Chapter 4

Background music in auditory health persuasion: Understanding the processes of distraction and identification with the music
Abstract

Persuasive health information can be communicated via an auditory channel and may include background music. Two working mechanisms (identification and distraction) that can explain a possible effect of the music conditions are investigated. It is expected that people who moderately value health will be mostly influenced by the background music, compared to people who view health as a top-priority. Students mentioned a song they would (not) put on their personal weblog as characterizing them as a person (positive versus negative identification). After 4-6 weeks, they listened to a health message either without background music, with the music they positively or negatively identified with, or with instrumental music that induced a positive mood (N = 146). When health was moderately valued, intention was significantly lower after listening to the message with positive or negative identifying music, which can be explained by distraction processes. It is recommended to apply background music carefully in auditory health education.

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Background music in auditory health persuasion: Understanding the processes of distraction and identification with the music

Besides music being a source of enjoyment and relaxation, it can be applied as a contextual cue in persuasion settings, such as advertisements or health messages. The widespread availability and use of the radio, the Internet and digital streaming technology (such as MP3) included in mobile phones and tablets shows that auditory forms of communication have become increasingly important and are broadly disseminated. This makes the potential value and reach of auditory communication channels enormous. In the present experimental study, background music will be applied in auditory health persuasion, to gain more understanding on two working mechanisms that can explain a possible effect of the applied background music. Background music might affect persuasion through the recipient’s identification with the music while processing the auditory persuasive information. On the other hand, the music might affect persuasion negatively through distraction. The results may be relevant for health persuasion using new channels (such as the Internet) to design effective auditory health interventions but also for the development of (commercial) radio advertisements.

Recent research on the multidimensional functions of music (Boer et al., 2012), showed that the background function of music is closely linked to attentional processes such as focus enhancement, but also to value and identity development. Although music has become an important channel of communication and identity development and expression, for example in interpersonal contexts (Hargreaves & North, 1999; North & Hargreaves, 1999; Rentfrow & Gosling, 2006), this perspective has hardly been studied. Adolescents ‘use music to express themselves and to make claims about their identity – public statements about who they are, who they want to be, and how they want others to perceive them’ (Rentfrow, McDonald, & Oldmeadow, 2009; Hargreaves, Miell, & Macdonald, 2002), as they feel that their music preferences reflect who they are and what they value in life (Rentfrow et al., 2009; Schwartz & Fouts, 2003). This communication of music preferences is recently stimulated by online platforms that provide the explicit opportunity to present one’s preferences, such as personal weblogs, social networking websites (e.g., Facebook, MySpace) and applications specifically aimed at music sharing (e.g., Spotify, Last.fm).

These aspects of music and personal identity expression form the central idea of the current paper. Two conditions of music identification will be created: One with background music the listener identifies with and one with background
music the listener explicitly does not identify with (positive vs. negative identification). If identification is a working mechanism in the relationship between background music and persuasion, specific differences between these conditions are expected. Positive identification with music may increase persuasion as the identification with the music “spills over” to the message, making the message more relevant to the self and lowering negative cognitive reactions towards the content. This might be related to the activation of the process of similarity testing (e.g., “This is who I am and this is where I belong”), which may lead to assimilation to the persuasive information (Mussweiler, 2001). In contrast, negative identification music may reduce persuasion as the music may lead to negative cognitive reactions that also influence one’s evaluation of the persuasive message. This might be related to the activation of the process of dissimilarity testing (e.g., “This is not who I am”), possibly leading to contrasting and rejecting the persuasive information.

On the other hand, it is possible that identification processes are overruled by attentional processes (Westling, Mann, & Ward, 2006). That is, listening to background music generally leads to a higher cognitive load (Kiger, 1989; Perham & Vizard, 2011). In line with this, the elaboration likelihood model (ELM; Petty & Cacioppo, 1986; Petty & Briñol, 2012) suggests that cognitive reactions towards the persuasive information can be disturbed by distraction (e.g., while listening to the music; Baron, Baron, & Miller, 1973; Petty, Wells, & Brock, 1976; Keating & Brock, 1974). This means that distraction can either negatively or positively affect persuasion: Distraction from positive cognitive reactions (i.e., a message containing strong arguments) may reduce persuasion, whereas distraction from negative cognitive reactions (i.e., a message containing weak arguments) may increase persuasion (Petty et al., 1976; Petty & Briñol, 2012). In the current study, a message with strong arguments is used; therefore, it is expected that distraction might lead to less persuasion.

