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Concerns about losing face moderate the effect of visual perspective on health-related intentions and behaviors

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Abstract

Visualizing oneself engaging in future actions has been shown to increase the likelihood of actually engaging in the visualized action. In three studies, we examined the effect of perspective taken to visualize a future action (first-person vs. third-person) as a function of the degree to which individuals worry about others' evaluation of themselves (face) and whether the visualized behavior is public or private. Across all studies, the effect of visual perspective was present only for participants with high level of face. In this group, the third-person visualization induced stronger intentions to engage in the behavior when the imagined behavior was public (Study 1), whereas the first-person visualization induced stronger intentions and greater likelihood to engage in that behavior when it was private (Study 2). The influence of the first-person perspective on flossing behavior was eliminated when people with high levels of face were encouraged to consider inter-personal consequences of the action (Study 3). Results are discussed in the light of recent theorizing on the cognitive consequences of taking a third-person versus a first-person perspective in visual imagery.

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Occasionally, we all find ourselves imagining engaging in desirable future actions such as eating more healthily, undergoing regular physical check-ups or exercising more often. Visualizing oneself in mental imagery as engaging in future actions has been shown to be a crucial component of goal representations (Conway, Meares, & Standart, 2004), and to increase the likelihood of actually engaging in the visualized action (e.g. Gregory, Cialdini, & Carpenter, 1982).

When imagining themselves engaging in a future action, individuals can use their own perspective, exactly as if they were experiencing the event (first-person perspective), or see themselves in the eyes of others, experiencing themselves from the point of view of an outsider looking at the self (third-person perspective) (Libby & Eibach, 2002; Nigro & Neisser, 1983). A growing body of research suggests that the type of perspective taken in imagining future actions influences the level of motivation to engage in the imagined action and the likelihood with which it will occur. For example, individuals are more likely to be motivated to engage (academic tasks, Vasquez & Buehler, 2007) and to actually engage in a future action (voting, Libby, Shaeffer, Eibach, & Slemmer, 2007) when they visualize the action from a third-person perspective compared to a first-person perspective. Importantly, however, the effect of perspective may not operate similarly for all individuals; it might depend on the extent to which the visualized behavior affords individuals' goals and the types of concerns that guide these goals. In the current set of studies, we focus on one particular concern that might guide behavior, namely the extent to which individuals feel worried about their image in the eyes of others. In the three experiments described below, we examine the effect of visual perspective in imagining future actions among individuals who show high versus low chronic tendencies to feel concerned about how they are evaluated by others. We investigate this question in the context of public and private dental health behaviors with a goal to explore the role of visual perspective in promoting dental health behaviors that are visible to others versus not.

Role of visual perspective in imagining future actions

Building on research in the field of autobiographical memory which has demonstrated that the visual perspective used to picture past events influences people's present emotions, self-judgments, and behavior (Berntsen & Rubin, 2006; Libby, Eibach, & Gilovich, 2005; McIssac & Eich, 2002; Nigro & Neisser, 1983), recent research investigated the role of perspective taking in the imagery of future desirable behaviors. Libby and colleagues (2007) asked American undergraduate students to visualize themselves voting for the upcoming presidential election from either the first-person or the third-person perspective to examine the role of visual perspective in individuals' self-perceptions as voters and their voting behavior. The third-person visualization resulted in a stronger pro-voting mindset and greater likelihood in voting in the election. Moreover, changes in self-perception mediated the effect of perspective on actual behavior. Libby et al (2007) concurred that the third-person perspective might have encouraged participants to interpret the voting behavior as a function of their disposition, thus in abstract terms (as opposed to situational factors, thus in concrete terms) (Jones & Nisbett, 1971), resulting in a greater motivation to act in accordance with their self-perception.

Focusing on a different action, Vasquez and Buehler (2007) showed that visualizing future academic success from the third-person perspective compared to a first-person perspective increased participants' motivation to study hard towards the goal. This effect of visual perspective on academic motivation was mediated by an increased perception of task importance and higher level of abstraction in individuals' construal of their performance associated with taking a third-person perspective.

Taking a conceptual interpretation of these findings, Libby and Eibach (2011, also see Libby, Valenti, Hines, & Eibach, 2014) have recently discussed possible cognitive consequences of taking a third-person versus a first-person perspective in visual imagery. According to their theorizing, the growing evidence in this area suggests that perspective in imagery alters the way people process the behaviors or events that they visualize. On the one hand, first-person perspective in visual imagery promotes a bottom-up processing style in which people construe

visualized behaviors in concrete terms (e.g., in terms of sensory cues and associative evaluations of concrete features of the visualized behavior). On the other hand, third-person perspective promotes a top-down processing style in which people construe visualized behaviors in abstract terms (e.g., in terms of relevant personal ideals and beliefs about their traits, values, goals, and motivations). It thus follows that, when behaviors are visualized using a third-person perspective (compared to a first-person perspective), abstract psychological properties such as ideals, motivations and goals and the personal or social concerns by which these are guided are likely to become salient and thus to play a greater role in the interpretation of the visualized behaviors. For example, personal ideals and motivational goals for individuals who chronically feel concerned about others' evaluations of themselves would likely be obtaining others' approval by acting in accordance with social norms. For these individuals, visualizing a future behaviour using a third-person perspective would make this personal ideal and motivational goal salient, which can increase the likelihood of acting in ways that would help them gain others' approval. However, if such concerns are absent or weakly present, a third-person perspective should not necessarily make these salient, thus not leading individuals to interpret the visualized behavior in terms of these abstract properties. In the current work, we investigate this possibility by focusing on the role of face concerns as a potential moderator of visual perspective effects.

