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## THE CREDIBILITY OF REFUTATION IN TWO-SIDED ANTI-DRUG MESSAGES

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### INTRODUCTION

Both binge drinking and marijuana use are prevalent among adolescents nowadays, causing severe health problems (Comello, 2011; Hahm, Kolaczyk, Jang, Swenson, & Bhindarwala, 2012; Hecht et al., 2006). The reason for the prevalence of binge drinking and marijuana use is not ignorance of the dangers of these behaviors. On the contrary: most college students know the dangers of binge drinking, but nevertheless continue to drink excessive amounts of alcohol (Berger and Rand, 2008). Similarly, awareness of the risks of drugs (e.g., marijuana) does not always result in healthier behavior (Berger and Rand, 2008). Apparently, there are certain perceived benefits to this hazardous behavior, encouraging adolescents to continue despite their knowledge of the risks. For instance, adolescents might like the good feeling associated with smoking marijuana or binge drinking (Coronges *et al.*, 2011).

Traditionally, health risk prevention campaigns do not address these perceived benefits. Many health risk prevention campaigns merely focus on the negative side of unhealthy behavior by emphasizing how damaging the behavior is (Reynolds and Seeger, 2005). In other words, they are one-sided in their argumentation. However, overuse of such one-sided, fear-evoking appeals leads to credibility loss, habituation, and possibly aversive reactions (Ahn *et al.*, 2011; Devlin *et al.*, 2007). Ample research has shown that the failure of many one-sided health campaigns, such as fear appeals, can be attributed to reactance (Ringold, 2002; Backer *et al.*, 1992; Hornik, 2002; Salmon and Murray-Johnson, 2001). To overcome this problem of reactance, the present study assesses an alternative and potentially more effective way of communicating health risks, namely two-sided messages, “*in which the communicator takes into account both sides of an issue, but actually still favors one side*” (Hovland, 1954). By mentioning the positive side (i.e., perceived benefits) of the unhealthy behavior

as well, two-sided messages generally evoke less reactance, and increase the credibility of the message (Keller and Lehmann, 2008). The credibility of the message is a major determinant of attitudes (Lutz *et al.*, 1983). A vast amount of studies confirms that a highly credible source is generally more persuasive than a lowly credible source, because it reduces counter-argumentation, which – in turn – stimulates persuasion (Eisend, 2006; Pornpiktakpan, 2004; Wilson & Sherrell, 1993; Lutz *et al.*, 1983; Sternthal *et al.*, 1978). Specifically for two-sided messages, Eisend's meta-analysis (2006) has shown that credibility enhances attitudes and behavioral intentions.

Ample studies compared one-sided and two-sided messages, with the quasi unanimous result that two-sided messages are superior over one-sided messages in terms of source and/or message credibility (Crowley and Hoyer, 1994; Eisend, 2006; Golden and Alpert, 1987; Kamins and Assael, 1987; Pechmann, 1992). However, few studies (Allen, 1991; Hale *et al.*, 1991) discriminate more specifically between two subtypes of two-sided messages: refutational and non-refutational ones. In non-refutational two-sided messages, advertisers simply present positive and negative information. In refutational two-sided messages, they subsequently refute or discount the information that opposed the communicator's direction (i.e., in a drug prevention context, the argument pro drugs would be refuted). The persuasive impact of both subtypes of two-sided messages received little research attention, especially in terms of its impact on source and message credibility. The few studies testing the impact of refutation versus non-refutation on source and message credibility yielded mixed results. Some studies found equal effects of refutational and non-refutational two-sided messages on message credibility (Kamins and Assael, 1987), whereas other studies found that a two-sided refutational message is more credible (Eisend, 2006). So, literature is contradictory as to when refutation is necessary, and when it is redundant for optimal credibility effects.

To clarify this literature gap, there is a strong need for further research on variables that might moderate these effects. The moderators studied to date are mainly message structure variables (e.g., the amount of negative information, the importance of negative attributes, etc.) or receiver characteristics (e.g., prior attitude) (Eisend, 2006). These moderators have not clarified the inconsistent results regarding the need for refutation in two-sided messages. Hence, more research focusing on different moderators is needed (Eisend, 2006). Issue-related and argument-related

variables have been neglected so far, but can have a great impact on the persuasiveness of the message. In order to design an effective and credible message, the kind of issue that is communicated should be taken into account. Recipients' predisposition or attitude toward the issue matters for message effectiveness and credibility (Pornpitakpan, 2004). Also the type of arguments used in a message influence the credibility and overall persuasiveness of the message (Herron, 1997; Moore *et al.* 1986; Pornpitakpan, 2004). We therefore propose issue ambivalence and argument type as moderators of the effectiveness of (non-)refutational two-sided messages on source and message credibility.