Besides the above presented opposing processes (identification versus distraction), individual differences might moderate the effects: The level of personal involvement in the message is thought to affect the patterns of persuasion as well. In the domain of health, the extent to which health is valued may be considered a measure of value involvement (Eagly, 2007; Johnson & Eagly, 1989). As most people value health, we distinguish between people who value health as top priority in their lives (high health value) and people who acknowledge that health is important, but not the most important value in life (moderate health value; Pietersma & Dijkstra, 2011). Based on the ELM (Petty & Cacioppo, 1986), it can be expected that people who are highly involved in the topic will process the information centrally. This group is motivated to focus on the content information that is in line with their value, and is probably less affected by the background music. In contrast, people who are moderately involved in the topic are less motivated to pay attention to the content information and might...
focus more on the peripheral cues instead (i.e., the background music). In line with this, it can be expected that significant differences between types of background music will be observed for moderately involved participants only (interaction effect - Hypothesis 1).

In sum, the effect of background music that people identify positively or negatively with will be investigated in auditory health persuasion. The music is applied as an additional auditory cue to the primary task - listening to a health message - which implies that multiple levels of information are processed simultaneously via the auditory channel. In addition, a control condition without background music will be added.

When identification processes are at work, positive identification with background music will lead to more persuasion compared to negative identification and the control condition (Hypothesis 2a). This pattern will be most pronounced in recipients who value their health moderately. On the other hand, these effects may be overruled by distraction processes: We would then expect that whatever background music is applied, it distracts from the persuasive message and lowers persuasion. Persuasion will then be most high in the control condition without background music (Hypothesis 2b). Again, health value may moderate the effects. Besides identity construction and distraction, mood is another relevant and robust mechanism through which music can affect persuasion (Hullett, 2005; Västfjäll, 2002). In addition, recent research suggests that positive mood is a resource to process self-relevant health messages (Das, Vonkeman, & Hartmann, 2012). Therefore, a condition will be included in which participants listen to music that is known to elicit a positive mood to exclude this as an alternative explanation. Persuasion is operationalized as the intention to eat more fruit and vegetables and process measures of identification, mood, negative cognitive reactions and distraction will be assessed.

Method

Recruitment and design. At different university locations in Groningen, students were asked to participate in a study consisting of an online questionnaire and a lab experiment. If they agreed to participate, they were asked to write down the e-mail address for receiving the questionnaire and to give an indication of when they could finish the experiment. If they could not indicate this, they were contacted by phone or e-mail in order to make an appointment. The experiment took place in the laboratory of the Faculty of Behavioral and Social Sciences among students. Participants received 10 Euros after completing both parts. Once the online questionnaire was completed, participants were randomly assigned to a condition. The between-participants design consisted of four conditions: Besides the positive identification music and negative identification music conditions, a control condition with no background music was added, as well as a condition with a piece of music that is known to elicit a positive mood (Mozart's Sonata for Two Pianos; Thompson, Schellenberg, & Husain, 2001).
**Procedure.** Participants received a link to a fifteen minute online questionnaire that could be filled in at home. Among background variables, the questionnaire included five short scenarios for which the respondent was asked to mention a song that applied to him or her in the given situation. This individual information was used later to compose the experimental manipulations for those assigned to either the positive or negative identification background music condition.

Four to six weeks after completing the online questionnaire, participants were scheduled for the lab experiment. Once the participants arrived, they were welcomed and allocated to one of four individual cubicles in the laboratory. The manipulation and assessments were all accessible via a computer. They were introduced to the study by a screen with an informed consent form, addressing the confidentiality and duration of the study (approximately 10 minutes). Auditory instructions on adapting the volume of the headphone were given. Then, the health message accompanied with a specific piece of background music (based on pre-test measures), the piano music or no background music was presented to the participants, after which several questions were asked, representing the dependent variables. Finally, an on-screen debriefing was presented to the participants.

