at influencing actual health behavior, communication often only indirectly influences this behavior through creating

or changing specific underlying beliefs. Interpersonal health communication may be a pre-eminent vehicle for these beliefs to emerge and further influence health behavior determinants. Hafstad and Aaro (1997), for example, found that talking about an anti-smoking campaign with peers had a major positive influence on smokers' perceived behavioral outcomes, both for smokers (e.g., considering to quit smoking) and for non-smokers (e.g., having the intention to never start smoking). In line with these findings, Van den Putte et al. (2011) found that exposure to an anti-smoking ad triggered interpersonal communication, both about the ad itself and about smoking cessation in general. This interpersonal communication, in turn, influenced intentions and attempts to quit smoking. Furthermore, talking about a health issue has been found to influence attitudes concerning the health behavior (e.g., Chatterjee et al., 2009; Dunlop et al., 2010; Dunlop, 2011). Interpersonal health communication can also lead to the discovery of social norms that are prominent in the social environment (Hornik & Yanovitzki, 2003; Southwell & Yzer, 2007). Rennan et al. (2014) found, for instance, that disapproval of smoking behavior by important people in the social environment was predictive of smokers' attempts to quit. Interpersonal health communication may furthermore have a positive influence on feelings of behavioral control or self-efficacy, such as feeling confident about being able to buy condoms without feeling embarrassed (e.g., Frank et al., 2012). Moreover, talking about health issues may provide people with social support (e.g., Duggan, 2006), which may also increase perceived behavioral control.



**Figure 1.1: The reasoned action approach (Fishbein & Ajzen, 2010)**

Some health topics, such as HIV/AIDS, may be surrounded by normative constraints, and are therefore considered ‘taboo’. Interpersonal health communication may loosen normative constraints concerning taboo subjects (Southwell & Yzer, 2007). Encouraging an open discussion on certain taboo topics may change social norms, may reduce stigmas underlying these sensitive topics and may ultimately even break taboos (Botta & Pingree, 1997; Frank et al., 2012; Harman, Kaufman, & Sherestha, 2014). In their “Talk about it” campaigns that ran from 2000 to 2009, the health organization loveLife in South Africa aimed to break taboos concerning HIV and AIDS and eventually achieve positive behavior change, like an increase in safer sex behavior, by creating dialogue on HIV and AIDS (Pettifor et al., 2004).

Furthermore, interpersonal health communication can convey first-hand experiences, which may be more persuasive than abstract, impersonal information (Weinstein, 1993). In conversations, people automatically tailor the content of the conversation to their conversation partner, increasing perceptions of personal relevance and ultimately leading to more persistent attitudes that are more predictive of behavior (Jeong & Bae, 2017).

### **1.3 Gaps in the literature on interpersonal health communication**

Given the valuable role of interpersonal health communication in health behavior change, it is not surprising that various researchers have emphasized the need for health campaigns to specifically focus on triggering conversations (e.g., Surkan, DeJong, Herr-Zaya, Rodriguez-Howard, & Fay, 2003; Morgan, 2009), instead of attempting to directly influence the health behavior itself (Van den Putte et al., 2011; Helme et al., 2011). Rennen et al. (2014), for instance, suggest that anti-smoking campaigns should stimulate people to talk to smokers about their smoking behavior. This type of interpersonal health communication can be seen as a persuasion attempt, in which talking about the health issue does not directly influence one's own health behavior but is intended to influence someone else's health behavior (Weinstein, 1993). See Noar, 2006, and Southwell and Yzer, 2007, for an overview of studies regarding campaigns stimulating interpersonal health communication.

Despite the increased attention and the promising results concerning the value of interpersonal health communication, a lot is still unclear about the mechanisms through which it may contribute to campaign effectiveness (Brennan, Durkin, & Wakefield, 2016). In 1997, Hafstad and Aaro already stated that a major challenge of health communication research lies in identifying the factors that stimulate interpersonal health communication within the target groups of health campaigns. More than a decade later, in 2009, Southwell and Yzer stated that "it is remarkable that there appears to be universal agreement on the idea that talk matters for campaign effects yet also remarkably few testable ideas about determinant factors in that relationship" (p. 1-2). In order for researchers and health communication professionals to be able to fully grasp and take into account the role of interpersonal health communication in creating effective health campaigns, it is of vital importance to gain more knowledge

about factors that influence the occurrence and effectiveness of interpersonal health communication.

Jeong and Bae (2017) conducted a meta-analysis of studies on the effectiveness of campaign-generated interpersonal health communication. They included 28 research articles in order to draw conclusions on the existence, direction and magnitude of the relationship between interpersonal communication and health-related outcomes. The researchers found a small positive overall effect of conversations on campaign goals. They also address a number of moderating factors that may determine conditions under which campaign-generated conversations are effective, like the health topic, the type of behavior and the health outcomes (e.g., attitudes, intentions, or actual behavior), aspects related to the campaign (e.g., the presence of a discussion prompt or the number of channels), the age of the target group and the type of conversation partner. Despite the extensiveness of this meta-analysis, there are still some major gaps which need to be addressed in order to make solid claims possible on the role of interpersonal communication in the effectiveness of health campaigns.

First of all, Jeong and Bae (2017) did not investigate the factors influencing the *occurrence* of conversations on health issues, be it conversations that occur spontaneously or conversations that are triggered by a health campaign. We as yet do not have plenteous knowledge on the conditions under which interpersonal communication may occur, and how health campaigns may stimulate interpersonal communication.

Second, the *mechanism* underlying the effectiveness of conversations on health issues is still largely unknown. Although Jeong and Bae (2017) included some moderators of the effects of campaign-generated interpersonal health communication in their meta-analysis, they did not look at conversational content. We still know very little about the course and content of conversations



on health issues, and about which elements of these conversations may account for eventual effects on health behavior.

In the following sections, these two gaps will be further discussed, after which the research questions central to this dissertation are introduced.

## **1.4 Factors influencing conversational occurrence**

As we have described above, interpersonal health communication potentially plays an important role in the effects of health campaigns on health behavior. However, we still face the challenge of identifying the factors that can stimulate interpersonal health communication within the target group of a health campaign. Jeong and Bae (2017)'s meta-analysis only focuses on the effects of interpersonal health communication *after* it has already been generated by a campaign. They did not, for instance, consider as a possible moderator of conversational effectiveness the question whether or not conversations are triggered/guided by the *form* of a campaign. In order to be able to influence behavior, in this case interpersonal health communication, it is essential to maximize our level of understanding of when and why different types of this specific behavior may occur (Yzer, 2008; Southwell & Yzer, 2009). In the following, we will zoom in on two types of interpersonal health communication: *spontaneous* interpersonal health communication and *campaign-induced* interpersonal health communication.

### **1.4.1 Spontaneous interpersonal health communication**

So far, we have mainly paid attention to campaign-induced interpersonal health communication, that is, interpersonal health communication that is triggered by a health campaign. However, conversations about health topics may also arise spontaneously. Before being able to influence behavior, for instance through a message-based intervention, it is important to identify the determinants of this behavior (Yzer, 2008). Similarly, in order to 'steer' conversations in the intended

direction with a health campaign, we first need to know how to target the determinants of interpersonal health communication. We therefore need to have more insight in spontaneous interpersonal health communication.

In interaction, people pursue a variety of goals (Clark & Delia, 1979; Wilson & Feng, 2007). From a public health perspective, communication goals may, for instance, mainly be 'instrumental'. Some health campaigns specifically focus on adolescents refusing a cigarette offered by a peer by advising them to "just say no", for instance. From the adolescents' perspective, however, refusing a cigarette offered by their peer may symbolize a disconfirming interaction, leading to negative consequences for the relationship (Cline, 2003). Communication goals may differ greatly for different health topics, in different communication contexts and with different conversation partners. When studying and designing health campaigns that aim at triggering conversations about health issues, these factors should be considered by exploring how and when they play a role in interpersonal health communication in general.

#### **1.4.2 Campaign-induced interpersonal health communication**

Interpersonal health communication also arises after exposure to a health campaign. Traditionally, health campaigns have often aimed at influencing health behavior by using explicit messages, such as "Smoking clogs the arteries and causes heart attacks and strokes" as a warning on cigarette packets (Miller-Day & Hecht, 2013). Though this strategy might look rather straightforward, in some health domains, explicit health messages have been found to have negative effects compared to implicit health messages (Hornik, Jacobsohn, Orwin, Piesse, & Kalton, 2008; Wakefield, Loken, & Hornik, 2010), most likely because of strong resistance to the explicit message (Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003). Health organizations increasingly use more implicit messages in order to promote healthier behavior (Van Leeuwen, 2015). In keeping with this, this dissertation will mainly focus on two kinds of implicit messages: complex messages and narrative messages. In the two sections below, we will discuss how

each of these two message types may contribute to the occurrence of interpersonal health communication.

### *Complex messages*

In a special issue of *Communication Theory* in 2009 on the intersection of campaigns and conversations, the contributing authors indicate that there are several reasons why people may talk about an issue or a campaign. One of these reasons is that “a campaign’s form and approach stimulated thinking about a topic” (Southwell & Yzer 2009, p. 5). In the field of advertising, Ritson and Elliot (1999) found evidence for the claim that the form of the campaign may trigger conversations between high school students. However, in their study, conversations were about the design of the campaign, rather than about the content. In a later study, Van den Putte et al. (2011) found that conversations about anti-smoking campaigns led to conversations about smoking cessation, indicating that conversations about (features of) a health campaign itself may precede or trigger conversations in congruence with the goal of the campaign.

A specific message feature that may trigger interpersonal health communication is *message complexity* (as suggested by, e.g., Hollemans, 2005; Hoeken, Swanepoel, Saal, & Jansen, 2009). Compared to explicit messages, complex messages require investment of extra processing time and effort into understanding the message. Because of the extra effort that is required in order to successfully process the message, it resembles a riddle (cf. Tanaka, 1992; Hoeken, 2005) that needs to be solved in order to understand the message. Successfully processing, or ‘solving’, a complex message may provide people with pleasurable feelings, sometimes called ‘pleasure of text’ (Barthes, 1975). The audience gets pleasurable feelings as a reward for the extra cognitive effort that was needed to understand the message (Tanaka, 1992).

Two general ideas exist on how message complexity may stimulate interpersonal health communication. First, creating puzzlement about the

meaning of a campaign message may prompt people to ask each other about the message's meaning (Holleman, 2005), thus eliciting interpersonal health communication. The South African organization loveLife assumed that conversations can be triggered by creating vagueness and curiosity about the meaning of their anti-HIV/AIDS message. The organization therefore used complex messages in their campaigns from 2000 to 2009, accompanied by the tagline "Talk about it". An example of such a complex message is the sentence "No 'til we know", which refers to the need to know one's HIV/AIDS status before engaging in sexual behavior with that person.

The second idea about how message complexity may trigger interpersonal communication is proposed by Hoeken et al. (2009). They suggest that complex messages may trigger conversations through a feeling of intellectual satisfaction people can get by solving a complex message, which may lead to self-congratulatory thoughts (Tanaka, 1992). This form of pleasure of text may trigger a desire to 'show off' in a conversation that one was able to solve the 'riddle' whereas others presumably were not. Furthermore, this feeling may arise when one feels that members of their 'in-group', fellow youngsters for example, are able to give a meaningful interpretation of the message, as opposed to member of an 'out-group', like older people. The message may then be brought up in an in-group conversation as a strengthening of group identity.

In both the idea of loveLife and the idea of Hoeken et al. (2009), emotional experiences such as curiosity and pleasure of text play a central role. Interpersonal health communication may be triggered because people tend to share emotional experiences (Rimé, Mesquita, Philippot, & Boca, 1991).

### *Narrative messages*

So far, we have mainly discussed interpersonal health communication in general. For some health themes and conversational contexts, however, specific communication skills are required, such as being able to resist a drug or alcohol

offer from peers, that need to be mastered before effective interpersonal health communication can take place. Indeed, health educators and public health professionals have created interventions specifically aimed at teens and adolescents to teach them interpersonal skills in resisting offers of alcohol or drugs by friends or peers, often by advising them to “just say no” (Cline, 2003).

For a sensitive topic like safe sex, for instance, developing skills for talking about this topic should be a major focus of HIV prevention efforts (Noar et al., 2006). Safe sex communication (SSC), or communication about sexually transmitted infections (STIs) and birth control (cf. Cleary, Barhman, MacCormack, & Herold, 2002), is an important predictor of safe sex behavior (Allen et al., 2002; Noar et al., 2006; Widman, Noar, Choukas-Bradley, & Francis, 2014). But SSC may be difficult for several reasons: It may lead to damage to self-image or to the relationship (Cline et al., 1992; Cleary et al., 2002; Troth & Peterson, 2000), as it can come across as a lack of trust in the sexual partner or as a sign that the person who brought up the topic of safe sex has been unfaithful. Furthermore, SSC can be a barrier to the spontaneity and enjoyment of the sexual act (Allen et al., 2002). Because SSC is generally done in private, it may be hard for some to develop a social script for talking about safe sex (Moyer-Gusé, Chung, & Jain, 2011), as SSC is not taught by traditional sources of information about safe sex, such as teachers or parents (Allen et al., 2002).

An effective way of providing people with a social script for talking about safe sex might be to embed such scripts in a story, or narrative (Moyer-Gusé et al., 2011). A unique aspect of narratives is that they facilitate involvement with the characters, or *identification*, and involvement with the storyline as a whole, also called *transportation*. This involvement, in turn, may influence story-consistent behavior and behavioral determinants such as attitudes (Moyer-Gusé, 2008). Studies focusing on the role of narrative message formats in safe sex outcomes have found positive effects of incorporating safe sex storylines in TV-shows, such as recall of condom effectiveness rates (Collins Elliott, Berry,

Kanouse, & Hunter, 2003) or on motivation to call a national STD and AIDS hotline (Kennedy, O’Leary, Beck, Pollard, & Simpson, 2004). Some studies have looked specifically at the effects of narrative message formats on interpersonal health communication on issues related to safe sex. Using narratives has, for instance, been found to increase interpersonal communication with family and friends on HIV/AIDS-related issues (Chatterjee et al., 2009), to increase favorable conversations about the HPV vaccine (Dunlop et al., 2010), and to increase the amount of safe sex discussions (Moyer-Gusé et al., 2011).

## **1.5 Factors influencing effects of interpersonal health communication**

Until now, we have mainly focused on factors influencing the occurrence of interpersonal health communication, that is, what happens *before* interpersonal health communication takes place. But a lot is still unknown about the mechanism underlying the *effects* of these conversations when they actually take place. An important reason why we need to know more about this mechanism is the fact that conversations about health issues may sometimes backfire. Researchers and professionals in the field of health communication often appear to assume that conversations about a health campaign will be in accordance with the campaign’s goals, and do not seem to consider the possibility that this may not be the case. In reality, these conversations may sometimes produce the opposite effects (e.g., David, Cappella, & Fishbein, 2006). In other words, interpersonal health communication stimulated by a health campaign is not guaranteed to be in agreement with the campaign (Hafstad & Aaro, 1997; Dunlop, 2011), and it is essential to know when and why this is the case. Jeong & Bae (2017) included some moderators in their meta-analysis on the effects of campaign-generated interpersonal health communication that may influence conditions under which these campaign-generated conversations are effective.

However, they did not look at the conversational content: at *what* is said in conversations, as one of these moderators.

Cline et al. (2003) indicate that communicating health information within social networks may further disseminate this information, but may also reinforce risky health behavior as a social norm. David et al. (2006) studied online group interactions between adolescents with a higher chance of risky behavior about antidrug ads. They found that for this group of adolescents, online group interactions led to more pro-marijuana attitudes and subjective normative beliefs than for adolescents who just viewed the ads without interacting. Hendriks, Van den Putte, De Bruijn, and De Vreese (2014) found that when college students were instructed to talk about alcohol and binge drinking without being exposed to an anti-alcohol message and thus being guided in the 'right' direction, they were less inclined to abstain from binge drinking compared to when they did not talk about alcohol and binge drinking. Lubinga, Maes, and Jansen (2016) found that discussions about a cryptic anti HIV/AIDS message that was not correctly understood by one or both of the conversation partners not only caused further spreading of the message misinterpretation, but also created or reinforced unwanted beliefs about HIV/AIDS. In some cases, thus, conversations about a health campaign may have unwanted effects. Health practitioners should therefore not only focus on promoting conversations about their campaigns, but also on strategically directing the content of these conversations (Helme et al., 2011). In order to successfully do that, more knowledge is needed on the mechanism within health-related conversations that underlies their effectiveness.

## 1.6 Research questions

The goal of this dissertation is twofold: (1) to establish which factors influence the *occurrence* of interpersonal health communication, and (2) which factors influence the *effects* of interpersonal health communication. In order to meet this

goal, the above-mentioned gaps in the literature on interpersonal health communication are empirically addressed. First, focus on factors influencing conversational occurrence, both for spontaneous conversations and for conversations that are triggered by a health campaign, results in the following three research questions:

- RQ1: Which factors influence the occurrence of self-reported *spontaneous* interpersonal health communication?
- RQ2: Which factors influence the occurrence of interpersonal health communication induced by a *complex* message?
- RQ3: Which factors influence the occurrence of interpersonal health communication induced by a *narrative* message?

Next, we are interested in the factors influencing the effects of campaign-induced interpersonal health communication on health behavior determinants, resulting in the fourth research question:

- RQ4: Which factors influence the effectiveness of campaign-induced interpersonal health communication?

## **1.7 Dissertation outline**

To answer the above-mentioned research questions, Chapters 2 to 5 of this dissertation present four empirical studies on the occurrence and effects of interpersonal health communication. The empirical studies described in this dissertation apply either qualitative (Chapter 2) or quantitative methods (Chapter 3 and Chapter 4), as well as a mix of qualitative and quantitative methods (Chapter 5). The variety of qualitative and quantitative methods in this



dissertation presents a perspective on interpersonal health communication that provides both generalizability and depth.

In Chapter 2, we explore interpersonal health communication in more detail. Chapter 2 aims at answering RQ1 of this dissertation by reporting on an exploratory qualitative interview study that focuses on the occurrence of interpersonal health communication, that is, when, why and with whom people talk about health issues when they are not exposed to a health message or a health campaign first. Participants in this study were interviewed about their interpersonal communication behavior concerning six health themes: drinking alcohol, healthy eating, exercising, smoking, safe sex, and safe tanning. Analysis of the interview data resulted in a classification of different categories of communication behavior and their determining factors. This classification of interpersonal communication behaviors will also be addressed in Chapter 4 and in Chapter 5, which focus on one of the six health topics: safe sex.

Chapter 3 addresses RQ2 by reporting on a correlational study into message features that may trigger interpersonal health communication. In this study, the assumption is tested that message complexity may positively influence the willingness to talk about health messages (Hoeken et al., 2009; Lubinga et al., 2010; Lubinga, Jansen, & Maes, 2014). Participants were exposed to six health messages with the same health theme as mentioned above. For each of these messages, processing time was measured and related to participants' intentions to talk about the message, and to variables (personal relevance, appreciation, pleasure of text) that may influence the relationship between message processing time and conversational intentions.

In addressing RQ3, Chapter 4 describes an experimental study into the effectiveness of a different type of message designed to trigger interpersonal health communication: the narrative message. In the experimental study described in this chapter, we will focus on the effectiveness of a narrative message in providing people with a social script for talking about safe sex with a

sexual partner as well as with friends, compared to both a non-narrative message and to pretest scores. Furthermore, we look into the narrative processes that may account for these effects.

In Chapter 5, RQ4 is addressed. In this chapter, a study is discussed into the characteristics and effects of conversations about safe sex triggered by the narrative message designed and tested in Chapter 4. Participants were exposed to the safe sex message in self-selected dyads, after which they were instructed to talk about safe sex and fill in a questionnaire on safe sex determinants. These questionnaire scores are compared to pretest questionnaire scores gathered two weeks prior to the conversations. Furthermore, the conversations between the dyads are analyzed qualitatively in order to explore in more detail the factors that may have influenced the effects of the conversations on safe sex behavior determinants.

Chapter 6 presents the general discussion of this dissertation. In this chapter, the results of the four empirical studies that are described in Chapters 2 to 5 are combined in answering the four research questions of this dissertation. Furthermore, theoretical and practical implications of our findings are presented, as well as directions for future research and a reflection on the methodological context of the dissertation. Finally, a general conclusion is provided.



# Chapter 2

## Uncovering factors influencing interpersonal health communication

This chapter is based on:

Donné, L., Jansen, C., & Hoeks, J. (2017). *Uncovering factors influencing interpersonal health communication*. *Global Qualitative Nursing Research*, 4, 1-10.

## **Abstract**

Talking to friends, family, or peers about health issues might, among other things, increase knowledge of social norms and feelings of self-efficacy in adopting a healthier lifestyle. We often see interpersonal health communication as an important mediating factor in the effects of health campaigns on health behavior. No research has been done so far, however, on factors that influence whether and how people talk about health issues spontaneously, without being exposed to a health campaign first. In this exploratory study, we interviewed 12 participants about their communication behavior concerning six different health themes, like smoking and exercising. The results suggest that at least four types of interpersonal health communication can be distinguished, each influenced by different factors, such as conversational partner and objective of the conversation. Future research should take this diversity of interpersonal health communication into account, and focus on designing health campaigns that aim to trigger dialogue within target populations.

## 2.1 Introduction

Researchers in the field of health communication emphasize the importance of talking about health issues (Duggan, 2006; Southwell & Yzer, 2007, 2009). In classical theories such as the two-step flow theory (Lazarsfeld, Berelson, & Gaudet, 1944), the diffusion-of-innovations theory (Rogers, 1962; 2003), the social representations theory (Moscovici, 1984, 1988; Moscovici & Hewstone, 1983), and theories on word-of-mouth communication (De Matos & Rossi, 2008), interpersonal communication has been identified as a major factor in spreading information. Talking about health issues within informal social environments, such as with friends and family, might affect health behavior determinants in several ways, over and above mere information spreading. Talking about a health issue might result in a higher risk perception (Morton & Duck, 2006); it might positively influence attitudes regarding health behavior (Geary et al., 2007), lead to the discovery of norms that are prominent in the social environment (Hornik & Yanovitzky, 2003), provide people with social support (Choudhury, Erausquin, Park, & Anglade, 2015; Yeshua-Katz & Martins, 2013), or help reducing possible stigmas and taboos by loosening normative constraints (Botta & Pingree, 1997; Pettifor et al., 2004; Southwell & Yzer, 2007).

A substantial number of mass media health messages are received in an interpersonal context (Valente & Fosados, 2006), facilitating immediate interpersonal communication. Interpersonal communication is often seen as an important mediating factor in the effects of health campaigns on actual health behavior. Van den Putte et al. (2011), for instance, found that talking about an antismoking campaign influenced the intention to quit smoking. Various studies have emphasized the need for public health campaigns to focus specifically on triggering conversations (Morgan, 2009; Surkan et al., 2003; Van den Putte et al., 2011).

Jansen and Janssen (2010), Lubinga, Schulze, Jansen, and Maes (2010), and Lubinga, Jansen, and Maes (2014) have studied factors that determine whether

or not people are inclined to talk when triggered by a specific health message. However, little is known about what interpersonal communication on health issues looks like when it occurs naturally, that is, without being triggered by a health campaign. We do not know in which circumstances people talk about health issues, or how, why, and with whom. The mechanism underlying this behavior might be very different, for instance, when talking to children about smoking compared with when talking to friends about exercising. For some, alcohol might be a more relevant topic to discuss than healthy eating, and some might find it more difficult to talk about safe sex than about safe tanning.

To be able to influence people's behavior, in this case people's interpersonal health communication, we need to increase our understanding of why a target population would or would not engage in this behavior (Yzer, 2008). In order to determine what health professionals and campaign designers should focus on when they want to trigger their target audience to talk about the campaign, we need to get a good idea of the mechanism underlying interpersonal health communication. It is therefore important to identify factors that influence whether or not people talk or intend to talk about health issues, and why (Goldsmith & Miller, 2014; Southwell & Yzer, 2009). In the current chapter, we aim to explore the factors that influence naturally occurring interpersonal health communication.

### **2.1.1 Communicative objectives**

When interacting with others, people always pursue one or more objectives or goals (Clark & Delia, 1979). In that sense, interpersonal communication can be seen as reasoned, goal-oriented behavior (Southwell & Yzer, 2007, 2009). Clark and Delia (1979) identified three types of objectives that can explicitly or implicitly be distinguished in every communicative situation: (a) instrumental objectives, which focus on "the task of the communicative situation"; (b) interpersonal objectives, "involving the establishment or maintenance of a relationship with the other(s)"; and (c) identity objectives, "in which there is

management of the communication situation to the end of presenting a desired self-image for the speaker and creating or maintaining a particular sense of self for the other(s)" (p. 200).

Clark and Delia (1979) indicated that multiple objectives can be prevalent in the same communicative situation. Likewise, in Goldsmith's (2001, 2004) "normative theory", it is assumed that within a certain context, people often have multiple objectives at the same time that can conflict. This can create a complex communication situation (O'Keefe, 1988). How the hierarchy of different types of communication objectives is organized is not always clear-cut. Sometimes one has to weigh the need of communicating something effectively against the likelihood of damaging the relationship with the other person (DeTurck, 1985; Sillars, 1980). In interactions, the concept of face, or "the public self-image that every member [of a society] wants to claim for himself" (Brown & Levinson, 1987, p. 61), is particularly relevant. When making requests, for instance, people want their request to be efficacious, but they also want to maintain the face of the conversation partner, as well as their own face (Dillard, 1990).

Goffman (1959) compared participants in interaction with actors on stage, who are constantly aware of the presence of an audience in the things they do and say. He described how individuals in interaction engage in "impression management," to create a desired impression, or face, of themselves, and also how individuals in interaction work as a team to help each other maintain face (Goffman, 1959, 1967). Participants in interaction are thus continually doing "face work" to protect their own face and that of the other participants (Goffman, 1955). Dillard et al. (1989) indicated that in a communicative situation, one might pursue interaction goals, concerned with social appropriateness, impression management, and avoiding face threats to all participants in the interaction. The concept "face" can be of importance for both interpersonal objectives, concerned with the relationship between the participants of the



interaction, and identity objectives, concerned with managing the self-image of the speaker.

### **2.1.2 Objectives in interpersonal health communication**

The distinction between instrumental, interpersonal, and identity objectives discussed above can also be applied to interpersonal health communication. One might, for instance, want to instruct a child how to put on sunscreen, or wish to persuade a friend to quit smoking. In these examples, instrumental objectives are important: The main objective of the communicative act is to help the other person improve his or her health. Furthermore, in interpersonal health communication, objectives concerning the self-image or the relationship might be at play, which can conflict with the instrumental objective of, for example, persuading someone to change his or her smoking behavior. When addressing sensitive health issues, like safe sex, for instance, one might believe it is more important to maintain one's own face and that of the conversation partner, thus preventing possible damage to the relationship, rather than effectively bringing up the health theme (Allen et al., 2002). In other words, in some cases, people might believe it is more important to maintain a good relationship over the short term than to prevent health risks over a longer term (Cline, Freeman, & Johnson, 1990).

### **2.1.3 Research question**

In the present study, we aimed to explore factors that influence interpersonal health communication of people naturally, so without them having been exposed to a health campaign. We did not have a strict hypothesis, and therefore speak of an “explorative study”. We wanted to gain more knowledge about the kinds of conversations people have about health issues and the reasons they might give for (not) having these conversations. This will provide greater insight in the factors that should be taken into account when designing health messages that aim to trigger conversations. As Southwell and Yzer (2007, p. 349) have stated,

“To harness motivations [for conversations] for campaign purposes, we need frameworks with which to predict conversational occurrence.” With the study described in this chapter, we attempted to contribute to such a framework. To that end, we formulated the following research question:

RQ: Which factors influence a person’s decision to talk about health issues in the absence of a health campaign?

## **2.2 Method**

To explore the factors that influence whether or not people talk about health issues, we carried out a qualitative descriptive study by means of conducting in-depth interviews (Elliott & Timulak, 2005). This method is particularly useful for new areas of research, such as the one described in this chapter, because it enables researchers to extract meanings that are embedded in people’s experiences, which might otherwise not be brought out (Yeshua-Katz & Martins, 2013). The study protocol was approved by the institutional ethical committee (CETO) of the Faculty of Arts of the University of Groningen, The Netherlands.

### **2.2.1 Participants**

In this study, we aimed to get a broad view on (self-reported) communication behavior. To that end, we selected 12 Dutch participants varying in sex, age, and level of education: Six participants were men and six were women; six participants were younger than 25 and six were older than 50; six participants had a low level of education and six had a high level of education.<sup>1</sup> With this

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<sup>1</sup> For the purposes of this study, low level of education denoted qualifications from Dutch primary school, and high school or secondary vocational education, comparable with

composition, we could make comparisons between maximally varying groups of participants in our data analysis. We used no specific criteria for participant selection. We recruited participants through a snowball method, starting from our personal network, and in this way, we composed a convenience sample. We contacted participants personally by email or telephone, and asked whether they wanted to participate in the study. All received a financial compensation of 10 euros for their participation, and provided informed consent prior to their participation.