In sum, the added value of this research is that it attempts to clarify the inconsistencies found in previous literature regarding the response to refutational and non-refutational two-sided messages by addressing two important (and so far neglected) moderating variables, namely issue ambivalence (issue-related) and the affective or cognitive nature of the message arguments (message-related). Thus, the theoretical contribution of the present study lies in demonstrating the interaction effects of refutation and issue ambivalence and of refutation and argument type on source and message credibility. The results of the study provide useful new insights for practitioners in the social marketing domain, more specifically drug prevention campaigns.

## **THEORETICAL FRAMEWORK**

### *THE IMPACT OF REFUTATION ON SOURCE AND MESSAGE CREDIBILITY*

Credibility effects of two-sided messages can be explained by the attribution theory (Jones and Davis, 1965) (Eisend, 2006). Attribution theory (Jones and Davis, 1965) describes the process an individual goes through in assigning causes to events (Crowley and Hoyer, 1994). Applied to advertising, attribution theory posits that consumers attribute advertising claims either to the honesty of the advertiser or to the advertiser's attempt to sell the product (Settle and Golden 1974). The inclusion of negative information in commercial advertising, as in a two-sided message, makes the receiver believe that the advertiser is speaking the truth (Crowley and Hoyer, 1994). Therefore, in order to evoke an enhanced perception of source credibility, attribution theory (Jones and Davis, 1965) recommends two-sided messages over one-sided messages.

However, attribution theory provides no clear guidance concerning whether the two-sided message should contain a refutation or not (Crowley and Hoyer, 1994; Jones and Davis, 1965). Empirical results are not always consistent with respect to the effectiveness of refutation in two-sided messages. Kamins and Assael (1987) obtained equal effects on credibility for both the refutational and the non-refutational two-sided message. Other studies emphasize that a refutational statement in a message makes receivers take the message and the source more seriously, implying that a two-sided refutational message is more credible (Eisend, 2006). Based on these heterogeneous results, it remains unclear when refutation is necessary, and when it is redundant **for optimal credibility effects**.

Refutational messages are intrinsically more authoritative, because they clearly emphasize the 'desired' communication direction (Hynd, 2001). Refutation can therefore be more easily recognized as an attempt to persuade (Hynd, 2001). Arguably, in commercial advertising, a refutational statement in a two-sided message might have detrimental effects on the advertiser's credibility, because the advertiser's self-interest would be too obvious (Eisend, 2006; Walster *et al.*, 1966). However, in a health prevention context, empirical studies on the inclusion of refutation showed that a source with low self-interest (such as a health organization) is more credible when refuting the counterarguments in the message, than when this refutation was not included (Hass and Reichig, 1977; Walster *et al.*, 1966).

Thus, in the health risk prevention context of the present study, a refutational two-sided message, which provides more guidance, might be more appreciated and regarded as more credible, as the recipients know that the source of the message is not acting out of self-interest, but rather out of public interest (Walster *et al.*, 1966). In other words, for health prevention messages, a two-sided refutational message could be more credible than a two-sided non-refutational message. Similarly, in an educational context (i.e., in which the educational institution has low self-interest), several studies show evidence that students prefer two-sided refutational over non-refutational text (Guzzetti *et al.*, 1995; Guzzetti *et al.*, 1993; Hynd, 2001).