Face concerns and visual perspective

Recent literature focusing on the psychological consequences of having an 'outsider' versus an 'insider' phenomenology (for a review see Cohen, Hoshino-Browne, & Leung, 2007) has demonstrated that the self is more likely to be experienced as an imagined object in the eyes of others among individuals of East-Asian origin compared to individuals of North American or Western origin. East Asian cultures are defined as face cultures where concerns with the evaluations of others are heightened and individuals are cognizant about how they appear to others (Heine, 2005; Heine, Lehman, Markus, & Kitayama, 1999; Kim & Cohen, 2010; Kim,

Cohen, & Au, 2010). Since individual's worth is socially conferred in face cultures, having positive evaluations from others, making sure that one fulfills the expectations of one's position, or acting within social norms become important concerns. In contrast, in dignity cultures, typically referring to North American cultures, the self is experienced as inalienable, and hence concerns about other's evaluations of oneself are less heightened. Members of such cultures pay more attention to their own feelings and thoughts in making sense of the world and taking action.

Findings emerging from recent studies conducted with members of face and dignity cultures who have previously been shown to differ in the extent to which one feels concerned about others' evaluations of themselves (Hamamura, Meijer, Heine, Kamaya, & Hori, 2009; Heine, 2008; Heine, Takemoto, Moskalenko, Lasaleta, & Henrich, 2008; Ho, Fu, & Ng, 2004; Zane & Yeh, 2002) suggest that the extent to which an individual is likely to view oneself as an object of potential scrutiny who must maintain face is likely to moderate the effects of perspective on motivation (Kim & Cohen, 2010; Kim et al., 2010)[1]. In the present research, we focused on individual variations in the extent to which individuals feel concerned about how they are evaluated by others (we call this variable 'face' from now on) and investigated how this variable interacts with the effect of perspective used to visualize future actions. Just like members of face cultures, individuals concerned with face are likely to monitor their behavior, adapt it to social expectations, and align it with their social roles (Choi & Lee, 2002; Hwang, Francesco, & Kessler, 2003). Following Libby and colleagues' theorizing (Libby & Eibach, 2001, Libby et al., 2014), we hypothesized that the effect of using the third-person (vs. first-person) perspective ought to depend on the extent to which the imagined behavior affords individuals' goals. Given our current focus, this translates into the prediction that the third-person perspective would make individuals who endorse high levels of face feel more motivated to engage in behaviors that will help them gain positive evaluations form others, act within social norms, and fulfill others' expectations of oneself and feel less motivated to engage in behaviors that do not serve these purposes. We also predicted that third-person perspective would make individuals who

endorse low levels of face feel less motivated to engage in behaviors when these behaviors could be interpreted as scrutinized by others and feel more motivated in engaging in behaviors when it is clear that they reflect their own personal desires.

We investigated these predictions by focusing on the role of visual perspective among people that endorse face to varying extents when the imagined future behavior is public vs. private. That is, we examined the role of visual perspective in mental imagery and face in the context of behaviors that are likely to happen in front of others' eyes, and thus be known to and likely to be scrutinized by others (public behaviors), and in the context of behaviors that are likely to take place away from others' eyes where it would be safe to ignore others' evaluations (private behaviors). Investigating public versus private behaviors in conjunction with taking a first-person or a third-person perspective among people endorsing high versus low levels of face is meaningful given the previous findings from culture comparative studies which have demonstrated that for members of face cultures it matters whether information about the self is publicly known to others or not (Kim et al., 2010; also see Ji, Schwarz, & Nisbett, 2000). Moreover, research on individual differences in face concerns also suggests that whether a behavior takes place in private or public affects behavior differently among individuals with high versus low face concerns (e.g., Hwang et al., 2003).

The context in which we tested our predictions was dental health behaviors. We conducted our studies in the context of dental health behaviors for three reasons. First, behaviors that one can engage in to promote dental health can be both public (e.g., purchasing mouthwash) and private (e.g., flossing). Second, previous research has demonstrated that intentions and behaviors related to dental health behaviors are open to influence by lab-based manipulations (e.g. Mann, Sherman, & Updegraff, 2004; Sherman, Gangi, & White, 2010; Sherman, Mann, & Updegraff, 2006; Uskul, Sherman, & Fitzgibbon, 2009) and are influenced by social norms (e.g. Klages, Bruckner, & Zentner, 2004). Finally, to our knowledge the role of visual perspective has not been explored in the domain of dental health, thus we aimed to explore whether mental imagery can be used as an effective way to promote positive dental

behaviors such as using mouthwash or flossing that have been recommended by the British (2012) and American Dental Associations (2012) as effective strategies to prevent oral health problems (e.g., periodontal disease) and that should be relatively easy to imagine.