After conducting and analyzing 12 interviews, we identified four types of communication behavior, which are the main focus of the rest of this chapter (see section 2.3). These four types of communication behavior were confirmed in the rest of the interviews, indicating thematic saturation.

### **2.2.2 The interviews**

All 12 interviews were conducted, audio-recorded, and transcribed verbatim (following, for example, Edwards, Donovan-Kicken, & Reis, 2014) by the same trained interviewer. The interviewer conducted all interviews in the homes of the participants. The interviews were semistructured and contained questions regarding when, why, and with whom participants actually talked, or would talk, about the health themes: “(drinking) alcohol,” “healthy eating,” “exercising,” “smoking,” “safe sex,” and “safe tanning.” We deemed these themes relevant to a wide audience when talking with different conversation partners, such as friends, family, or romantic partners. Alcohol, for instance, is a theme that can be discussed among adolescents when drinking together, but also between parents

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community college; high level of education denoted a bachelor’s degree (from a Dutch university of higher professional education or a university) or higher.

and children when talking about the dangerous consequences of excessive drinking.

In every interview, we addressed a number of questions for each health theme: “Do you ever talk about this theme? Why, with whom, and in which situations?” and “Would you talk about this theme? Why, with whom, and in which situations?” In this way, we ensured that we addressed both the self-reported communication behavior and the intentions of participants to talk about health issues. Furthermore, we asked follow-up questions that picked up on answers that participants gave, to gather more information on their communication behavior. An example of a follow-up question was, “And did people talk to you about this afterward?” in response to a participant sharing an anecdote about drinking too much alcohol when going out. During the interviews, the interviewer invited the participants to talk about the issues addressed in the interview in their own words and manner. In a few cases, participants needed some encouragement from the interviewer to talk more extensively about a theme.

We removed any information linking to the identification of participants, for example, names, from the transcripts. The mean duration of the interviews was 28 minutes (SD = 9 minutes). Each health theme was addressed separately in each interview, resulting in a total of N = 72 “interview sections” that could be analyzed. We conducted the interviews in Dutch and translated the examples discussed in the rest of this chapter into English.<sup>2</sup>

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<sup>2</sup> The examples discussed in this chapter are translated to English in a general sense, to preserve the general meaning of the participants’ utterances rather than present a literal translation.

### 2.2.3 Analysis of the interview data

We analyzed the interview data using basic elements of grounded theory (Strauss & Corbin, 1998). Two coders were involved in each of the coding steps.<sup>3</sup> The interview data were first divided into codable information units, consisting of the response of each participant to each interview question or each follow-up question, to preserve the context and meaning of participants' utterances (cf. Helme et al., 2011). Next, in the "open coding" step, the information units were labeled according to the information they contained. Examples of labels were "easy topic of conversation" or "afraid to address drinking behavior of friend." The final dataset consisted of  $N = 462$  labels, which were then categorized in the "axial coding" step. This coding step was performed by discussing and comparing labels in multiple meetings over a period of several weeks, resulting in six categories and their definitions, discussed in section 2.3. After defining the categories, both coders separately categorized the labels according to those definitions, which resulted in a substantial agreement ( $\kappa = .75$ ).<sup>4</sup>

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<sup>3</sup> A total of three coders worked on analyzing the interview data. Coder 1 in all three coding steps is the first author of the article on which this chapter is based. In the first two coding steps, coder 2 is a well-instructed research assistant, and in the third coding step, coder 3 is the third author of the article on which this chapter is based.

<sup>4</sup> A Cohen's kappa, a coefficient that indicates intercoder agreement, is provided here because this was the only coding step in which two coders independently analyzed the complete dataset. After both coders had independently categorized all  $N = 462$  labels, they agreed in 85% of the cases, resulting in an intercoder agreement of  $\kappa = .75$ . In the first two coding steps, coder 2 first divided the dataset into information units and subsequently labelled the information units. The information units and labels were then checked by coder 1, and instances on which both coders did not agree were discussed until full agreement was reached.

Categorizations that both coders did not agree on were discussed, until full agreement was reached.

We secured the credibility of the findings by systematically comparing observations within and across study participants before finalizing the categorization of the data (Charmaz, 2006; Thomas & Magilvy, 2011). We continued this process until thematic saturation was reached, and no new categories emerged from the data. Furthermore, multiple coders were involved in each step of the coding process, each of whom was to fully agree with the labeling and categorization before moving on to the next step. Finally, the coders searched for representative examples of the categories across the interview data (Yeshua-Katz & Martins, 2013), which we discuss in the next section of this chapter.

## **2.3 Results**

Six categories of factors were identified that might influence participants' conversational behavior about health issues: (a) type of communication behavior, (b) communication objective, (c) health theme, (d) conversation partner, (e) participant characteristics, (f) conversation context. The results discussed below are arranged according to the category "type of communication behavior."

We identified the following types of communication behavior emerging from participants' descriptions of their interpersonal health communication intentions and behavior: (1) admonishing the conversation partner regarding health behavior: urging him or her to adapt health behavior, to prevent damage to his or her own health and/or that of others, for example, telling the conversation partner not to smoke; (2) casually discussing a health issue: talking about a health theme in a social situation, for example, exchanging thoughts about healthy eating or about tanning behavior among friends; (3) educating the conversation partner about a health issue: providing the conversation partner

with information on a health issue to prevent him or her from performing unhealthy behavior, for example, parents educating their children on the dangers of alcohol; and (4) negotiating about a health issue: attempting to reach agreement with each other on performing healthy behavior for the benefit of both the self and the conversation partner, for example, communication between sexual partners about condom use.

The tables referred to below represent the number of information units in which participants mentioned talking about a health issue. The numbers between brackets indicate the number of information units in which participants specifically mentioned *not* talking about a health issue. In Table 2.1, we show the number of information units in which participants indicated to talk, or not to talk, in general, about specific health themes, and with a specific conversation partner. The results described in this table are arranged by type of communication behavior. The results in Table 2.1 suggest, for instance, that participants in general most often made statements about casual discussion and that participants most often made statements about *not* admonishing someone. Furthermore, the results in Table 2.1 suggest that participants most often reported talking about health themes with friends, and most often reported *not* talking about health themes with strangers.

**Table 2.1: Number of information units in which participants mentioned talking about health issues or not talking about health issues (number between brackets) in general; about specific health themes; and with a specific conversation partner, categorized by type of communication behavior**

Self-reported interpersonal health communication	<b>Admonishing</b>	<b>Discussing casually</b>	<b>Educating</b>	<b>Negotiating</b>	<b>Total</b>
<b>In general:</b>	60 (106)	110 (95)	16 (14)	7 (2)	193 (217)
<b>About specific health themes:</b>					
Alcohol	9 (13)	18 (11)	5 (2)	0 (0)	32 (26)
Healthy eating	5 (16)	19 (8)	1 (0)	0 (0)	25 (24)
Exercising	12 (34)	4 (26)	1 (2)	0 (0)	17 (62)
Smoking	11 (25)	11 (6)	1 (0)	0 (0)	23 (31)
Safe sex	2 (5)	31 (38)	7 (5)	7 (2)	47 (50)
Safe tanning	21 (13)	27 (6)	1 (5)	0 (0)	49 (24)
<b>With a specific conversation partner:</b>					
Acquaintance	2 (0)	6 (1)	0 (0)	0 (0)	8 (1)
Colleague	0 (1)	0 (5)	0 (0)	0 (0)	0 (6)
Family	4 (5)	6 (6)	0 (0)	0 (0)	10 (11)
Children	0 (1)	0 (0)	16 (13)	0 (0)	16 (14)
Peers	0 (0)	4 (0)	0 (0)	0 (0)	4 (0)
Strangers	6 (20)	0 (8)	0 (0)	0 (0)	6 (28)
Partner	0 (3)	2 (1)	0 (0)	5 (2)	7 (6)
Friends	12 (5)	12 (14)	0 (0)	0 (0)	24 (19)

### 2.3.1 Admonishing

The first type of communication behavior that we distinguished was admonishing, which occurs when someone urges a conversation partner to change his or her health behavior, for example, when telling someone they should not drink alcohol. Admonishing mainly seemed to serve instrumental



objectives, that is, “getting something done” through the interaction. Participants admonishing someone appeared to feel “obliged” to communicate their message, even if this did not improve their own health outcomes: They not only indicated that they admonished a smoker who smoked in their proximity, which would improve their own health outcome, but they also admonished parents who did not put sunscreen on their small child, which would not improve their own health outcome. Furthermore, admonishing appeared to serve interpersonal and identity objectives. When admonishing the conversation partner, he or she may experience this as a face threatening act which could possibly lead to damage to the relationship. Admonishing the conversation partner could also result in the face of the self being threatened because of the risk of being seen as a nuisance. Still, participants often seemed to feel a moral obligation to admonish other people rather urgently, as evidenced by the many instances of “admonishing” in Table 2.1.

A factor influencing the occurrence of admonishment was the health theme. The results in Table 2.1 indicate that participants most often admonished someone when it concerned the health theme “safe tanning.” The results in Table 2.1 furthermore indicate that participants most often did *not* admonish someone when it concerned the health theme “exercising”, followed by “smoking”. Participants did not think that “safe tanning” was a very difficult topic about which to admonish someone, as is shown in the following example:

I think this is one of the easier things, because then you can eh, without directly, when someone is too fat, then they could feel hurt or something about it, but like . . . “Don’t sit in the sun too long, don’t you know that’s not good for you?” “Dry skin, shouldn’t you put something on that?” All examples of how to say something about this.  
(Participant 12)

For “exercising”, the person admonished might feel attacked about his or her weight or looks. Admonishing someone about his or her exercising behavior is thus more direct and perhaps more sensitive, in which case interpersonal and identity objectives might be more prevalent than instrumental objectives.

The occurrence of admonishment furthermore seemed to be influenced by the conversation partner, that is, the person being admonished. The results in Table 2.1 suggest that participants most often admonished friends and that they most often did *not* admonish strangers. This indicates that, for admonishing, the social proximity of the conversation partner plays a role. It may be more appropriate to admonish someone in a socially proximate relationship, such as a friend, than to admonish someone in a socially distant relationship, such as a stranger.

Another factor influencing the occurrence of admonishment appeared to be participants’ characteristics. In Table 2.2, we show participants’ self-reported communication behavior on health themes arranged by participant characteristics.

**Table 2.2: Number of information units in which participants differing in characteristics mentioned talking about health issues or not talking about health issues (number between brackets), categorized by type of communication behavior**

Character-istics		Admo-nishing	Discus-sing casually	Edu-cating	Nego-tiating	Total
Gender	Men	32 (52)	50 (57)	9 (8)	4 (2)	95 (119)
	Women	28 (54)	60 (38)	7 (6)	3 (0)	98 (98)
Age	Younger participants	31 (45)	47 (47)	0 (0)	5 (0)	83 (92)
	Older participants	29 (61)	63 (48)	16 (14)	2 (2)	110 (125)
Level of education	Low education	23 (55)	56 (35)	3 (4)	2 (0)	84 (94)
	High education	37 (51)	54 (60)	13 (10)	5 (2)	109 (123)

The results in Table 2.2 indicate that older participants more often than younger participants do not admonish someone, as in the following example concerning “alcohol”, in which an older participant expresses a fear of reprisal:

. . . Nowadays you can get hit easily. Then they say: “What’s it to you?” So you don’t bring it up. It’s like when someone is destroying something, that you’d say “Don’t do that.” “What’s it to you?” Because people are different than they used to be of course. They hit other people more easily. . . . Or they get angry. That they say: “Hey oldy, mind your own business!” (Participant 7)

The results in Table 2.2 furthermore suggest that participants with a high level of education admonish someone about their health behavior more often than participants with a low level of education. The participants’ gender did not seem to be related to the occurrence of admonishment.

### **2.3.2 Casually discussing**

For casually discussing, like gossiping, small talk, or casual exchange of information, the main concerns of the participants did not seem to be with instrumental objectives, as with admonishing behavior. Rather, casual discussion appeared to arise from interpersonal and identity objectives; that is, it concerned maintaining a good relationship with the conversation partner and maintaining a positive self-image. In several cases, for instance, we found that participants thought it was easier or more pleasant to talk with like-minded people about a specific health theme. The example below, on the theme of “smoking”, illustrates that the main objective of the participant is to maintain a positive self-image, by being among like-minded people (i.e., non-smokers) and thus likely not to violate social norms, and to maintain a good relationship with the conversation partner(s) by gossiping about an out-group (i.e., smokers).

Interviewer: And do you think, then, that it is easy in such a situation to talk about this with like-minded people?

Participant 12: With like-minded people, yes, then you are completely free, like “God, what are they thinking?”, like that.

The occurrence of casual talk appeared to be influenced by the health theme that was the topic of communication. In Table 2.1, we see that participants most often indicated a willingness to talk, but also to refrain from talking casually (e.g., with a different conversation partner) about the health theme “safe sex”. Furthermore, participants appeared to talk casually about “safe tanning”, and *not* to talk casually about “exercising”. In the following example, a participant refers to casual talk about “safe sex”:

Interviewer: So you think it’s easy to talk about this?

Participant 1: Yes, everybody has sex.

Another factor that was found to influence the occurrence of casual discussion is the conversation partner. As we can see in Table 2.1, participants most often (do not) seem to casually discuss something with friends. Whereas participants indicated that they discussed some health theme casually with friends, they indicated they did not discuss other health themes casually with friends, as in the following example, where a participant mentions not casually discussing “safe tanning” with friends:

... getting sun burnt, that’s something for the short term, so everybody takes this ... into account. But I never talked about this with friends, like: “Then I might get cancer in the far away future.” (Participant 5)

Participants furthermore appeared to discuss health issues casually with family and acquaintances, and not with strangers. This suggests that participants might mainly casually discuss something with conversation partners with whom they want to maintain a good relationship, that is, someone they already know.

Furthermore, the occurrence of casual talk seemed to be influenced by participant characteristics. The results in Table 2.2 show that older participants more often than younger participants indicated that they talked casually about health issues. Furthermore, the results in Table 2.2 suggest that participants with a high level of education indicated that they did *not* talk casually about health issues more often than participants with a low level of education. Moreover, the results in Table 2.2 suggest that female participants talked casually more often than male participants, whereas male participants mentioned *not* talking casually more often than female participants.

Another influencing factor regarding the occurrence of casual talk was the conversational context or, more specifically, the presence of someone in the communicative situation whom the topic personally concerned. In Table 2.3, it is indicated in 54 cases that it matters whether a person whom the topic personally concerns is present in the communicative situation and that this determined whether or not participants talked casually about a health issue. In 181 cases, this did not seem to matter in determining whether or not to talk casually about a health issue. An example on the “healthy eating” theme when the presence of a person whom the topic personally concerns does matter is as follows:

Interviewer: Is this then a difficult topic to talk about as long as no one around is obese?

Participant 1: No, then it is just not difficult. But if people are around who are obese, then I think it's difficult to say something about this topic.

This example indicates that the presence of a person whom the topic personally concerns might matter when this personal relevance is obvious or visible, such as when this person is obese. It might be more difficult to judge whether a person has an alcohol addiction or has skin cancer, for instance.

**Table 2.3: Number of information units in which participants indicated that it does or does not matter whether someone is present in the communicative situation whom the topic personally concerns, categorized by type of communication behavior**

	Admo- nishing	Discus- sing casually	Edu- cating	Nego- tiating	Total
Matters	120	54	5	6	185
Does not matter	62	181	30	4	277
Total	182	235	35	10	462

### 2.3.3 Educating

For educating, as for admonishing, the main concern of participants appeared to be with instrumental objectives, that is, with getting the conversation partner to perform healthy behavior. Although this objective is the same as for admonishing, educating might occur more indirectly, that is, through providing the conversation partner with information on which to base his or her decision to adapt or not to adapt health behavior. Furthermore, educating seemed to be used preventively, whereas admonishing seemed to be used more often when the conversation partner was already performing unhealthy behavior. Again, as with admonishing someone, interpersonal and identity objectives were found to play a role, creating a struggle between the wish to be effective and the wish to prevent damage to the relationship, as well as to own social image and that of the other person. In the following example, a participant talked about his wish to

educate his children effectively on “safe sex”, even if he felt uncomfortable talking about this issue:

... I think it's easier to talk with my children about that than the other way around. That's the way the relationship is defined. You don't talk about sexuality with your parents, but your parents think they should talk about this with you ... it's better to have said this once too often than not often enough. Better be safe than sorry.  
(Participant 11)

A factor determining the occurrence of educating was the health theme. The results in Table 2.1 indicate that educating is most common for the health theme “safe sex.” The results in Table 2.1 furthermore show that participants gave reasons to *not* educate someone about the health theme “safe tanning”, as in the following example:

... I talked about this in the summer, with my wife. That you should protect yourself against that, against too many sunbeams. Not with my kids, they don't listen anyway.  
(Participant 10)

Another influencing factor in the occurrence of educating was the conversation partner. The results in Table 2.1 indicate that participants mentioned educating only in the context of children. This indicates that whereas for casual discussion, the relationship between conversation partners was mainly horizontal, as between friends, for educating, the relationship between conversation partners was vertical, as between parents and children. The following example describes a parent educating her children about “alcohol”:

... and I can tell my own kids, like: "Don't drink so much!" Or: "You know that's bad for you, your brains will be damaged, you're not going to be fit, what you're doing in the weekend will bother you for three days," things like that. But it's always in a kind of mother role of course, like eh, mothers always have something, right. That's partly fear that something will happen to your kids, and in general of course. (Participant 12)

Furthermore, the occurrence of educating appears to have been influenced by participant characteristics. The results in Table 2.2 suggest that only older participants mentioned educating, which can be explained by the fact that the older participants all had a child or children, whereas none of the younger participants did. Furthermore, the results in Table 2.2 indicate that participants with a high level of education more often mentioned educating than participants with a low level of education. The gender of participants did not appear to influence the occurrence of educating behavior.

### **2.3.4 Negotiating**

For negotiating, as for admonishing and educating, the main concern of participants appeared to be with instrumental objectives, in this case with getting both the self and the conversation partner to perform healthy behavior. Furthermore, as with admonishing and educating, interpersonal and identity objectives were found to play a role, for example, when negotiating about an issue increases the risk of damage to the relationship or to one's own identity.

A factor influencing the occurrence of negotiating was the health theme. The results in Table 2.1 indicate that participants only mentioned (not) negotiating about the health theme "safe sex". Another influencing factor in the occurrence of negotiating was the conversation partner. The results in Table 2.1 furthermore indicate that participants only mentioned (not) negotiating with their partner or sexual partner, as in the following example:



Interviewer: Is this something that you easily talk about, with friends, or sexual partners?

Participant 6: Naturally with sexual partners, then it makes sense, then it has to be discussed.

This health theme might be the only one in which both conversation partners stand to gain the same advantage from the communicative act: that is, maintaining their sexual health. This type of communication behavior, thus, only occurs with a conversation partner that is highly socially proximate, and with whom the relationship is horizontal: namely, the sexual partner. Participant characteristics did not appear to influence the occurrence of negotiation behavior.

## **2.4 Discussion**

In this study, we explored factors underlying interpersonal health communication. To be able to trigger conversations about health campaigns, we need to know more about whether people talk about health issues, with whom, and why. In the present study, we aimed to contribute to more knowledge on this issue. The results show, first of all, that interpersonal health communication is not one general type of behavior. We found at least four different categories of communication behavior: admonishing, casual talk, educating, and negotiating, each with its own determinants, and each with its own objectives. The idea that communicative acts vary for different contexts and different conversation partners has been suggested before, both in theory (Hymes, 1972) and in empirical research (Goldsmith & Baxter, 1996). To our knowledge, the present study is the first to link this idea to health communication, and to explore factors that might influence the occurrence of interpersonal health communication in more detail.

Our results confirm that interpersonal health communication is goal-oriented behavior, as was asserted by Southwell and Yzer (2007, 2009), and that for every category of health communication behavior there is a different dynamic of instrumental, interpersonal, and identity objectives. For admonishing, educating, and negotiating, the main concern of participants appeared to be with instrumental objectives, that is, with the effectivity of the communicative act. This does not mean, however, that interpersonal and identity objectives do not play a role in these types of communication behavior. Interpersonal and identity objectives are always at stake, and are taken into account continuously.

In casual talk, interpersonal and identity objectives, not so much instrumental objectives, are of primary concern. For example, participants indicated that if an obese person were to be present in the communicative situation, they would not talk casually about “healthy eating” out of fear of hurting the obese person’s feelings. If there were no obese person present in the communicative situation, however, participants indicated that they would talk, that is, gossip, about this person and his or her behavior. Gossiping with “like-minded people” might serve both interpersonal and identity objectives, through behaving and communicating according to the social norms that are prevalent in the communicative situation at hand.

The diversity of different types of communication behavior, as found in the present study, should be taken into account when doing research on interpersonal health communication, and also when designing health campaigns that aim at triggering interpersonal health communication. It appears that, for every type of communication behavior, health theme, type of conversation partner, and so forth, different factors play a role. As was indicated in the introduction, if we are to influence people to talk about health issues, we need to know why the target population would or would not engage in this behavior (Yzer, 2008).

Theories for behavioral prediction such as the reasoned action approach (Fishbein & Ajzen, 2010) are often employed to identify factors predicting health behavior (e.g., Yzer, 2012). It seems plausible that, in order to find out more about what influences whether, when, and why people talk about health issues, these theories for behavioral prediction may be applied to interpersonal health communication as a behavior as well. Interpersonal communication, just like some types of health behavior, extends from attitudinal, normative, and efficacy beliefs that people have about performing that behavior (Southwell & Yzer, 2007). Indeed, Hughes and Lewinson (2015) have found one of the predecessors of the reasoned action approach, the Integrative Model for Behavioral Prediction (IMBP) to be applicable for uncovering motives for aging women's sexual health communication with health care providers. In a previous study (Donné, Jansen, Huijbers, & Hoeks, 2016), we attempted to apply the reasoned action approach to the interview data discussed in this chapter. In doing so, we found that it was difficult to distinguish between behavioral, normative, and efficacy beliefs for a "hyper social" behavior type like interpersonal communication. Every interpersonal communication situation involves two or more people. This implies, as we also saw in our data, that an (anticipated) reaction of the social environment to the communicative act often plays a role in deciding whether or not to talk about a health theme. As a result, a perceived social norm is closely interwoven with other behavioral concepts such as attitudes and efficacy beliefs. Perhaps intrapersonal behavioral theories such as the reasoned action approach should be adapted to be applicable to interpersonal, social behaviors like interpersonal health communication.

Some authors (e.g., Fishbein, 2000; Fishbein & Yzer, 2003) have indicated that, to be effective, interventions should focus on triggering specific types of behavior instead of one general category of behavior. Our results suggest that for interpersonal health communication, this might indeed be the case. Depending on the health theme and the target group, some health campaigns should focus on triggering admonishing, whereas other campaigns should focus on triggering

casual talk, educating, or negotiating. Different types of communication behavior might be persuasive in different contexts. Health campaign designers should be as specific as possible about what kind of interpersonal communication behavior is desired, for instance by including an explicit “discussion prompt” in their campaign to encourage receivers to discuss the campaign or health theme in a specific way (see also Jeong & Bae, 2017).

The results of this exploratory study suggest that people can have different motives to talk about, or to refrain from talking about health issues, depending on the specific health topic, their current goals, and their conversational partners in a specific context. Future research on interpersonal health communication should also look at how people actually talk about these health issues, and what the effects of the various types of communication behavior might be for eventual health outcomes. Moreover, we need research to focus on identifying determinants of health communication in larger groups of participants, to find out whether the findings of the current study hold true in other contexts. Finally, in the present study, participants were interviewed about their conversational behavior on health issues. This might have caused them to feel obliged to talk about these health issues, as if these issues were something they should talk about to others. Future studies on interpersonal health communication might therefore consider applying methods in addition to in-depth interviews, such as more observational methods.

## **2.5 Conclusion**

In the exploratory study described in this chapter, we looked in detail at the factors that might influence spontaneous interpersonal health communication. From the literature, the effects that interpersonal health communication might have on health campaign outcomes are only known to some extent. We know that conversations about health issues can be effective, but we do not know how and under which circumstances this would be the case. The results of the present

study suggest that different types of communication behavior might be effective in different types of health contexts. Our study can serve as the basis for extending knowledge about the effects of interpersonal health communication on health outcomes.

# Chapter 3

Talking about health: The relationship between message complexity, message processing time, and conversational intention

This chapter is based on:

Donné, L., Hoeks, J., & Jansen, C. (2016). Talking about health messages: The relationship between perceived complexity, processing time, and conversational intentions. *Dutch Journal of Applied Linguistics*, 5(2), 126-144.

## **Abstract**

Interpersonal communication has been shown to influence health campaign outcomes, but little is known about how conversation can actually be elicited. In this correlational study, we tested the assumption that message complexity can be a predictor of interpersonal communication. Forty participants were exposed to six different health messages varying in complexity. The results show that the more the message was perceived as complex, the longer it took to understand it. Longer message processing times, in turn, were associated with higher intentions to talk, but only about messages that were of low personal relevance. When messages had a high personal relevance, longer processing times were associated with lower intentions to talk. Apparently, if a message is clearly relevant, longer processing due to message complexity is detrimental to persuasion.

## 3.1 Introduction

### 3.1.1 Spreading health messages

Interpersonal communication has been identified as an influential factor in spreading information. It plays a major role in classical theories such as the two-step flow theory (Lazarsfeld et al., 1944), the diffusion-of-innovations theory (Rogers, 1962, 2003), the social representations theory (Moscovici, 1984, 1988; Moscovici & Hewstone, 1983), and in theories on word-of-mouth communication, where people verbally share their experience about a product or service with one another (e.g., De Matos & Rossi, 2008).

Interpersonal communication frequently arises when people start talking spontaneously, but conversations may also be triggered by mass media messages (e.g., Dunlop et al., 2010, Hendriks et al., 2014). Talking about these messages, for instance in the context of health behavior (e.g., Dunlop et al., 2010; Evans, Davis, Silber-Ashley, & Khan, 2012; Van den Putte et al., 2011; Hendriks, De Bruijn, & Van den Putte, 2012) is thought to be an effective way to further spread information to people who were not exposed to a message themselves. The influence of interpersonal communication about health messages is not limited to merely spreading information: Interpersonal communication on health messages may provide social support (Yeshua-Katz & Martins, 2013), influence attitudes, social norms and feelings of self-efficacy concerning the health topic (Frank et al., 2012), it may lead people to discover which social norms are prominent in their environment (Hornik & Yanovitzki, 2003; Southwell & Yzer, 2007), and also help to reduce possible stigmas and taboos by loosening normative constraints (Botta & Pinrgee, 1997; Southwell & Yzer, 2007). Furthermore, talking about health messages may lead to the priming of the content of these messages, which increases the likelihood of behavior change (Hoeken et al., 2009).

Several case studies have shown successful examples of positive effects that interpersonal communication can have regarding health issues. Conversations



between parents and children about drug use, for instance, have been shown to lead to a greater personal risk perception of drug use amongst adolescents (Morton & Duck, 2006), and interpersonal communication on HIV proved to lead to more positive beliefs on HIV prevention (Geary et al., 2007). A growing number of researchers emphasize that campaign designers should focus on triggering conversations between people (e.g., Surkan et al., 2003; Morgan, 2009; Van den Putte et al., 2011). Indeed, several health organizations specifically aim at creating dialogue between people, for instance about HIV/AIDS and safe sex (described in e.g., Geary et al., 2007; Lubinga et al., 2010; Evans et al., 2012).

### **3.1.2 Message complexity triggering conversational intention**

The studies mentioned above suggest that interpersonal communication may play a major role in the effectivity of health messages. An important question, then, is how health messages should be designed in order to trigger interpersonal communication (Hoeken et al., 2009; Dunlop et al., 2010). One possibility is to make health messages less explicit and more complex, making it necessary for the receiver to invest extra effort and time in processing the message. An example of a complex message is one using metaphor (a “substitution based on underlying resemblance”; McQuarrie & Mick, 1996, p. 431), such as, for instance, referring to “birds and bees” in sexual education. Because of the extra cognitive processing that is needed in order to arrive at a suitable interpretation, a complex message can be seen as a riddle (cf. Tanaka, 1992), or as a cryptogram (cf. Hoeken, 2005) that needs to be solved in order to understand the message.

In the processing of complex messages three stages can be distinguished (Hoeken et al., 2009). First, there has to be a perception that the message deviates from expectation and cannot be immediately understood in a literal sense. Next, cognitive effort needs to be invested in order to come to a suitable interpretation of the message, which, ideally, is found in the last stage. As a result, feelings of relief may be experienced (Sopory & Dillard, 2002). Successfully

processing a complex message, like solving a riddle, may furthermore provide people with pleasurable feelings as a “reward” for the extra processing that was needed to understand the message (Tanaka, 1992). These pleasurable feelings are more commonly known as “pleasure of text” (Barthes, 1975), which refers to “the reward from processing a clever and artful arrangement of signs” (Hoeken et al., 2009, p. 54) and can create a feeling of intellectual satisfaction (Tanaka, 1992). This pleasure of text would not be experienced in case of literal, straightforward messages (Sopory & Dillard, 2002).

