What doesn't kill you, ...:

Means for avoidance goal pursuit are less enjoyable than means for approach goal pursuit

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Correspondence concerning this article should be addressed to Marie Hennecke, University of Zurich, Department of Psychology, Binzmuehlestrasse 14/6, 8050 Zurich, Switzerland. E-mail: m.hennecke@psychologie.uzh.ch

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Abstract

Personal goals can be directed towards approaching positive states (approach goals) or towards avoiding negative states (avoidance goals). Little is known about whether people experience the means they deploy (e.g., goal-conducive activities and objects) for approach goal pursuit in the same way they experience the means for avoidance goal pursuit. Three studies show that the means that people consider effective for their avoidance goals are experienced as less enjoyable than the means they consider effective for their approach goals (Study 1), that people consider unenjoyable means as more instrumental for avoidance than for approach goals and enjoyable means as more instrumental for approach than for avoidance goals (Study 2), and that there is a fit effect causing higher ratings of means effectiveness if a given means instrumentality for either approach or avoidance goals matches the intrinsic enjoyment of this means, that is when an enjoyable means is instrumental for an approach goal or a non-enjoyable means is instrumental for an avoidance goals (“fit” conditions) as opposed to when a non-enjoyable means is instrumental for an approach goal or an enjoyable means is instrumental for an avoidance goal (“non-fit” conditions) (Study 3). I discuss potential mechanisms, as well as consequences for means choice and self-regulation more broadly.

Keywords: intrinsic enjoyment; effectiveness; approach; avoidance; goals

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What doesn't kill you, ...:

Means for avoidance goal pursuit are less enjoyable than means for approach goal pursuit

Despite their shared content, two goals like “doing well on the exam” versus “not failing the exam” may have very different consequences for their pursuer’s well-being and performance: First, pursuing avoidance goals like the latter as opposed to approach goals like the former appears to decrease people’s subjective well-being (at least in individualistic cultures like the US; Elliot, Chirkov, Kim, & Sheldon, 2001; for a review, see Elliot & Friedman, 2007 or Tamir & Diener, 2008). In couples, for example, avoidance goals (like “avoiding disagreements with my partner”) are associated with decreases in relationship satisfaction over time, whereas approach goals (like “deepening my relationship with my partner”) are associated with increased relationship satisfaction, especially when both partners are high in approach goal orientation (Impett et al., 2010). Second, more specific effects on task satisfaction were also reported: When task goals were framed as approach as opposed to avoidance goals, study participants later reported higher experienced levels of success and higher satisfaction about the task (Coats, Janoff-Bulman & Alpert, 1996). Finally, avoidance goals also result in lower levels of objective task performance. For example, Elliot and Church (1997) report that performance-approach goals predicted better grades and performance-avoidance goals predicted worse grades in students.

Current explanations for the comparably negative effects of avoidance goals usually focus on two mechanisms: First, whereas it is relatively easy to tell when a current state matches a desired end-state, defining when the discrepancy between the current state and an undesired end-state is large enough can be more difficult (Elliot, Sheldon, & Church, 1997; Higgins, 1997). This reduced tangibility of progress may make it harder to adapt goal-directed behavior if necessary, resulting in lower performance, and in turn, negative affective reactions. Second, people who pursue approach goals tend to monitor the positive outcomes that they wish to attain, whereas people who pursue avoidance goals

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tend to monitor the negative outcomes or potential threats that they wish to avoid. As cognitions about positive outcomes (e.g., doing well on an exam) give rise to more pleasant affect than cognitions about negative outcomes (e.g., failing an exam) (Elliot & McGregor, 1999; Elliot & Sheldon, 1998), approach goals are more beneficial for affective well-being than avoidance goals.

One other possible consequence of approach and avoidance goal adoption has so far not received much attention, namely on the experience of means of goal pursuit. I hypothesize that means for avoidance goal pursuit are experienced as less enjoyable or intrinsically pleasant (e.g., Deci, 1971; Lepper, Greene, & Nisbett, 1981; Vallerand, 1997) than means for approach goal pursuit.

The experience of means for approach and avoidance goals

Means can be defined as any activity, object, event, or circumstance that is deployed to advance the pursuit of a goal (for a very similar definition, see Shah & Kruglanski, 2003). Whether people enjoy the means of goal pursuit and experience them as intrinsically motivating has important consequences: It is not only hedonically desirable, but high intrinsic enjoyment of an activity also goes hand in hand with persistence in it (e.g., Deci, Koestner, & Ryan, 1999). If means for avoidance goals are experienced as less enjoyable than means for approach goals, this may negatively affect how persistently, and, in turn, successfully these goals are pursued (Ryan & Deci, 2000a, 2000b). In addition, the lower enjoyment may, on the long run compromise the goal pursuer's overall well-being. To conclude, it is possible that some of the detrimental effects of avoidance goals on performance and well-being during goal pursuit may be explained by the less enjoyable experience of their means.

In principle, one could think that the means that help oneself to “not fail an exam” (e.g., attending lectures, studying) or to “avoid disagreements with one's partner” (e.g., being responsive and caring) would be the same means that help oneself to “do well on an exam” or to “deepen the relationship with one's partner”, respectively. Accordingly, their experience could also be the same. So

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why should the means for avoidance goals be less enjoyable than the means for approach goals? Indeed, different goals appear to make their means feel differently: One experiment showed that the more strongly participants anticipated experiencing prevention-type emotions (relief, relaxation, calm) for the attainment of ought goals (something they perceive as a duty or obligation to attain), the more strongly they also reported feeling the same prevention-type emotions towards the people, the social means, they strongly associated with helping them to attain these goals. Likewise, the more strongly participants anticipated experiencing promotion-type emotions (happiness, pride, enjoyment) for the attainment of ideal goals (something they hope for or aspire to attain), the more strongly they also reported feeling the same promotion-type emotions towards these social means (Fishbach, Shah, & Kruglanski, 2004).