The present research

Our hypotheses follow from the recent theorizing by Libby and colleagues (Libby & Eibach, 2011, Libby et al., 2014) as well as Cohen and colleagues (e.g., Kim et al., 2010; Kim & Cohen, 2010) and extend it by investigating the role of face as an individual difference variable in interaction with visual perspective in the context of public and private behaviors. We conceptualized 'face' as a generalized concern for 'What would others think of me?' and measured it using a Loss of Face scale developed by Zane and Yeh (2002) who define the purpose of the scale as to assess the extent to which one avoids situations and behaviors that are related to loss of face. In all experiments described below, participants first completed the Loss of Face scale embedded in other items not relevant to the study goals. Next, we manipulated perspective taking by randomly assigning participants to visualize the action described to them using either a first-person or a third-person perspective. Finally, participants completed measures of outcome variables of interest in each study. Study 1 used 'purchasing mouthwash' as a public dental health behavior and tested the prediction that a third-person visual perspective, compared to a first-person perspective, will have a greater impact on intentions to purchase mouthwash among individuals that highly endorse face. Study 2 used a dental health behavior likely to take place in private (flossing) and tested the role of perspective taking in relation to intentions to floss and self-reported flossing behaviors. Study 3 examined the role of perspective in visualizing a private action (flossing) when private or social consequences of that action were highlighted among individuals who endorse high vs. low levels of face.

Study 1

We designed Study 1 to test the prediction that intentions to purchase mouthwash (a public behavior) will be higher among individuals who strongly endorse face when the action is visualized from a third-person perspective as opposed to a first-person perspective. We expected the opposite pattern for individuals who did not strongly endorse face, with intentions being weaker when the action is visualized from a third-person perspective as opposed to a first-person perspective.

Method

Participants

One-hundred-eighty undergraduate students (137 women, M_{age} = 20.7, SD = 4.41) participated in a study on visualization. Ninety-three participants received a course credit and the rest received monetary compensation for their participation.

Procedure

After completing a consent form and providing demographic information, participants were asked to complete the Loss of Face Scale (21 items, e.g. "I try to act like others to be consistent with social norms" and "When I meet other people, I am concerned about their expectations of me", α = .86, M = 4.26, SD = .87) using a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*). They then read that they will be asked to imagine themselves engaging in a particular action in the future and to answer some questions about what they were picturing in their mind's eye. At this point participants were randomly assigned to either the first or third-person perspective condition and, following Libby et al. (2007), received the following first-person or third-person visualization instructions [third-person wording in parentheses]:

> You should picture doing the action from a first-person [third-person] visual perspective. With the first-person [third-person] visual perspective you see the event from the visual perspective you [an observer] would have if the event were actually taking place. That is, you are looking out at your surroundings through your own eyes [you see yourself in the image, as well as your surroundings].

To ensure that the instructions were understood correctly, the experimenter further explained the imagery procedure using a short video clip that demonstrated the perspective participants were asked to use when visualizing the behavior. Before showing the video clip on a laptop computer, the experimenter said: "Now I'm going to show you a short video clip that demonstrates the first-person [third-person] perspective. The action you will see here concerns filling up a glass from a tap." The clip lasted for approximately 30 seconds and depicted a female actor walking towards a sink holding an empty glass and then filling it with tap water. The clip used in the first-person perspective condition was filmed by the actor herself (thus depicting her surroundings), whereas the clip used in the third-person perspective was filmed by another person (thus depicting the actor performing the action). The video clips created for each condition were matched for timing and duration of movements. The experimenter answered any questions that the participants might have before leaving the lab. Participants then read the instruction asking them to picture themselves purchasing mouthwash with their eyes closed. When they had the image in mind, they were asked to open their eyes and complete a manipulation check question by responding to the following question: "As you're picturing it right now, do you see the scene from the visual perspective you [an observer] would have if the event were actually taking place?" (yes/no) (all participants passed the perspective manipulation check) and to describe what they had visualized using an empty space provided on the questionnaire.

Finally, we measured intentions to purchase mouthwash with two items that were averaged to form an intention score ($r = .89$, $p < .001$): "I plan to purchase mouthwash in the next seven days" and "I intend to make sure that I purchase mouthwash in the next seven days" (1 = *not at all true* to 5 = *extremely true*).

Results and Discussion

We first examined whether the action of purchasing mouthwash was visualized as a public behavior, as suspected. An inspection of participants' open-ended descriptions of the visualized action confirmed our expectation. Ninety-four percent of the participants described

the action as taking place in a public place such as a store or a supermarket. Thirty-six percent of the participants indicated that they imagined monetary transaction with another person, and 33% of the participants described more detailed interactions with other individuals in their visualization. We thus concluded that participants visualized purchasing mouthwash as a behavior that takes place in a public setting.

To test our prediction that a third-person visual perspective compared to a first-person perspective will have a greater impact on intentions to purchase mouthwash among individuals who highly endorse face, we regressed the intention score onto perspective (first-person perspective = -1, third-person perspective = 1) and the centered mean score of Loss of Face scale in Step 1, and the perspective × face interaction in Step 2. In Step 1, the main effects of perspective (β = .04, t (177) < 1) and face were not significant (β = -.02, t (177) < 1), F (2, 177) < 1, *ns*. In Step 2, the analysis revealed a significant perspective × face interaction (β = .21, t (176) = 2.79, p < .01), F (3, 177) = 2.73, p < .05. The simple slope analysis conducted to unfold this interaction effect showed that, as predicted, the effect of perspective was significant for participants endorsing high levels of face (β = .25, t (176) = 2.36, p < .05), such that they exhibited stronger intentions to purchase mouthwash when the behavior was visualized from the third-person perspective compared to the first-person perspective. The effect of visual perspective on intentions was in the expected direction for individuals endorsing low levels of face, but was not statistically significant (β = -.16, t (176) = -1.61, p > .1) (see Figure 1).