Specifically the delay in understanding a complex message, making receivers aware of the fact that they “solved the riddle” and therefore inducing pleasure of text as a reward for the extra processing, may make them want to talk about the message. Research has shown that people like sharing their emotions (Rimé et al., 1991; Dunlop et al., 2010), in this case pleasurable feelings; it may be enjoyable to talk to other people about whether they experienced the same pleasurable feelings when processing the message. One may therefore expect a positive relationship between processing time and the intention to talk about the message, through the induction of pleasurable feelings.

However, it is also possible that the relationship between processing time and willingness to discuss a message is less straightforward: If people feel they need to put in too much processing to understand the message, or if they think they do not understand the message at all, pleasure of text may be low, and people may not want to talk about the message. Studies like Jansen and Janssen (2010), Lubinga et al. (2010), and Lubinga et al. (2014) found that a lower perceived understanding of the message correlated with a lower willingness to talk about the message. The relationship between processing time and conversational intention, then, would resemble an inverted U.

### **3.1.3 The effects of message complexity: two sides of the same coin**

So far, not a lot is known about the effects of message complexity on the willingness to talk about health messages. Some studies on this topic refer to the

health organization loveLife, that aims at preventing HIV/AIDS from spreading further amongst South African youth. loveLife deliberately used complex messages in its campaigns for several years. The organization specifically aimed at creating dialogue, as was specified in the tagline “Talk about it” (Robbins, 2010). loveLife assumed complex messages lead to a lack of immediate perceived understanding, which would trigger people to talk about the message with each other in order to come to a suitable interpretation of the message (Holleman, 2005).

Hoeken et al. (2009) also focus on the way in which message complexity may trigger conversations, but instead of focusing on a lack of perceived understanding, they suggest that a high perceived understanding triggers people to talk about the message. Inspired by a study by Ritson and Elliot (1999) on advertising, Hoeken et al. (2009) distinguish two different ways in which using complex messages may trigger conversation. The first is the idea that reaching a perceived understanding of a complex message, while assuming that others were not successful in understanding the message, may lead to self-congratulatory thoughts (Tanaka, 1992). Conversation, then, may arise because people want to “show off” this perceived understanding to others who were presumably not able to understand the message. The second way Hoeken et al. (2009) assume processing complex messages may trigger interpersonal communication, is that a group of people (e.g., youngsters) thinks they are able to understand the message, as opposed to another group of people (e.g., their parents). Talking about these messages within the group would then strengthen group identity. According to Hoeken et al. (2009), it is a combination of a high perceived understanding of the self and a presumed low understanding of others that triggers conversation on complex messages.

So far, only a few empirical studies have been conducted to test the influence of message complexity on the tendency to discuss the message (Jansen & Janssen, 2010, Lubinga et al., 2010, and Lubinga et al., 2014), all on complex HIV/AIDS

messages. These studies found that the most important predictors for talking about health messages varying in message complexity are a high perceived understanding of the message, a high appreciation for the message, a high personal relevance of the message, and a high estimated understanding of the conversation partner. This indicates that, as opposed to what loveLife presumed, a low level of perceived understanding does not lead to a higher tendency to talk about a message, and that, as opposed to what Hoeken et al. (2009) claim, people want to talk about messages which they think their conversation partner understood as well.

### **3.1.4 The present study**

In the present study, we aim at investigating the influence of processing time, triggered by message complexity, on the tendency to talk about health issues. Complexity is defined in this study as the extent to which an actual message is perceived to depart from a straightforward, explicit version of that message. We conducted a correlational study to uncover the effects of processing health messages with varying levels of complexity and varying durations of processing time on the tendency to talk about these messages with other people. We made a distinction here between the tendency to talk about the advertisement and the tendency to talk about the health topic.

As indicated above, earlier research found personal relevance to be an important predictor of conversational intention about health messages (Jansen & Janssen, 2010; Lubinga et al., 2010; Lubinga et al., 2014). We therefore included personal relevance as a predictor in our study. A message is often intrinsically personally relevant or not, regardless of how much time it takes to process the message, and regardless of the complexity of the message. We therefore tested whether there was an effect of personal relevance on processing time or on message complexity. We furthermore included pleasure of text and message appreciation in our study (following Jansen & Janssen, 2010; Lubinga et al., 2010; Lubinga et al., 2014), both of which we expected to be related to

processing time. Moreover, we included the intention to perform the promoted health behavior (e.g., eating healthier) in our analyses, since most health messages primarily aim at influencing health behavior.

Based on the above-mentioned issues, we formulated the following research questions:

- RQ1: What is the relationship between processing time and personal relevance of health messages varying in complexity on the one hand and the intention to talk about the message on the other hand?
- RQ2: To what extent are the intention to talk about the message influenced by pleasure of text and appreciation of the message?
- RQ3: To what extent are pleasure of text and appreciation of the message influenced by processing time and personal relevance?

## **3.2 Method**

### **3.2.1 Participants**

A total of 40 participants took part in the study (67.5% female). All participants were students at the Faculty of Arts at the University of Groningen (Mean age = 21.00, SD = 1.89). Each participant was tested individually in a sound-proof room at the Faculty of Arts, University of Groningen. All participants received 5 euros upon completion of the study.

### **3.2.2 Materials**

Six different health themes were chosen for this study: smoking, skin cancer, alcohol abuse, heart disease, safe sex, and obesity, all related to a specific health behavior (e.g., safe tanning, healthy eating, using a condom, exercising). These topics are often addressed in mass-mediated health campaigns and were thought

to be relevant for a wide audience. Each health message consisted of a picture with one text phrase under it. To achieve variance in the messages regarding complexity, we constructed different message versions of each health theme that were meant to differ on a continuum of complexity. The obesity message, for instance, showed a picture of a car and a bike. In the less complex version, the text said: "Prevent obesity: take the bike instead of the car". In the more complex version, the text underneath the picture of the car said: "Runs on euros, produces kilos". The text underneath the picture of the bike said: "Runs on kilos, saves euros".

Before conducting the study, all messages were extensively pretested in order to see to what extent participants understood the messages, how much effort they reported it took to process the message, the extent to which they thought the message was complex, whether they appreciated the message, and whether the message was personally relevant to them. Where necessary, the messages were adjusted and pretested again in order to create a range of message complexity. The final materials, of which two examples can be found in Figure 3.1 and Figure 3.2 in Appendix 3.1, represent a range in message complexity (a mean of 1.55 – a mean of 4.6 on a scale of 1-7, where 1 stands for not at all perceived to be complex, and 7 stands for perceived to be very complex).

### **3.2.3 Design**

The study was set in a within-subject design. Each participant was exposed to six messages, one less complex or more complex message for each of the six health themes. Messages were shown in a random order.

### **3.2.4 Measures and procedure**

The study was designed in E-Prime, which was used to present the stimuli and record reaction times and answers to the questions. Each individual study was conducted by one of two trained researchers, and took no more than 30 minutes.

The participants first read a written instruction. After that, each participant was exposed to the six different health messages, in a random order.

After each message, the participants answered questions that were displayed on the computer screen, regarding their actual understanding of the message, appreciation and personal relevance of the message, pleasurable feelings evoked by the message, the behavioral and conversational intentions, and the complexity of the message. The answers that were given to the open-ended questions were recorded with a sound recorder. The study was conducted in Dutch; the items described in this section are translated for the purpose of this chapter.

#### *Processing time*

Processing time for each message was defined as the time it took participants to think they understood the message. The participants were instructed to press a key as soon as they thought they understood the message. With this explicit instruction, we could make sure that processing time (i.e., the time in milliseconds between message onset and the moment the participant pressed the key) would indeed reflect perceived understanding of the message, and that a longer processing time did not reflect, for instance, a higher message appreciation. In the analyses that are reported below, the logarithm of processing time was used.

#### *Appreciation and pleasure of text*

The appreciation of the message was measured with three seven-point Likert items (Cronbach's  $\alpha = .88$ ; following Jansen & Janssen, 2010, and who also measure appreciation in relation to persuasive health messages): "I like this advertisement", "This advertisement appeals to me", and "I think this advertisement is attractive" (1 = I completely disagree, 7 = I completely agree).

Pleasure of text was measured with a seven-point Likert item: “I experienced pleasure with this advertisement” (1 = I completely disagree, 7 = I completely agree).

#### *Personal relevance*

The personal relevance of the message was measured with one seven-point Likert item: “This advertisement is relevant for me” (1 = I completely disagree, 7 = I completely agree).

#### *Conversational intention*

The intention concerning conversation behavior was divided into the intention to talk about the advertisement and the intention to talk about the topic. The intention to talk about the advertisement was measured with two seven-point Likert items (Cronbach’s  $\alpha = .84$ ): “I will definitely talk about this advertisement within the next week”, and “I will definitely talk about this advertisement within the next month” (1 = I completely disagree, 7 = I completely agree). The intention to talk about the topic was measured by two seven-point Likert items (Cronbach’s  $\alpha = .91$ ): “I will definitely talk about this topic within the next week”, and “I will definitely talk about this topic within the next month” (1 = I completely disagree, 7 = I completely agree).

#### *Behavioral intention*

The intention to perform the promoted health behavior were measured by three seven-point Likert items (Cronbach’s  $\alpha = .79$ ): “I am planning on adjusting my behavior based on this advertisement”, “I will perform the promoted behavior within a very short term”, and “I am planning on performing the promoted behavior” (1 = I completely disagree, 7 = I completely agree).

#### *Message complexity*

Message complexity was measured with two seven-point Likert items (Cronbach’s  $\alpha = .93$ ): “I thought it was difficult to discover the meaning of this



advertisement”, and “I thought this was a complex advertisement” (1 = I completely disagree, 7 = I completely agree).

### *Actual understanding*

To measure the participants’ actual understanding of the messages, they were asked to say aloud their interpretation of each message after they had pressed the key indicating that they thought they understood the message. The participants’ interpretation of each message was recorded with a sound recorder.

Two coders independently judged to what extent the participants’ answers matched the actual meaning of the message as established by the coders before the study was conducted. The two coders independently gave scores for how well each participant understood each message, ranging from 0 (no understanding) to 2 (full understanding), based on Lubinga et al. (2010), and Lubinga & Jansen (2011). A distinction was made between understanding the general message (e.g., smoking may lead to lung cancer), and understanding which health behavior was promoted in the message (e.g., do not smoke).

The interrater reliability for the two coders for actual understanding of the general message was Kappa = .53 ( $p < .001$ ), and the interrater reliability for actual understanding of the promoted behavior was Kappa = .56 ( $p < .001$ ). Both scores indicate a moderate agreement. After the independent coding, the coders discussed the cases for which there was disagreement and jointly decided on a final code for each message within each participant with which the results could be analyzed. An example of an answer that was coded as a 0 for understanding of both the general message and the health behavior promoted in the message is “Tanning at a young age is unnatural” (for safe tanning). An example of an answer that was coded as a 2 for understanding of both the general message and the health behavior promoted in the message was “You need to use a condom in order to prevent STIs” (for safe sex). The scores for the understanding of the

general message and the understanding of the promoted health behavior were added up to come to a final understanding score for each participant and for each message.

### 3.2.5 Data analysis

In order to analyze the results of this study we used the Mixed GAM Computation Vehicle package in R to create Generalized Additive Models (GAMs). This allows us to test for linear and possibly also nonlinear relationships between various predictors and response variables, while taking into account the variance related to participants and health themes (see, e.g., Tomaschek, Tucker, Wieling, & Baayen, 2014, for an example of statistical analysis using GAMs).

We created GAMs that tested the influence of processing time, personal relevance, appreciation and pleasure of text on 1) the intention to talk about the advertisement, 2) the intention to talk about the message topic, and 3) the intention to perform the promoted health behavior. We furthermore tested the influence of processing time and personal relevance on appreciation and pleasure of text. In all of these GAMs, personal relevance was included as a predictor. To each GAM, random intercepts and random slopes regarding the variation between participants and health themes were added, to see whether or not they played a role in the relations we were examining.

Theoretically it was possible to find nonlinear relationships, such as an inverted U relation between processing time and conversational intention: A longer processing time could be associated with a more positive intention in the middle range, but the intention could go down with very short or very long processing times. In order to test whether such relationships existed in our data, we compared the linear GAM score with the nonlinear GAM score for the GAMs that included processing time as a predictor of conversational intention. Only if the nonlinear GAM score was better (based on model comparison with the maximum likelihood (ML) test, cf. Tomaschek et al., 2014) than the linear GAM score, we retained the nonlinear model.

## 3.3 Results

### 3.3.1 Preliminary analyses

We first checked whether perceived message complexity positively predicted processing time, to see whether messages that were thought to be more complex required more time to process. This was indeed the case:  $t = 6.23$ ,  $p < .001$ .<sup>5</sup> We also checked whether there was an effect of personal relevance on processing time and complexity. This was not the case:  $t = .13$ ,  $p = .90$ , and  $t = -.54$ ,  $p = .59$ , respectively.

Furthermore, we found that complexity and processing time negatively predicted actual understanding:  $t = -3.85$ ,  $p < .001$  and  $t = -3.15$ ,  $p < .001$ , respectively. Personal relevance did not predict actual understanding:  $t = 1.37$ .

### 3.3.2 Predictors of conversational intention

Our next step was to determine which variables predicted the intention to talk about the messages. In our analyses, we made a distinction between the intention to talk about the advertisement itself and the intention to talk about the health topic of the message. The linear models of the relationship between processing time and conversational intention proved to have a better fit than the nonlinear models of this relationship, so the results discussed below, which can be found in Table 3.1 and Table 3.2, are based on the linear models.

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<sup>5</sup>  $t$  is the coefficient that indicates the size of the linear relationship: A larger  $t$  indicates a stronger relationship, and a smaller  $t$  indicates a weaker relationship; a positive  $t$  indicates a positive relationship, while a negative  $t$  indicates a negative relationship.

**Table 3.1: Predictors of conversational and behavioral intentions expressed in t**

<b>Outcome variable</b>	Conversational intention advertisement	Conversational intention topic	Behavioral intention
<b>Predicting variable</b>			
Processing time	-.99	-1.57	-2.28*
Personal relevance	2.53*	5.14***	8.78***
Appreciation	6.74***	3.49***	2.62**
Pleasure	5.13***	2.20*	.79

\* = significant at  $p < .05$ ; \*\* = significant at  $p < .01$ ; \*\*\* = significant at  $p < .001$

**Table 3.2: Predictors of appreciation and pleasure, expressed in t**

<b>Outcome variable</b>	Appreciation	Pleasure
<b>Predicting variable</b>		
Processing time	-1.09	.31
Personal relevance	3.82***	2.58*

\* = significant at  $p < .05$ ; \*\* = significant at  $p < .01$ ; \*\*\* = significant at  $p < .001$

#### *Predictors of conversational intention on advertisement*

Contrary to our expectations, we did not find a main effect of processing time on the intention to talk about the advertisement ( $t = -.99$ ,  $p = .32$ ). We did, however, find a significant interaction effect of processing time and personal relevance on the intention to talk about the advertisement ( $F = 4.62$ ,  $p < .05$ ). This interaction shows that when personal relevance is low, the relationship between processing time and the intention to talk about the advertisement is positive, but when personal relevance is high, this relationship is negative.

The intention to talk about the advertisement was positively predicted by personal relevance ( $t = 2.53$ ,  $p < .05$ ), appreciation ( $t = 6.74$ ,  $p < .001$ ), and

pleasure ( $t = 5.13, p < .001$ ). Appreciation and pleasure were positively predicted by personal relevance ( $t = 3.82, p < .001$ ;  $t = 2.58, p < .05$ , respectively). Pleasure was not predicted by processing time ( $t = .31, p = .75$ ), nor did we find an interaction effect of processing time and personal relevance on pleasure ( $F = 1.23, p = .27$ ).

#### *Predictors of conversational intention on topic*

We did not find a main effect of processing time on the intention to talk about the topic ( $t = -1.57, p = .12$ ), but we again found a significant interaction of processing time and personal relevance on intention ( $F = 3.93, p < .05$ ), which shows that when personal relevance is low, the relationship between processing time and the intention to talk about the topic is positive, but when personal relevance is high, this relationship is negative.

The intention to talk about the topic was positively predicted by personal relevance ( $t = 5.14, p < .001$ ), appreciation ( $t = 3.49, p < .01$ ) and pleasure ( $t = 2.20, p < .05$ ).

### **3.3.3 Predictors of behavioral intention**

As can be seen in Table 3.1, behavioral intention was negatively predicted by processing time ( $t = -2.28, p < .05$ ), and was positively predicted by personal relevance ( $t = 8.78, p < .001$ ) and appreciation ( $t = 2.62, p < .01$ ).

## **3.4 Discussion and conclusion**

This study explored the relation between processing time (as evoked by message complexity) and the willingness to discuss health messages. We expected a positive relationship between processing time and the willingness to discuss the message, both directly and indirectly through evoking pleasure of text.

The results indicate that processing time and personal relevance interacted in their effect on both the intention to talk about the advertisement and the

intention to talk about the message topic. When personal relevance was low, a longer processing time led to a higher intention to talk about the advertisement and the topic, but when personal relevance was high, a longer processing time led to a lower intention to talk about the advertisement and about the topic. This indicates that a longer processing time may have the positive effect on the intention to talk about a health message that we initially expected, but only when the message is not personally relevant. When a message is highly relevant, on the other hand, a longer message processing time is associated with a decrease in the willingness to talk about it. Studies on the effects of rhetorical questions have found similar results: When the issue at hand is not personally relevant, messages containing rhetorical questions can significantly increase persuasion (Petty, Cacioppo, & Heesacker, 1981). On the other hand, if messages on a highly relevant topic contain rhetorical questions, this leads to a decrease in persuasive effect, partly because this is distracting to participants (Petty et al., 1981). Perhaps message complexity in this study was a distracting factor for messages that were personally relevant. More research is necessary to explore the mechanism behind this phenomenon.

Pleasure was not predicted by processing time, nor did we find an interaction effect of processing time and personal relevance on pleasure. We did find a positive effect of pleasure on the intention to talk about the advertisement as well as about the topic. This indicates that there is no indirect relationship, through pleasure, between processing time and the willingness to discuss the message.

Personal relevance proved to be an important direct predictor of the intention to talk about both the advertisement and about the health topic. This result is in line with the results of studies like Jansen and Janssen (2010), Lubinga et al. (2010), and Lubinga et al. (2014), who found that personal relevance is an important factor in determining whether or not people will talk about a message. Our findings indicate that it is important to take the personal relevance of the

message topic into account when designing health messages aimed at triggering conversations between people.

We also checked for the possibility of an “inverted U” describing the relationship between processing time and the intention to talk about the message: A longer processing time would be related to an increased tendency to talk about the message, but when it takes the message recipient too long to understand the message, the intention to talk about the message would decrease. Such a nonlinear relationship between processing time and conversational intention was not found, however.

In RQ2 and RQ3, we were interested in the influence of pleasure of text and appreciation on the intention to talk about the message, and on the influence of processing time and personal relevance on pleasure of text and appreciation. The results (see also Table 3.1 and Table 3.2) indicate that a higher personal relevance led to a higher level of appreciation and pleasure, which, in turn, increased the intention to talk about both the advertisement and the topic.

We furthermore found that a longer processing time was associated with a lower actual understanding of the message, which means that the longer it took participants to be able to understand the message, the lower their actual understanding of the message was. This negative relationship was also found between complexity and actual understanding. This result may be explained by the fact that messages that were found to be more complex also took longer to process, or to understand, indicating that messages that are found to be more difficult to understand may indeed actually be understood less. Especially in the case of health messages, not understanding the message correctly can have negative or even dangerous consequences (Cline et al., 1992; Cho & Salmon, 2007; Lubinga, et al., 2010). These results indicate that it may not be wise to focus on messages that require much time to be understood and that instead, campaign designers should focus on messages that are personally relevant, appreciated, and that provide the audience with pleasure of text.

Since most health messages first and foremost aim at influencing health behavior, we were also interested in factors that influence the intention to perform the promoted health behavior in the messages. We found that this intention was negatively predicted by processing time, and positively by personal relevance and appreciation, which is for the large part consistent with the results for the intention to talk about the message.

It should be noted that the results of the present study are only based on 40 participants, all of whom were college students. This group of participants may have been more skilled in understanding the more complex health messages than other groups of participants would have been. Furthermore, the study took place in a laboratory setting, exposing the participants to the health messages in a different way than when browsing through a magazine, for instance. Nevertheless, the present study uncovered some interesting results concerning the design of health messages that aim at triggering interpersonal communication. Health messages with a higher level of complexity, which required more processing time in order to be understood, only increased the tendency to talk about these messages when personal relevance was low. Furthermore, personal relevance directly and positively predicted the tendency to discuss the message. This indicates that in the field of health communication, it is especially important to focus on the personal relevance of a message when it is the goal to trigger conversations on this message. Furthermore, pleasure, although not influenced by processing time, directly and positively predicted the willingness to discuss the message.

Future research should focus on further developing and testing health messages that trigger interpersonal communication, and study the mechanisms and effects of conversations brought about by these messages on actual health behavior. In order for campaign designers to create health messages that are effective in both triggering discussions about the message and promoting healthier behavior, conducting this type of research is essential.



### Appendix 3.1: Examples of messages varying in complexity



Eet gezond  
om je hart gezond te houden

Figure 3.1: Example of a less complex message on heart disease. Translation:  
“Eat healthily in order to maintain a healthy heart”



Waar rook is  
komt geen vuur

Figure 3.2: Example of a more complex message on smoking. Translation:  
“Where there is smoke, there is no fire”

# Chapter 4

## Using a narrative to spark safe sex communication

This chapter is based on:

Donné. L., Hoeks, J., & Jansen, C. (2017). Using a narrative to spark safer sex communication. *Health Education Journal*, 76(6), 635-647.

## **Abstract**

College students are a group at risk for contracting sexually transmitted infections (STIs). While they are generally well informed about STIs, they do not consistently use condoms. An important element in preventing STIs is safe sex communication (SSC), especially with a sexual partner. This may be difficult, however, because of a lack of experience in talking about safe sex or because of the absence of suitable scripts and role models. In this study, a narrative intervention was developed and tested in order to provide receivers with a social script for SSC. An experiment was conducted among college students (N = 225) who were exposed to either a narrative intervention or a non-narrative (brochure) intervention, followed by a posttest questionnaire. In the narrative condition, half of the participants completed a pretest questionnaire before being exposed to the intervention. Compared to pretest scores, the narrative positively influenced SSC intentions. Furthermore, we found an advantage of the narrative message compared to the non-narrative message on posttest safe sex intentions scores. Mediation analyses showed that narrative processes (identification and transportation) were positively related to SSC intentions and safe sex intentions. In conclusion: the narrative turned out to be an effective message format to influence intentions with regard to SSC and safe sex. Our mediation analyses suggest that narratives can be made more persuasive by increasing the reader's involvement both with the story as a whole, and with one of the characters in particular.

## 4.1 Introduction

Sexually Transmitted Infections (STIs), such as Chlamydia or gonorrhea, constitute a growing health challenge in the Netherlands. The number of people that have been diagnosed with one or more STI has increased in 2015 compared to 2014 (National Institute for Public Health and the Environment, 2016). In particular, college students constitute a group at high risk of STIs. They are sexually active, sometimes with multiple sexual partners in the same time period, they may have a sense of personal invulnerability towards infections such as HIV, and they may use alcohol and drugs in ways that increase the chance of risky sexual behavior (Cline et al., 1992; Fromme, Corbin, & Kuse, 2008; Wright, Randall, & Hayes, 2012). Even though college students are generally well informed about STIs, they do not consistently use condoms (Noar, Zimmerman, & Atwood, 2004; Troth & Peterson, 2000; Wright et al., 2012).

In order to reduce health risks, safe sex communication (SSC in the rest of this chapter) is of vital importance. SSC is comprised of communication about various safe sex topics, such as STIs and birth control (Cleary et al., 2002). Meta-analyses indicate that SSC with a sexual partner is an important and robust predictor of condom use (Allen et al., 2002; Noar et al., 2006; Widman et al., 2014).

SSC can also occur between friends. For college students, friends are an important source of sex-related information (Lefkowitz, Boone, & Shearer, 2004). Young adults have been shown to learn more about sex from interaction with peers, both with their romantic partners and with their friends, than from other sources of information. This interaction with peers is also associated with less risky sexual behavior (Mastro & Zimmer-Gembeck, 2015). Furthermore, when young adults watch safe sex Public Service Announcement (PSAs), they often do so in the presence of their friends, which may give rise to discussions about the PSAs (Helme et al., 2011). Lefkowitz et al. (2004) suggest that once students have more experience with talking about sex-related topics with

friends, it may also become more comfortable for them to discuss these topics with a sexual partner. In this chapter, we therefore look at SSC both between sexual partners and between friends.

#### **4.1.1 The difficulties of SSC**

Even though the potential benefits of SSC are clear, actually participating in these conversations about safe sex may sometimes be difficult. Because safe sex is seen as a taboo topic, for instance, SSC may cause damage to an individual's sense of self or to the image they want to maintain in public (Brown & Levinson, 1987; Moyer-Gusé et al., 2011). Avoiding taboo topics in conversations may be considered an unspoken relational norm (Allen et al., 2002). SSC may also lead to relationship damage for college students, as it can be interpreted as a lack of trust in the partner, or as a sign that the person who brought up the topic has previously engaged in unsafe sexual behavior (Cleary et al., 2002; Troth & Peterson, 2000). Furthermore, the need to feel a certain amount of spontaneity in the sexual act may be a barrier to successful planning of risk-minimizing sexual behavior (Allen et al., 2002). In addition, college students may not talk about safe sex issues because they do not believe they are at risk for acquiring an STI (Hickey & Cleland, 2013; Troth & Peterson, 2000).

Even when a positive attitude towards SSC is formed, college students may lack experience and reliable role models for effective SSC (Faulkner & Lannutti, 2010), because it is generally done in private (Noar et al., 2006). In other words, college students may not master a social script for SSC (Moyer-Gusé et al., 2011). Helme et al. (2011) found that depicting realistic safe sex interactions in a safe sex PSA can act as a catalyst for initiating SSC. Several studies have concluded that STI prevention efforts and research should focus on developing strategies and skills concerning SSC (Allen et al., 2002; Cline et al., 1992; Noar et al., 2006; Widman et al., 2014).

#### **4.1.2 Narrative processes sparking SSC**

In the present study, we tested whether using a narrative message format may be effective in influencing college students' SSC and safe sex intentions. A narrative message consists of a story with an identifiable beginning, middle and end, and comprises information about scene and characters (Moyer-Gusé & Nabi, 2010). An important aspect of narratives is that they facilitate identification, or involvement with characters (Moyer-Gusé, 2008). Identification refers to the viewer taking on the perspective of a character, and vicariously experiencing the emotions and goals of that character (Cohen, 2001). Another key concept of narrative persuasion is transportation, a process whereby one is completely swept up into the narrative because all mental capacities are focused on what occurs in the narrative (Green & Brock, 2000). There are several ways in which identification and transportation may influence SSC and safe sex intentions.

Identification with a character successfully engaging in safe sex discussions can enhance the viewers' self-efficacy, or their confidence in being able to perform the behavior (Moyer-Gusé et al., 2011). Furthermore, according to the Entertainment Overcoming Resistance Model (EORM; Moyer-Gusé, 2008), identification with a character that is vulnerable to a certain threat (like contracting an STI) may increase personal feelings of vulnerability towards that threat. Finally, transportation and identification with efficacious characters in the narrative may reduce the probability of counterarguing. Counterarguing is a form of resistance against a persuasive message consisting of generating thoughts that are in conflict with the message (Slater & Rouner, 2002). The loss of awareness that is associated with transportation and identification (Slater & Rouner, 2002) may decrease the motivation to generate counterarguments against the persuasive message (Moyer-Gusé et al., 2008; Moyer-Gusé et al., 2011). Increased self-efficacy and perceived vulnerability and decreased counterarguing, in turn, should increase story-consistent attitudes and behaviors (Moyer-Gusé, 2008).

Empirical research has found a relationship between narrative messages on safe sex-related beliefs and behavioral outcomes. Collins et al. (2003) found that young people who viewed an episode of the comedy TV-show *Friends* that featured dialogue on unplanned pregnancy were better able to recall condom effectiveness rates than young people who had not seen this episode. Kennedy et al. (2004) found that incorporating an HIV storyline in a drama TV-show motivated viewers to call the National STD and AIDS hotline. Specifically focusing on SSC between college students, Moyer-Gusé et al. (2011) found that exposure to a narrative, in this case an episode of the popular TV-series *Sex and the City* including SSC between characters, led to more SSC over the two weeks following the intervention. As they had hypothesized, this effect was larger when identification with the main characters was higher.

Even though narrative message formats are increasingly used in health contexts, and the above-mentioned studies on the effectiveness of narrative interventions show some promising results, there are still gaps in the knowledge about narrative effectiveness. For one thing, not all research has shown effects of narratives on health-related outcomes (De Graaf, Sanders, & Hoeken, 2016). Furthermore, the theoretically posited underlying mechanism of narrative impact have not been extensively tested (Moyer-Gusé et al., 2011). The goal of the present study was therefore to investigate both the effects of using a narrative message format in the context of SSC among college students, and the mechanism of narrative processing underlying these effects. We therefore 1) investigated the effects of one narrative intervention in a pretest-posttest design, 2) compared the effects of this narrative with the effects of a non-narrative intervention, and 3) investigated the total, direct, and indirect effects of identification and transportation on SSC intentions and safe sex intentions.