#### *THE MODERATING IMPACT OF ARGUMENT TYPE*

Credibility effects of two-sided refutational messages are not only influenced by the perceived self-interest of the communicator, but also by other factors, such as the argument type. Argument type is an important moderating variable that influences source and message credibility (Pornpitakpan, 2004). In general, the more relevant the argument is for the issue at hand, the more credible the overall message is (Slater and Rouner, 1996). Pham (1998) found that the relevance of the argument type (affective versus cognitive) depends on the type of consumption motive underlying the behavior or the issue (Pham, 1998). He distinguishes between consummatory and instrumental motives. Consummatory motives underlie behavior that is pleasant as such, whereas instrumental motives underlie behaviors that are undertaken to achieve well-considered further goals (Pham, 2004). Instrumentally motivated behavior is likely to be cognitively driven, while consummatory motivated behavior is likely to be affectively driven (Martin and Tesser, 1992; Pham, 1998). Consequently, when an issue is primarily associated with consummatory motives, affective considerations will be more relevant than cognitive considerations (Holbrook and Hirschman, 1982; Pham, 1998). In other words, affective arguments are perceived as more relevant than cognitive arguments when the particular behavior is done for consummatory reasons, and vice versa (Holbrook and Hirschman, 1982; Pham, 1998).

Like most unrestrained behavior, binge drinking and marijuana use are inherently consummatory, since the act of binge drinking or smoking marijuana holds little if any instrumental value (Ricciardelli, et al., 2001). Studies show that individuals mostly indulge in drugs for affective, impulsive, or social reasons, instead of cognitive or instrumental reasons (Williams and Clark, 1998). So, it can be argued that, for the issues of binge drinking and marijuana use, affective arguments are more relevant, leading to a higher source and message credibility than cognitive arguments (Pornpitakpan, 2004; Slater and Rouner, 1996).

#### *THE MODERATING IMPACT OF ISSUE AMBIVALENCE*

Ambivalent attitudes can be defined as the simultaneous existence of conflicting positive and negative thoughts or feelings that a person holds toward an attitude object or issue (Priester and Petty, 2001). Consequently, issue ambivalence is the degree to which an issue generates ambivalent (versus univalent) attitudes. In his meta-analysis on message sidedness, Allen (1991) links issue ambivalence

to voluntariness of disclosure. Voluntariness of disclosure is an important determinant of the credibility of two-sided messages (Eisend, 2006). So, it is argued that the credibility of a two-sided message depends on whether the receiver perceives the discounting counter-information in the message to be given voluntarily or not (Eisend, 2006). If a marketer makes an unfavorable disclosure because he is required or legally forced to (e.g., health warning on cigarette ads), he is perceived as less credible than a marketer who makes the disclosure voluntarily (Eisend, 2006). For more ambivalent issues (i.e., in this study: marijuana use) inherently characterized by arguments in favor as well as against the issue, the general awareness of both positive and negative arguments is high (Allen, 1991). So, for an ambivalent issue an advertiser who uses a two-sided message, is not regarded as giving both sides of the issue voluntarily, but just as acknowledging the inherent ambivalence of the issue (Allen, 1991). On the other hand, univalent issues (i.e., in this study: binge drinking) are not dual: they are characterized by either strong pro arguments (univalent positive issue) or strong contra arguments (univalent negative issue). When a communicator discloses counter-information about a univalent issue, this might be perceived as more 'voluntary', as the communicator is not expected to disclose information on both sides of the issue (given the univalent nature of the issue) (Allen, 1991). Therefore, two-sided messages about univalent issues might be considered as more voluntary, and therefore lead to a higher source and message credibility than two-sided messages about ambivalent issues.

#### *HYPOTHESES DEVELOPMENT*

In sum, when the issue is univalent (binge drinking) and the arguments are affective, refutation will not increase the credibility of the two-sided message and the source, as univalent issues (voluntary disclosure) and affective arguments (relevant for consummatory behavior) already set high levels of credibility. In other words, refutation in the message is not necessary in this case to boost credibility. We expect a ceiling effect, in that a two-sided non-refutational and a two-sided refutational message will be equally credible. Therefore, no hypothesis is formulated on this expected non-effect.

Second, when a univalent issue (voluntary disclosure) is combined with a cognitive argument type (less relevant for consummatory behavior), credibility levels decrease due to the less relevant

arguments used. Hence, refutation will be needed to uplift the source and message credibility. In this case, a two-sided refutational message is expected to generate a higher source and message credibility than a two-sided non-refutational message.

Third, when the issue is ambivalent (no voluntary disclosure), and the arguments used are affective (relevant for consummatory behavior), credibility levels are also low because of the seemingly involuntary disclosure. So in this case, a refutation statement can help to increase the level of message and source credibility. We therefore expect a two-sided refutational message to generate a higher source and message credibility compared to a two-sided non-refutational message, in this case.