**Materials and measures • Pre-test measures.** The first part of the online questionnaire referred to socio-demographic variables, such as gender and age. In addition among general background variables regarding music and lifestyle, it was assessed whether participants currently played a musical instrument, which could be answered with yes or no. Next, for different situations, respondents were asked to name a specific song (artist and title) that applied to them personally, without providing restrictions. The first scenario was the basis for the positive identification manipulation: ‘Assume you have a personal weblog and you can indicate one song that defines you as a person, which song would you choose?’ The second scenario referred to the negative identification manipulation: ‘What could be a popular song that you would never put on your personal weblog, but somebody else might?’ Additionally, three filler items were created with different situations for which the respondents could mention an applicable song (i.e., a song that cheers you up when feeling down).

Intention to change health behavior was assessed with one item: ‘It is likely that I will eat more fruit and vegetables within one year’, that could be answered on a five-point scale ranging from ‘absolutely not’ [1] to ‘absolutely’ [5] \((M = 2.98, SD = .97)\). Subsequently, two questions regarding the respondent’s health value were asked. The first question referred to how valuable health was for the respondent and could be answered on a seven-point scale ranging from ‘not very valuable’ [1] to ‘very valuable’ [7]. The second item stated that health is most important to the participant and could be answered on a five-point scale ranging from ‘totally disagree’ [1] to ‘totally agree’ [5]. A composite measurement was created by averaging both items \((r = .36, p < .001)\).
Finally, two items addressed perceived consumption of fruit and vegetables, respectively, that could be answered on a five-point scale (‘minimal’ [1] / ‘few’ [2]/ ‘slightly insufficient’ [3]/ ‘sufficient’ [4]/ ‘more than sufficient’ [5]). Again, a composite measurement was created (r = .27, p = .001, M = 3.43, SD = .76).

- The health message. The auditory message itself (242 words, 111 seconds; see Appendix 1b and 2, QR-code 5) was recorded in collaboration with a professional recording studio and spoken by a female voice that was selected because of her neutral sound. The content of the message referred to the negative outcomes of eating an insufficient amount of fruit and vegetables, such as an increased risk for cancer and heart diseases. In the positive identification condition 37 unique songs were used (among which two instrumental), whereas in the negative identification condition six songs were mentioned multiple times (25 unique songs, one instrumental). No overlap between the conditions was observed. The selected pieces of music of the participants allocated in the positive or negative identification condition were purchased via iTunes to keep the quality of the background music as constant as possible.

For each participant in one of the two identification conditions, (a recognizable part of) the music was composed together with the spoken health message in collaboration with the recording studio. The volume of the music was adapted to ensure that it was not too high or too low relatively to the voice; the respondent had to be able to listen to the message, while also recognizing the music for the sake of the identification manipulation. At the beginning and the end of the recording, the songs were faded in and out to create a moment of recognition and to enhance a natural recording (to ensure it did not start or end unexpectedly). Respondents could only adjust the default level of the message prior to listening, whereas they could not adjust the relative volume differences between the health message and the music.

- Post-test measures. First, mood was assessed with three questions (α = .76, M = 5.29, SD = 1.00), encompassing the question: ‘What is your mood at the moment?’ It could be answered on three different seven-point scales, ranging from ‘not positive’ [1] to ‘very positive’ [7], ‘not negative’ [1] to ‘very negative’ [7] or ‘bad’ [1] to ‘very good’ [7]. Scores on the second question were reversed to create a coherent measurement: A higher score corresponds with a better mood.

Identification was measured with three questions that could be answered on seven-point scales (α = .65, M = 3.12, SD = 1.44). The first question addressed the extent to which the respondent felt a connection with the fans of the band or artist that he or she heard a song of (‘not at all’ [1] - ‘very strong’ [7]). It was tailored to the specific band or artist mentioned at pre-test either at the negative identification item (when the respondent was in the negative identification condition) or at the positive identification item (for all other conditions). The second question assessed the extent to which the respondent identified him/herself with the background music (‘not at all’ [1] - ‘very...
strong' [7]) and the third question was: ‘To what extent is the background music typical for who you are as a person?’ (‘not at all typical’ [1] - ‘very typical’ [7]).