In sum, when participants were asked to imagine a health behavior likely to take place in public, taking a third-person perspective to visualize this behavior was more effective than taking a first-person perspective for individuals with a generalized tendency to feel concerned about others' evaluations of themselves. This finding confirms our prediction that the third-person perspective would make individuals who endorse high levels of face more motivated to engage in behaviors that will help them gain positive evaluations and avoid negative evaluations from others, act within social norms, and fulfill others' expectations of oneself. Although the pattern of the finding for individuals endorsing low levels of face was in the expected direction,

the effect of visual perspective on intentions of individuals endorsing low levels of face was not statistically significant.

Purchasing mouthwash takes place in public settings such as corner stores or supermarkets where others can scrutinize one's actions. Will the observed face x perspective interaction hold when the imagined behavior is likely to take place in private? In the next study we tested the effect of visual perspective among individuals endorsing high vs. low face when others' presence was omitted from the imagined situation. To do so, we used flossing as the object of visualization, a behavior that is likely to take place in private settings.

Study 2

Next, we examined the role of visual perspective in a dental health behavior likely to be carried out in private: flossing. If the effect of the third-person perspective among individuals who are concerned about their public image is due to the public nature of the imagined action (thus serving the goal to be positively evaluated by others), this effect might cease to exist or reversed when the visualized action is a private one because private behaviors do not serve the purpose of contributing to one being evaluated positively by others or avoiding negative evaluations by others. Moreover, based on the theorizing by Libby and colleagues (e.g., Libby & Eibach, 2011), one would also predict that a third-person perspective (compared to a first-person perspective) would make individuals who endorse low levels of face feel more motivated to engage in behaviors not scrutinized by others and that reflect their personal ideals and goals. To test these predictions, we measured intentions to floss after participants visualized flossing from either a first-person or a third-person perspective. In addition, we measured self-reported flossing behavior seven days after the initial testing.

Method

Participants

One-hundred-and-twenty-five undergraduate students (87 women, M_{age} = 22.4, *SD* = 5.35) participated in the study. Twenty-three participants received course credit and the rest received monetary compensation for their participation.

Procedure

The procedure was identical to Study 1 with the exception of the wording of some of the questions to fit the target behavior (flossing). Participants first completed the Loss of Face scale (α = .71, *M* = 4.25, *SD* = .87) followed by the manipulation of visual perspective (first- vs. third-person perspective). Finally they were asked to report their intentions to floss, "I intend to floss my teeth each day in the upcoming week" (0 = *extremely unlikely* to 7 = *extremely likely*) and "Over the next week, I intend to floss my teeth ……times" (0 to 8) (following Sherman et al., 2006; Uskul et al., 2009), which we averaged to form an intention index (*r* = .80 *p* < .001). Participants also rated an item "How likely is it for you to floss your teeth in the presence of other people?" (1 = *not at all likely* to 5 = *extremely likely*) to check the assumption that flossing is likely to take place in private. At the end of the study, participants were given 10 individually wrapped flosses presented as a way to thank them for their participation. A week after the initial testing day, they were sent an email asking them to report how many of the flosses they used in the past week. Participants were not told at the time of the initial testing that they would later be asked to report how many flosses they had used.

Results and Discussion

We first examined whether the flossing behavior was likely to take place in private, as suspected. On a 5-point scale with 1 representing not at all likely, participants reported that it is relatively unlikely for them to floss their teeth in the presence of other people (*M* = 1.63, *SD* = 1.04). Moreover, an inspection of participants' open-ended descriptions of their visualization revealed that none of the descriptions referred to the presence of others. Thus it is safe to conclude that study participants considered flossing as an action that they would carry out in the absence of other people.

Replicating the analysis plan used in Study 1, we tested the role of visual perspective in relation to intentions to floss and self-reported flossing behaviors in interaction with participants' level of endorsed face. Four participants, who failed to respond to the follow-up email, were excluded from the analyses.

The main effects of perspective (β = -.13, t (118) < 1, *ns*) and face (β = -.01, t (118) < 1, *ns*) were not significant for intentions in Step 1, F (2, 118) = 1.09, p = .34. Replicating Study 1, the analysis revealed a significant perspective × face interaction (β = -.26, t (117) = -2.88, p < .01) in Step 2, F (3, 117) = 3.54, p < .05. The simple slope analysis conducted to unfold the interaction effect revealed that the effect of perspective was significant for participants endorsing high levels of face (β = -.39, t (117) = -3.11, p < .01), such that they exhibited weaker intentions to floss when the behavior was visualized from the third-person compared to the first-person perspective. Although the observed pattern was in the expected direction, the effect was not significant for participants who endorsed low levels of face (β = .13, t (117) < 1, *ns*) (see Figure 2a).

The regression analysis with the number of flosses used during the week following visualization as the outcome variable revealed marginally significant main effects of perspective (β = -.18, t (118) = -1.98, p = .05) and face (β = .16, t (118) = -1.77, p = .08) in Step 1, F (2, 118) = 3.44, p < .05, which were qualified by a significant perspective × face interaction (β = -.29, t (117) = -3.30, p = .001) in Step 2, F (3, 117) = 6.11, p = .001. Replicating the pattern observed with intentions to floss, the effect of perspective was significant for participants endorsing high levels of face (β = -.46, t (117) = -3.79, p < .01); they reported having used fewer flosses when the behavior was visualized from the third-person compared to the first-person perspective. Again, although the observed pattern was in the expected direction, the effect of perspective was not significant for participants who endorsed low levels of face (β = .11, t (117) < 1, *ns*).