### **4.1.3 The present study**

The first goal of the present study was to determine whether presenting information on SSC in a narrative format is beneficial for influencing college

students' SSC intentions. Furthermore, we were interested in the effects of this narrative on college students' safe sex intentions. This resulted in the following research question:

RQ: What are the effects of a narrative intervention on the intentions to discuss safe sex with a partner and with friends, and on the intention to have safe sex?

The second goal of the present study was to find out more about the mechanism underlying the effects of narrative message processing. Based on the E-ELM (Slater & Rouner, 2002), the EORM (Moyer-Gusé, 2008) and the results of Moyer-Gusé et al. (2011), we formulated the following hypotheses:

- H1: The level of identification with one of the characters in the narrative predicts intentions to discuss safe sex with a partner (H1a). This relationship is mediated by self-efficacy (H1b), perceived vulnerability (H1c), and counterarguing (H1d).
- H2: The level of identification with one of the characters in the narrative predicts intentions to discuss safe sex with friends (H2a). This relationship is mediated by self-efficacy (H2b), perceived vulnerability (H2c), and counterarguing (H2d).
- H3: The level of identification with one of the characters in the narrative predicts intentions to have safe sex (H3a). This relationship is mediated by self-efficacy (H3b), perceived vulnerability (H3c), and counterarguing (H3d).
- H4: The level of transportation into the narrative predicts intentions to discuss safe sex with a partner (H4a). This relationship is mediated by



self-efficacy (H4b), perceived vulnerability (H4c), and counterarguing (H4d).

H5: The level of transportation into the narrative predicts intentions to discuss safe sex with friends (H5a). This relationship is mediated by self-efficacy (H5b), perceived vulnerability (H5c), and counterarguing (H5d).

H6: The level of transportation into the narrative predicts intentions to have safe sex (H6a). This relationship is mediated by self-efficacy (H6b), perceived vulnerability (H6c), and counterarguing (H6d).

## 4.2 Method

We created a narrative message intended to provide college students with a social script for talking both with a sexual partner and with friends about safe sex. We were interested in the effects of the narrative intervention compared to (1) pretest scores: baseline measures without message exposure, and (2) a non-narrative intervention: a non-vivid, informative stimulus. The pretest in the narrative condition was added for a methodological reason: We wanted to find out whether including a pretest would influence posttest scores, as suggested by Hofman et al. (2013).<sup>6</sup> Data were collected in accordance with a protocol approved by the institutional ethical committee of the Faculty of Arts of the University of Groningen in the Netherlands

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<sup>6</sup> Hofman et al. (2013), for instance, found that including pretest measurements before exposure to a leaflet on the HPV virus increased knowledge on HPV compared to not including pretest measurements. In other words, the pretest questionnaire, and not merely the stimulus materials, may influence the posttest results. In our study, this would be the case if the results from the posttests in both narrative conditions were significantly different (see Results section).

### **4.2.1 Participants**

The target group of this study consisted of college students between 18-26 years old. A total of 225 college students (72% women; mean age: 20.7; SD = 1.7) took part in this experiment. Participants did not receive any compensation, financial or otherwise, for their participation in the experiment.

### **4.2.2 Stimulus materials**

Two different types of messages were constructed: a narrative and a non-narrative. The narrative message consisted of a 2-minute video of two male students sitting on the couch in their student flat, drinking beer and talking – through text balloons - about their experiences with SSC with sexual partners. A mutual friend had been infected with Chlamydia because he did not use a condom, which illustrates the possible consequences of failing to discuss this topic. Each student subsequently shares a recent anecdote in which the topic of safe sex (i.e., condom use) was discussed in a sexual encounter with a female student. Both anecdotes are visually depicted into the video as a ‘flashback’. In both anecdotes, talking about condoms leads to actual condom use without any problems. By using the format of a frame story, where the two students talk to each other about safe sex in a casual conversation in combination with depicting negotiations about condom use in the two anecdotes, our narrative addressed both SSC with friends and with a sexual partner.

The non-narrative message consisted of an informative brochure in which the importance of bringing up condom use with a sexual partner was emphasized. Care was taken that the content of the information in the brochure about SSC was the same as the content of the information in the video. A translation of the text of the non-narrative message can be found in Appendix 4.1.

### 4.2.3 Procedure

The experiment was conducted at seminars of two different first and second year courses within the Faculty of Arts of the University of Groningen. In these seminars, participants worked in groups, which were randomly assigned to one of the three conditions. Table 4.1 depicts the study design. In condition A and condition B (the two narrative conditions), participants watched the video as a group and individually filled out a posttest questionnaire afterwards. In condition A, watching the video was preceded by the pretest questionnaire in the same session. In condition C (the non-narrative condition), the participants read the informative brochure and individually filled out a posttest questionnaire afterwards.

**Table 4.1: Study design**

	Pretest	Stimulus	Posttest
Condition A	Yes	Narrative	Yes
Condition B	No	Narrative	Yes
Condition C	No	Non-narrative	Yes

### 4.2.4 Measures

#### *Safe sex and SSC intentions (pretest and posttest)*

The SSC intentions with a sexual partner and with friends were measured using seven-point Likert items (Cronbach's  $\alpha = .97$ ;  $r = .93$  for sexual partner and Cronbach's  $\alpha = .97$ ;  $r = .94$  for friends): "I plan on talking with a sexual partner (friends) about using condoms (safe sex)" and "I will talk with a sexual partner (friends) about using condoms (safe sex)" (1 = I completely disagree, 7 = I completely agree) (adapted from Moyer-Gusé et al., 2011). Intentions to have safe sex were measured using two seven-point Likert items (Cronbach's  $\alpha = .97$ ;

$r = .94$ ): “I plan on only having safe sex from now on” and “I will only have safe sex from now on” (1 = I completely disagree, 7 = I completely agree).

*Self-efficacy (pretest and posttest)*

Self-efficacy for bringing up condom use with a sexual partner was measured by a seven-point Likert item: “I am capable of bringing up condom use with a sexual partner”. Self-efficacy for bringing up safe sex with friends was measured by a seven-point Likert item: “I am capable of bringing up safe sex with friends” (1 = I completely disagree, 7 = I completely agree) (based on Moyer-Gusé et al., 2011). As an indication for self-efficacy for having safe sex we asked for participants’ beliefs with regard to buying condoms: “I think it is embarrassing to buy condoms” (1 = I completely disagree, 7 = I completely agree) and recoded the answers in the analyses.

*Counterarguing (posttest narrative condition only)*

Counterarguing was measured with four seven-point Likert items (Cronbach’s  $\alpha = .61$ ): “When watching the video, I was looking for flaws in the information that was presented”, “I agreed with what was said in the video”, “When watching the video, I felt that some information was incorrect”, and “When watching the video, I felt that some information was misleading” (1 = I completely disagree, 7 = I completely agree) (based on Moyer-Gusé & Nabi, 2010). Because Cronbach’s  $\alpha$  for these items was insufficient (Cronbach’s  $\alpha = .61$ ), only items 3 and 4 are used in the analyses (Cronbach’s  $\alpha = .81$ ,  $r = .67$ ).

*Perceived vulnerability (pretest and posttest)*

In this study, we distinguished between two types of perceived vulnerability: perceived vulnerability for STIs and perceived vulnerability for pregnancy caused by unsafe sex. The perceived vulnerability for contracting an STI after unsafe sex was measured by a seven-point item: “If you were to have sexual intercourse without a condom regularly, how likely is it that you would contract

an STI?” (based on Moyer-Gusé et al., 2011). The perceived vulnerability for unsafe sex causing pregnancy was measured by a seven-point item: “if you were to have sexual intercourse without a condom regularly, how likely is it that this would lead to pregnancy?” (1 = not at all probable, 7 = very probable) (based on Moyer-Gusé et al., 2011).

#### *Identification (posttest narrative condition only)*

To measure identification, we first showed participants stills of the four characters of the video, and asked them with whom they identified most when watching the video. They were then asked to fill in the following two items, that measured identification (Cronbach’s  $\alpha = .86$ ;  $r = .76$ ) with this character in mind: “I understand this character”; “I can put myself in this character’s shoes” (1 = I completely disagree, 7 = I completely agree) (based on Cohen, 2001).

#### *Transportation (posttest narrative condition only)*

Transportation was measured with six seven-point Likert items (Cronbach’s  $\alpha = .81$ ): “My attention was completely absorbed by the video”, “I was mentally involved in the video”, “When watching the video, my thoughts sometimes wandered off”, “I was touched by the video”, “When watching the video, I forgot everything around me”, and “I was curious about the ending of the video” (1 = I completely disagree, 7 = I completely agree) (based on Green & Brock, 2000).

#### *Analyses*

First of all, we wanted to find out whether including a pretest would affect the posttest results. We therefore compared the posttest results of condition A (the narrative condition that included a pretest) to those of condition B (the narrative condition that did not include a pretest) by means of an Independent Samples T-test.

Subsequently, we compared the pretest scores of condition A to the posttest scores of condition A in order to investigate the effect of the narrative intervention compared to pretest scores by means of a Paired Samples T-test.

Next, to investigate the effect of the narrative versus the non-narrative intervention, we compared the combined posttest scores of conditions A and B to the posttest scores of condition C (the posttest-only non-narrative condition).

Finally, in order to 1) assess the relationship between identification and transportation on the one hand, and SSC intentions and safe sex intentions on the other hand, and 2) see whether these relationships were mediated by self-efficacy, counterarguing and perceived vulnerability, we performed mediation analyses on the data of participants in the narrative conditions (condition A and condition B;  $N = 160$ ). The mediation analyses were performed using the Process module for SPSS (Hayes, 2013), using 10.000 bootstrap samples.<sup>7</sup>

## 4.3 Results

### 4.3.1 Possible priming effect of pretest

The results of the T-test comparing the posttest results of condition A to the posttest results of condition B showed that the posttest results of condition A and condition B did not differ significantly on SSC intentions with a partner ( $t(155) = 1.42, p = .16$ ), on SSC intentions with friends ( $t(157) = .50, p = .62$ ), and on safe sex intentions ( $t(154) = 1.32, p = .19$ ). This indicates that the pretest did not have a general priming effect on the posttest results. Therefore, in the results

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<sup>7</sup> We realize that the mediation analyses discussed in this section do not provide information on causality. However, following the terminology of Hayes (2013), we will speak of *effects* in this section.

discussed in the rest of this chapter, we combined the posttest results of condition A with the posttest results of condition B into one 'narrative condition'.

### **4.3.2 Effects of the narrative intervention**

#### *Effects of the narrative intervention compared to pretest scores*

The results of the Paired Samples T-test comparing pretest scores and posttest scores in condition A show that there was a marginally significant difference between pretest scores and posttest scores for SSC intentions with a sexual partner ( $t(70) = -1.97, p = .053$ ), and a significant difference between pretest scores and posttest scores for SSC intentions with friends ( $t(71) = -3.01, p < .01$ ). In both cases, the mean posttest scores were higher than the mean pretest scores, indicating that the narrative intervention had a (small) positive effect on these variables. There was no significant difference between pretest and posttest scores for safe sex intentions ( $t(71) = -.91, p = .37$ ). Other differences between pretest and posttest were not significant either. The mean scores of the pretest and the posttest of condition A and the T-test results can be found in Table 4.2.

**Table 4.2: Mean pretest and posttest scores condition A (SD), and T-test results**

	Mean pretest score	Mean posttest score	T-test results
SSC intention partner	5.16 (1.74)	5.39 (1.67)	t(70) = -1.97†
SSC intention friends	3.42 (1.75)	3.72 (1.76)	t(71) = -3.01**
Safe sex intention	5.32 (1.74)	5.39 (1.78)	t(71) = -.91
Self-efficacy SSC partner	6.18 (1.14)	6.21 (1.05)	t(72) = -.31
Self-efficacy SSC friends	5.52 (1.62)	5.51 (1.54)	t(72) = .12
Self-efficacy safe sex	4.23 (1.91)	4.37 (1.88)	t(70) = .22
Perceived vulnerability STI	5.07 (1.58)	5.23 (1.72)	t(72) = -1.62
Perceived vulnerability pregnancy	4.89 (1.90)	4.93 (1.97)	t(72) = -.44

\* Significant at  $p < .05$ ; \*\* Significant at  $p < .01$ ; † $p < .10$

#### *Effects of the narrative intervention versus the non-narrative intervention*

The results of the Independent Samples T-test comparing the posttest scores of the non-narrative condition (condition C) to the posttest scores of the narrative condition (condition A and condition B combined) show that participants in the narrative condition did not score significantly different in SSC intentions with a sexual partner and with friends, compared with participants in the non-narrative condition ( $t(220) = -.95$ ,  $p = .35$  and  $t(143) = -1.20$ ,  $p = .23$ , respectively). Participants in the narrative condition did score significantly higher ( $M = 5.18$ ,  $SD = 1.84$ ) on safe sex intentions compared with participants in the non-narrative condition ( $M = 4.59$ ,  $SD = 2.07$ ;  $t(108) = -1.99$ ,  $p < .05$ ). The mean posttest scores of the narrative condition and the non-narrative condition and the T-test results can be found in Table 4.3.



**Table 4.3: Mean posttest scores narrative (conditions A and B) and non-narrative condition (condition C) (SD), and T-test results**

	Mean posttest condition A&B	Mean posttest condition C	T-test results
SSC intention partner	5.17 (1.75)	4.92 (1.77)	t(220) = -.95
SSC intention friends	3.68 (1.81)	3.40 (1.50)	t(143) = -1.20
Safe sex intention	5.18 (1.84)	4.59 (2.07)	t(108) = -1.99*
Self-efficacy SSC partner	6.14 (1.20)	6.28 (1.05)	t(222) = .44
Self-efficacy E SSC friends	5.50 (1.60)	5.37 (1.65)	t(222) = -.56
Self-efficacy safe sex	4.46 (1.99)	4.51 (1.72)	t(136) = .18
Perceived vulnerability STI	5.15 (1.63)	4.92 (1.57)	t(222) = -.96
Perceived vulnerability pregnancy	4.75 (2.00)	4.48 (1.79)	t(222) = -.95

\* Significant at  $p < .05$ ; \*\* Significant at  $p < .01$ ; † $p < .10$

### 4.3.3 Narrative processes<sup>8</sup>

#### *Relationships between identification and SSC and safe sex intentions*

Our narrative portrayed two male students (in the main part of the frame story), as well as two female students (in the two anecdotes that were told by each of

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<sup>8</sup> When analyzing the effect of self-efficacy, we only used the self-efficacy item that was relevant for the behavior type we were interested in (e.g. the item “I am capable of bringing up condom use with a sexual partner” for discussing safe sex with a partner).

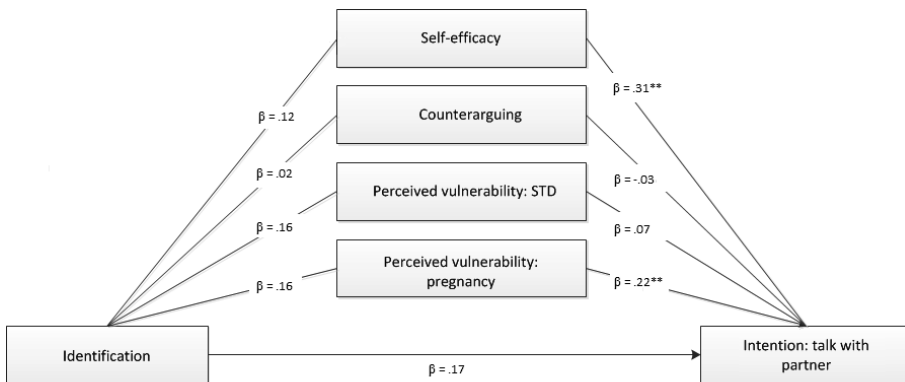
the students). Thus, there were four characters, two male and two female, with whom our participants could identify. All of the male participants in the narrative condition indicated they identified most with one of the male characters (Mean identification = 4.66; SD = 1.41). Of the female participants in the narrative condition, 26% identified most with one of the male characters (Mean identification = 5.41, SD = 1.30), whereas the remaining 74% identified most with one of the female characters (Mean identification = 5.32, SD = 1.16). Table 4.4 shows the relationship between identification on the one hand and SSC intentions with a sexual partner and with friends and safe sex intentions on the other hand, directly as well as mediated through self-efficacy, counterarguing and perceived vulnerability.

**Table 4.4: Effect of identification on SSC and safe sex intentions, direct as well as mediated through self-efficacy, counterarguing, and perceived vulnerability, expressed in  $\beta$**

	SSC intention partner	SSC intention friends	Safe sex intention
Total effect identification on intention	.25*	.40**	.15
Direct effect identification on intention	.17	.29**	.06
Effect mediated through self-efficacy	.04	.09 <sup>a</sup>	.00
Effect mediated through counterarguing	-.01	-.00	.00
Effect mediated through perceived vulnerability STIs	.01	.03	.02
Effect mediated through perceived vulnerability pregnancy	.04	.00	.07

\*Significant at  $p < .05$ ; \*\*Significant at  $p < .01$ ; † $p < .10$ ; <sup>a</sup>Confidence interval 95% = [.0162, .1770] and does not include zero, so this effect is significant.

As can be seen in Table 4.4, the total effect of identification on the intention to discuss safe sex with a sexual partner was significant. The direct effect of identification on intention was not significant, nor were there indirect effects via self-efficacy, counterarguing, and perceived vulnerability for STIs and pregnancy.<sup>9</sup> Thus, we did not find support for H1. A visual depiction of the relationship between identification and SSC intentions with a partner can be found in Figure 4.1.



\* =  $p < .05$ , \*\* =  $p < .01$ . Total effect:  $\beta = .25^*$

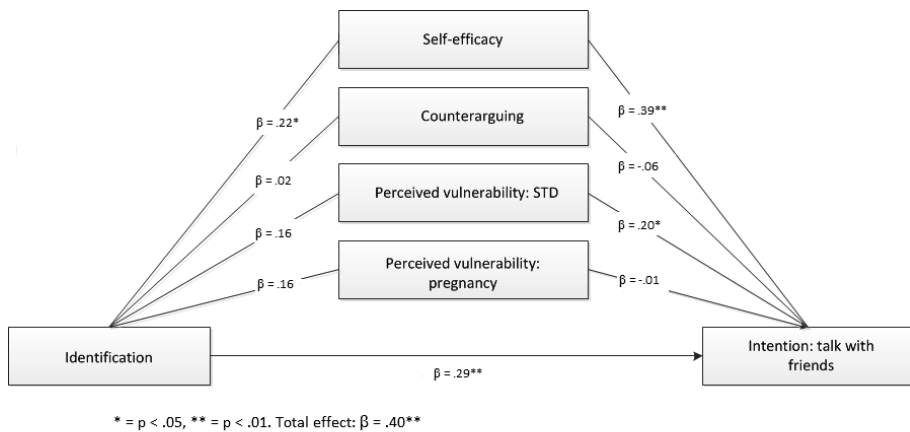
**Figure 4.1: The relationship between identification and the intention to discuss safe sex with a partner, possibly mediated by self-efficacy, counterarguing, and perceived vulnerability**

Table 4.4 shows that the total effect of identification on the intention to discuss safe sex with friends was significant, as was the direct effect of identification on the intention to discuss safe sex with friends, and the indirect effect via self-efficacy. We did not find indirect effects of identification on

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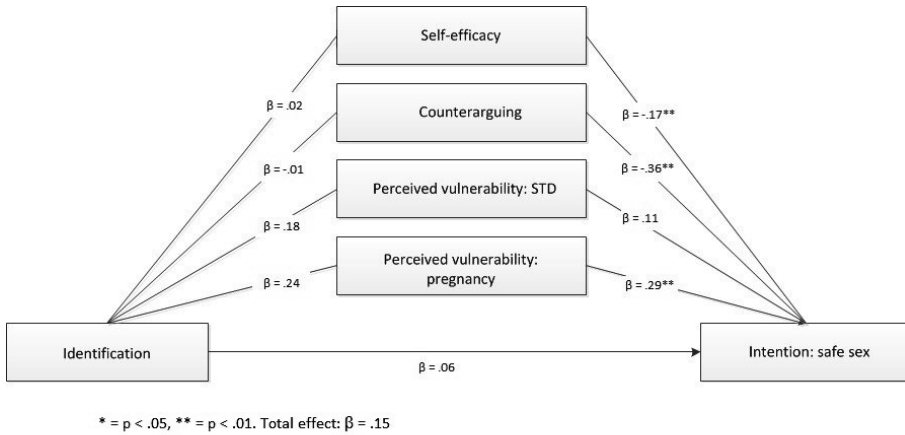
<sup>9</sup> If the 95% confidence interval includes zero, then the effect will not be significant at the 0.05 level. If the 95% confidence interval does not include zero, then the effect will be significant at the 0.05 level.

intention via counterarguing or perceived vulnerability for STIs or pregnancy. Thus, we found support for H2a and H2b, and no support for H2c and H2d. A visual depiction of the relationship between identification and SSC intentions with friends can be found in Figure 4.2.



**Figure 4.2: The relationship between identification and the intention to discuss safe sex with friends, possibly mediated by self-efficacy, counterarguing, and perceived vulnerability**

Table 4.4 shows that the total effect of identification on the intention to have safe sex was not significant, and neither was the direct effect of identification on the intention to have safe sex, nor the indirect effect via self-efficacy, counterarguing or perceived vulnerability for STIs or pregnancy. Thus, we did not find support for H3. A visual depiction of the relationship between identification and safe sex intentions can be found in Figure 4.3.



**Figure 4.3: The relationship between identification and the intention to have safe sex, possibly mediated by self-efficacy, counterarguing, and perceived vulnerability**

*Relationships between transportation and SSC and safe sex intentions*

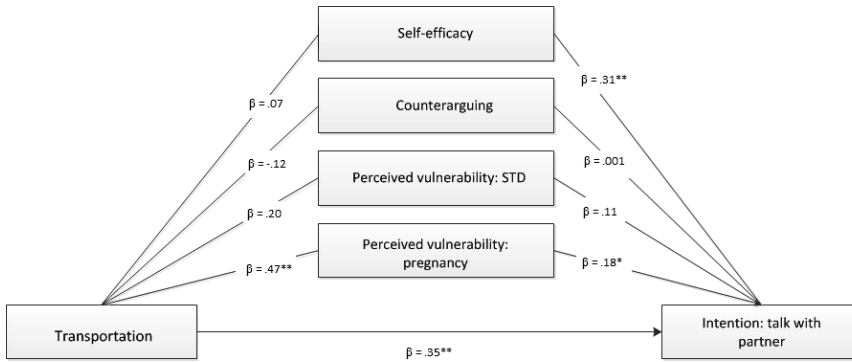
Table 4.5 shows the relationship between transportation on the one hand, and SSC intentions with a sexual partner and with friends and safe sex intentions on the other hand, directly as well as mediated through self-efficacy, counterarguing and perceived vulnerability.

**Table 4.5. Effect of transportation on SSC and safe sex intentions, direct as well as mediated through self-efficacy, counterarguing, and perceived vulnerability, expressed in  $\beta$** 

	SSC intention partner	SSC intention friends	Safe sex intention
Total effect transportation on intention	.48**	.28*	.38**
Direct effect transportation on intention	.35**	.28*	.15
Effect mediated through self-efficacy	.02	.02	.02
Effect mediated through counterarguing	.00	.00	.05
Effect mediated through perceived vulnerability STIs	.02	.05	.02
Effect mediated through perceived vulnerability pregnancy	.09 <sup>a</sup>	.01	.14 <sup>b</sup>

\* Significant at  $p < .05$ ; \*\* Significant at  $p < .01$ ; † $p < .10$ ; <sup>a</sup> Confidence interval 95% = [.0118, .2310] and does not include zero, so this effect is significant; <sup>b</sup> Confidence interval 95% = [.0379, .2965] and does not include zero, so this effect is significant

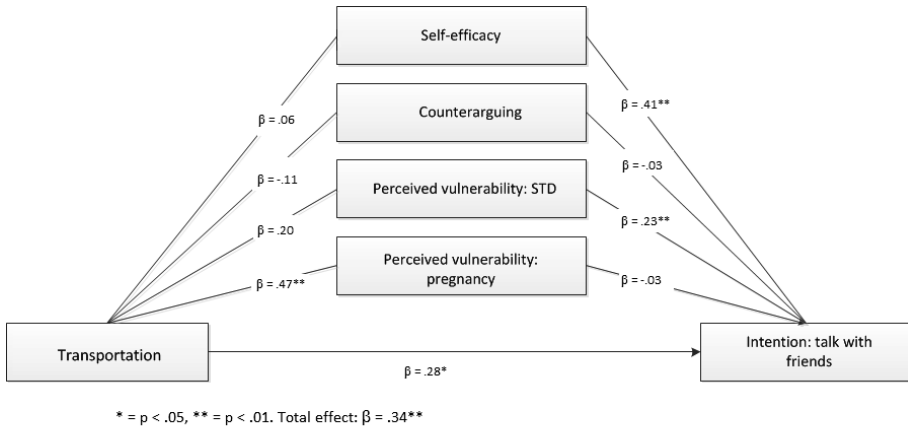
As can be seen in Table 4.5, the total effect of transportation on the intention to discuss safe sex with a sexual partner was significant, as was the direct effect of transportation on intention, and the indirect effect on intention through perceived vulnerability for unsafe sex causing pregnancy. We did not find indirect effects of transportation on intention via self-efficacy, counterarguing, or the perceived vulnerability for unsafe sex causing STIs. Thus, we found support for H4a, partial support for H4c (only for unsafe sex causing pregnancy), and no support for H4b and H4d. A visual depiction of the relationship between transportation and SSC intentions with a partner can be found in Figure 4.4.



\* =  $p < .05$ , \*\* =  $p < .01$ . Total effect:  $\beta = .48^{**}$

**Figure 4.4: The relationship between transportation and the intention to discuss safe sex with a partner, possibly mediated by self-efficacy, counterarguing, and perceived vulnerability**

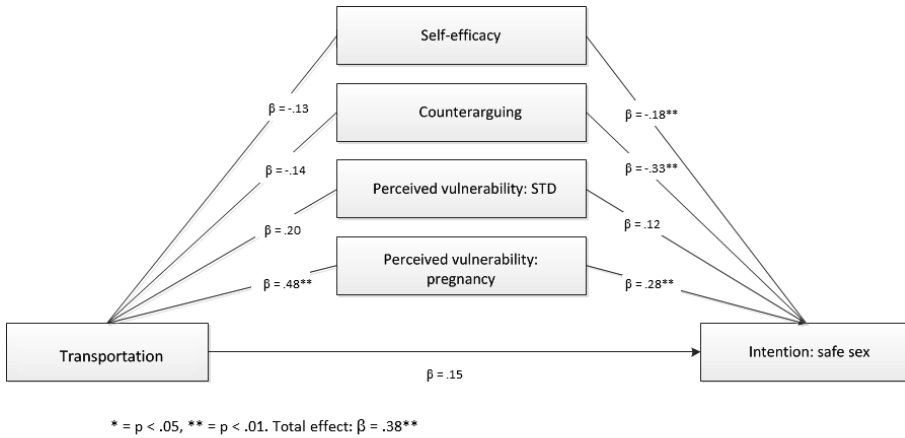
Table 4.5 shows that the total effect of transportation on the intention to discuss safe sex with friends was significant, as was the direct effect of transportation on intention. No indirect effects were found via self-efficacy, counterarguing, or perceived vulnerability for STIs and pregnancy. Thus, we found support for H5a, and no support for H5b, H5c, and H5d. A visual depiction of the relationship between transportation and SSC intentions with friends can be found in Figure 4.5.



**Figure 4.5: The relationship between transportation and the intention to discuss safe sex with friends, possibly mediated by self-efficacy, counterarguing, and perceived vulnerability**

Table 4.5 shows that the total effect of transportation on the intention to have safe sex was significant, as was the indirect effect of transportation on intention via perceived vulnerability for pregnancy. We did not find a significant direct effect of transportation on safe sex intentions, nor did we find a significant indirect effect via self-efficacy, counterarguing, or perceived vulnerability for STIs. Thus, we found support for H6a and partial support for H6c (only for unsafe sex causing pregnancy), but no support for H6b and H6d. A visual depiction of the relationship between transportation and safe sex intentions can be found in Figure 4.6.





**Figure 4.6: The relationship between transportation and the intention to have safe sex, possibly mediated by self-efficacy, counterarguing, and perceived vulnerability**

## 4.4 Discussion

In this study, we tested the effectiveness of a narrative in motivating college students to discuss safe sex both with their sexual partner and with their friends, and to have safe sex. Furthermore, we were interested in the mechanism of narrative processing underlying this effectiveness. We expected that our narrative might increase the students' tendency to discuss safe sex with a partner and with friends, and to have safe sex, through identification with the characters, transportation into the narrative, and the provision of role models as well as of a social script. The results show that, compared to the pretest scores, participants indeed had a slightly higher intention to talk about safe sex with a partner (marginally significant) and with friends (significant) after being presented with the narrative. Thus, the effect of the narrative intervention on the intentions to talk about safe sex was in the intended direction, even though the effect was relatively small. Compared to pretest-scores, we did not find higher scores on safe sex intentions.