The strength of negative cognitive reactions was assessed with one question: ‘To what extent did you have negative thoughts regarding the message content?’ It could be answered on a seven-point scale (‘not at all negative’ [1] to ‘very negative’ [7]; \(M = 2.59, SD = 1.53\)).

Two questions measured self-reported distraction that could be answered on seven-point scales with endpoints ‘not at all’ [1] and ‘very much’ [7]. The items are ‘To what extent did the music distract you from listening to the health message?’ and ‘To what extent did you manage to keep your attention to the health message?’ The second item was recoded to create a coherent measure with a high score referring to high distraction (\(r = .56, p < .001, M = 3.85, SD = 1.46\)).

Finally, two questions assessed intention to change the health behavior. Participants responded to the statement: ‘It is likely that I will eat more fruit and vegetables’ in two different time frames (‘within one month’ and ‘within five years’, see also Ajzen, 1988). To lower the probability of participants answering strategically (remembering their pre-test score), these questions could be answered on seven-point scales ranging from ‘not at all probable’ [1] to ‘very probable’ [7] (\(r = .52, p < .001, M = 4.35, SD = 1.51\)).

**Results**

**Participants and randomization check.** In total, 179 participants completed the online pre-test questionnaire. Eighty-five percent of them completed the lab study as well (\(N = 152\)). Six participants were excluded from the dataset; the final sample consisted of 146 participants, of whom 69 females (47%). Recipients were 17 to 34 years old (\(M = 21.4, SD = 2.4\)), and randomly distributed over the conditions: Positive identification (\(n = 37\)); negative identification (\(n = 36\)); positive mood (\(n = 36\)); no music (\(n = 37\)).

ANOVA showed that with regard to age, pre-test intention, health value, perceived fruit and vegetable intake and gender (Chi-square), there were no significant differences between conditions (all \(F\)’s (3, 142) < 2, \(ps > .20\) / \(\chi^2\) (3) = 4.51, \(p > .20\)). However, ‘playing a music instrument’ was not randomly distributed across conditions: \(\chi^2(3) = 10.34, p = .016\). All subsequent analyses were performed while controlling for this, but no differences in significances were found. Therefore, we will report the results without controlling for this variable.

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1. When a participant was assigned to the control condition, these questions referred to the voice instead of the music (e.g., ‘To what extent is the voice of the speaker typical for who you are as a person?’)
2. Four respondents in the identification music conditions made explicit statements about the music that did not fit with the condition they were assigned to. The central aspect of the manipulations (a sense of identification) was not successfully induced and these responses were considered as deviating. In addition, one respondent participated in a previous study that included the auditory message and one respondent reported technical problems while listening.
**Manipulation check.** It was analyzed whether the positive and negative identification conditions differed from each other on self-reported identification. A significant main effect of condition was found, $F(3, 142) = 51.09, p < .001, \eta^2_p = .52$. The mean score in the positive identification condition ($M = 4.68, SD = 1.08$) was higher than the mean score in the negative identification condition ($M = 1.80, SD = 1.02$), $p < .001$. In addition, the mean identification in the positive identification condition was significantly higher than the means in the positive mood condition ($M = 3.12, SD = 1.05$) and the control condition ($M = 2.86, SD = .86$), $ps < .001$. Moreover, the mean score in the negative identification condition was significantly lower than the means in the positive mood and no-music conditions, contrasts $p < .001$. These data suggest that the identification manipulation by means of music was successful.

**Effects on Intention.** An ANCOVA was conducted to analyze the interaction between condition and (standardized) health value on intention to eat more fruit and vegetables. Pre-test intention and perceived own consumption of fruit and vegetables were standardized and added as covariates. As predicted, a significant interaction of health value and condition was found, $F(3, 136) = 3.30, p < .05, \eta^2_p = .07$, suggesting that the effect of the background music manipulations differed for respondents scoring low or high on health value. The complete dataset was used to model participants as scoring relatively high or low (moderate) on health value, by adding and subtracting one standard deviation to the standardized means, respectively (Cohen, Cohen, West, & Aiken, 2003). To interpret the interaction, simple main analyses were conducted.