Fourth, when an ambivalent issue (no voluntary disclosure) is combined with a cognitive argument type (less relevant for consummatory behavior), we expect a floor effect: credibility levels will not be influenced by refutation anymore. In this case, we expect a two-sided refutational and a two-sided non-refutational to generate no difference in source and message credibility. Hence, no hypothesis is formulated.

**H.1** When the **message issue** is univalent, a refutational rational two-sided message leads to a higher source and message credibility than a non-refutational rational two-sided message.

**H.2** When the **message issue** is ambivalent, a refutational affective two-sided message leads to a higher source and message credibility than a non-refutational affective two-sided message.

## **METHOD**

### *DESIGN AND STIMULI*

A 2 x 2 x 2 between-subject factorial experimental design was set up, in which refutation in a two-sided message (two-sided non-refutational versus two-sided refutational), argument type (cognitive versus affective), and issue ambivalence (ambivalent versus univalent issue) were the independent, manipulated variables. Each of the eight different messages contained a main argument against the issue (the directional argument, which is anti-binge drinking or anti marijuana use) and a secondary argument in favor of the issue (the counter argument). In the refutational two-sided messages, this secondary positive argument was refuted.



Argument type (cognitive versus affective) was manipulated through the type of arguments used: the cognitive arguments were factual (i.e., contra argument: “*Binge drinking leads to alcohol poisoning/Marijuana use leads to psychoses*”, pro argument: “*Alcohol can reduce the risk of cardiovascular diseases/Marijuana is a natural product*” and refutation: “*But the cardiovascular benefits of alcohol only count in moderate amounts/But poisonous plants are natural products too*”). The affective arguments were more affective (i.e., contra argument: “*Because of binge drinking, Thomas, 16 years old, got alcohol poisoning/Because of using marijuana, Thomas, 16 years old, got psychoses*”, pro argument: “*Thanks to the alcohol, he was very popular that night/Using marijuana helped him to reduce his stress*” and refutation: “*But how important is popularity in the end?/But marijuana doesn’t take away the cause of stress*”). Only the affective arguments were accompanied by a pictorial image, not the cognitive arguments, because images are found to be more affect-laden than verbal-only appeals (Mitchell, 1986; Zinn and Manfredi, 2000).

We deliberately chose not to include a one-sided message condition in this study because of three reasons. First, attribution theory (Jones and Davis, 1965) clearly recommends two-sided messages over one-sided messages. The theoretical added value of including a one-sided message in the experimental design would be negligible. Besides, more research is needed to investigate the need for refutation in two-sided messages. We fill this research gap. Second, literature has sufficiently proven that one-sided (fear-inducing) health prevention messages can backfire. One-sided, fear-evoking messages often yield reactance, whereas two-sided messages do not. Third, including a one-sided message would render the experiment unnecessarily complex by making it a 3 x 2 x 2 design instead of the current 2 x 2 x 2 design, which would diminish the interpretability of the results. We therefore focus specifically on two-sided messages.

### *PRETEST 1*

Issue ambivalence was manipulated through the use of two distinct issues. In order to choose an ambivalent versus a univalent issue, a within subjects pretest (N = 23, age range: 15 and 19 years old) based on a list of seventeen different issues was conducted among adolescents (the same target group as the main study). Respondents were asked to rate a list of 17 issues on a one-item, seven-point

semantic differential scale (i.e., “*This behavior is very bad – This behavior is ambivalent (partially bad, partially good) – This behavior is very good*”). Based on the results of this pretest, we selected marijuana use as an ambivalent issue and binge drinking as a univalent issue. Shepherd (1981) already recognized the controversy or ambivalence of marijuana use. The results of our pretest show that marijuana use ( $M = 3.61$ ) was significantly more ambivalent (i.e., in the middle between negative and positive) than binge drinking ( $M = 2.00$ ), which was rated as univalent negative behavior, ( $t(44) = 4.06, p < .001$ ).