We furthermore found that participants in the narrative condition scored significantly higher on safe sex intentions than participants in the non-narrative condition. We did not find a similar effect for SSC intentions, which suggests that SSC and safe sex are indeed two different types of behavior triggered by different mechanisms. In the narrative condition, both transportation and identification can be operative. In the non-narrative condition, there are no characters with whom to identify, but some form of transportation may still be evoked that may influence SSC intentions. Indeed, Braverman (2008) and Dunlop et al. (2010) found that transportation can also be elicited by non-narrative messages. When processing a non-narrative message, one might still be able to create a vivid mental representation of a situation, and thus still be transported. The experience of transportation may thus be a function of individual message reception, rather than being evoked by the features of a narrative message (see Mar & Oatley, 2008). The non-narrative brochure in our study might also have evoked some level of transportation, possibly adding to its persuasiveness. Future studies should therefore also measure transportation when studying non-narrative messages, and ascertain whether this mechanism works in the same way as in regular narratives.

We also looked in more detail at the mechanism of narrative persuasion, as we wanted to determine to what extent the narrative concepts of identification and transportation would predict SSC and safe sex intention. First, with regard to SSC, we found significant total effects of identification and transportation on SSC intentions with a partner and with friends. This indicates that identification and transportation are, as expected, predictors of SSC intentions. In most cases, this relationship was direct. Secondly, where safe sex intentions were concerned, transportation proved to be a significant predictor, but only indirectly (namely through perceived vulnerability for unsafe sex causing pregnancy). Identification did not significantly predict safe sex intentions, neither directly nor indirectly. This indicates that identification with a specific character does not help increase intentions to have safe sex. Taken together, the results suggest that the

effectiveness of narratives may be boosted by increasing involvement, either with the story as a whole (transportation), or with one of the main characters (identification).

Given the fact that the specific narrative that was used in this study was a video-clip, and the non-narrative message was a plain paper document, the lack of a difference in effect between the narrative and the non-narrative is remarkable. Even though a review study by De Graaf et al. (2016) concluded that the medium in which the narrative is presented is not likely to influence persuasive effects, there might be a difference in how the two message formats (i.e., video and text) are experienced in a more natural setting where there is no forced exposure. Future research could explore whether the target audience would prefer a narrative over a non-narrative, and in a video over a text format, when given the choice in a natural setting (see, e.g., Koops van 't Jagt, 2018).

#### **4.4.1 Limitations**

Some limitations to the present study should be noted. In our study, we did not have the opportunity to ask participants about their actual SSC and safe sex behavior after the intervention. If we had, perhaps we would have found a delayed effect of our manipulation (see, e.g., Moyer-Gusé et al. 2011). Future studies should focus on the long-term effect of SSC interventions on actual SSC and actual safe sex behavior.

In addition, in our study, we did not ask participants about their sexual preferences. Scores on safe sex and SSC intentions may be different for same-sex couples than for heterosexual couples, and will certainly differ with respect to matters like the risk of getting pregnant. Even though the general message of the intervention is clear (“don’t be afraid to bring up the topic of safe sex at any sexual encounter”), it would seem a good idea to at least ask about sexual orientation in future studies.

## **4.5 Conclusion**

In this study, we investigated the effects of a narrative intervention on SSC intentions with a sexual partner and with friends, and on safe sex intentions, and we investigated the mechanism of narrative processing underlying these effects. Our findings indicate an advantage of the narrative with regard to SSC and safe sex intentions. Furthermore, we found a positive relationship between narrative concepts on the one hand, and the intention to discuss safe sex with a sexual partner and with friends, and the intention to have safe sex on the other hand. Future research might focus on increasing the target audience's involvement with the story, hence boosting transportation and identification. Furthermore, future research should focus on mechanisms that increase the effectiveness of both narrative and non-narrative messages. In this way, research on safe sex and SSC can contribute to developing campaigns that will successfully spark open and effective communication about safe sex within vulnerable groups.

## **Appendix 4.1: Translation of text in non-narrative intervention**

### **Talking about condom use**

Chlamydia is a sexually transmitted infection (STI) that often occurs among young adults: 77% of women with Chlamydia and 59% of men with Chlamydia were younger than 25 years old in 2013 (Nationaal Kompas Volksgezondheid, 2014). An STI like Chlamydia can be contracted when having unsafe sex, for instance when not using a condom.

### **Prevent an STI: use a condom!**

An important way of preventing an STI is using a condom when having sex. This information is probably not new. But in order to use a condom, this topic needs to be brought up in a conversation first. One of you will have to start the conversation about using condoms, but how do you do this? This isn't always easy!

### **How do you start a conversation about condoms?**

Starting a conversation about condoms before having sex can, for instance, feel a bit embarrassing. Maybe the atmosphere was just getting better, and you're afraid of ruining the mood by talking about condoms. Or maybe you're afraid that the other person thinks it's strange if you start talking about this topic.

### **“Shall we use this?”**

Still, it doesn't have to be so difficult to talk about using condoms before having sex. For instance, you can:

- Get a condom if you have brought one, and ask: “Shall we use this?”
- Ask: “Can you get a condom?” if you haven't brought a condom yourself.

Talking about condom use is something you do together: both men and women are responsible for this. The above-mentioned examples immediately make clear what your intentions are and will not get in the way of a nice evening!



# Chapter 5

## The influence of conversational content on college students' safe sex intentions: A mixed method approach

This chapter is based on:

Donné, L., Jansen, C., & Hoeks, J. (2018). The influence of conversational content on college students' safe sex intentions: A mixed method approach. *Global Journal of Health Science*, 10(3), 147-160.



## **Abstract**

Even though health campaign designers are advised to specifically focus on triggering conversations between people about health issues, it is still largely unclear which aspects of a conversation may contribute to safe sex behavior and intentions. Empirical research in this field so far has mainly focused on conversational occurrence rather than conversational content, and where content is taken into account, this mostly concerns self-reports. In this study we use both qualitative and quantitative methods to investigate the form and effects of actual health-related conversations. Two weeks after filling out a questionnaire (pretest) on their safe sex-related intentions, participants (N = 24) were instructed to watch and talk about a safe sex video with a conversation partner of choice, followed by filling out a posttest questionnaire. We first looked into the quantitative effects and then used qualitative analysis to try and identify content-related aspects that might be related to these quantitative effects. We found that the conversations increased intentions regarding safe sex and SSC (compared to pretest scores), and that content-related aspects such as conversational valence, type of communication behavior and type and frequency of behavioral determinants identified in conversations were related to these effects. The outcomes of this study provide an enhanced insight into the social norms and communicative patterns related to safe sex, and indicate that it is important to look at conversational content in detail rather than to focus on mere conversational occurrence or quantitative effects.

## 5.1 Introduction

### 5.1.1 The role of interpersonal health communication in the persuasion process

In the past decades, researchers in the field of health communication have increasingly focused on the role of face-to-face interpersonal communication in the effectiveness of health campaigns. With this development, the field moves away from the assumption that in mass communication, the health campaign itself is exclusively responsible for effects on health behavior, acknowledging that “media messages are not consumed in a vacuum, and the personal experiences of many (if not most) individuals would support the statement that media stimulates conversation and social interaction” (Helme et al, 2011, p. 367). Conversations elicited by health campaigns may influence health behavior, for instance because they spread the message further to a larger audience (Dunlop et al., 2010), because they may lead to the discovery of social norms (Hornik & Yanovitzky, 2003; Frank et al., 2012), provide social support (Duggan, 2006), increase feelings of self-efficacy (Frank et al., 2012), or because they may help break taboos concerning sensitive topics such as HIV/AIDS (Pettifor et al., 2004).

Several empirical studies have indeed found evidence for the important role of interpersonal communication in health campaign effects (e.g., Chatterjee et al., 2009; Van den Putte et al., 2011; Frank et al., 2012). Seen in this light, triggering interpersonal communication may be a fruitful strategy to maximize the effectiveness of health campaigns.

### 5.1.2 Ambiguous effects of interpersonal health communication

Most of the research on the topic of interpersonal communication about health issues has so far relied on questionnaire studies in which conversations on health issues are studied *indirectly*, for instance by asking participants to report on past conversation behavior (e.g., Chatterjee et al., 2009; Frank et al., 2012;

Helme et al., 2011; Van den Putte et al., 2011; Hendriks & De Bruijn, 2015), or on their intention to engage in conversations on a certain issue (e.g., Jansen & Janssen, 2010; Lubinga et al., 2010; Lubinga et al., 2014). Thus, these studies mainly focused on whether or not conversations took place, that is, conversational *occurrence*. In order to establish effects of conversations on health behavior determinants, it is essential that we also look at the *content* of these conversations (as recommended by Southwell & Yzer, 2007; Frank et al., 2012).

Focusing on the mechanism underlying the effectiveness of interpersonal communication seems especially important as conversations that are stimulated by a health campaign are not always in agreement with the aims of that campaign (Hafstad & Aarø, 1997; Dunlop, 2011). Indeed, several studies have found unintended - and undesirable- effects of conversations about health messages (David et al., 2006; Van den Putte et al., 2011; Hendriks et al., 2014; Lubinga et al., 2016). Lubinga et al. (2016), for instance, found that young South African adolescents' conversations about cryptic HIV/AIDS messages actually *decreased* the level of understanding of these health messages in a considerable number of cases. Interpersonal communication about health messages that are not understood correctly may thus increase the reach and frequency of misinterpretations of the messages, which may have dangerous consequences (Lubinga et al., 2010). It therefore seems a good idea to learn more about the content and effects of health-related conversations.

### **5.1.3 Aspects of conversational content**

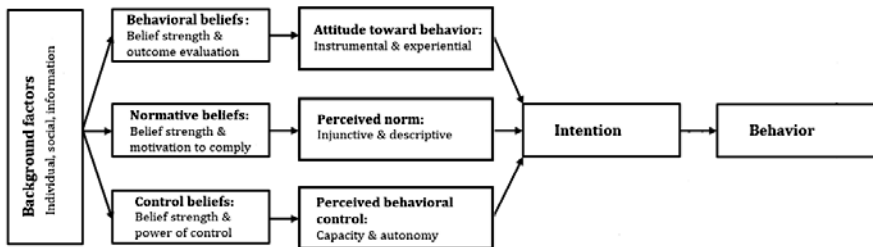
So what aspects of conversational content could be involved in persuasion? An early study by Weinstein (1993) looked at persuasive conversations between friends about self-protective health behavior, such as exercising three times a week, or flossing regularly. One of the goals was to determine what ingredients of a conversation may make a conversation persuasive. Weinstein did not identify any particular ingredients in the conversations that appeared to have

special persuasive power. Rather, the fact *that* a peer had recommended something seemed more persuasive than any specific argument in the conversation (Weinstein, 1993).

Later studies, however, did suggest content-related aspects that may affect the persuasion process. For instance, a number of studies found that “conversation valence”, that is, whether conversation partners talk positively or negatively about the health topic, may be an important factor in the effects of interpersonal health communication on health behavior (Morgan, 2009; Dunlop et al., 2010; Frank et al., 2012; Hendriks et al., 2012; Brennan et al., 2016). However, conversational valence is unlikely to be the only factor involved. In Chapter 2 of this dissertation, we described an interview study in which we asked people how and with whom they communicated about various kinds of health behavior (using sunscreen, eating healthy, safe sex, etc.). We found four general types of health-related conversation: admonishing (“urging [the conversation partner] to adapt health behavior, to prevent damage to his or her own health and/or that of others”), casual discussion (“talking about a health theme in a social situation”), educating (“providing the conversation partner with information on a health issue to prevent him or her from performing unhealthy behavior”), and negotiating (“attempting to reach agreement with each other on performing healthy behavior for the benefit of both the self and the conversation partner”). The results of this interview study suggested that health-related communication, intentions and behavior may be different for each of these conversation types.

So how can changes in health behavior and intentions actually be brought about? According to the Reasoned Action Approach (Fishbein & Ajzen, 2010), the likelihood that one will actually perform a certain behavior is ultimately determined by his or her set of beliefs regarding this behavior. These beliefs can pertain to the attitude towards the behavior, to the perceived social norm, and to the person’s perceived control over successfully performing the behavior. For

a graphical depiction of the model (Fishbein & Ajzen, 2010), see Figure 5.1.



**Figure 5.1** The reasoned action approach (Fishbein & Ajzen, 2010)

According to this model, messages, or conversations for that matter, can affect intention by bringing about a change in attitude, perceived norm or perceived behavioral control. This can be done in basically four ways: 1) by adding *new* beliefs, 2) by changing the *strength* of beliefs, 3) by changing the *evaluation* of these beliefs, or 4) by changing the *saliency* of beliefs.

In our current study, we will look further than mere conversational occurrence, and we will attempt to find out how the content of conversations might determine the persuasive effects produced by these conversations. We will focus on three content-related aspects: conversational valence, types of communication behavior, and (beliefs related to) behavioral determinants brought up in conversations. In the next section, we will zoom in on the specific health theme that will be central to the present study: safe sex.

#### 5.1.4 Safe sex communication among college students

Although college students generally know how to prevent a sexually transmitted infection (STI), condom use is not a standard behavior among this group (Troth & Peterson, 2000). Safe sex communication (SSC in the rest of this chapter), that is, communication about birth control and preventing STIs (cf. Cleary et al.,

2002), seems to be crucial in order to change health behavior and intentions. SSC has been found to be an important predictor of, for instance, condom use (Widman et al., 2014).

A meta-analysis by Noar et al. (2006) found that SSC, specifically with a sexual partner, may be an important determinant of safe sexual behavior. SSC can also take place between parents and children (Troth & Peterson, 2000; Eisenberg, Sieving, Bearinger, Swain, & Resnick, 2006), and between friends (Lefkowitz et al., 2004; Busse, Fishbein, Bleakley, & Hennessy, 2010; Helme et al., 2011). For college students, friends are an important source of sex-related information (Kallen, Stephenson, & Doughty, 1983), and once students have more experience in talking about safe sex with friends, they may also find it easier to talk about safe sex with a sexual partner (Lefkowitz et al., 2004). Consistently, in the field of sexual health promotion for young people, peer education is a popular strategy (e.g., Tulli, 2012). In peer education, members of similar age or status are trained to share or teach health-related information or values to their peers. While we recognize the possibly important role of peers skilled in sexual health promotion, in the present study we were interested in finding out more about the effectiveness of conversations between peers who are not specifically trained in talking about health information.

Helme et al. (2011) found that safe sex mass media campaigns are often viewed in the presence of others, for instance friends or partners, and that viewing those messages often results in conversations about the message. In the present study, we focus on conversations triggered by the safe sex intervention that was developed in the study described in Chapter 4 of this dissertation. Following recommendations made by Yzer, Siero, and Buunk (2001), the main focus of the present study is on college students *without* a steady sexual partner, since they face a relatively high risk for contracting an STI compared to college students with a steady sexual partner, and SSC is thus expected to be more relevant for this group.

### **5.1.5 The present study**

In the present study, we use both quantitative and qualitative methods to investigate the effects and content of SSC triggered by a safe sex message. We aim to answer the following research questions:

- RQ1: What is the effect of conversations about safe sex triggered by a safe sex message on college students' intentions related to safe sex?
- RQ2: Which content-related aspects with regard to conversational valence, types of communication behavior, and behavioral determinants can be identified in conversations about safe sex triggered by a safe sex message?
- RQ3: How do the content-related aspects identified in RQ2 relate to the effects found in RQ1?

## **5.2 Method**

### **5.2.1 Design, participants and procedure**

The study was set in a quasi-experimental pretest-posttest design and consisted of three waves of data collection. Table 5.1 shows information on when the three waves of data collection (referred to as W1, W2 and W3 in the rest of this chapter) took place. A total of N = 24 participants took part in the data collection (68.8% women; mean age: 20.4 years). All participants received a financial compensation of €10 for their participation.

At W1, participants were recruited either in class or online through email or social media networks. Based on their answers in an online questionnaire (W1-Q) we assessed their eligibility for participating in the experiment, that is, whether they were college students without a steady sexual partner, since SSC was thought to be more relevant for this group than for college students with a

steady sexual partner. In order to prevent a possible priming effect, we concealed the goal of the experiment by not only including questions in W1-Q regarding safe sex but also regarding other topics that may be relevant to college students: alcohol and XTC.

The first author contacted the participants through email, and asked them to find a conversation partner with whom they were comfortable talking about issues raised in W1-Q (i.e., alcohol, XTC and safe sex). Once participants indicated that they had found a conversation partner, they received more detailed instructions through email about the procedure to be followed in W2.

After two weeks, W2 took place in the private environment of one of each dyad of participants and their conversation partner, in the absence of experimenters. W2 consisted of a series of actions described in an online protocol, followed by an online questionnaire. Before being exposed to the video clip on SSC, participants first viewed a short anti-substance abuse PSA, after which they were instructed to talk about the topic "alcohol" for five minutes. This task was included to get participants used to talking about a health topic in the self-selected dyad, and to recording the conversation. Participants were then instructed to watch a video clip on safe sex (see section 5.2.2) which they could find through a URL, after which they were instructed to talk about the topic "safe sex" for five-minutes, and to record these conversations. They were asked to stay on topic as much as possible, and to only make one take of recording. Finally, the participants were asked to individually fill out the online questionnaire (W2-Q) including questions regarding, among other things, intentions with regard to safe sex and SSC. All 24 recordings of the conversations between the participants were transcribed verbatim. Any information linking to the identification of participants, such as their names, was excluded from the transcripts.

Two weeks later, W3 took place. All participants and their conversation partners were asked to complete an online questionnaire (W3-Q) including questions regarding their actual safe sex behavior in the past two weeks.



However, most participants indicated that they had not been sexually active in the limited time span between W2 and W3. We were therefore unfortunately not able to analyze the resulting behavioral data in a meaningful way. Consequently, the data on this variable are not taken into account in section 5.3. After filling out W3-Q, all participants and their conversation partners received a financial compensation of €10.

**Table 5.1 The three waves of data collection**

	<b>When</b>	<b>What</b>
Wave 1 (W1)	A0	Questionnaire 1 (W1-Q)
		- Watching video
Wave 2 (W2)	A0 + 2 weeks	- Conversation
		- Questionnaire 2 (W2-Q)
Wave 3 (W3)	A0 + 4 weeks	Questionnaire 3 (W3-Q)

### 5.2.2 Stimulus material

The stimulus material consisted of a video clip on SSC (see Chapter 4 of this dissertation). In this 2-minute video clip, two male students are depicted in their dormitory, drinking beer, and talking – through text balloons - about their experiences with SSC with a sexual partner. Each friend shares a recent anecdote in which the topic of safe sex (i.e., condom use) was brought up before having sex with a girl. In both anecdotes, SSC with a sexual partner leads to actual condom use without any problems.

### 5.2.3 Measures

Questions were asked on actual behavior and intentions regarding safe sex and intentions for SSC with both a sexual partner and with friends (based on the study described in Chapter 4 of this dissertation). Behavior was measured using semantic differential items followed by a 5-point scale; intentions were

measured using Likert items followed by a 7-point scale. Furthermore, questions were asked regarding participants' age, gender, sexual activity, and status of having a steady sexual partner. Moreover, in an open-ended question in the posttest, we asked what the relationship was with the conversation partner (e.g., friends or family). A full description of the items can be found in Appendix 5.1.

#### **5.2.4 Data Analysis**

##### *Quantitative Data Analysis*

We conducted a 2 x 3 Repeated Measures ANOVA with *wave* (W1 versus W2) and *intention type* (safe sex versus SSC partner versus SSC friends) as within-participants factors.

##### *Qualitative Data Analysis*

We qualitatively analyzed the transcripts of the 24 conversations that were recorded by the participants with regard to (1) conversational valence, (2) types of communication behavior, and (3) behavioral determinants brought up in the conversations.

In order to assess conversational valence, the transcripts were first divided into codable information units, consisting of any meaningful utterance about one topic (cf. Lubinga et al., 2016). An information unit did not necessarily coincide with one clause: A clause could consist of multiple information units, or one information unit could extend over multiple clauses. An example of an information unit is "And I know, for example, well, for example, I have someone in my group of friends from home. I know that she quite regularly eh.. shares the bed with someone else and that she then regularly.. eh.. for example.. eh.. doesn't do it safely.", see also example (3). This first step of analysis resulted in N = 616 information units. Following Hendriks, Van den Putte, and De Bruijn (2015), in order to assess conversational valence, every information unit related to safe sex or safe sex communication in the conversation was coded as having either

positive or negative valence. We coded an information unit as positive when it would most likely increase the chance that the participant would have safe sex, and as negative when it would most likely decrease the chance that the participant would have safe sex. Subsequently, in order to determine the valence per conversation, we subtracted the number of negative information units from the number of positive information units. For every information unit, coder 1 (the first author of the article on which this chapter is based) determined the valence. Next, coder 2 (a well-trained research assistant) thoroughly reviewed coder 1's conversational valence codes, resulting in an agreement of 78%.<sup>10</sup> Codes that coders did not agree on were discussed until full agreement was reached.

To be able to identify different types of communication behavior, we adopted definitions of the four types of communication behavior (admonishing, discussing casually, educating and negotiating) from our interview study described in Chapter 2 of this dissertation (see section 5.1.3). Coder 1 analyzed all 24 conversations according to the pre-established definitions of the four types of communication behavior. Subsequently, coder 3 (the third author of the article on which this chapter is based) thoroughly reviewed coder 1's analyses, and checked for disagreements with coder 1, resulting in an agreement of 93%. All remaining disagreements were resolved by discussion.

Finally, we identified behavioral determinants brought up in conversations. In this step of data analysis, the information units we generated in order to assess conversational valence were labeled according to definitions of the reasoned action approach provided by Fishbein & Ajzen (2010). For every information unit, coder 2 established to which concept within the reasoned action approach the information unit was related. The concepts within the reasoned action

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<sup>10</sup> Since the coders did not independently analyze the dataset we only report percentages of agreement in this section and the following sections, instead of a Cohen's kappa.

approach were operationalized based on Fishbein and Ajzen (2010), and in discussion between coder 1, coder 2, coder 3, and coder 4 (the second author of the article on which this chapter is based). The definitions can be found in Appendix 5.2. Coder 1 subsequently thoroughly reviewed coder 2's analyses of the 616 information units in terms of the reasoned action approach-concepts, resulting in an agreement of 81%. Codes that both coders did not agree on were discussed until full agreement was reached. The final codes were checked by coder 3 and coder 4.

### 5.3 Results

Below, in section 5.3.1, we first discuss the quantitative results with regard to participants' questionnaire W1-Q and W2-Q answers in order to answer RQ1. Subsequently, in section 5.3.2, we discuss the qualitative results: the content of the conversation transcripts with regard to (1) conversational valence; (2) types of communication behavior; and (3) behavioral determinants in order to answer RQ2. Finally, in order to answer RQ3, in section 5.3.3, we relate the quantitative results to the qualitative results.

#### 5.3.1 Quantitative Results

Table 5.2 shows the means and standard deviations of the variables measured in W1-Q and W2-Q.

**Table 5.2 Means (and SD) of variables measured in W1-Q and W2-Q. 1 = low; 7 = high**

	W1-Q	W2-Q
Safe sex intention	5.09 (1.43)	5.39 (1.51)
SSC partner intention	5.52 (1.28)	5.76 (1.40)
SSC friends intention	4.72 (1.65)	5.33 (1.49)

We found a main effect of *wave* ( $F(1,22) = 4.59$ ;  $p < .05$ ), reflecting that mean scores on intention were significantly higher on W2 ( $M = 5.49$ ;  $SE = 0.19$ ) than on W1 ( $M = 5.11$ ;  $SE = 0.23$ ).

### 5.3.2 Qualitative Results

Our findings from the qualitative analysis will be illustrated by excerpts, which were translated from Dutch into English for the purpose of this dissertation. We will refer to the target participants of this study as “person A”, and to their conversation partners as “person B”. Table 5.3 in Appendix 5.3 indicates for each individual conversation the following data: the conversation partners’ gender, their relationship, the overall valence of the conversation, the types of communication behavior we identified, and safe sex intention scores for person A at times W1 and W2.

#### *Conversational valence*

As described in section 5.2.4, we established the conversational valence of each individual conversation. In most conversations ( $N = 19$ ) participants talked predominantly positively about safe sex, as in the following example (conversation 2):

(1) B: Yeah. No, I would just do it safe and also, just be honest with yourself, that you don’t want an STI or something yourself either. At least, it seems to me that no one would want that.

A: Yeah.

B: And should you have one, then you should definitely not be proud of it.

In the 5 remaining conversations, participants talked about safe sex in a more negative way, as in the following example, which indicates a lack of

perceived risk or perceived vulnerability for contracting an STI (conversation 20):

(2) B: Aren't you afraid that eh.. well you contract something through unsafe sex?

A: Well actually no. I feel like it's a very far-off thing, but eh no actually.. not.

### *Types of communication behavior*

As described in section 5.4.2, we also looked at the types of communication behavior that could be identified in the conversation.

In 21 of the 24 conversations we identified casual discussions. In some cases, casual discussion revolved around the exchange of anecdotes or experiences, as in the following example (conversation 21):

(3) A: And I know, for example, well, for example, I have someone in my group of friends from home. I know that she quite regularly eh.. shares the bed with someone else and that she then regularly.. eh.. for example.. eh.. doesn't do it safely. It even happened once that we got a message in our WhatsApp group like.. it's a girl, by the way, like eh yeah, eh, how can I get the morning after pill, as a matter of eh.. I laughed really hard about that.

In other cases, as in the following example (conversation 10), casual discussion revolved around participants' attitude toward sexuality or safe sex:

(4) A: That's ridiculous, right? It's just.. I think that yeah, when a guy won't take care of it [a condom], then I will. And if he then doesn't want to anymore, well, he can beat it (laughs).

B: Yeah, that's true.

A: That's how I feel.

B: Yeah, that's your opinion, a lot of girls are not resilient enough against that, right?

Furthermore, in 8 cases we found examples of educating behavior, in which explicit information on safe sex was exchanged, as in the following example (conversation 12):

(5) A: And why would you eh.. choose to use protection or not to use protection?

B: Eh.. yeah, you don't want to deal with the consequences, like, STI or worst case scenario a baby, if you don't want one. Yeah, those are the main reasons why you would use that to have safe sex.

Finally, in 4 cases, one of the conversation partners admonished the other on his or her sexual behavior. In some cases, the admonishment occurred directly, as in the following example (conversation 3):

(6) A: With X, I did it without [a condom] once too.

B: Ooooooh..

A: Terrible, huh?

B: Were you on the pill?

A: I did.. no.

B: You nitwit!

In other cases, the admonishment occurred more indirectly, as in the following example (conversation 20):

(7) A: Would you do it [safe] next time?

B: Yes.

A: Yes?

B: Yes.

A: Okay. Clever.

Since none of the conversations took place between sexual partners, we could not identify any cases of actual negotiating behavior. However, in 17 conversations, participants talked *about* negotiating about safe sex. Since participants often referred to personal experiences or anecdotes, this way of talking about negotiating can also be seen as a form of casual discussion, as in the following example (conversation 8):

(8) A: I can imagine eh what they mean with that it may kill the mood a little bit when you ask that question. But I actually kind of like it and especially when a guy talks about this first eh.. that he just, that shows responsibility and stuff. I think that is eh.. that is really cool actually.

#### *Behavioral determinants brought up in conversations*

Finally, for every conversation, the content was analyzed with regard to behavioral determinants of safe sex in terms of the reasoned action approach (Fishbein & Ajzen, 2010). We found that participants most often talked about



their attitudes with regard to safe sex (N = 177), as in the following example (conversation 14):

(9) A: Yeah, but I think men that whine about it not being chill or something with [a condom], I really think yeah...

B: Well yeah, tough.

A: I think that's so stupid.

Furthermore, participants often talked about their intention (N = 49) or their behavior (N = 41) with regard to safe sex, as in the following example (conversation 21):

(10)A: (...) Eh yeah about myself, about myself I have a bit more to talk about: I pretty much always do it safe.

Moreover, in 49 cases, participants talked about their past behavior, as in the following example (conversation 5):

(11)B: I can't even recall that we ever used a condom (...)

In 52 information units we identified an injunctive norm, as in the following example in which the term *taboo* is used to indicate an injunctive norm (conversation 24):

(12)B: (...) I find it pretty difficult to find where you can do an STI test, how you can do that easily and there is a little bit of a taboo there and you don't want people to find out.

In 39 information units we identified a descriptive norm, as in the following example (conversation 10):

(13)A: You hear a lot of stories of eh (...) well in Groningen in any case, yeah I think that only few students actually do it safe.

With regard to perceived behavioral control, we mostly uncovered information on perceived capacity (N = 47), as in the following example (conversation 17):

(14)B: And I don't think that I would forget [to have safe sex] or something.

A: No.

B: Or that I would be scared to ask.