When health value was moderate, the effect of condition was marginally significant ($p = .081$). Both means on intention in the positive identification ($M = 3.94$) and the negative identification condition ($M = 3.86$) were significantly lower compared to the mean in the no-music control condition ($M = 4.87$), $ps < .05$. The mean score in the positive mood condition ($M = 4.30$) fell in-between those scores and showed no significant differences (Figure 4.1).

When health value was high, the effect of condition was not significant ($p = .14$) and relatively high intentions to change the health behavior were observed across conditions. The means were as follows (see Figure 4.1): positive identification: $M = 4.56$; negative identification: $M = 5.12$, positive mood; $M = 4.06$; no-music: $M = 4.43$. One contrast was significant: Respondents in the negative identification condition reported a significantly higher intention compared to respondents in the positive mood condition ($p < .05$).
Within the current analysis, the dependent variable was the intention to eat more fruit and vegetables. This question is possibly interpreted differently by respondents who already indicated that they consume sufficient fruit and vegetables. Indeed, our sample also included respondents who indicated at pre-test to perceive their fruit intake and/or their vegetable intake as ‘sufficient’ or ‘more than sufficient’. Therefore, we further analyzed the result in a selection of respondents who scored lower than ‘sufficient’ for at
least fruit or vegetable consumption (n = 106). The interaction between condition and health value was still significant, $F(3, 96) = 3.08, p < .05, \eta^2_p = .09$. In case of moderate health value, the effect of condition was now significant ($p < .05$). The same pattern was found, as both the means on intention in the positive identification ($M = 4.20$) and in the negative identification condition ($M = 4.17$) were significantly lower compared to the control condition without background music ($M = 5.26, p = .025$ and $p = .007$, respectively). In case of high health value, no significant effect of condition was found ($p = .51$), and there were no significant contrasts either. The means were relatively high for recipients with a high health value, ranging from 4.59 to 5.16.

**Effects on Process Measures**

None of the effects of condition on the process measures (including identification as mentioned before) was moderated by health value. Therefore, only main effects are reported below.

- **Mood.** The effect of the music manipulation on mood was marginally significant; $F(3, 142) = 2.44, p = .067, \eta^2_p = .05$. Mood was rather positive in all conditions. A significant difference was found between the mean score in the positive identification condition on the one hand ($M = 5.65, SD = .87$) and the mean scores in the negative identification condition ($M = 5.10, SD = 1.21$) and the no-music condition on the other hand ($M = 5.12, SD = .85; ps < .05$). However, none of these three means differed significantly from the mean score in the positive mood condition ($M = 5.27, SD = .98$).

- **Negative cognitive reactions.** Regarding negative cognitive reactions, a significant effect of condition was found, $F(3, 142) = 4.83, p < .01, \eta^2_p = .09$. The effect is mostly expressed by the high mean score in the negative identification condition ($M = 3.22, SD = 1.85$), which is significantly higher than the mean scores in the positive identification condition ($M = 2.00, SD = 1.08, p < .01$) and the positive mood condition ($M = 2.33, SD = 1.27, p < .05$). In addition, the mean in the positive identification condition was significantly lower than the mean in the no-music control condition ($M = 2.81, SD = 1.58; p < .05$).

- **Distraction.** A significant effect was found on distraction, $F(3, 142) = 20.57, p < .001, \eta^2_p = .30$. High self-reported distraction was found in the positive and negative identification condition ($M = 4.66, SD = 1.17$ and $M = 4.57, SD = 1.13$, respectively). Both means do not differ significantly from each other, but they do differ significantly from the means in the positive mood condition ($M = 3.38, SD = 1.40$) and the no-music control condition ($M = 2.78, SD = 1.20; ps < .001$). In addition, the mean score in the positive mood condition was significantly higher than the mean in the no-music control condition ($p = .042$).