This study extends Study 1 by examining a behavior likely to take place in a private (as opposed to a public) setting and measuring not only intentions but also actual (self-reported) behavior. Results demonstrated that, in contrast to Study 1, compared to the third-person

perspective, the first-person perspective used to visualize the target behavior (flossing) was more effective in increasing intentions to floss and in promoting the actual flossing behavior among participants endorsing high levels of face. Thus, among individuals with high face concerns, third-person perspective reduced motivation to engage in the private flossing behavior that did not serve the purpose of being positively evaluated by others. This pattern was reversed for individuals with low face concerns for whom third-person perspective made them more motivated in engaging in a private behavior away from others' scrutiny, however this pattern did not reach conventional levels of statistical significance. These findings are in line with the predictions we tested based on recent theorizing on the cognitive effects of visual perspective.

The current findings suggest that whether the actor and his/her actions are likely to be attended to by others or not in the visualized situation (i.e., whether the behavior that is visualized is a public vs. a private behavior) is likely to determine which perspective will be more effective in shaping intentions and behaviors among high and low face individuals. To further test this possibility, in Study 3 we introduced a manipulation that emphasized either the private or social consequences of flossing as a way to keep others away from or include them in individuals' potential evaluations in the imagery, respectively.

Study 3

Presence of others in an imagined situation implies that others can observe the actor's behaviors and evaluate whether these behaviors are in line with social expectations. This, of course, would not be the case for actions that take place in private. However, even private actions can have consequences with social implications. In Study 3, we continued using flossing as the target (private) behavior, but intended to invoke others' evaluations by presenting participants with a message highlighting potential negative interpersonal consequences of not flossing. Thus, the message read by participants following the visualization task emphasized

either private physical consequences caused by cavities (only known to the person) or interpersonal consequences of having bad breath (likely to be recognized by other people). We investigated whether making salient interpersonal consequences of flossing reduces the effects of third-person perspective in the context of a private behavior among those endorsing low levels of face and increases the effects of third-person perspective among those endorsing high levels of face. Given that Study 2 revealed similar patterns for intentions to floss and actual flossing behavior, in this study we focused on intentions only and collected data using an online study.

Method

Participants

Two-hundred-and-three volunteers including university students and staff (130 women, M_{age} = 26.01, *SD* = 8.85) participated in an online study of visualization. The participants were entered into a £20 prize draw.

Procedure

Volunteering participants received an email with a link to the online study. After giving consent and providing demographic information, participants were asked to complete the Loss of Face scale (α = .76, *M* = 4.01, *SD* = .93). They were then randomly assigned to either first-person or third-person visual perspective condition. Next, participants were asked to imagine flossing, and read a message focusing on either the private or social consequences of not flossing. The introductory section of both messages read as follows: "Flossing teeth is a key to good oral hygiene. Dental researchers reported that brushing teeth removes just 70% of harmful bacteria in your mouth and remaining 30% can be removed only by flossing." This paragraph was followed by "*If no floss is used the remaining bacteria can release acids that causes cavities and gum diseases, which can lead to tooth pain, tooth loss and bleeding gums*" in the private consequences condition and "*If no floss is used the remaining bacteria can release unpleasant odor that smells like rotten eggs, which can cause bad breath that easily noticed by*

others. Bad breath can keep people from getting jobs, or making other social connection" in the social consequences condition. The rest of the study procedure and material was identical to Studies 1 and 2 with the exception that the video instruction used to boost the comprehension of the visual perspective manipulation was replaced by a snapshot from each video showing the person as engaging in the action in the third-person visual perspective condition or the surrounding seen from the person's point of view in the first-person visual perspective condition. We opted for this change given the online nature of the study and because of the possibility that not all participants might have been able to play the video on the computer they used to complete the study. As in the other two studies, the accompanying instructions focused on the perspective and did not include any reference to the possible interpretation of the behavior.

Results and Discussion

To test the effects of visual perspective, message frame, and face, we regressed the intention to floss onto perspective (first person perspective = -1, third-person perspective = 1), message frame (private consequences = -1, social consequences = 1), the centered mean score of Loss of Face scale in Step 1, the two-way interactions in Step 2, and the three-way interaction term in Step 3. Three participants, who reported failing to imagine the situation from the instructed perspective, were removed from the analyses.

The regression analysis revealed no significant main effects in Step 1, F (3, 196) < 1, *ns*, and no significant two-way interactions in Step 2, F (6, 193) < 1, *ns,* but a significant three-way interaction (β = .17, t (192) = 2.27, p < .05) in Step 3, F_{Δ} (1, 192) = 5.17, p = .024. To unfold this three-way interaction, we examined the perspective × face interaction separately for the private consequences and the social consequences conditions. This two-way interaction term was significant for the private consequences condition (β = -.28, t (98) = -2.83, p < .01). The simple slope analysis used to unfold this interaction revealed a significant visual perspective effect for participants who endorsed high levels of face (β = -.38, t (98) = -2.6, p < .05), such that the third-person perspective induced weaker intentions to floss than the first-person perspective in this

group. As in Study 2, although the observed pattern was in the expected direction, the effect of visual perspective was not significant among those who endorsed low levels of face (β = .22, t (98) = 1.59, p = .13) (see Figure 3a). This finding replicates the observations from Study 2, which showed that the third-person perspective was less effective in increasing intentions to floss and actual flossing behavior than the first-person perspective among those endorsing high levels of face. This replication implies that participants might have naturally focused on private consequences of flossing in Study 2 more so than social consequences of flossing.