### *PRETEST 2*

The stimuli were pretested between-subjects in a sample of 160 respondents between 15 and 19 years old by means of a printed questionnaire. Refutation, issue ambivalence, and argument type were measured by means of the same constructs as in the main study (see hereafter). As expected, participants rated the two-sided refutational messages ( $M = 5.92$ ) as significantly more refutational than the two-sided non-refutational messages ( $M = 2.32$ ), ( $t(158) = 16.05, p < .001$ ). The ambivalent issue (marijuana use) ( $M = 2.91$ ) was rated as more ambivalent (i.e., in the middle on a seven-point semantic differential scale between negative and positive) than the univalent issue (binge drinking), which was rated as more negative ( $M = 2.19$ ), ( $t(158) = 4.09, p < .001$ ). Similarly, respondents rated the affective messages ( $M = 4.83$ ) as significantly more affective (versus cognitive) than the cognitive messages ( $M = 2.44$ ), ( $t(158) = 12.63, p < .001$ ).

### *POST-HOC TEST*

Additionally, a post-hoc test was conducted to measure the underlying concepts on which our hypotheses are built. This post-hoc test was conducted between-subjects among 86 respondents ( $M_{age} = 16.41, SD = .80; 65.1\%$  male). First, prior to exposure to one of the eight stimuli, the respondents were asked to indicate their motivation (instrumental versus consummatory) for binge drinking or smoking marijuana. Then, they saw one of the eight stimuli used in the main experiment. Subsequently, the respondents completed a written questionnaire containing measures for perceived self-interest of the source, argument relevance, and perceived voluntariness of disclosure. These

variables were measured as a test for the concepts underlying our hypothesis development. The conclusions of these tests are reported in the results section.

## **PARTICIPANTS AND PROCEDURE**

A total of 853 subjects participated in the main experiment, which was a between-subjects design. The sample consisted of 63.4 % females. The age of the participants ranged between 15 and 19 years ( $M_{age} = 16.78$ ,  $SD = .93$ ). This study deliberately targeted adolescents between 15 and 19 years old, as the issues of binge drinking and marijuana use are especially relevant for this age group. The respondents were selected by contacting at random the principals of five different secondary schools in Flanders, Belgium. In each school, a class from the fourth, fifth, and sixth grade (equivalent to tenth, eleventh, and twelfth grade of high school in the American school system) was randomly selected to participate in the experiment.

The data were collected by means of a printed questionnaire. The respondents were gathered in a classroom under supervision of their teacher and the researcher. They were randomly assigned to one of the eight experimental stimuli. Each respondent individually received one of the eight stimuli on print. Subsequently, they completed the questionnaire, containing the manipulation checks, followed by the dependent variables (i.e., source credibility and message credibility) and age and gender. Finally, the respondents were debriefed and thanked for their cooperation.

## **MEASURES**

### *INDEPENDENT VARIABLES AND MANIPULATION CHECKS*

Consistent with previous studies (Eisend, 2006), the manipulation check variable for refutation was measured by means of one single item on a seven-point Likert scale (i.e., “*The positive argument was subsequently refuted in the message*”, totally disagree – totally agree). The manipulation check variable for argument type was measured by a three item seven-point semantic differential scale based on Liu and Stout (1987) (e.g., “*I think this message is cognitive versus affective.*”) ( $\alpha = .65$ ). The perceived ambivalence of the issue was measured using one item on a seven-point semantic

differential scale (i.e., *This behavior is very negative – This behavior is ambivalent (partially negative, partially positive) – This behavior is very positive*”).

#### DEPENDENT VARIABLES

Source credibility was measured by three items on a seven-point semantic differential scale (Eisend, 2007) (e.g., *“The source is not trustworthy vs. trustworthy”*) ( $\alpha = .89$ ). Message credibility was measured by means of a four item seven-point semantic differential scale (Gurhan-Canli and Maheswaran, 2000) (e.g., *“The message is not credible vs. credible”*) ( $\alpha = .85$ ). Consummatory versus instrumental motives were measured by means of a one-item seven-point semantic differential scale varying from *“I (would) binge drink/use marijuana simply for the pleasure of consumption”* versus *“I (would) binge drink/use marijuana as an instrument to obtain a specific further goal in mind”*. Perceived self-interest of the source was measured by means of a one-item seven-point semantic differential scale (i.e., *“To which degree do you think the source of this message has self-interest in communicating this message?”* varying from *“no self-interest at all”* to *“a lot of self-interest”*). Argument relevance was measured by a one-item seven-point semantic differential scale (i.e., *“The arguments used in the message were not relevant versus relevant”*). In line with previous research (Eisend, 2010), perceived voluntariness of disclosure was measured by means of a one-item seven-point semantic differential scale (i.e., *“Do you believe the source made the disclosure not at all voluntary”* versus *“entirely voluntary”*). Following a reliability analysis for each of the multi-item scales, which indicated that all multi-item scales were internally reliable (cf. supra:  $\alpha$  levels), we averaged the scores on the items of all multi-item scales for hypotheses testing.