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3 In line with the identification construction and emotional induction functions of music, it can be reasoned that more positive generated feelings towards the self, such as confirmation and affirmation, were generated after listening to positive identification music. Indeed, affirmation was taken into account as a process variable. No significant main effect of condition on affirmation was found, neither an interaction with perceived health value ($ps > .05$).
To explore the relation between self-reported distraction and persuasion, correlations between these constructs were computed, controlling for standardized pre-test intention and perceived fruit and vegetable intake. In the positive mood music condition there was a positive correlation \((r = .32, p = .07)\), whereas in the positive and negative identification music conditions the correlations were negative \((r = -.36, p < .05\) \(r = -.31, p = .071,\) respectively). Furthermore, in the no-music control condition, this correlation was non-significant \((r = .03, p > .83)\).

Based on the above analyses, several mediations could be possible. Multiple mediation analyses were conducted (Hayes & Preacher, 2014) to test whether identification, negative cognitive reactions, distraction or mood mediated the effect of condition on persuasion. Pre-test intention, perceived fruit and vegetable consumption and health value were standardized and included as covariates. Bootstrapping was applied (using 5000 resamples) to estimate the indirect effects and to assess their significance via 95% confidence intervals (CI). The overall model was significant; adjusted \(R^2 = .19, F(8, 137) = 4.09, p < .001,\) revealing the above reported effects of condition. However, the indirect effects and CI showed that all four possible mediations were not significant (as the CI did include zero; Preacher & Hayes, 2008).

**Discussion**

The relation between background music and persuasion was investigated in the context of auditory health persuasion. Although identification processes are induced (as shown by the manipulation check), the results suggest that Hypothesis 1 and 2b can be confirmed: Effects of the background music were mostly found in participants who moderately valued their health. In addition, identification did not seem to have effects on persuasion in this study, but it led to distraction instead. The results on persuasion could be interpreted while taking into account these processes of distraction. Participants with a moderate health value reported a significantly lower intention after listening to either positive or negative identifying music compared to when there was no background music. This pattern was also found in a selective sample of recipients who reported either insufficient fruit or vegetable intake. It may be reasoned that for these recipients the intention measures applied mostly, as these people might perceive there is still room for them to increase their fruit and vegetable consumption. Despite the smaller number of participants, the effect was even stronger in the selective sample, which increases the validity of this finding.

All participants reported more distraction in the three background music conditions compared to the no-music control condition, which is in line with the notion that background music can distract from the content message (Furnham & Bradley, 1997; Kiger, 1989). The finding that there was no significant difference between the positive and negative identification condition on distraction suggests that distraction was
independent of identification. In addition, both identification conditions led to the strongest perceived distraction, stronger than the mood condition.

The correlations between persuasion and reported distraction underline the differences between the mood condition and the identification conditions. In the positive mood condition the correlation was positive: The more distraction, the more persuasion. However, in both identification conditions the relation was negative. Thus, while attending to the positive mood music supported persuasion, attending to the identification music inhibited it. It seems that certain characteristics of the identification music, either positive or negative, may have disturbed persuasion. Typically, most songs in the identification conditions included lyrical components; it may be that these voices were the main distractors. In addition, research indicates that structural features of music can produce emotional effects. For instance, fast tempo is associated with positive, high-arousal emotions such as happiness (Bruner, 1990; Gagnon & Peretz, 2003; Niedenthal, Krauth-Gruber, & Ric, 2006). Structural musical features have been found to be related to distraction as well (Kallinen, 2002; Thompson, Schellenberg, & Letnic, 2012). Although we controlled for the loudness of the background music, we did not control for other characteristics of the music as the songs were selected primarily for their positive or negative identification value. In future research, to rule out some variation, one might select background music that is expected to be either positively or negatively identifying for respondents in general.

We can understand why the background music led participants to report distraction. But can distraction also explain the results on persuasion? Although participants with moderate and high health value were distracted by the conditions in similar ways (there was no moderation of health value), they were differentially persuaded by the conditions. This suggests that the reported distraction worked out differently in those with moderate and high health value. Those with moderate health value do value health and they do recognize that the persuasive arguments relate to this value. However, because health is not their top-priority they are not ready to invest in health behavior change and rather hold off the confronting information (Pietersma & Dijkstra, 2011). This may provide them with a motive to give in to the distraction by the music, at the cost of listening to the persuasive message. Those with high health value, however, may report an evenly large distraction but not give in to it as the content information is in line with their top-priority, health. Our measure of distraction referred to self-reported “distraction from listening”: More advanced means of measuring distraction should be applied in future research.