Importantly, the perspective × face interaction disappeared when others' potential evaluations were invoked via a message highlighting possible social consequences of not flossing, (β = .04, t (94) = .37, p > .1) (see Figure 3b). Thus, although the action itself continued to be a private one, making salient potential social consequences associated with the visualized action eliminated the weaker effect of the third-person perspective (compared to the first-person perspective) among those endorsing high level of face. It has to be noted, however, that in the social consequences condition the third-person perspective was not more effective compared to the first-person perspective as observed in Study 1. This finding suggests that simply considering the social consequences of a private action may not be enough to make participants strongly valuing other people's views to influence their intentions. Rather, it seems that it might be necessary for the visualized action to take place in public, which would provide a stage for others to evaluate one's action.

Finally, among participants endorsing low levels of face, the effect of visual perspective was not very strong in either of the consequences condition; third-person perspective did not significantly enhance their motivation to floss when personal implications of flossing were highlighted and first-person perspective did not significantly enhance their motivation to floss when social implications of flossing were highlighted.

General Discussion

The current research demonstrated that the relationship between an individual difference variable (concern about others' evaluations of oneself) and the nature of the visualized action (public versus private) act as important moderators of the effect of visual perspective on motivation and future behavior. This observation is consistent with the literature on the role of visual perspective in autobiographical memory, which states that recalling autobiographical memory is a self evaluation process, and therefore, the impact of perspective would vary as a function of one's emotional state, need, self-belief, and contents of the memory (see reviews in Sutin & Robins, 2008).

In Study 1, compared to a first-person perspective, a third-person perspective led to stronger intentions to engage in a behavior among individuals endorsing high levels of face when the visualized behavior was a public one, and thus likely to be known to other people. This effect was reversed in Study 2; compared to a third-person perspective, a first-person perspective led to stronger intentions to engage in the imagined behaviors and a greater likelihood of engaging in that behavior when the visualized situation was a private one among those endorsing high levels of face. In Study 3, the impact of the first-person perspective in the context of a private action was eliminated for this group when interpersonal consequences of that action were highlighted. Participants who endorsed low levels of face showed a tendency to exhibit stronger motivation to engage in the visualized action in Study 1 when visualization took place from a first-person perspective compared to a third-person perspective. This effect was reversed when the visualized behavior was a private one (Study 2) or when it was a private behavior with personal consequences highlighted (Study 3). All effects in this group of participants were however not statistically significant and thus observed patterns should be interpreted with caution.

Current findings provide empirical support for the recent theorizing on the psychological consequences of perspective taking which suggests that perspective in imagery alters the way people process the visualized behaviors. Specifically, in this theorizing, the third-

person perspective promotes a top-down processing style in which people construe visualized behaviors in terms of personal ideals, beliefs about traits, motivations, goals and so on, whereas the first-person perspective promotes a bottom-up processing style that construes behaviors in terms of sensory cues and associative evaluations of concrete features of the visualized behavior (e.g., Libby & Eibach, 2011; Libby at al., 2014). This conceptualization led to the prediction that the effect of using the third-person (vs. first-person) perspective ought to depend on the extent to which the imagined behavior affords individuals' goals. More specifically, in the context of the present studies, based on this theoretical stance, we predicted that the third-person perspective would make individuals who endorse high levels of face more motivated to engage in behaviors that will help them fit in and avoid negative social evaluation (public positive health behaviors) and less motivated to engage in behaviors that do not serve this purpose (private positive health behaviors). Supporting this view, current findings demonstrated that the third-person perspective, compared to a first-person perspective, led to stronger motivation among individuals with high face concerns to engage in a public health behavior. When the visualized health behavior took place in private, thus failing to serve the motivational goal, however, the third person perspective was no longer effective in this group.

Moreover, this theoretical stance would also predict that visualizing behaviors from a third-person perspective would make individuals who endorse low levels of face feel less motivated in engaging in behaviors when these behaviors could be interpreted as scrutinized by others (i.e., when the behavior takes place in public) and more motivated in engaging in behaviors when it's clear that they reflect their own personal desires (i.e., when the behavior takes place in private as in Study 2 and when it does not have any social consequences as in Study 3). Albeit weak, this tendency was observed for our low face-endorsing participants. One potential explanation for the lack of a significant effect of perspective in this group may be related to the nature of the scale that we employed to assess face concerns. The low end of the Loss of Face Scale (Zane & Yeh, 2002) may have been used both by participants who don’t have strong motivations to maintain face, as well as by those who are strongly motivated to act

independent of others' influence. Thus, based on the response options provided on this scale, we cannot extrapolate whether participants who scored low on this scale would fall in the former or the latter category.

It remains to be shown whether face concerns are likely to moderate the effect of perspective regardless of the nature of the behavior under investigation. For example, findings from past studies that examined the effect of visual perspective on voting behavior and motivation for academic success provided evidence for a stronger effect of the third-person perspective compared to the first-person perspective on people's motivation to engage in visualized behaviors and the likelihood with which they engage in them (Libby et al., 2007; Vasquez & Buehler, 2007) while the current studies did not show a clear advantage of the third-person perspective. One important difference between the behaviors examined in past research and in the current studies is the type of action participants were asked to visualize. Actions such as voting (Libby et al., 2007) and academic achievement (Vasquez & Buehler, 2007) tend to be heavily tied to social norms. The society expects us to exercise our voting right and people's voting behavior is strongly influenced by social norms that indicate that it is an obligation to vote (Carlsson & Johansson-Stenman, 2009) and everyone else is voting and so should one (Gerber & Rogers, 2009). Similarly, academic success is likely to be monitored and expected by others such as teachers, parents, and peers and benefits from the existence of social capital which partly includes the prevalence of achievement norms in one's social environment (Goddard, 2003). Given the general positive nature of these actions that is in line with others' expectations, the effects of taking a third-person perspective may be observed for all individuals regardless of how much they worry about maintaining face. On the contrary, preventive oral health behaviors (using mouthwash and flossing) investigated in the current studies are often performed as secondary to essential everyday actions such as tooth brushing and are less likely to be associated with others' expectations. It would be useful to investigate the effect of third-person perspective in comparison to that of the first-person perspective in the context of other health behaviors that are associated with stronger social norms, such as eating healthy or

smoking. For such behaviors, individuals' level of endorsed face may be less of an important determinant (as may be the case with voting and engaging in academic tasks).