### 5.3.3 Comparing quantitative and qualitative results

We compared individual scores of W1 to W2. As can be seen in Table 5.3 in Appendix 5.3, we found that in 7 dyads, person A's intention to have safe sex decreased *numerically* (ranging from a decrease of 0.5 to 3.5 on the 7-point rating scale). In 3 dyads, person A's intention to have safe sex did not change. In 13 dyads, person A's intention to have safe sex increased (ranging from an increase of 0.5 to 2.5).

It should be noted that for most dyads, person A's safe sex intention scores were already above midpoint "4" of the 7-point rating scale at W1 (N = 21) and

W2 (N = 20). Furthermore, for most dyads (N = 17), changes in person A's safe sex intentions did not exceed 1 scale point on the 7-point rating scale that was used. Below, we zoom in on the dyads that show either a decrease or an increase of more than 1 scale point in person A's safe sex intentions compared to W1 scores. For these conversations, we will look in more detail at the content of the conversations with regard to conversational valence, type of communication behavior, and behavioral determinants, and explore how this relates to the quantitative effects we found. The criterium used here (of more than 1 scale point) is of course rather arbitrary, but it is used heuristically to allow us to focus on the clearest cases of change in intention.

#### *Quantitative decrease in safe sex intentions*

In two conversations (number 12 and 22, see Appendix 5.3), person A's safe sex intention decreased (resp. from 5.5 to 2 and from 5.5 to 3.5). Both conversations were coded as having an overall positive valence (see section 5.3.2), indicating a discrepancy between questionnaire scores and the valence that we coded. In both conversations, casual discussion was the dominant type of communication behavior. Whereas in conversation 12 the two partners mainly exchanged experiences and anecdotes with regard to safe sex, in the conversation 22, the dyad mainly talked about their general attitude towards sexuality and safe sex. Furthermore, they exchanged information regarding safe sex.

Both conversations predominantly revealed information units exposing behavioral determinants with a positive valence. For conversation 12, both person A and person B expressed their intention to have safe sex. Person A furthermore indicated as an injunctive norm that having an STI is not cool. Moreover, person B expressed that it may ruin the mood a little bit to talk about condoms, but that this does not outweigh the benefits, which indicates a positive instrumental attitude. All of these utterances emphasize the importance of having safe sex. It is therefore rather difficult to account for the quantitative decrease in person A's safe sex intentions.

In conversation 22 a number of information units exposing behavioral determinants with a negative valence were identified: With regard to safe sex behavior and intention, person A indicated she rarely has safe sex, and that she does not intend to bring a condom when going out. Furthermore, person A and B both revealed the negative experiential attitude that using a condom is a hassle and that past experiences with a condom backfired. Finally, person B (female) mentioned as an injunctive norm that men tend to think that having sex with a condom is less pleasurable. However, quite a few information units in this conversation revolve around anecdotes in which a condom *was* actually used or in which past sexual education in school is discussed, accounting for more information units with a positive valence.

#### *Quantitative increase in safe sex intentions*

In 4 conversations (number 4, 14 17 and 24, see Appendix 5.3), person A's safe sex intention increased by more than 1 scale point compared to W1 scores (resp. from 5 to 7, from 5 to 6.5, from 4 to 6 and from 2.5 to 5). All 4 conversations were coded as having a positive valence. In these conversations, we identified casual discussion and educating as the dominant types of communication behavior. The casual discussions mostly revolved either around the exchange of anecdotes and a general attitude regarding sexuality and safe sex, or around talking about negotiating with a sexual partner. In conversation 24, person B indirectly admonished person A when she indicated not always having safe sex, for instance by saying: "But with a steady boyfriend you would, right?". In this conversation, the admonishment and anecdotes shared by person B may have contributed to the increase in person A's safe sex intentions, even when person A indicated in the conversation she does not always have safe sex.

A number of information units exposing behavioral determinants with a positive valence could be identified: Some participants indicated they generally have, and also intend to have, safe sex, and always keep condoms in their house. Furthermore, several experiential and instrumental attitudes were expressed: It

is not strange to talk about condoms; it is a good idea to have safe sex and to take an STI test, especially with varying sexual partners. Some participants indicated they do not want to get pregnant at their age, and that having unsafe sex is not worth the risk. Additionally, the descriptive social norm was expressed that people in the social environment talk a lot about safe sex. Moreover, some participants expressed perceived behavioral control, for instance by indicating that they would not hesitate to bring up the topic of safe sex, and that a sexual partner had better be fine with using a condom because otherwise the participant would not have sex. Finally, participants talked about the importance and effectiveness of using condoms and other safe sex methods such as the pill. The overall positive valence of the behavioral determinants brought up in these conversations may account for the quantitative increase in person A's safe sex intentions.

## **5.4 Discussion**

With this study, we investigated the effects of conversations on determinants of college students' safe sex intentions. Earlier studies on interpersonal health communication have found that, in some cases, conversations had a positive effect on the advocated health behavior, but that in other cases the effects were detrimental. To find an explanation for these contrasting outcomes, we looked at the content of actual conversations, instead of using indirect, self-reported measures of conversations as was done in previous work. In the present study, we recorded and analyzed actual conversations about safe sex, triggered by a safe sex message, in order to find out whether and how such a conversation would affect safe sex intentions.

We found that watching a safe sex message followed by a conversation on safe sex significantly strengthened intentions to have safe sex and to discuss safe sex with a sexual partner and with friends. This result was significant despite the fact that scores on safe sex intention were already quite high at W1, and despite

the limited number of participants due to our strict inclusion criteria and to our decision to include in-depth qualitative analysis of the conversations.

Furthermore, we were interested in *what happened* in these conversations with regard to conversational valence, types of communication behavior, and behavioral determinants brought up in the conversations. We found that participants often discussed the topic “safe sex” casually by exchanging anecdotes (both personal anecdotes and anecdotes about other people) or by talking about their attitude towards safe sex or sexuality in general. Such casual discussions may be a main influential element of safe sex conversations. The examples we found of talking *about* negotiating with a sexual partner can also be categorized under casual discussion, since they also often refer to personal experiences or anecdotes. As Weinstein (1993) concludes, first-hand experiences conveyed by peers may be very persuasive, maybe more so than abstract numbers or statistics. In addition, the conversations appeared to be a rich source of information for both conversation partners. For a number of conversations that indicated an increase in safe sex intentions, we identified elements of educating behavior. This result coincides with the idea of peer education as a potentially effective tool for improving sexual health among young people (e.g., Tolti, 2012). Moreover, aside from receiving information from the conversation partner on, for instance, the injunctive and descriptive norms, expressing one’s own behavior with regard to safe sex may make one more aware of their own behavior patterns and the underlying attitudes and beliefs. Apparently, it is not at all necessary to admonish someone on their health behavior in order to influence their behavioral intentions. Rather, the conversations appear to be an opportunity to (critically) reflect on one’s beliefs with regard to safe sex behavior in the presence of a person one is comfortable with.

We furthermore found that a majority of the conversations displayed a positive conversational valence: In most cases, conversation partners talked

positively about safe sex. This was also reflected in the number of conversations in which safe sex intentions of our target person A either stayed the same or increased after the conversation. Hendriks et al. (2012) found that a negative conversational valence in the context of binge drinking (i.e., an “unhealthy behavior”) was associated with healthier behavioral intentions (i.e., higher intentions to refrain from binge drinking). In our study, however, when we compared quantitative and qualitative analyses, we found some discrepancies between conversational valence and scores on behavioral intentions. According to the reasoned action approach (Fishbein & Ajzen, 2010), changes in behavioral intention stem from a change in beliefs related to attitudes, social norms, or perceived behavioral control. In the conversations, a discrepancy between, for instance, one’s attitude or a social norm on the one and one’s own behavior on the other hand may have become visible; it appeared to be difficult for participants to “defend”, for instance, past unsafe sex behavior when a social norm in favor of safe sex was discussed in the conversation. This inconsistency in beliefs and behavior may lead to a state of cognitive dissonance (see e.g., Harmon-Jones & Mills, 1999), which can be solved in two ways: (1) by changing one’s behavioral intentions to be consistent with one’s beliefs, for instance, by ‘promising’ the conversation partner safer sex behavior in the future, or (2) by changing one’s beliefs to be consistent with one’s (lack of) behavioral intentions, for instance, by emphasizing the hassle of using a condom. This mechanism of solving cognitive dissonance in conversations may be explored further in future research.

The present study is one of the first that relate the effects with the content of *actual* safe sex conversations, triggered by a safe sex message. In order to maximize external validity we provided participants with the freedom to choose their own conversation partner. Furthermore, participants recorded the conversations in their private environment, which may have increased their feelings of comfort compared to a laboratory study setting. Nevertheless, there are some methodological issues that need to be addressed in future research.

First of all, it should be taken into account that most people regard safe sex as a sensitive topic (e.g., Moyer-Gusé et al., 2011). In order to maintain a good relationship between conversation partners, avoiding such a sensitive topic may be an implicit norm (Allen et al., 2002). Not everyone may be willing or able to talk about sensitive topics equally openly; sometimes, people may be more reluctant to talk about topics such as safe sex. Perhaps, for this topic and for other sensitive topics, people may not be completely truthful about their own beliefs when these beliefs conflict with the perceived social norm. In such cases where there may be a discrepancy between social norms and one's own beliefs, a (positive) conversational valence score should be treated with caution.

Furthermore, it should be taken into account between whom the conversations take place. In our study, most of the dyads consisted of two female conversation partners. It may be interesting for future studies to include more male-male and mixed-sex dyads of participants. Moreover, in the present study, we mainly focused on sexually active college students without a steady sexual partner. In addition, in our study, the target participants were completely free to choose whom to talk to; we did not place any constraint on whether "person B" did have a steady sexual partner, or whether this person B was sexually active or not. These factors may have affected the conversations regarding the extent to which anecdotes and experiences with respect to safe sex are shared. Future studies could specifically select dyads differing in sex, sexual activity and relationship status, but should in any event take those factors into account.

## **5.5 Conclusion**

In this study, we looked into the quantitative effects and into the content of actual conversations about safe sex, triggered by a safe sex message, on college students' safe sex-related intentions. We found that watching a safe sex message followed by a conversation on this issue increased intentions related to safe sex. Participants appeared to seize conversations as an opportunity to exchange



information, and to share experiences and attitudes with regard to safe sex, thus exposing behavioral patterns and social norms. Our results show that it is not sufficient to look only at quantitative effects of conversations, but that content-related aspects, such as conversational valence, type of communication behavior and behavioral determinants brought up in conversations should also be considered in order to understand the how and why of conversational effectiveness. Future research may extend our findings to other contexts and other types of dyads, and may also focus on the cognitive dissonance and sensitivity that may be associated with talking about safe sex.

## Appendix 5.1: Measures

### *Safe sex behavior (W1-Q and W3-Q)*

Safe sex behavior was measured using a five-point semantic differential item: "When I have sex, I have safe sex" (1 = never, 5 = always; 9 = n.a.). In W3-Q, safe sex behavior was assessed again using three five-point semantic differential items: "In the past two weeks, when I had sex, I had safe sex" (1 = never, 5 = always; 9 = n.a.).

### *Safe sex and SSC intentions (W1-Q and W2-Q)*

The intention to engage in safe sex was measured using two seven-point Likert items (Cronbach's  $\alpha = .97$ ;  $r = .94$ ): "I plan on only having safe sex", and "I will only have safe sex" (1 = I completely disagree, 7 = I completely agree). The intention to engage in SSC with a sexual partner and with friends was measured using four seven-point Likert items (Cronbach's  $\alpha = .97$ ;  $r = .95$  for sexual partner and Cronbach's  $\alpha = .94$ ;  $r = .88$  for friends): "I plan on talking with a sexual partner [friends] about using condoms [safe sex]" and "I will talk with a sexual partner [friends] about using condoms [safe sex]" (1 = I completely disagree, 7 = I completely agree).

### *Other (W1-Q and W2-Q)*

Finally, questions were asked regarding participants' age, gender, sexual activity ("Have you been sexually active in the past year? Yes/No"), and status of having a steady sexual partner ("Do you have a steady sexual partner? Yes/No"). Furthermore, in an open-ended question in W2-Q, we asked what the relationship was with the person with whom participants participated in W2 and W3 (e.g., friends or family).

## **Appendix 5.2: Definitions of behavioral determinants (based on Fishbein & Ajzen, 2010)**

**Intention:** A person's estimate of the likelihood or perceived probability of performing a given behavior.

**Attitude:** A latent disposition or tendency to respond with some degree of favorableness or unfavorableness to a psychological object. Attitudes may consist of two aspects:

- **Instrumental aspect:** Anticipated positive or negative consequences.
- **Experiential aspect:** Positive or negative experiences perceived to be associated with performing the behavior.

**Perceived norm:** Perceived social pressure to perform or not to perform a given behavior. Two types of norms can be distinguished:

- **Injunctive norm:** Perceptions concerning what should or ought to be done.
- **Descriptive norm:** Perceptions that others are or are not performing the behavior in question.

**Perceived behavioral control:** People's perceptions of the degree to which they are capable of (**perceived capacity**), or have control over (**perceived autonomy**), performing a given behavior.

**Appendix 5.3: Analyses per conversation**

**Table 5.3. Information per conversation on (1) gender of conversation partners; (2) relationship between conversation partners; (3) types of communication behavior identified (dominant type of behavior in bold); (4) conversational valence; and (5) person A's scores on safe sex intention at W1 and W2. 1 = low; 7 = high**

Conv.	Gender	Relation	Type of communication behavior			Valence	Safe sex intention (person A)		
			Casual discussion	Adm-nishing	Edu-cating		W1	W2	Δ
1	F	Friends	<b>X</b>			+	6.0	6.5	+0.5
2	F	Friends	<b>X</b>			+	7.0	Missing	-
3	F	Friends	<b>X</b>	<b>X</b>		+	2.0	2.0	0.0
4	F	Friends	<b>X</b>			+	5.0	7.0	+2.0
5	F	Friends/roommates	<b>X</b>	<b>X</b>	<b>X</b>	-	4.0	5.0	+1.0
6	F	Roommates	<b>X</b>			-	4.0	5.0	+1.0
7	F	Partners (not sexually active)				+	7.0	7.0	0.0
8	F	Friends				+	3.0	4.0	+1.0
9	F	Friends	<b>X</b>	<b>X</b>	<b>X</b>	-	4.0	5.0	+1.0
10	F	Family	<b>X</b>			-	7.0	7.0	0.0
11	F	Family	<b>X</b>	<b>X</b>		+	5.0	4.0	-1.0
12	M	Friends	<b>X</b>		<b>X</b>	+	5.5	2.0	-3.5
13	F	Friends	<b>X</b>		<b>X</b>	+	5.0	6.0	+1.0

14	F	F	Friends	X					X	+	5.0	6.5	+1.5
15	F	F	Friends	X					X	+	7.0	6.5	-5
16	F	F	Friends	X					X	+	6.0	7.0	+1.0
17	F	F	Friends	X					X	+	4.0	6.0	+2.0
18	M	M	Friends	X					X	+	6.5	6.0	-5
19	F	M	Partners (not sexually active)	X					X	+	7.0	6.0	-1.0
20	F	F	Friends	X			X		X	-	5.0	5.5	+5
21	M	M	Friends	X					X	+	5.0	4.5	-5
22	F	F	Friends	X					X	+	5.5	3.5	-2.0
23	M	F	Friends	X					X	+	6.0	7.0	+1.0
24	F	F	Friends	X			X		X	+	2.5	5.0	+2.5

# **Chapter 6**

General discussion

In this chapter we discuss the main findings and conclusions of this dissertation. To this end we first reexamine the goals and global set-up of this dissertation, after which we provide an overview of the main research questions and the main findings. Subsequently, we discuss the theoretical implications of these main findings. We also reflect on the methodological context of this dissertation with regard to the measurement of health behavior, the focus on offline versus online interpersonal health communication, and the mixed methodology of the studies we conducted. We then examine the practical implications of our study results and end with a general conclusion.

## **6.1 Brief survey of the goals, global set-up, research questions and main findings**

### **6.1.1 Goals and global set-up**

With the studies discussed in Chapters 2 to 5, we addressed two gaps in the literature on interpersonal health communication.

First, we aimed to gain insight into the factors that influence the *occurrence* of interpersonal health communication. Although there is no doubt *that* conversations are influential in achieving campaign goals (Hafstad & Aarø, 1997; Southwell & Yzer, 2009; Jeong & Bae, 2017), we as yet do not have a clear picture of the conditions under which health campaigns may lead to health-related conversations, for instance, which types of health messages may be effective in triggering interpersonal health communication, and how conversations arise when they are not triggered by a health campaign. In this dissertation, we contributed to filling this gap by first conducting an interview study in which we asked participants about their communication behavior with regard to health issues. From these interviews we extracted a number of factors that appeared to influence the occurrence of spontaneous interpersonal health communication. Next, we conducted two experimental studies to test which factors influence the

occurrence of health campaign-induced interpersonal health communication. In the first experimental study we focused on interpersonal health communication triggered by complex messages about different health themes. In the second experimental study we focused on interpersonal health communication triggered by a narrative message on one specific health theme: safe sex.

Second, we aimed to attain a deeper knowledge on factors that determine the *effects* of interpersonal health communication induced by a health campaign. Even though researchers recognize the importance of interpersonal health communication (e.g., Cline, 2003; Hwang, 2012; Seo & Matsaganis, 2013; Southwell & Yzer, 2007; Brennan et al., 2016), effectiveness is often conceptualized in terms of self-reported measures (Southwell & Yzer, 2007). Jeong and Bae (2017) conducted a meta-analysis on the effects of campaign-generated interpersonal communication on health behavior determinants and included some potential moderators of effects of interpersonal health communication on health-related outcomes, such as health theme, targeted health outcomes, and conversation partner. However, no studies were included in which actual, as opposed to self-reported, health-related conversations are examined. In this dissertation, we addressed this gap by conducting a mixed-method study in which we recorded and analyzed actual conversations about the theme of safe sex. These conversations took place after participants (dyads consisting of a college student and a conversation partner of their own choosing) had watched a narrative message about safe sex. We furthermore compared scores on safe sex-related behavioral determinants before and after the conversations, in order to estimate the effects of the conversations.

### **6.1.2 Research questions and main findings**

In Chapter 1, we introduced four research questions in order to address the goal of this dissertation:



- RQ1: Which factors influence the occurrence of self-reported *spontaneous* interpersonal health communication?
- RQ2: Which factors influence the occurrence of interpersonal health communication induced by a *complex* message?
- RQ3: Which factors influence the occurrence of interpersonal health communication induced by a *narrative* message?
- RQ4: Which factors influence the effectiveness of campaign-induced interpersonal health communication?

In Chapter 2, we provided a tentative answer to RQ1. We found that interpersonal health communication must not be considered one general type of behavior. Rather, it consists of at least four types of communication behavior: casually discussing (casually talking about a health theme in a social setting), admonishing (directly urging someone to adapt their health behavior), educating (providing someone with information in order to prevent unhealthy behavior) and negotiating (attempting to reach agreement in adapting health behavior that will benefit all conversation partners). Furthermore, we recognized that interpersonal health communication is a goal-oriented type of behavior, as suggested by, for instance, Clark and Delia (1979) and Dillard et al. (1989), and that the specific goals one aims for when communicating about health issues can be different for each type of communication behavior. In casual discussions, when gossiping about someone's unhealthy eating habits, for instance, people's main concerns seem to be with identity objectives or interpersonal objectives. In those cases, impression management and avoiding 'face threats' to all participants in the interaction are very important; people indicated *not* to talk about bad eating habits when, for instance, an obese person is present in the communicative situation. In other cases, besides being concerned with face-issues, people appear to be interested in instrumental objectives, that is, with the actual effectiveness of the conversation. We found that when, for instance, admonishing someone on his/her smoking behavior, educating someone on the

consequences of binge drinking or negotiating with someone on the use of a condom, participants' main goal appeared to be achieving a healthier behavior. Whether, when, and how interpersonal health communication eventually takes place is also dependent on the context in which the conversation takes place (e.g., whether a person whom the topic personally concerns is present in the communicative situation), the health theme (e.g., the personal relevance or the sensitivity of the topic), and between whom the conversation takes place (e.g., the social proximity of the conversation partners and their personal characteristics, such as age or level of education). Jeong and Bae (2017) include some of these factors, such as health theme, participant age, and the relationship between the conversation partners in their analysis as moderators for the *effectiveness* of campaign-generated conversations; our study results show that these moderators may already play a role in the *occurrence* of these conversations.

In Chapter 2 we focused on spontaneous conversations about health issues. In Chapters 3 and 4 we addressed the issue of how interpersonal health communication may be triggered through a health campaign. Health organizations increasingly recognize that explicit messages, that is, messages that focus on logic and argument related to behavioral consequences (Van Leeuwen, 2015) may not be very effective in influencing health behavior (Hornik et al., 2008; Wakefield et al., 2010), for instance because such explicit messages may cause reactance among the target group. Researchers in the field of interpersonal health communication (e.g., Southwell & Yzer, 2009) indicate that interpersonal health communication may be induced specifically by the form or design of a message. In Chapter 3 and 4, we investigated two types of non-explicit health messages that may be effective in triggering interpersonal health communication: complex messages and narrative messages.

In Chapter 3, we focused on a specific message feature, message complexity, in order to answer RQ2. We assumed that processing time, as an index of message complexity, may be related to the intention to talk about a health

campaign. Our results showed that a higher processing time was not necessarily associated with a higher intention to talk about a health campaign. Instead, processing time interacted with personal relevance. When a campaign was perceived as not personally relevant, processing time positively predicted the intention to talk. When a campaign was perceived as personally relevant, on the other hand, longer processing times were associated with a decrease in the intention to talk, possibly because a higher processing time indicated that message complexity distracted people when processing personally relevant messages. Furthermore, longer processing times were associated with decreased intention to perform the health behavior promoted in the campaign and also with a decrease in actual understanding of the messages. Our results suggest that in order to trigger interpersonal health communication and ultimately healthier behavior, messages are preferred that are personally relevant and that evoke pleasure. This suggests it may not be wise to use complex messages as a trigger for interpersonal health communication.

Even though we did not expect explicit health messages to be as effective in triggering interpersonal health communication as non-explicit health messages, the results discussed in Chapter 3 indicate that complex health campaigns may not be the way to go. Another non-explicit message type is the narrative message, which was the focus of Chapter 4. Here, we looked at a specific health topic that is relevant for a particular target group: safe sex behavior among college students. RQ3 was addressed in the study discussed in Chapter 4. In this study we developed a narrative health message in the form of a video clip, based on the idea that such a message may provide people with a social script for talking about safe sex and may increase the tendency to both discuss safe sex and, when having sex, to have *safe* sex. We found that after watching the video clip, college students were more inclined to discuss safe sex with a sexual partner and had higher intentions to discuss safe sex with friends. Furthermore, we found that college students were more inclined to have safe sex after having watched the video clip than after having read a brochure on the same topic. Narrative processes (i.e.,

transportation into the story and identification with one of the characters) proved to be significant predictors of intention to discuss safe sex with a sexual partner and with friends. Furthermore, transportation into the story significantly predicted the intention to have safe sex. These results indicate that in order to prompt interpersonal health communication and healthier behavior with regard to safe sex, it may be advisable to use messages that trigger narrative processes such as transportation and identification.

RQ4 was addressed in Chapter 5. Here, we studied both the content and the effects of actual conversations that occurred after watching the video clip developed for the study reported on in Chapter 4. We found that watching this narrative message about safe sex and safe sex communication followed by a conversation about safe sex increased college students' intentions to have safe sex, and to discuss safe sex with a sexual partner and with friends. As for the conversational content, we found that the conversations had a *positive* valence in most cases, suggesting that the content of the conversation would increase the likelihood of 'healthy' behavior (i.e., safe sex). In terms of the types of communication behavior we identified in Chapter 2, we found that most conversations predominantly displayed casual discussions. Admonishment was not observed very frequently, indicating that it may not be necessary to admonish someone in order to influence health behavior intentions. In Chapter 1, we stated that a conversation may be a suitable vehicle for creating or changing beliefs that may ultimately affect health behavior. Looking at conversational content in more detail, we indeed found that participants often displayed their attitudes, intentions and talked about both past and current behavior with regard to safe sex, for instance in personal anecdotes or other narratives about safe sex. This exposed amongst other things patterns of behavior, attitudes and social norms. It is not possible to gather such insights through self-reported measures, for instance.

## 6.2 Theoretical implications

The study results discussed above have some important implications for theories on interpersonal health communication.

First of all, research on interpersonal health communication so far has not distinguished between different types of health-related conversations. Studies such as Dunlop et al. (2014) and Weinstein (1993), as well as literature on peer education (e.g., Tolle, 2012) focus mostly on explicit persuasion attempts, that is, getting someone to behave in a healthier manner. In our interview study discussed in Chapter 2 (and later in our mixed method study discussed in Chapter 5) we saw several categories of ‘talk’ about health issues, other than admonishing, that may be prevalent and may be influential for eventual health behavior, namely educating and negotiating. Furthermore, in the conversations about safe sex reported on in Chapter 5, casual discussion, in the form of recounting anecdotes and experiences related to safe sex and safe sex communication, was the most prevalent type of communication behavior. This outcome is in line with findings of Hendriks and De Bruijn (2015) on what college students said they talk about in the context of alcohol. There, it was found that students reported to predominantly talk casually about their own and others’ experiences with alcohol use. We found casual discussions to be associated with effects on safe sex-related intentions, which suggests that conscious, direct persuasion attempts are not typical and may not be necessary in order to influence health behavior (see also Dunlop et al., 2014). Since our study results suggest that different types of communication behavior may trigger different types of effects of a conversation, it may be wise for future studies to include this distinction between different types of communication behavior as a moderator of conversation effectiveness. Jeong and Bae’s (2017) meta-analysis on the effectiveness of campaign-generated interpersonal communication included some potential moderators of effects of interpersonal health communication on health-related outcomes, such as health theme, targeted health outcomes, and

conversation partner. However, it did not take factors related to conversational content, such as the *type* of communication behavior generated by a campaign, into account as a possible moderator of effectiveness of interpersonal health communication on health behavior determinants.

Hendriks et al. (2015) found that *self-persuasion*, or changes in attitude and intention based on verbalized perceptions of one's own behavior (Bem, 1965) in a conversation may even be more important for health behavior intentions than persuasion by the conversation partner. This might also be the case in the conversations we elicited in our study discussed in Chapter 5, where past and current behavior came in the open through exchanging personal experiences. Self-persuasion may especially arise when the conversation reveals a discrepancy between one's own attitudes or prevalent social norms on the one hand and the perception of one's actual behavioral pattern on the other hand. Such a "cognitive dissonance" (e.g., Harmon-Jones & Mills, 1999) may lead to changes in behavior or in behavioral intentions as people will strive for cognitive consistency. In addition, according to Compton and Pfau (2009), one of the functions of talking is to get reassured in one's own beliefs. Indeed, talking can be used as a way to reduce uncertainty by increasing feelings of social support and self-efficacy (Jeong & Bae, 2017). However, our conversational data showed that one does not always get reassured in a conversation, especially with a friend who has your best interest at heart also where your health is concerned. It is important that future studies investigate this possible relationship between cognitive dissonance and (self-)persuasion in interpersonal health communication in more detail. One way in which this possibly could be done is by comparing health-related statements made in a conversation to health-related statements made when 'thinking aloud' about a health issue (i.e., without participating in a conversation). Both types of statements can then be compared to behavioral outcomes of the conversations. That way, future studies could also provide more insight in the role of one's own conversational participation and that of the conversation partner in conversational outcomes.

So far, most of the research on interpersonal health communication has focused on conversations that occur after being triggered by a health campaign (cf. meta-analysis by Jeong and Bae, 2017). But there are also studies, like Hendriks et al. (2014), that found that when college students were merely instructed to talk about alcohol and binge drinking, so without a previous anti-alcohol health message exposure, they were less inclined to refrain from binge drinking.<sup>11</sup> This finding underlines the important distinction between conversations that are specifically intended to be ‘steered’ in the intended direction by a health campaign (as suggested by Helme et al., 2011), and conversations that are not so guided. Our interview study discussed in Chapter 2 focused on interpersonal health communication that arises without exposure to a specific health campaign. In doing so, we acknowledged that we need to know more about the determinants of health communication itself in order to be able to generate interpersonal communication in the direction intended by a health campaign designer, (Yzer, 2008). Most research in the field of interpersonal health communication focuses on the effects of interpersonal health communication on *health behavior determinants* (e.g., David et al., 2006; Dunlop et al., 2010; Hendriks et al., 2012; Van den Putte et al., 2011). Jeong and Bae (2017), for instance, found that campaign-induced health conversations had a greater effect on health-related intentions and behaviors than on more ‘immediate’ outcomes such as awareness. However, we were specifically interested in the determinants of interpersonal health communication *itself*.