In discussing the above issue on distraction and persuasion it is important to realize that the persuasive information as well as the background music were offered in an auditory format. In Baddeley’s (2000) theory, the working memory is composed of three subsystems: The auditory/verbal system, the visuospatial system, and a central
executive. In this model, information input from two sources may interfere with each other, especially when they are processed through the same subsystem (as in the present study, the auditory/verbal system; Dittrich & Stahl, 2012). This notion may be used to further disentangle the effects of background music on different types of persuasion (auditory, textual, pictorial).

Based on the elaboration likelihood model (Petty & Cacioppo, 1986; Petty & Briñol, 2012), it was expected that recipients who viewed health as top priority would be less affected by the background music. Yet, the results were not in line with this expectation; these recipients reported a significantly higher intention after negative identification music compared to the positive mood music. It seems contradictory to report high persuasion after listening to music the respondent explicitly mentioned to negatively identify with. These respondents, who are motivated to listen to the content as it is in line with their top-priority, might have had an extra motive to ignore the background music and listen to the content instead, which led to more persuasion. It might be that they cognitively decided to block the negatively associated music early in the information processing (Kiger, 1989), as it is not rewarding to pay attention to the negatively identifying music compared to the other background music conditions. Thus, as might be investigated in future studies, in those who highly value their health, background music that people are motivated to avoid may increase central processing.

Besides identification and distraction, mood and negative cognitive reactions were assessed as potential mediators. However, for none of these four variables a mediation function could be demonstrated which, firstly, limits the extent to which the above causal statements regarding the relationship between distraction and persuasion are legitimized. Secondly, based on the literature, it could be expected that listening to music that elicits a positive mood would lead to more persuasion compared to when there is no background music available (Hullett, 2005). However, we were not able to show such an effect in the current context. One significant contrast was found between the positive and negative identification conditions in understandable direction, suggesting that positive and negative identification affected mood. This is in line with data from the field of social identity showing that activating group constructs in the face of negative feedback – as the persuasive message can be regarded as – led to a more positive mood (Knowles & Gardner, 2008). The other potential mediator, self-reported negative cognitive reactions, was most high in the negative identification condition and most low in the positive identification condition. This seems to further verify the manipulated difference in valence between the conditions but cognitive reactions had no relation with persuasion or distraction.

Some limitations of the current study should be taken into account. Firstly, the participants were students, not necessarily representative of other populations but appropriate to join this study on basic mechanisms of identification and background
music in persuasion. In addition, the music in both identification conditions strongly varied and was highly idiosyncratic. The same piece of music pointed out to lead to positive identification in the one condition could have been chosen as negative identification music in the other condition. As music preferences exist within a holistic setting in which identification and emotional associations naturally co-occur, we approached it accordingly; as an idiosyncratic aspect of a person's identity, in which memories and repetition could have played a role as well (Niedenthal et al., 2006). Furthermore, to stimulate a sense of either positive or negative identification, we decided to ask the respondents to mention a song themselves and not to provide them with a selection. Yet, the self-mentioned music may have affected enjoyment and liking independent from the valence of identification and therefore may have influenced the results (Cassidy & Macdonald, 2009). Finally, further research may include a thought listing procedure to measure negative cognitive reactions potentially in a more reliable and valid way. In addition, a follow-up study on actual reported fruit and vegetable consumption may be included to assess how long the effects will last and whether the reported intention will transfer to behavior as well.

In the present study, we aimed to gain knowledge on auditory health persuasion in general and more specifically on the working mechanism of background music. The data suggest that the addition of background music is not beneficial for everyone. These insights regarding the effects of background music might be taken into account in the future development of effective auditory health interventions, radio (health) campaigns or advertisements. In advertising settings, it is commonly aimed to keep distraction as low as possible, for example by changing the lyrics or by entirely removing them and include a voice-over to communicate the desired message. In auditory health persuasion, it seems also worthwhile to ensure that distraction is low while processing the content information, or at least for some recipients.