Another difference between the actions examined in the current studies and those in past research is the public versus private nature of these behaviors. The actions tested in the current studies were clearly public (purchasing mouthwash) or private (flossing) and those tested in past studies such as voting or different kinds of academic tasks can potentially be public (voting in a public setting vs. via post) or private (taking an exam in public vs. writing an essay at home). Given that this factor was not controlled for or tested in these studies, it remains unknown whether the observed effects would vary as a function of the visibility of the visualized action. In sum, the generalizability of current findings will need to be tested with other actions.

The literature based on studies designed to examine the role of perspective among members of face and dignity cultures could suggest an alternative account for the function of the visual perspectives. This line of research proposes that adopting a first-person perspective may lead one to consider the visualized action in terms of one's own beliefs, values, and motivations, whereas adopting a third-person perspective may lead one to consider the visualized action in terms of other people's likely evaluations of oneself (Kim & Cohen, 2010). In this theorizing, on one hand, taking a third-person perspective would be similar to having an audience present at the time of action (e.g., Kitayama, Snibbe, Markus, & Suzuki, 2004) and alter individuals' self-awareness by leading them to process information from others' perspective, thus potentially leading to an evaluation of these actions based on social norms or expectations (Cohen & Gunz, 2002). On the other hand, taking a first-person perspective would be similar to acting in accordance with one's own internal standards.

This account proposes that the impact of having a sense of being watched by the eyes of others evoked by a third-person perspective on attitudes, thoughts, and behaviors is expected to vary between individuals who put differential weight on others' evaluations of themselves. Focusing on members of face and dignity cultures, Cohen and colleagues (Kim & Cohen, 2010;

Kim et al., 2010) demonstrated that members of face cultures (Asian Americans), who are socialized to experience themselves through the eyes of others, were more influenced by information processed from a third-person perspective compared to a first-person perspective. For example, in a study by Kim and Cohen (2010) who manipulated individuals' relative standing on ethical behavior and number of close relationships via the use of low vs. high frequency response scales, need for moral cleansing among Asian Americans was influenced by information about the self only when seen through eyes of others (Study 1) and their satisfaction with life was affected by how others would assess their interpersonal relationships (Study 2). However, for members of dignity cultures (Anglo Americans), who are socialized to acquire a sense of self not to be conferred by others (Leung & Cohen, 2011), information about the self was informative when others were *not* invoked via a third-person perspective. In another study, Kim et al. (2010) showed that for members of face cultures, it makes a difference whether others will be informed about self-related information or not and, if they are, then this information is more likely to be internalized. Finally, Cohen and Gunz (2002) showed that members of face cultures are more likely than members of dignity cultures to take a third-person perspective on themselves to recall past events, in which they were at the center of attention, and to project emotions to others that would be experienced by a generalized other (as opposed to their own emotions). This theoretical account would thus predict that individuals endorsing high levels of face would feel more motivated by visualizing an action using a third-person perspective when the action is known to others while the perspective taken to visualize an action would not impact on individuals endorsing low levels of face. Thus, although this alternative account may explain some of the current findings, it is important to note that most of the culture comparative studies reviewed here have manipulated salience of others' attention and not visual imagery perspective as we did in the current studies. One, therefore, should be cautious in applying this theory to interpret the current findings.

Concluding remarks

The current research builds on recent theorizing by Libby and colleagues (Libby & Eibach, 2011, Libby et al., 2014) concerning cognitive consequences of perspective taking in visual imagery, as well as recent theorizing on differences between face and dignity cultures by Cohen and colleagues (e.g., Kim et al., 2010; Kim & Cohen, 2010) and extends these theoretical accounts by investigating the role of face as an individual difference variable in interaction with visual perspective in the context of public and private behaviors. Thus, the current studies make a theoretical contribution by providing novel evidence for important boundary conditions of the effects of visual perspective in imagery. In addition, these studies are also of applied importance as they contribute to the understanding of effective health promotion strategies by examining imagery perspective in the context of important, real world, preventive actions in the dental health domain. Current findings suggest that recommendations to take a third-person perspective (as opposed to a first-person perspective) to visualize future actions may not increase the motivation to engage and actual engagement in all types of actions for everyone. More tailored recommendations that take into account the type of action (public vs. private) and one's likelihood to feel concerned what others think of them may be more effective in changing intentions and actual behavior.

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Footnotes

[1] Note that, however, most of these studies have manipulated salience of others' attention (for an exception see Cohen & Gunz, 2002) and not visual imagery perspective as was done by researchers who explicitly focused on the effects of visual point of view (e.g., Libby et al, 2007; Vasquez & Buehler, 2007), which is the focus of the current set of studies.