Theories of behavioral prediction such as the reasoned action approach (Fishbein & Ajzen, 2010) have been used to map determinants of health behavior. The conceptualization made in these theories of individual behavioral

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<sup>11</sup> In Hendriks et al. (2014), all participants were exposed to five short unrelated videos (e.g., commercials on chewing gum and on a DIY-store); for half of the participants, one of these five messages was an anti-alcohol message.

determinants concerning health behavior, such as one's attitudes and perceived social norms, may also be applicable to communicative behavior such as interpersonal health communication. Talking about a health issue, just as performing a health-related behavior, may be influenced by one's attitudes and perceived social norms concerning interpersonal health communication, for instance. However, in Chapter 2 it was suggested that these intrapersonal behavioral determinants are difficult to apply to a highly social behavior such as interpersonal health communication. A communicative situation always involves other people, which almost automatically involves an anticipation of the reaction of others involved in the conversation. This way, some form of perceived social norm is always part of individual attitudinal and efficacy beliefs. Thus, prevailing models of behavioral prediction that focus on intrapersonal determinants of behavior may not suffice for 'describing' interpersonal health communication. While we made a first attempt to explore the mechanisms underlying the occurrence of interpersonal communication in Chapters 2, 3, and 4, the next step is to focus on developing a framework to predict the kind of 'social behavior' (as opposed to 'individual behavior', e.g., flossing your teeth regularly) that is interpersonal health communication for specific health themes and in specific contexts (Southwell & Yzer, 2007; see also Donné et al., 2016). Insight into the factors that may predict the occurrence of interpersonal communication may enable the field of interpersonal health communication to implement this information in designing effective health campaigns and further progress in steering conversations in a 'healthy' direction.

As discussed in Chapter 1, effects of campaign-induced interpersonal communication may be brought about in two ways (Hornik & Yanovitzky, 2003; Van den Putte et al., 2011), namely (1) by increasing reach and frequency of exposure to the campaign content, and (2) by sparking discussions between members of a community that may influence behavioral determinants. In the mixed-method study discussed in Chapter 5, we asked dyads of young people to talk about a given health theme after watching a video on that health theme



*together*. In this study, we therefore investigated the second way in which campaign-induced interpersonal health communication may be effective: by eliciting discussions on the actual health theme that may influence behavioral determinants. We found that *casual discussion* took up a large part of all conversations, for instance in the form of anecdotes or first-hand experiences, which may be regarded as more persuasive than abstract, impersonal information (e.g., Borgida & Nisbett, 1977). We furthermore found that the conversations positively influenced health-related intentions. This finding is in line with Jeong and Bae (2017), who found an overall positive effect in their meta-analysis of campaign-generated interpersonal health communication on health-related intentions.

Previous research suggests that campaigns have the potential to raise awareness, while interpersonal communication may be more effective in changing attitudes, perceived social norms, self-efficacy and, ultimately, behavior (Rogers, 2003; Schuster et al., 2006). In our study discussed in Chapter 5, we also observed an interesting function of the health message itself: that of a “conversation starter”. Some participants who appeared to have some trouble explicitly talking about personal sexual experiences employed the health message as a conversational ‘handle’. They could then talk about the health topic in a ‘safer’ manner, by talking about what they saw in or thought about the health message itself. Especially for sensitive health topics like safe sex, this may be a good way to generate further conversation on the health topic itself. Van den Putte et al. (2011) found that talking about the campaign may actually lead to talking about the health topic itself. Lubinga et al. (2016) already took a first step in studying the dissemination and effects of cryptic HIV/AIDS messages through dyadic conversations between South African women by looking in detail at the content of these conversations with regard to, amongst other things, message interpretation. Future studies could focus on expanding the context of Lubinga et al. (2016) and our own studies to other health contexts, cultural contexts and to other message types, and address how “conversation-stimulating” messages

may be further disseminated in order to trigger actual discussions about the health topic. The effects of such messages, then, may indeed be brought about in two ways (Hornik & Yanovitzky, 2003; Van den Putte et al., 2011): The message content may be further spread and further shaped in a discussion, ideally leading to healthier behavior.

As discussed in section 6.1.2, as well as in Chapters 3 and 4, we focused on two types of non-explicit messages that may be used to trigger interpersonal communication: complex messages and narrative messages. For our study on complex messages aimed at triggering interpersonal health communication, we combined two general ideas on the mechanism underlying the relationship between message complexity and interpersonal health communication: creating puzzlement about the meaning of the message (Hollemaans, 2005) and inducing pleasure of text through self-congratulatory thoughts (Hoeken et al., 2009). With the results we found, we extended the findings of Lubinga et al. (2010) and Lubinga et al. (2014) that complicating a message in itself does not appear to be effective in triggering conversations. Instead, it may be better to avoid complex health messages that necessitate a high processing time, and focus on developing messages with a high perceived personal relevance that at the same time induce pleasure. An exception should be made for messages that are not perceived as personally relevant by the target group: in that case, we found that a higher processing time led to a higher inclination to talk about the message. The Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) suggests a difference in processing messages that *are* and messages that are *not* perceived as personally relevant. Messages that are perceived as personally relevant evoke deeper, more elaborate processing which eventually leads to stronger and more stable attitudes which are predictive of actual behavior. Messages that are not perceived as personally relevant, on the other hand, evoke more superficial processing based on heuristic cues (e.g., the number of arguments in a message or the authority of the sender of the message) rather than on argument strength. Such more superficial processing leads to weaker attitudes that are less stable in

the longer term. Perhaps for messages that are not perceived as personally relevant, message complexity may function as a heuristic cue for deciding whether or not to talk about the message. Future studies could therefore distinguish between different groups of receivers of complex health messages: those who do not feel that the message is personally relevant to them, and those who do recognize that the message is personally relevant to them.

In Chapter 1, we saw some examples of health campaigns that specifically aimed at triggering interpersonal communication. This kind of “discussion prompt” is used by campaign designers to discuss the campaign or health theme and may increase the effects of conversations on health-related outcomes compared to campaigns without an explicit discussion prompt (Jeong & Bae 2017). With the narrative message format developed and tested in Chapter 4, we had a similar aim: we attempted to provide college students with a social script for discussing safe sex. In doing so, we answered to the call of Noar et al. (2006), who maintained that developing skills for talking about safe sex should be a major focus of HIV prevention efforts. In the case of sensitive topics like safe sex, people may lack a social script for interpersonal health communication. In that case, advising a target group to explicitly communicate what is on their mind without providing skills or tools to do so (e.g., “just say no”), as is the focus of some drug resistance campaigns (Trost, Langan, & Kellar-Guenther, 1999; Cline, 2003) would not be sufficient. In Chapter 4 we found that the narrative message was successful in increasing interpersonal health communication intentions compared to pretest scores, and in increasing safe sex intentions compared to a non-narrative message. We found these results in part to related to involvement, either with the story as a whole or with specific characters in the story. For safe sex communication intentions, we did not find a difference between the narrative and the non-narrative message format. Even though we only measured participants’ involvement with messages that had a narrative format, we speculated that perhaps narrative processes such as transportation may also be triggered by non-narrative message types. Braverman (2008), for instance,

found that transportation was equally elicited by expository, informational messages as well as by testimonial messages. Dunlop et al. (2010, p. 154) suggest that perhaps “the experience of transportation is a function of the individuals’ reception of the message rather than the structural features that define it as a narrative”. Future studies should focus on developing different message types other than ‘traditional’ narrative messages that may trigger narrative mechanisms such as transportation, and on monitoring people’s involvement in these messages types in order to find out how to best evoke narrative processes.

### **6.3 Reflection on methodological issues**

In this section we reflect on several methodological issues that arose when conducting our studies, and what we learned from our methodological choices. First of all, we reflect on our choice for measuring behavioral *intentions* as opposed to ‘actual’ behavior. Even though the main aim of most health campaigns is to influence actual health behavior, behavioral intentions are considered to be an important predictor of actual health behavior (e.g., Fishbein & Ajzen, 2010). Furthermore, in our study discussed in Chapter 5, we were able to measure actual interpersonal health communication behavior as opposed to mere self-reports of communication behavior.

Second, we look a bit closer at our operationalization of interpersonal communication as offline, dyadic communication rather than online or group communication. Even though a vast amount of communication takes place in online settings like social media, health messages are often received in a face-to-face interpersonal context. This facilitates immediate interpersonal communication.

Finally, we contemplate on our decision to combine qualitative and quantitative methodology in order to answer our research questions. Some of our research questions called for a quantitative, experimental design, while the

other research questions called for a more qualitative methodology and in-depth data analysis.

### **6.3.1 Measuring behavioral intention versus actual behavior**

Most of the literature on the effects of interpersonal health communication discussed in Chapter 1 focuses on intentions as determinants of health behavior (e.g., Hafstad & Aarø, 1997; Van den Putte et al., 2011; Hendriks et al., 2012; Hendriks et al., 2014), attitudes (e.g., Chatterjee et al., 2009; Frank et al., 2012; Hendriks et al., 2015), perceived norms (e.g., Hornik & Yanovitzki, 2003; Frank et al., 2012), or perceived behavioral control (e.g., Duggan, 2006; Frank et al., 2012). Ideally, however, empirical research on the impact of campaign-induced interpersonal health communication also measures health behavior itself, since influencing health behavior is the ultimate goal of most health campaigns. Unfortunately, in none of our own experimental studies were we able to measure this last and perhaps most important variable (Jeong & Bae, 2017). In the study discussed in Chapter 5 we did measure self-reported safe sex behavior. However, due to the short time span (only two weeks) between measurements as well as the limited number of participants who took part in that study (which was also partly due to our strict selection criterion of allowing only college students who did not have a steady sexual partner), there were not enough data to analyze in a meaningful way. Theories of reasoned behavior such as the health belief model (Rosenstock, 1974; Janz & Becker, 1984) the theory of planned behavior (Ajzen, 1991), and the reasoned action approach (Fishbein & Ajzen, 2010) view constructs such as attitudes, perceived norms, perceived behavioral control and behavioral intentions as strong predictors of behavior. Furthermore, measuring actual health behavior, for instance in the case of behavior in a private environment such as safe sex, is difficult. Health behavior is therefore often measured using self-reported rather than “real-life” behavior (e.g., David et al., 2006; Dunlop et al., 2010; Hafstad & Aarø, 1997; Van der Putte et al., 2011).

In discussing interpersonal communication processes among health contexts, Duggan (2006) claims that research should concentrate on the more “subtle” behaviors that are not addressed by self-reported measures, such as verbal and non-verbal behaviors that can be identified in ‘live’ measures of actual communication. While in the interview study discussed in Chapter 2 we indeed focused on self-reported interpersonal health communication behavior, in our study discussed in Chapter 5 we recorded and analyzed actual conversations about a health issue. In addition to looking at the *valence* of what is said, we also analyzed *what* was said. To our knowledge, only few studies (e.g., Weinstein, 1993; Lubinga et al., 2016) look at the content of actual health-related conversations in detail. The analysis of conversations that we recorded, especially on a sensitive issue such as safe sex and in the “safe” environment of participants’ homes, makes a valuable methodological contribution to the field of interpersonal health communication research. It is this kind of analysis that provides us with in-depth information on the complex relationship between communication behaviors and processes of mutual influence on the one hand and health outcomes on the other hand (Duggan, 2006).

### **6.3.2 Measuring offline communication versus online communication**

While in our experimental studies discussed in Chapter 3 and Chapter 4 we did not explicitly focus on either online or offline interpersonal health communication, in our mixed-method study discussed in Chapter 5 we specifically looked at offline, face-to-face, dyadic communication. For the past decades, the field of interpersonal health communication has recognized that a lot of interpersonal communication takes place online, where we socialize with others, for instance, on social media or social platforms such as Facebook (e.g., Baym, Zhang, & Lin, 2004). David et al. (2006), for instance, focused on interpersonal health communication between adolescents regarding marijuana use in an online chat room. Due to the anonymous nature of this online chatroom context and due to the fact that online communication often occurs in a group

rather than in dyads, the online environment may cause interpersonal health communication to have very different characteristics and effects from offline, dyadic interpersonal health communication. However, it is still true today that a large number of mass media health messages are received and interpreted in an offline interpersonal context, which also facilitates people to communicate face-to-face about the messages (Valente & Fosados, 2006). Future research should therefore not lose sight of offline contexts of interpersonal health communication, and may focus, for instance, on comparing factors involved in the effects of interpersonal health communication in an offline and an online context.

### **6.3.3 Combining quantitative with qualitative methodology**

In this dissertation, we chose to combine quantitative with qualitative methods by conducting experiments, an interview study and applying in-depth analyses to conversation data. In Chapter 2, we explored factors influencing the occurrence of spontaneous interpersonal health communication (i.e., not triggered by a health message). Even though researchers (e.g., Southwell & Yzer, 2007) have previously called for a deeper understanding of this issue, there are still no functional frameworks with which to predict conversational occurrence. We therefore chose to conduct an explorative qualitative interview study in order to answer our first research question. For the studies discussed in Chapter 3 and Chapter 4, we had more specific ideas based on the literature about how factors related to the characteristics and processing of complex and narrative messages, respectively, may be involved in triggering interpersonal health communication. The research questions addressed in these studies were better suited to be addressed through quantitative, experimental methodology. In the study discussed in Chapter 5, we explored conversational content-related factors that influence conversational effectiveness. Although previous studies on this topic have addressed conversational content, most of these studies predominantly looked at conversational valence. Because we were interested in

other content-related factors aside from valence, such as the type of communication behavior, we used qualitative methods.

The character of this dissertation, aimed at shedding a light on factors (either health message-related or otherwise) that influence interpersonal health communication, and of conversation-related factors subsequently influencing health behavior determinants, called for a combination of methodologies throughout our studies. In order to make more solid claims on the steps from (1) baseline health behavior determinants to (2) health message processing to (3) interpersonal communication, and finally to (4) ultimate health behavior determinants, it is vital to also conduct more quantitative (e.g., experimental) research. Future research could, for instance, focus on comparing the effects of conversations that differ in whether or not they are generated by a health message. Future studies may also include conversations in groups of more than two people about health issues, comparable to the interpersonal contexts in which mass media messages are received (Valente & Fosados, 2006). These contexts may well include groups of housemates, for instance, which facilitates interpersonal health communication within that group. When studying interpersonal health communication in groups rather than dyads, other factors may come into play, such as how majorities and minorities within groups influence one another (Latané & Wolf, 1981) and whether and how individuals within the group conform to social pressure (Asch, 1951; 1955).

## **6.4 Practical implications**

This dissertation explored the factors influencing the occurrence and effects of interpersonal health communication. On the basis of our findings we can make the following practical suggestions.



### 6.4.1 Distinction between types of communication behavior

Campaign designers who aim at triggering interpersonal health communication may be advised to identify the type of communication behavior that is most relevant for achieving health outcomes: Is the main goal, for instance, that receivers educate their children about the consequences of unsafe sex behavior, or is the goal to empower young people to negotiate condom use before having a one-night stand? Health campaign designers should bear in mind that in order to achieve a specific type of desired health outcome, they should aim at triggering a specific type of communication behavior. For instance, it may not always be necessary to aim at evoking 'direct' persuasion attempts, such as admonishment. In the case of a sensitive health topic like safe sex, evoking casual discussion may be more effective in stimulating the desired health behavior. When admonishing or educating someone, for instance, one may be more concerned with threats to "face" (Brown & Levinson, 1987), whether is it a threat to their own face (e.g., being seen as a 'nuisance') or to that of their conversation partner (e.g., imposing on his or her freedom to act autonomously). This threat may be less pervasive when a health campaign aims at evoking casual discussion, in which the desired health outcome is discussed more indirectly (e.g., through sharing personal experiences). In the case of a sensitive health issue like safe sex, it may therefore be better to encourage the target population to "share their own story" rather than to directly "just say no" to unsafe sex.

As discussed in section 6.2, some campaigns include an explicit "discussion prompt", which encourages receivers to discuss the campaign or the health theme (Jeong & Bae, 2017). An example is the tagline "Talk about it" that the health organization loveLife in South Africa used in its campaigns on HIV and AIDS from 2000 to 2009. Especially when such a discussion prompt is included in a health campaign, the distinction between different types of communication behavior introduced in Chapter 2 is important in order to achieve conversations in the "right" direction: It needs to be clear for the target audience whether it is desirable that they address someone on their health behavior, or that they talk

casually about a health topic. In some cases, the desired health outcome of a health campaign is rather clear-cut (e.g., quit smoking), while in other cases, the desired health outcome is less obvious (e.g., eating healthy; does that entail eating more fresh fruits and vegetables, or eating more regularly throughout the day?). In influential theories such as the reasoned action approach it is assumed that in order to affect behavior, underlying behavioral determinants need to be taken on first. Furthermore, it is regarded as essential to be as specific as possible about the target behavior one desires to influence in order to address underlying behavioral determinants (e.g., Fishbein & Ajzen, 2010). A tagline like “talk about it”, especially when accompanied by a cryptic health campaign message on HIV/AIDS, does not increase the chance that the target group will actually talk about the messages, and these messages also are not always understood correctly by the receivers (Lubinga et al, 2010). When conversations about such a ‘misunderstood’ cryptic messages arise, the misinterpretation of the message may even spread further, creating or reinforcing unwanted beliefs about the health theme (Lubinga et al., 2016). Health campaign designers should therefore be cautious about the type of message and discussion prompt they use to trigger interpersonal health communication, and pay attention to whether both the campaign itself and the discussion prompt are understood correctly by the target group.

#### **6.4.2 Providing a conversational handle**

Finally, health campaign designers who want to elicit interpersonal communication on a sensitive health topic should consider the possible use of the message as a conversation “starter” or as a “handle” to refer to within a conversation. In literature on interpersonal communication on sensitive topics like safe sex (e.g. Allen et al., 2002; Moyer-Gusé et al., 2011), it is suggested that people may lack a “social script” for discussing this taboo topic. Sexual health education is something that is generally taught in schools or by parents, for example, but *talking about* sexual health is not. Providing a social script in a

health campaign, for instance by depicting different characters talking about health issues, may make it easier for people to use the message as a means for initiating a conversation about this health issue themselves. A campaign that includes a conversational handle such as a social script provides people with a 'safe' way to talk about a health issue without having to explicitly bring up their own experiences, knowledge or attitudes.

## 6.5 Conclusion

In this dissertation, we aimed at identifying factors that influence the *occurrence* and the *effectiveness* of campaign-generated interpersonal health communication. We were able to show that interpersonal health communication is not a unitary concept, but consists of several different kinds of communication behavior, each with different predictors and different effects. Whether or not health campaigns will encourage these different kinds of communication behavior, depends on (i) characteristics of the conversation partners such as age, gender and level of education, (ii) characteristics of the conversational context, such as the relationship between the conversation partners, the goals they pursue when talking to each other, and the presence of other people in the communicative situation, and (iii) characteristics and effects of the health message, such as its health theme, its perceived personal relevance, and the evoked levels of pleasure, identification and transportation. What the subsequent effects will be of conversations on (determinants of) health behavior, clearly also depends on the content of the conversation: What was the valence of this content, and how did it relate to beliefs, attitudes, intentions and past behavior, for instance. Furthermore, we found that casual conversation, as opposed to admonishment, may create a valuable opportunity to display behavioral patterns that encourage the requested health behavior. This outcome suggests that, in order to successfully influence health behavior determinants, campaign designers may want to try and trigger their target group to have casual

discussions on the health theme they wish to create attention for, for instance by encouraging members of the target group to “share their own story”. Important directions for future research include investigating the role of cognitive dissonance in conversational effectiveness, distinguishing between different types of health message audiences, and evoking narrative processes through different types of health messages.



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# Summary



In order to invoke healthier behaviors, such as quitting smoking, reducing alcohol intake or having safe sex, health information is often spread through messages that are a part of mass mediated health campaigns. However, effect sizes of health campaigns on health behavior are generally only small (Snyder et al., 2004; Helme et al., 2011), increasing the importance of finding out which factors influence these effects. Research (e.g., Southwell & Yzer, 2007) has suggested that *interpersonal health communication*, or conversations about health issues with, for instance, friends, family and partner, may have a beneficial effect on the reach and effectiveness of health messages.

Information on health issues may spread quickly when it is diffused through social networks (Southwell & Yzer, 2007). Furthermore, talking about health issues within these networks may influence determinants of health behavior such as intentions (Van den Putte et al., 2011), attitudes (Dunlop et al., 2010) and social norms (Hornik & Yanovitzky, 2003). Seen in that light, promoting interpersonal health communication seems to be a promising strategy to maximize the effectiveness of health campaigns.

However, some gaps still exist in our knowledge regarding the way in which interpersonal health communication may play a role in health campaign effectiveness. Particularly, it is unclear which factors play a role in the occurrence of interpersonal health communication, and its subsequent effectiveness.

In Chapter 1, the theoretical context of this dissertation is presented, resulting in four research questions. These research questions are addressed by four empirical studies that are discussed in Chapters 2 to 5. First, we report on three studies that investigate factors influencing the *occurrence* of interpersonal health communication in several contexts: spontaneously occurring conversations that are not triggered by a health message (Chapter 2), conversations that are generated by a complex health message (Chapter 3), and conversations that are generated by a narrative health message (Chapter 4).

Chapter 5 reports on a study that both quantitatively and qualitatively investigates mechanisms underlying the *effects* of interpersonal health communication. Finally, in Chapter 6, the theoretical and practical implications of the results that were reported on in Chapters 2 to 5 of this dissertation are discussed.

## **Chapter 2. Uncovering factors influencing interpersonal health communication**

Although a substantial number of studies has been conducted on the effects of message-generated interpersonal health communication (see, e.g., a meta-analysis by Jeong and Bae, 2017), little is known as yet about the questions when, how, why and with whom people talk about health issues spontaneously, in the absence of a health message. If we want to influence behavior, like health behavior or interpersonal communication related to that health behavior, more insight is needed into factors that influence this behavior. This results in the first research question of this dissertation:

RQ1: Which factors influence the occurrence of self-reported *spontaneous* interpersonal health communication?

In order to answer this question, twelve people were interviewed about their (intended or actual) interpersonal health communication behavior regarding six general health topics: drinking alcohol, healthy eating, exercising, smoking, safe sex, and safe tanning. The results of these interviews were analyzed qualitatively using grounded theory methodology. The results indicate that having conversations about health issues is not one general type of behavior, but should be further divided into at least four types of behavior: *casually*

discussing (casually talking about a health theme in a social setting), *admonishing* the conversation partner (directly urging him or her to adapt their health behavior), *educating* the conversation partner (providing him or her with information in order to prevent unhealthy behavior) and *negotiating* with the conversation partner (attempting to reach agreement with him or her about adapting health behavior in such a way that will benefit both conversation partners). Each of these types of communication behavior was found to be influenced by different factors, such as type of conversation partner and context of the conversation. The results of this study underline the idea that interpersonal health communication is goal-oriented behavior (see, e.g., Clark and Delia, 1979, and Dillard et al., 1989): Depending on the type of communication behavior, people are mainly concerned with instrumental objectives, with identity objectives or with interpersonal objectives.

### **Chapter 3. Talking about health: The relationship between message complexity, message processing time, and conversational intention**

Where Chapter 2 focused on spontaneous, naturally occurring interpersonal health communication, Chapter 3 concentrates on interpersonal health communication that is triggered by a health message. Researchers like Wakefield et al. (2010) state that *explicit* health messages may not be effective in influencing behavior, for instance because explicit messages may cause resistance among the target group. More implicit messages may instead be preferable, especially because they may evoke interpersonal health communication. An example of an implicit message type is the complex health message, such as a metaphor or the use of irony. There are several ways in which complex, more implicit messages may trigger interpersonal health communication. For instance, they generally take longer to process and understand than explicit messages. The pleasure of text (Barthes, 1975) that may arise from processing and understanding a complex message may trigger people

to talk about the message, because they may want to share these pleasurable feelings with others (Rimé et al., 1991). On the other hand, the tendency to talk about a complex message may decrease when it takes too long to understand the message, or when the message is not understood at all. In order to investigate the relationship between message complexity and interpersonal health communication, the second research question of this dissertation is:

RQ2: Which factors influence the occurrence of interpersonal health communication induced by a *complex* message?

Forty research participants were exposed to six health messages in six different health domains, varying in message complexity. The following variables were measured for each of these messages: perceived message complexity, processing time, willingness to talk about it, intention to perform the promoted health behavior, pleasure of text, personal relevance, and message understanding. The results indicate that processing time and personal relevance interact in their effect on the intention to talk: When the message was not perceived as personally relevant, a higher processing time was associated with an *increased* intention to talk about the message. When the message was perceived as personally relevant, however, a higher processing time was associated with a *decreased* intention to talk about the message. Furthermore, higher processing time was associated with decreased message understanding, and a decreased intention to perform the health behavior promoted in the message. On the other hand, personal relevance (in line with study results of Lubinga et al., 2010), and Lubinga et al., 2014) and pleasure of text positively predicted conversational intention. These results indicate that increasing message complexity may not be a fruitful strategy when the goal is to trigger interpersonal communication. Rather, messages that are perceived as personally

relevant and that evoke pleasure of text without being too complex may be more successful in generating conversations.

#### **Chapter 4. Using a narrative to spark safe sex communication**

Chapter 4 focuses on the *narrative* message, a different type of non-explicit health message. The central health topic in Chapter 4 is safe sex, specifically among college students. This group seems particularly at risk for contracting Sexually Transmitted Infections (STIs). They tend to have a sense of invulnerability toward STIs and are more likely to engage in risky sexual behavior because of their rather frequent use of alcohol and drugs (Fromme et al., 2008; Wright et al., 2012). Talking about safe sex with a sexual partner (Allen et al., 2002) or with friends (Mastro & Zimmer-Gembeck, 2015) may decrease this chance of risky sexual behavior. But safe sex communication is not self-evident. Safe sex is often seen as a taboo topic, also by college students, who may lack a “social script” for talking about this issue (Moyer-Gusé et al., 2011). A message in the form of a story, or narrative, may be suitable for providing such a script for talking about safe sex, and may thus increase the intention to discuss safe sex with a sexual partner and with friends. Furthermore, behavioral determinants such as self-efficacy and perceived vulnerability may be influenced through involvement with the characters within the narrative, or *identification*, or through involvement with the storyline as a whole, or *transportation* (Moyer-Gusé, 2008). This involvement with the story and its protagonists may reduce the tendency to generate counterarguments against (parts of) the message (Slater & Rouner, 2002). The third research question of this dissertation is:

RQ3: Which factors influence the occurrence of interpersonal health communication induced by a *narrative* message?

In order to answer this research question, 225 college students were exposed to either a narrative (video) message, which depicted students discussing safe sex among friends and with a sexual partner, or a non-narrative (brochure) message on safe sex communication. Subsequently, they filled out a questionnaire measuring, amongst other things, their intentions to talk about safe sex with a sexual partner and with friends, and their intention to have safe sex. In the narrative condition, part of the participants filled out a similar questionnaire before being exposed to the narrative message. The results show that the narrative message increased the intention to talk about safe sex with a sexual partner and with friends compared to pretest scores. Furthermore, viewing the narrative message compared to the non-narrative message increased the intention to have safe sex. Mediation analyses in the narrative condition showed that identification and transportation were positively related to the intention to discuss safe sex and the intention to have safe sex. Altogether, the results indicate that to trigger communication about safe sex, telling stories may be a promising strategy.

### **Chapter 5. The influence of conversational content on college students' safe sex intentions: A mixed method approach**

Whereas Chapters 3 and 4 revolved around conversational *intentions*, in Chapter 5, the focus is on *actual* conversations about a narrative health message. Campaign-generated conversations are not always in accordance with campaign goals and may therefore sometimes backfire (David et al., 2006). Furthermore, empirical research on this issue has often used self-reports of interpersonal health communication rather than actual conversations (e.g., Van den Putte et al., 2011). Moreover, research has often focused on the mere occurrence and frequency of campaign-generated conversations and not on their content (see e.g. Jeong & Bae, 2017). In order for health practitioners to strategically direct the content of conversations that may be generated by their campaign messages,

more insight is needed into the mechanisms that underlie the effects of these conversations. This results in the final research question of this dissertation:

RQ4: Which factors influence the effectiveness of campaign-induced interpersonal health communication?

Twenty four college students filled out a questionnaire measuring their intention to have safe sex, and their intentions to discuss safe sex with a sexual partner and with friends. Two weeks later they were instructed to watch and discuss the safe sex narrative discussed in Chapter 4 with a conversation partner of their choosing. Subsequently, they filled out another questionnaire measuring their intentions to have safe sex and to talk about safe sex. Comparison of the scores on both questionnaires indicates that the intention to have safe sex and the intention to talk about safe sex significantly increased after the conversations. Moreover, the conversations were analyzed qualitatively in order to identify content-related aspects that may have contributed to these quantitative effects. The conversations predominantly showed a positive “valence”, which means that safe sex was discussed in a predominantly positive manner. Furthermore, in most conversations safe sex was discussed casually, for instance through exchanging anecdotes, and not necessarily by admonishing or educating the conversation partner. Moreover, the conversations exposed behavioral patterns such as attitudes and social norms of the conversation partners, and they talked about their past behavior. The insights with regard to conversational content gathered from this study could not have been generated if merely self-reported measures were used.

## Chapter 6. General discussion

In this chapter, the theoretical and practical implications of the main results reported on in Chapters 2 to 5 are discussed.