## RESULTS

#### MANIPULATION CHECKS

A manipulation check was performed by means of three independent sample t-tests with perceived refutation (two-sided non-refutational versus two-sided refutational), perceived argument type (cognitive versus affective), and perceived ambivalence of the issue (univalent versus ambivalent) as dependent variables. The respondents rated the two-sided refutational messages ( $M = 4.78$ ) as significantly more refutational than the two-sided non-refutational messages ( $M = 3.39$ ), ( $t(850) =$

10.82,  $p < .001$ ). The affective messages ( $M = 3.37$ ) were considered significantly more affect-laden than the cognitive messages ( $M = 2.77$ ), ( $t(840) = 7.15$ ,  $p < .001$ ). The ambivalent issue (marijuana) ( $M = 2.53$ ) was also found to be more ambivalent (i.e., in the middle between negative and positive) than the univalent issue (binge drinking), which was rated as more negative ( $M = 1.93$ ), ( $t(822) = 6.35$ ,  $p < .001$ ).

### TEST OF THE HYPOTHESES

To test hypotheses 1 and 2, two univariate analyses of variance (ANOVA's) were conducted with refutation, argument type, and ambivalence as the independent variables, and source and message credibility as the dependent variables. The results indicated a significant third-order interaction effect between refutation (two-sided non-refutational versus two-sided refutational), argument type (affective versus rational), and ambivalence of the issue (univalent versus ambivalent) on source credibility, ( $F(1, 849) = 7.54$ ,  $p < .05$ ) and on message credibility ( $F(1, 849) = 11.54$ ,  $p < .001$ ).

Simple effect tests showed that, when the issue was univalent and the arguments were affective, a refutational ( $M_{source\ credibility} = 5.27$ ) ( $M_{message\ credibility} = 4.99$ ) and a non-refutational ( $M_{source\ credibility} = 5.52$ ) ( $M_{message\ credibility} = 5.22$ ) two-sided message did not lead to any differences in source credibility ( $t(179) = 1.29$ ,  $p = .198$ ) and message credibility ( $t(179) = 1.26$ ,  $p = .201$ ). This is in line with the expectations. When a cognitive message was used, a refutational two-sided message ( $M_{source\ credibility} = 5.43$ ) ( $M_{message\ credibility} = 5.16$ ) led to a significantly higher source credibility ( $t(186) = 3.04$ ,  $p < .05$ ) and message credibility ( $t(186) = 4.20$ ,  $p < .001$ ) than a non-refutational two-sided message ( $M_{source\ credibility} = 4.83$ ) ( $M_{message\ credibility} = 4.31$ ) (see Figure 1 and Figure 2). These findings confirm hypothesis 1.

[Figure 1 here]

[Figure 2 here]

When the issue was ambivalent and the arguments were affective, a refutational two-sided message ( $M_{source\ credibility} = 5.42$ ) ( $M_{message\ credibility} = 5.10$ ) led to a higher source credibility and message credibility than a non-refutational two-sided message ( $M_{source\ credibility} = 5.19$ ) ( $M_{message\ credibility} = 4.74$ ) ( $t_{source\ credibility}(233) = 1.28$ ,  $p = .201$ ) ( $t_{message\ credibility}(234) = 2.10$ ,  $p < .05$ ). Hypothesis 2 is partially supported, as the effect on source credibility is not significant. When rational arguments were used, a

refutational ( $M_{source\ credibility} = 5.21$ ) ( $M_{message\ credibility} = 5.08$ ) and a non-refutational ( $M_{source\ credibility} = 5.15$ ) ( $M_{message\ credibility} = 4.86$ ) two-sided message did not lead to any differences in source credibility ( $t(244) = .39, p = .691$ ) and message credibility ( $t(243) = 1.40, p = .163$ ) (see Figure 3 and Figure 4), which is in line with our expectations. Additionally, we did our analyses with the inclusion of gender and age as covariates. The results show the same effects, indicating that gender and age do not have an impact.