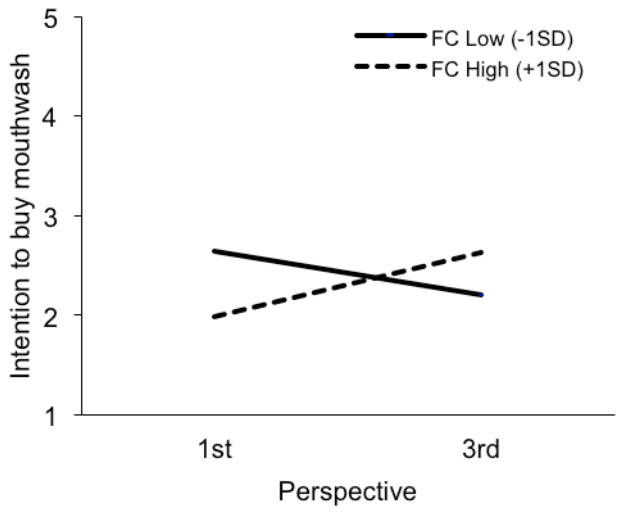
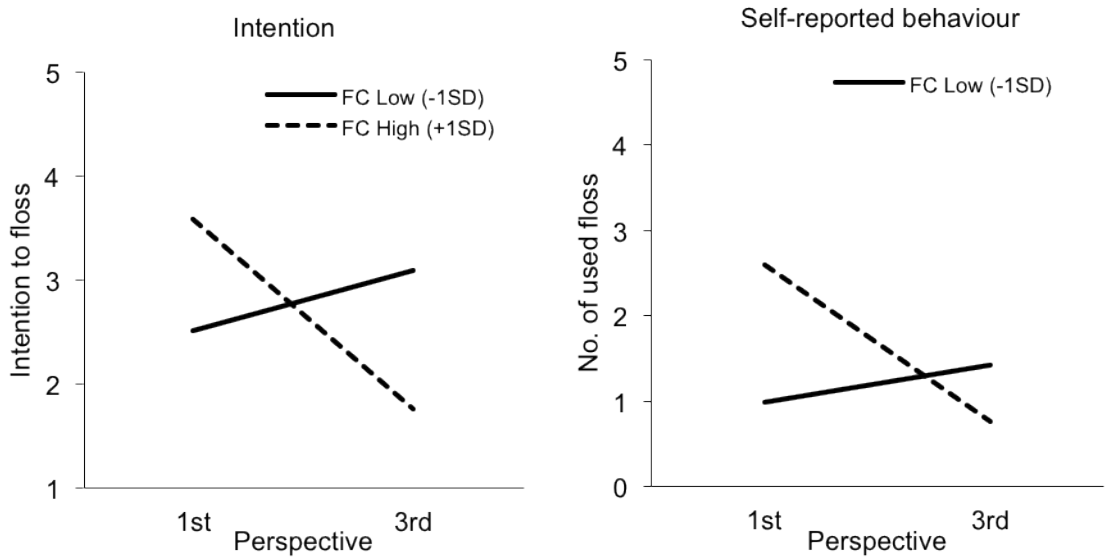
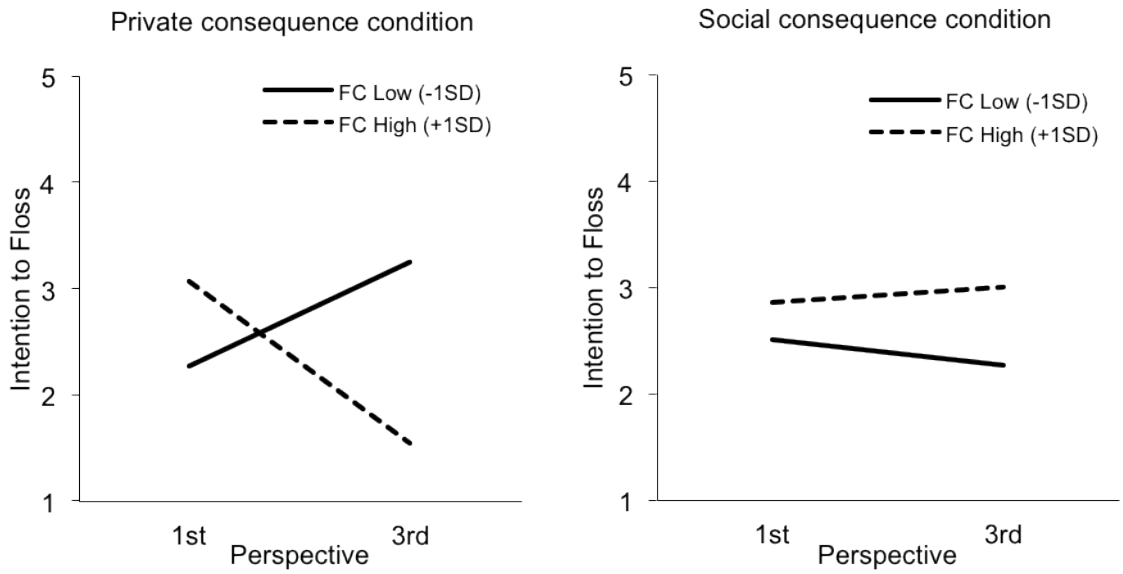


Figure 1. The effect of perspective × face concern (FC) interaction on intentions to purchase mouthwash.



Figures 2a and 2b. The effect of perspective × face concern (FC) interaction on intention to floss (2a) and on self-reported behavior of flossing (2b).



Figures 3a and 3b. The effect of perspective × face concern (FC) interaction on intention to floss for private (3a) and social (3b) consequence conditions.