The aim of this dissertation was to provide more insight into the factors influencing both the *occurrence* and the *effects* of interpersonal health communication. Our findings show, first of all, that interpersonal health communication is not one general, unitary behavior. Rather, it consists of a number of types of communication behavior, each of which is predicted by different variables and has a different effect on health behavior. Which of these types of interpersonal health communication comes forth in a conversation and what the subsequent effect on health behavior will be may depend on several factors: (1) characteristics of the conversation partners such age, gender, and level of education, (2) characteristics of the conversational context, such as the relationship between the conversation partners, the goals they pursue in their conversation, and the presence of third parties in the communicative situation, (3) characteristics and effects of the health message, such as the health theme, the perceived personal relevance, the levels of pleasure, identification and transportation that are evoked, and (4) the content of the conversation, such as how positively or negatively the health topic was discussed (i.e., the conversational valence) and the behavioral patterns and behavioral determinants that emerged in the conversation, such as attitudes, social norms, and past behavior.

Health practitioners aiming to influence health behavior through triggering interpersonal health communication are advised to, first of all, identify the type of communication behavior that is most relevant for achieving health outcomes. Does the focus lie on spreading information through members of a social network, or is it necessary to break taboos concerning a health topic by encouraging more casual discussions? Furthermore, health practitioners may consider the possibilities of letting their health campaign serve as a



“conversational handle”, for instance to discuss topics that people would normally be a bit reluctant to discuss. One of the possibilities in that case is to spread a narrative message which includes relatable characters and a compelling storyline.

All in all, this dissertation addressed some important issues regarding the occurrence and effectiveness of interpersonal health communication. With the theoretical and practical pointers that have emerged from the studies’ results, more effective health communication may be achieved, and ultimately a healthier society.

# Samenvatting

Om gezonder gedrag uit te lokken, zoals stoppen met roken, minder alcohol drinken of veilig vrijen, wordt gezondheidsinformatie vaak verspreid via boodschappen die deel uitmaken van massamediale gezondheidscampagnes. Bekend is dat de effecten daarvan op gezondheidsgedrag over het algemeen beperkt zijn (Snyder et al., 2004; Helme et al., 2011). Het is belangrijk om na te gaan welke factoren die effecten beïnvloeden. Onderzoek (bijv. Southwell & Yzer, 2007) suggereert dat *interpersoonlijke gezondheidscommunicatie* vaak een gunstig effect heeft op de verspreiding en de uitwerking van gezondheidsboodschappen. Daarbij gaat het om gesprekken die ontvangers van gezondheidsboodschappen kunnen hebben over gezondheidskwesties met onder meer hun partner, vrienden en familie.

Informatie over gezondheid kan zich langs de weg van interpersoonlijke communicatie snel verspreiden binnen sociale netwerken (Southwell & Yzer, 2007). Daarnaast kan praten over gezondheidskwesties binnen deze sociale netwerken ook determinanten van gezondheidsgedrag beïnvloeden, zoals intenties (Van den Putte et al., 2011), attitudes (Dunlop et al., 2010) en sociale normen (Horik & Yanovitzky, 2003). In dat opzicht lijkt het bevorderen van interpersoonlijke gezondheidscommunicatie een veelbelovende strategie om de effectiviteit van gezondheidsboodschappen te maximaliseren.

Er zijn echter nog enkele hiaten in onze kennis over de wijze waarop interpersoonlijke communicatie de effectiviteit van gezondheidsboodschappen beïnvloedt. Met name is onduidelijk welke factoren een rol spelen bij het *ontstaan* van interpersoonlijke gezondheidscommunicatie en bij de daaropvolgende *effecten*.

In Hoofdstuk 1 wordt de theoretische context van dit proefschrift gepresenteerd en worden op basis hiervan vier onderzoeksvragen geformuleerd. Deze vragen worden beantwoord aan de hand van de vier empirische studies die in Hoofdstuk 2 tot en met 5 besproken worden. Eerst komen drie studies aan bod die inzicht bieden in de factoren die het *ontstaan* van

interpersoonlijke gezondheidscommunicatie beïnvloeden in verschillende contexten: spontaan ontstane gesprekken, die niet gestimuleerd zijn door een gezondheidsboodschap (Hoofdstuk 2), gesprekken die ontstaan naar aanleiding van complexe gezondheidsboodschappen (Hoofdstuk 3) en gesprekken die ontstaan naar aanleiding van narratieve gezondheidsboodschappen (Hoofdstuk 4). Hoofdstuk 5 behandelt een studie waarin zowel kwantitatief als kwalitatief onderzoek is gedaan naar de mechanismes die ten grondslag liggen aan de *effecten* van interpersoonlijke gezondheidscommunicatie. In Hoofdstuk 6, tot slot, worden de theoretische en praktische implicaties van de in de verschillende hoofdstukken gerapporteerde resultaten besproken.

## **Hoofdstuk 2. Factoren die interpersoonlijke gezondheidscommunicatie beïnvloeden**

Hoewel er veel onderzoek is gedaan naar de effecten van interpersoonlijke gezondheidscommunicatie in de vorm van gesprekken die gevoerd worden na het zien of horen van een gezondheidsboodschap (zie bijvoorbeeld de recente meta-analyse door Jeong en Bae, 2017) is nog weinig bekend over de vragen wanneer, hoe, waarom en met wie mensen spontaan praten over gezondheidskwesties zonder dat daar een gezondheidsboodschap aan te pas komt. Als we gedrag, zoals gezondheidsgedrag – en daarmee dus ook de interpersoonlijke communicatie die daar verband mee houdt – willen sturen, is er meer inzicht nodig in de factoren die dit gedrag beïnvloeden. Dit resulteert in de eerste onderzoeksvraag van dit proefschrift:

RQ1: Welke factoren beïnvloeden het ontstaan van zelfgerapporteerde *spontane* interpersoonlijke gezondheidscommunicatie?

Om deze vraag te beantwoorden werden twaalf mensen geïnterviewd over hun (voorgenomen of daadwerkelijke) interpersoonlijke communicatiegedrag met betrekking tot zes algemene gezondheidsonderwerpen: alcohol drinken, gezond eten, sporten, roken, veilig vrijen en veilig zonnen. De resultaten van deze interviews zijn kwalitatief geanalyseerd aan de hand van *grounded theory* methodologie. De resultaten laten zien dat het voeren van gesprekken over gezondheidskwesties niet één algemeen soort gedrag is, maar dat dit onderverdeeld kan worden in tenminste vier typen gedrag: *bespreken* (terloops met de gesprekspartner spreken over een gezondheidsthema in een sociale context), de gesprekspartner *aanspreken* (de ander direct aansporen zijn/haar gedrag aan te passen), de gesprekspartner *voorlichten* (de ander informatie geven om ongezond gedrag te voorkomen) en met de gesprekspartner *onderhandelen* (pogen om overeenstemming te bereiken met de ander over het zodanig aanpassen van gezondheidsgedrag dat beide gesprekspartners daar voordeel van hebben). Elk van deze typen communicatiegedrag bleek te worden beïnvloed door verschillende factoren, zoals het type gesprekspartner en de context van het gesprek. De uitkomsten van dit onderzoek bevestigen het idee (zie bijv. Clark & Delia, 1979, en Dillard et al, 1989) dat interpersoonlijke communicatie doelgericht gedrag is: afhankelijk van het type communicatiegedrag laten mensen zich vooral leiden door instrumentele doelen, door identiteitsdoelen of door interpersoonlijke doelen.

### **Hoofdstuk 3. Praten over gezondheid: de relatie tussen complexiteit van de boodschap, verwerkingstijd van de boodschap en intentie tot praten**

Waar in Hoofdstuk 2 de focus lag op spontane, natuurlijk ontstane gesprekken, gaat het in Hoofdstuk 3 om interpersoonlijke gezondheidscommunicatie die ontstaat naar aanleiding van een gezondheidsboodschap. Onderzoekers zoals Wakefield et al., (2010) stellen dat *expliciete* gezondheidsboodschappen mogelijk niet effectief zijn in het beïnvloeden van gedrag, bijvoorbeeld omdat deze boodschappen teveel weerstand oproepen. Implicietere boodschappen

verdienen daarom wellicht de voorkeur, ook omdat die mogelijk interpersoonlijke communicatie uitlokken. Een voorbeeld van zo'n meer impliciete boodschap is de complexe gezondheidsboodschap, zoals een metafoor of het gebruik van ironie. Er zijn verschillende manieren waarop complexe boodschappen interpersoonlijke gezondheidscommunicatie kunnen stimuleren. Ontvangers hebben over het algemeen bijvoorbeeld meer tijd nodig om complexe boodschappen te verwerken en te begrijpen dan bij expliciete boodschappen het geval is. De *pleasure of text* (Barthes, 1975) die kan ontstaan na het verwerken en begrijpen van een complexe boodschap kan mensen stimuleren om over de boodschap te praten, omdat ze dit plezierige gevoel met anderen willen delen (Rimé et al., 1991). Aan de andere kant kan de neiging tot praten over complexe boodschappen verkleind worden als het te lang duurt, of zelfs helemaal niet lukt om de boodschap te begrijpen. Om de relatie tussen complexiteit en interpersoonlijke gezondheidscommunicatie te onderzoeken is de tweede onderzoeksvraag van dit proefschrift:

RQ2: Welke factoren beïnvloeden het ontstaan van interpersoonlijke communicatie naar aanleiding van een *complexe* gezondheidsboodschap?

Veertig onderzoeksdeelnemers kregen zes verschillende boodschappen in zes verschillende gezondheidsdomeinen te zien, variërend in complexiteit. Voor elk van deze boodschappen werden de volgende variabelen gemeten: de gepercipieerde complexiteit, verwerkingstijd, intentie om over de boodschap te praten, intentie om het gepromote gezondheidsgedrag uit te voeren, *pleasure of text*, persoonlijke relevantie en begrip van de boodschap. De resultaten laten een interactie-effect zien van verwerkingstijd en persoonlijke relevantie op de neiging om over de boodschap te praten: als de boodschap niet persoonlijk relevant werd gevonden, leidde een hogere verwerkingstijd tot een *sterkere*

neiging om over de boodschap te praten. Als de boodschap echter wel persoonlijk relevant werd gevonden, leidde een hogere verwerkingstijd tot een *minder sterke* neiging om over de boodschap te praten. Ook bleek dat een hogere verwerkingstijd leidt tot een lager begrip van de boodschap en tot lagere intenties om het gezondheidsgedrag dat gepromoot wordt in de boodschap uit te voeren. Verder bleken persoonlijke relevantie (in lijn met de bevindingen van Lubinga et al., 2010, en Lubinga et al., 2014) en *pleasure of text* positieve voorspellers te zijn van conversatie-intentie. Deze resultaten impliceren dat het vergroten van complexiteit van de boodschap geen voordelige strategie is voor het stimuleren van interpersoonlijke gezondheidscommunicatie. Meer succes wordt mogelijk bereikt met boodschappen die persoonlijk relevant gevonden worden en die *pleasure of text* veroorzaken zonder té complex te zijn.

#### **Hoofdstuk 4. Het gebruik van een narratief om *safe sex communication* aan te wakkeren**

In Hoofdstuk 4 staat de *narratieve* of verhalende boodschap centraal, een ander type niet-expliciete gezondheidsboodschap. De focus ligt hier op één concreet gezondheidsthema: veilig vrijen, en dan met name bij studenten. Deze groep heeft een vergroot risico op Seksueel Overdraagbare Aandoeningen (SOA's). Studenten hebben vaak een gevoel van onkwetsbaarheid ten opzichte van SOA's en zijn meer geneigd tot riskant seksueel gedrag omdat ze relatief vaak alcohol en drugs gebruiken (Fromme et al., 2008; Wright et al., 2012). Praten over veilig vrijen met een seksuele partner (Allen et al., 2002) of met vrienden (Mastro & Zimmer-Gembeck, 2015) kan de kans op riskant seksueel gedrag verlagen. Maar dit soort *safe sex communication* is niet vanzelfsprekend. Veilig vrijen wordt vaak - ook door studenten - gezien als een taboe-onderwerp, waardoor een *social script* ontbreekt om over dit onderwerp te praten (Moyer-Gusé et al., 2011). Een boodschap in de vorm van een verhaal, of narratief, kan geschikt zijn om een dergelijk script te bieden voor het praten over veilig vrijen, en kan zo de intentie vergroten om veilig vrijen te bespreken met een seksuele partner en met

vrienden. Ook kunnen gedragsdeterminanten als zelfeffectiviteit en gepercipieerde kwetsbaarheid worden beïnvloed door betrokkenheid bij de personages uit het narratief, of *identificatie*, en door betrokkenheid bij de verhaallijn als geheel, of *transportatie* (Moyer-Gusé, 2008). Deze betrokkenheid bij het verhaal en bij de personages zouden de neiging verlagen om argumenten tegen (onderdelen van) de boodschap te bedenken (Slater & Rouner, 2002). De derde onderzoeksvraag van dit proefschrift luidt:

RQ3: Welke factoren beïnvloeden het ontstaan van interpersoonlijke gezondheidscommunicatie naar aanleiding van een *narratieve* boodschap?

Om deze vraag te beantwoorden werden 225 studenten blootgesteld aan ofwel een narratieve (video)boodschap, waarin studenten te zien waren die onderling en met een seksuele partner in gesprek waren over veilig vrijen, of een non-narratieve boodschap (een brochure) over *safe sex communication*. Vervolgens vulden de onderzoeksparticipanten een vragenlijst in waarin vragen werden gesteld over onder andere hun intenties om met een seksuele partner en met vrienden over veilig vrijen te praten en hun intenties om veilig te vrijen. In de narratieve conditie vulde een deel van de participanten ook een soortgelijke vragenlijst in vóórdat ze de boodschap te zien kregen. De resultaten laten zien dat de narratieve boodschap ten opzichte van de pretestscores leidde tot sterkere intenties om over veilig vrijen te praten met een seksuele partner en met vrienden. Ook bleek na het zien van de narratieve boodschap vergeleken met de non-narratieve boodschap de intentie om veilig te vrijen verhoogd. Mediatie-analyses in de narratieve conditie lieten zien dat identificatie en transportatie positief correleerden met de intentie om over veilig vrijen te praten en met de intentie om veilig te vrijen. Al met al impliceren de resultaten dat verhalen



vertellen in de gezondheidscommunicatie een veelbelovende strategie is om praten over veilig vrijen te stimuleren.

### **Hoofdstuk 5. De invloed van gespreksinhoud op de intenties van studenten om veilig te vrijen: een *mixed method*-aanpak**

Waar in Hoofdstuk 3 en 4 *intenties* om te praten over gezondheidskwesties centraal stonden, gaat het in Hoofdstuk 5 om *daadwerkelijke* gesprekken over een narratieve gezondheidsboodschap. Het onderzoeken van daadwerkelijke gesprekken is belangrijk om verschillende redenen. Ten eerste zijn gesprekken die uitgelokt zijn door een gezondheidsboodschap niet altijd in overeenstemming met het eigenlijke doel van de boodschap en werken deze gesprekken daardoor soms averechts (David et al., 2006). Bovendien maakt empirisch onderzoek op dit gebied vaak gebruik van zelfgerapporteerde interpersoonlijke gezondheidscommunicatie in plaats van daadwerkelijke gesprekken (bijv. Van den Putte et al., 2011). Ook richt dat onderzoek zich meestal op het *vóórkomen* van gesprekken naar aanleiding van een gezondheidsboodschap en de frequenties daarvan, en niet op de inhoud van die gesprekken. Willen gezondheidsprofessionals de inhoud van gesprekken die mogelijk ontstaan naar aanleiding van hun boodschappen strategisch sturen, dan is er meer inzicht nodig in de mechanismen die ten grondslag liggen aan de effecten van deze gesprekken. Dit resulteert in de laatste onderzoeksvraag van dit proefschrift:

RQ4: Welke factoren beïnvloeden de effectiviteit van interpersoonlijke communicatie ontstaan naar aanleiding van een gezondheidsboodschap?

Vierentwintig studenten vulden een vragenlijst in waarmee hun intenties met betrekking tot veilig vrijen en praten daarover werden gemeten. Twee weken later werden ze geïnstrueerd om de narratieve boodschap uit Hoofdstuk 4 te bekijken en te bespreken met een gesprekspartner naar keuze. Vervolgens vulden ze een tweede vragenlijst in waarin wederom vragen werden gesteld over hun intenties met betrekking tot veilig vrijen en praten daarover. Vergelijking van de scores op de twee vragenlijsten liet zien dat de intentie met betrekking tot veilig vrijen en praten daarover significant groter was na de gesprekken. Ook werden de gesprekken kwalitatief geanalyseerd om inhoudsaspecten te identificeren die mogelijk hebben bijgedragen aan deze kwantitatieve effecten. De gesprekken lieten een grotendeels positieve valentie zien, wat betekent dat er met name op een positieve manier over veilig vrijen gesproken is. Ook bleek uit de analyses dat het onderwerp veilig vrijen in de meeste gesprekken terloops besproken werd, bijvoorbeeld door het uitwisselen van anekdotes, en niet zo zeer door het aanspreken of voorlichten van de gesprekspartner. Bovendien kwamen in de gesprekken de attitudes en sociale normen van de gesprekspartners aan het licht, en spraken ze veel over hun eigen gedrag. De inzichten met betrekking tot de gespreksinhoud die met deze studie verkregen zijn, hadden niet of moeilijker verkregen kunnen worden als uitsluitend was uitgegaan van zelfgerapporteerd gedrag.

## **Hoofdstuk 6. Algemene discussie**

In dit hoofdstuk staan de theoretische en praktische implicaties centraal van de belangrijkste resultaten uit Hoofdstuk 2 tot en met 5.

Het doel van dit proefschrift was om meer inzicht te bieden in de factoren die zowel het *ontstaan* van interpersoonlijke gezondheidscommunicatie als de *effecten* ervan beïnvloeden. De gevonden resultaten laten allereerst zien dat interpersoonlijke communicatie niet één algemeen, unitair begrip is, maar dat

het uit een aantal typen communicatiegedrag bestaat die elk weer voorspeld worden door verschillende variabelen en die verschillende effecten op gezondheidsgedrag kunnen hebben. Welke van deze typen interpersoonlijke gezondheidscommunicatie in een gesprek aan de orde is of zijn, en welke effecten er vervolgens op het gezondheidsgedrag te zien zijn, is afhankelijk van verschillende factoren: (1) kenmerken van de gesprekspartner, zoals leeftijd, geslacht en opleidingsniveau, (2) kenmerken van de gesprekscontext, zoals de relatie tussen de gesprekspartners, de doelen die zij voor ogen hebben met het gesprek en de aan- of afwezigheid van derden in de communicatieve situatie, (3) kenmerken en effecten van de gezondheidsboodschap, zoals het gezondheidsthema, de (gepercipieerde) persoonlijke relevantie, de hoeveelheid plezierige gevoelens, identificatie en transportatie die de boodschap oproept en (4) de inhoud van het gesprek, bijvoorbeeld hoe positief of negatief er over het onderwerp gesproken is (de valentie) en de gedragspatronen en gedragsdeterminanten die naar voren kwamen in het gesprek, zoals attitudes, sociale normen en eerder gedrag.

Gezondheidsprofessionals die het doel hebben gezondheidsgedrag te beïnvloeden door interpersoonlijke communicatie te stimuleren kan worden geadviseerd om allereerst het type communicatiegedrag te identificeren dat het meest relevant is voor de gezondheidsuitkomsten. Moet de focus bijvoorbeeld liggen op het verspreiden van informatie binnen een sociaal netwerk, of is het nodig om taboes te doorbreken door meer terloopse bespreking van het onderwerp te stimuleren? Vervolgens zouden gezondheidsprofessionals de verschillende opties kunnen bezien om hun gezondheidsboodschappen als “gesprekshandvat” te laten dienen, bijvoorbeeld om over onderwerpen te praten waar men anders terughoudend over is. Eén van die mogelijkheden is om een narratieve boodschap te verspreiden met behalve een overtuigende verhaallijn ook personages met wie de doelgroep zich kan identificeren.

Al met al biedt dit proefschrift meer inzicht in enkele belangrijke kwesties met betrekking tot het vóórkomen en de effectiviteit van interpersoonlijke gezondheidscommunicatie. Met de theoretische en praktische aanknopingspunten die met de verschillende studies verkregen zijn, kan effectievere gezondheidscommunicatie bereikt worden, met als einddoel een gezondere maatschappij.



## Dankwoord

En ineens is het klaar, dat proefschrift! Hoewel, ineens... zoals degenen die mij zijn voorgegaan wel zullen beamen, is promoveren best een klus. Ook de mensen die dichtbij me hebben gestaan de afgelopen zes jaar zullen dat (h)erkennen. Daarom wil ik een aantal van hen in het bijzonder bedanken dat ze dit moment mogelijk hebben gemaakt.

Allereerst natuurlijk mijn promotoren: Carel en John. Hoewel ik onderdeel was van de eerste en enige lichting promovendi die jullie samen hebben begeleid, waren jullie als een geoliede machine op elkaar ingespeeld. Onderdeel uitmaken van die machine was af en toe wat zoeken, maar ging over het algemeen erg soepel. Ik heb ontzettend veel aan jullie begeleiding gehad, ook in de periode dat ik al in Utrecht woonde en werkte. Ik kan me geen fijner team wensen om mee samen te werken, en ik denk dat jullie elkaar goed aanvulden in jullie rol als mijn begeleider.

Carel, jouw enthousiasme en zicht op het grote geheel van het project waren onmisbaar. Op momenten dat ik volledig vastliep was een klein gesprekje met jou soms genoeg om met nieuwe energie en frisse ideeën de boel weer op te pakken. Je verloor nooit het vertrouwen dat we echt iets interessants aan het doen waren, waardoor ik dat ook niet heb gedaan. John, jouw analytische vermogen en methodologische kennis waren al even onmisbaar. Gezamenlijke brainstormsessies die begonnen bij onderwerp A en eindigden bij onderwerp Z (volledig buiten de scope van het project) gaven me altijd weer een fikse *energy boost*. In dit project kwamen veel van je verschillende interesses samen en dat was aan je te merken. Je was nooit bang om van de gebaande paden af te wijken, en dat heb ik erg in je begeleiding gewaardeerd.

De beoordelingscommissie, Tom, Hans en Fons: heel hartelijk bedankt voor het lezen en beoordelen van mijn proefschrift, de waardevolle feedback hierop en voor jullie bijdrage tijdens de verdediging.

Als vreemde eend in de Groningen-bijt heb ik veel gehad aan de lieve collega's die me meteen welkom deden voelen: Rika, Ellie, Rimke, Ruth, Lianne en anderen die in de loop der jaren voor goed gezelschap zorgden op ons kantoor of tijdens de gezamenlijke lunches. Annerose, (koor/kantoor)maatje, dankjewel voor een mooi laatste jaar in Groningen op onze kamer in het inmiddels opgedoekte verstophoekje van het Harmoniegebouw. En natuurlijk mijn paranimfen: Marieke en Joëlle. Jullie waren er allebei vanaf het begin bij om me wegwijs te maken in Groningen. Ik kon me daarom niet voorstellen te promoveren zonder jullie tweeën naast me. Marieke, jij liep qua traject een paar jaar op me voor en was als kamergenootje een soort blik in de toekomst. Je behulpzaamheid en je gezelligheid (ook toen we allebei in Utrecht gingen werken) hebben het mij een stuk makkelijker gemaakt om tot de eindstreep komen! Joëlle, wij gingen juist precies gelijkop en daardoor was je een ideaal sparringsmaatje voor me, zowel qua project als qua levenslessen. Ik heb in de afgelopen zes jaar altijd op je kunnen bouwen, voor de nodige gezelligheid en zelfs ook voor verhuishulp, extra dank daarvoor!

Ook een woord van dank aan de afdeling CIW, waar ik vier jaar lang onderdeel van uit heb gemaakt, en de medewerkers van het secretariaat. Leden van de DisCo-groep (en verschillende vertakkingen daarvan): ik heb veel gehad aan jullie onderzoeksinput, zowel voor mijn eigen onderzoek als dat van jullie zelf. De collega's die mee hebben gelezen en gedacht met analyserondes en de daarop gebaseerde papers: dank aan met name Ruth, Joëlle, Tom, Mike en Yfke. Bij het verzamelen en analyseren van de data heb ik ook de nodige hulp gehad van verschillende student- en onderzoeksassistenten. Patty, Aline, Lidewij en Emma: bedankt! Ook heb ik met veel plezier deel uitgemaakt van de PhD council en organisatieteams van de TABU Dag en verschillende Anéla/VIOT Juniorendagen. Aan mijn mede-councilleden en mede-organisatoren: bedankt voor deze mooie ervaringen!

Ook dankjewel aan de meiden van Roxie, die mijn Groningen-tijdperk een stuk gezelliger en muzikaler hebben gemaakt. De drie jaren zangervaring met

jullie (hoewel stiekem zoveel meer dan alleen zang) had ik voor geen goud willen missen. Dank in het bijzonder aan Baukje, op wie ik altijd extra kon bouwen.

Mijn lieve collega's bij de opleiding Farmakunde in Utrecht: bij jullie kwam ik na (of middenin) een turbulente periode in een warm bad terecht. De combinatie van lesgeven op jullie opleiding (en alles wat daarbij komt kijken) en promoveren heeft best wat voeten in de aarde gehad, maar jullie hebben altijd met interesse en begrip op mijn situatie gereageerd. Ik heb me vanaf dag één welkom gevoeld in het team, en dat is het allerbelangrijkst gebleken om deze taak te kunnen volbrengen.

Al mijn lieve, leuke vriendjes uit het zuiden: zonder jullie had ik dit niet gekund. Als enige die na het studeren nog aan de andere kant van het land is gaan wonen (maar vooruit Lydia, jij wint met Barcelona) was het vaak passen en meten om contacten te onderhouden, maar dat heeft de pret absoluut niet gedrukt. Leoniek, Karst en Roy: jullie grappen, grollen, gekkigheid, en gewoon hele fijne gezelschap zijn onmisbaar gebleken. Ik ben heel blij dat ik jullie de afgelopen twee jaar weer wat vaker zie! Lisa, Lydia en Judith: ondanks het uitvliegen naar Groningen en Barcelona is onze band de afgelopen jaren alleen maar vanzelfsprekender geworden. En juist dat maakt 'm bijzonder! Sophie en Anne: studie- Efteling- boekenclub- en vreetmaatjes vanaf dag één van onze studententijd. Wat is er een hoop gebeurd de laatste jaren! Eén ding is zeker: jullie waren er altijd voor mij, en andersom. Dat geldt ook voor Floor en Hetty, mijn "oudste" vriendinnen. Ook als we elkaar niet dagelijks, wekelijks of maandelijks zien (de middelbare schooltijd is "helaas" voorbij...) voelt het bij jullie altijd als thuiskomen. Janneke en Jeroen, duizendmaal dank voor jullie (verhuis/logeer)hulp en voor alle goede gesprekken, zeker sinds ik bij jullie om de hoek woon. Suus, dankjewel voor de Utrechtavonturen die ik door jou heb beleefd. Ik ben superblij dat jij mijn omslag wilde ontwerpen!

Wouter, jij hebt het laatste jaar van mijn promotie zoveel fijner en makkelijker gemaakt, en daar ben ik je heel dankbaar voor. Mijn familie, en met name Lise en Rob: dankjewel voor het eeuwige begrip en het vertrouwen waar



ik altijd op kon rekenen. Fijn om te weten dat ik bij jullie altijd een thuis heb. En tot slot: mijn ouders. Misschien hebben jullie niet altijd mijn keuzes begrepen (“stadse fratsen”), of wat ik nu precies allemaal deed daar in Groningen, maar jullie stonden altijd als een blok achter me. Jullie zijn onvoorwaardelijk trots en hebben me daarmee de moed en het vertrouwen gegeven om door te zetten, en dat heeft me tot hier gebracht. Met jullie steun voelt het alsof ik de wereld aankan!

## Curriculum Vitae

Lennie Donné werd geboren op 23 juli 1988 in Bergen, Limburg. Ze behaalde in 2006 haar VWO-diploma op het Elzendaalcollege in Boxmeer, waarna ze Nederlandse Taal en Cultuur ging studeren aan de Radboud Universiteit in Nijmegen. Haar masterscriptie schreef ze over stijlfiguren in gezondheidsvoorlichting. In 2010 behaalde zij haar masterdiploma, waarna ze in 2011 haar tweede masterdiploma behaalde van de opleiding Journalistiek en Organisatie, ook aan de Radboud Universiteit. Haar masterscriptie ging dit keer over het gebruik van journalistieke technieken in gezondheidsvoorlichting. In september 2012 begon Lennie als promovenda aan de Rijksuniversiteit Groningen bij het *Center for Language and Cognition*. Het onderzoeksproject had betrekking op de rol van interpersoonlijke gezondheidscommunicatie in de effectiviteit van gezondheidscampagnes. Gedurende haar vierjarige aanstelling als promovenda volgde Lennie verschillende PhD trainingsprogramma's vanuit de *Graduate School for the Humanities* en de Landelijke Onderzoeksschool Taalkunde. Ook organiseerde ze diverse conferenties en symposia, en was ze enige tijd voorzitter van de PhD council van de *Graduate School for the Humanities*. Sinds september 2016 werkt Lennie als docent op het gebied van communicatie, gezondheidsvoorlichting en onderzoek bij de opleiding Farmakunde op de Hogeschool Utrecht, waar ze de komende jaren haar onderwijs- en onderzoekswerk wil voortzetten.



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