[Figure 3 here]

[Figure 4 here]

Furthermore, we conducted a post-hoc test to verify the underlying assumptions of our hypotheses. The results of the post-hoc test showed that both binge drinking and marijuana use are indeed mainly driven by consummatory rather than instrumental motives ( $M = 2.46$  on a one-item seven-point semantic differential scale varying from “*I (would) binge drink/use marijuana simply for the pleasure of consumption*” versus “*I (would) binge drink/use marijuana as an instrument to obtain a specific further goal in mind*”). Perceived self-interest of the source was equally low for both stimuli regarding binge drinking ( $M = 2.27$ ) and marijuana use ( $M = 2.38$ ), ( $t(84) = .51, p = .61$ ). Also, as assumed, the affective argument ( $M = 5.20$ ) was rated as more relevant than the cognitive argument ( $M = 3.87$ ), ( $t(84) = 5.71, p < .001$ ). Lastly, the respondents perceived the disclosure about the univalent issue (binge drinking) ( $M = 5.10$ ) to be given more voluntarily than the disclosure about the ambivalent issue (marijuana use) ( $M = 3.87$ ),  $t(84) = 3.27, p < .05$ .

## DISCUSSION AND CONCLUSIONS

The present study sheds light on the effects of two-sided messages on source and message credibility. Specifically, it investigates the boundary conditions when refutation of the counterargument is necessary for optimal credibility effects to occur. Credibility, in turn, is related to the overall persuasiveness of a message (Eisend, 2007; Wilson & Sherrell, 1993). Keller and Lehmann (2008), however, state that source credibility is especially more persuasive for low involved audiences. In our study, we deal with sources that are characterized by low self-interest (i.e., public health), which

makes these sources more credible (Eisend, 2006). Literature has found that in commercial advertising, refutation can have detrimental effects on credibility, because the self-interest of commercial advertisers might be too obvious (Eisend, 2006; Walster *et al.*, 1966). The opposite could be the case in health communication, since most health organizations act for public interest (Hynd, 2001). The results of this study confirm the literature in that, for health risk prevention messages, a two-sided refutational message generally generates a higher source and message credibility than a two-sided non-refutational message. However, our study also showed that refutation is not always necessary. Our study complements prior research by demonstrating that the need for refutation depends on two important moderating variables: the ambivalence of the issue that is being communicated, and the consistency between the argument type and the motivation to conduct the behavior.

When the health risk issue is not ambivalent, a two-sided message revealing both sides of the issue could be regarded as more voluntary, because the source is not 'supposed' to give both sides of the issue (Allen, 1991). This higher accredited voluntariness of self-disclosure may lead to more credibility (Allen, 1991). Furthermore, when a univalent issue is combined with highly relevant, affective arguments, the overall credibility is high, regardless of whether the two-sided message is refutational or not. Hence, in this case, refutation is not needed, as the credibility is already set by the perceived voluntariness (univalent issue) and the relevance of the arguments (affective). When, however, a univalent issue is communicated with less relevant rational arguments (instead of affective), refutation is needed in order to uplift the overall credibility of the source and message.

For an ambivalent issue, characterized by a lower perceived voluntariness to communicate both sides of the issue, credibility might be lower. An ambivalent issue is obviously dual, making a two-sided message more the 'expected' way of acknowledging this duality, rather than a sign of honesty or voluntariness (Allen, 1991). When for an ambivalent issue, the more relevant, affective arguments are used, refutation is a helpful tool to increase the credibility. When, however, rational arguments are used, which are less relevant for consummatory-motivated behavior (Pham, 1998), the presence versus absence of refutation does not have a different impact on source and message credibility.

In sum, the present study complements previous literature in that it identifies the cases in which refutation is needed, and when it is redundant in order to uplift the credibility of a source or a message by addressing two important (yet so far neglected) moderating variables: argument type (affective or cognitive) and issue ambivalence. This way, the present study clarifies the inconsistencies found in previous literature regarding the credibility effects of (non-)refutational two-sided messages. Second, this research has broadened the spectrum of communication strategies available for public health communication. By applying a communication strategy previously mainly associated with commercial product marketing (i.e., two-sided messages) new possibilities are created for the social marketing domain, more specifically drug prevention campaigns.

### **RECOMMENDATIONS FOR PRACTITIONERS**

The present study provides useful insights for health practitioners who develop campaigns to prevent binge drinking or marijuana use (or other consummatory motivated behavior that implies health risks) among adolescents. Contrary to what has been shown to work for commercial advertisers, our work shows that health advertisers can increase their credibility, as well as the credibility of the message, by including a refutation in their two-sided health risk prevention messages. However, refutation is not always necessary. Health practitioners should take issue ambivalence and the argument type into consideration before developing a two-sided health risk prevention message, as those factors determine when refutation is beneficial and when it is redundant. Caution is needed concerning the use of refutation, because in situation of high self-interest of the advertiser, a refutational statement in a two-sided message might have detrimental effects on credibility (Eisend, 2006; Walster *et al.*, 1966). So, prior to the actual message design, pre-research can help health practitioners to gain insights in (a) reputation of the source: is the source considered as acting out of self-interest or not? (b) consumption motives: are the consumption motives – driving the target group’s behavior – instrumental or consummatory? and (c) issue ambivalence: does the target group regard the issue as ambivalent or not? This knowledge of the target group is essential in deciding which arguments (e.g., rational or affective) and, subsequently, which type of two-sided message (refutational or non-refutational) to develop the most optimal health campaigns.



## LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

A limitation of this study is that it remains rather issue-specific. In order to generalize the results, other issues should be investigated. We acknowledge that issue ambivalence can be individually or culturally dependent. Therefore, future studies should test if the results of this study still hold for an issue that is perceived as ambivalent versus univalent by different subgroups. For instance, breast cancer screening might be regarded as univalent positive by most women, whereas for some women, the practice of breast cancer screening might be coupled with feelings of shame or fear, hence, be more ambivalent.

We also want to comment on our data collection method, which was a convenience sample. We used subjects that were randomly selected from five different high schools. Also the selection of the five schools was made at random. Furthermore, the classes in each school were also randomly selected (focusing on only the final three grades of high school). Since the selection of classes and schools was made at random, it can be argued to be representative of the general population of older high school students, as we can assume that possible differences will vary evenly across the conditions. Yet, for this study, a better sampling method (other than a convenience sample) could have been used. Further research should replicate this study by using a different sampling method in order to increase the external validity.

Third, we must note a limitation regarding our manipulation of argument type. Only the affective arguments were accompanied by a pictorial image, not the cognitive arguments. Although images are found to be more affect-laden than verbal-only appeals (Mitchell, 1986; Zinn and Manfredi, 2000), the use of an image can form a bias. Further research should compare cognitive and affective arguments, both without the use of an image. An additional limitation regarding our manipulation of argument type is that the cognitive anti binge drinking argument we used (i.e., “Binge drinking leads to alcohol poisoning”) is strictly speaking not wholly truthful, as not all cases of binge drinking lead to alcohol poisoning. “Binge drinking can lead to alcohol poisoning” would have been a more truthful statement.

Furthermore, in this study, an ambivalent issue (marijuana use) was compared to a univalent negative issue (binge drinking), whereas univalent positive issues (such as, for instance, sports or a healthy diet) were not studied. It would be worthwhile to include issues that are considered as predominantly positive, for which negative arguments are given in a two-sided message, in order to test the voluntariness of disclosure principle (Allen, 1991). Additionally, results might have been different for behavior involving instrumental motives, for which rational arguments are more relevant (Pham, 1998).

The manipulation of issue ambivalence by selecting two different issues is an area worthy of further research. Despite the fact that the selection of both issues was based on a pretest (containing a list of seventeen different issues), and that the manipulation checks were successful, the difference in perceived ambivalence between both issues is rather small. In future studies, this matter could be avoided by choosing one single issue and measuring each respondent's personal 'attitude ambivalence' toward the issue. In this way, a distinction can be made between individuals who regard the issue as ambivalent, versus those who regard it as univalent negative or univalent positive (depending on their attitude ambivalence toward the issue).

Finally, further research should directly compare commercial (for profit) and nonprofit issues. In this way, perceived self-interest of the source (and thus, credibility) could be manipulated by comparing two different issues.

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