Aside from this general mechanism of affective transfer from goals to means that could also apply to the mere valence of goals and means, specific characteristics of avoidance in comparison to approach goals may promote the *selection* of less enjoyable means or contribute, irrespective of which means is chosen, to a less enjoyable *experience*. First, avoiding threatening end-states may appear as more pressing than approaching desirable end-states (see Kahneman & Tversky, 1979, 1992). As a consequence, people may be more willing to accept unenjoyable means for avoidance goal pursuit than for approach goal pursuit (see also Ogilvie, 1987). Second, as laid out by Elliot and Church (1997), avoidance goals tend to go hand in hand with fear of failure and low competence expectancies that give rise to threat appraisals, evaluative anxiety, and vigilant attention to failure-relevant information. As these experiences are contrary to the very nature of intrinsic motivation (Deci, 1971; Deci & Ryan, 1985; White, 1959), avoidance goal pursuit is likely more detrimental to the intrinsic enjoyment of a goal-directed activity than approach goal pursuit.

Finally, there is also first empirical evidence for the idea that avoidance goals may be detrimental for means enjoyment. Elliot and Harackiewicz (1996) could show that assigned performance-avoidance

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goals undermined intrinsic motivation for compared to assigned performance-approach goals in the same laboratory task. Likewise, Elliot and Church (1997) report from a field study in a college classroom that performance-avoidance goal orientation (indicated by items such as “*I often think to myself “What if I do badly in this class?”*”) but not performance-approach goal orientation (indicated by items such as “*It is important to me to do better than the other students.*”) negatively affected students’ intrinsic motivation (indicated by items such as “*I am enjoying this class very much.*”). The current research attempts to extend the hypothesis that means for avoidance goal pursuit are experienced as less enjoyable than means for approach goal pursuit from the achievement domain to personal goals from various life domains.

The current research

Study 1 tests directly whether the means activities that people consider most effective for their avoidance goals tend to be experienced as less enjoyable than the means activities they consider most effective for their approach goals. To further corroborate the association by reversing the way it is tested, Study 2 tests whether it is also true that activities (means) that are low in intrinsic enjoyment tend to be considered as instrumental for avoidance goals, whereas activities that are high in intrinsic enjoyment tend to be considered as instrumental for approach goals. Finally, Study 3 demonstrates a downstream consequence of a potential fit-effect: If the experience of a means matches with the valence of its goal (enjoyable means for an approach goal, less enjoyable means for an avoidance goal), the means is considered as more effective than if its experience does not match with the valence of its goal (enjoyable means for an avoidance goal, less enjoyable means for an approach goal). I will elaborate on this specific hypothesis in more detail when introducing Study 3.¹

Study 1: Approach vs. avoidance goals and means enjoyment

Method

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Participants. I requested 250 participants from the US and Canada on Mturk for a compensation of \$0.60. To reduce attrition, I informed participants in the description of the HIT on Mturk that they survey would require responses to open questions (Zhou & Fishbach, 2016). Of the 329 Mturkers who clicked on the survey, 250 Mturkers finished it and provided data on the DV. Of these 250, six failed to enter the sentence “I will answer open-ended questions” (Zhou & Fishbach, 2016) when instructed to do so on the first page and were therefore excluded from analyses. Additionally, five participants were excluded because they did not answer all open-ended questions and one participant because he or she entered 13 as his/her age (despite the clear instruction that participants had to be at least 18 years of age). The final sample consisted of $N = 238$ participants (42.9% female, 236 provided their age: 19 to 67 years, $M_{\text{age}} = 35.08$ years, $SD_{\text{age}} = 10.88$ years). Post-hoc analyses revealed that, given that the repeated measures correlated with $r = .21$ (see below), the sample size in this study would have been sufficient to detect a small effect of $f = .12$ with a power of 80% and an α -level of 5% (Faul, Erdfelder, Lang, & Buchner, 2007).

Procedure. The study involved a one-factorial (approach vs. avoidance goal valence) within-subject design. After responding to sociodemographic questions, participants were introduced to the difference between approach and avoidance goals through the paragraph “*People pursue different goals. With some goals, they want to prevent negative things from happening and make sure to avoid something they fear. With other goals, they want to promote positive things and make sure to achieve something they hope for.*” On the next page, all participants first described in a few sentences an avoidance goal they had. Specifically, they were instructed to “*Please think of a goal in your life that you pursue to prevent something negative, something you fear from happening in the future.*” They also provided a brief keyword for the goal. For example, one participant wrote “*I have been eating healthier and exercising more over the past year. I see a lot of obese people and I fear if I let my lifestyle go back*

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to how it was, *I will end up like that.*” and entered the keyword “*Healthy.*” On the next page, all participants then described in a few sentences an approach goal they had. Specifically, they were instructed to “*Please think of a goal in your life that you pursue to achieve something positive, something you aspire to happen in the future.*” Again, they also provided a brief keyword for this goal. For example, one participant wrote “*I have been pursuing the goal of teaching English in a foreign country. I have wanted to teach English since 8th grade. Now, I am close to reaching my goal. I have completed the documents and passed all of the interviews to teach in Korea. Now, I’m just waiting for the results.*” and entered the keyword “*teaching.*”

Next, to receive information about means enjoyment, participants were instructed to name the most effective activity they were using or wanted to use to achieve each of the two goals. The two keywords were used in this question to prompt their responses (e.g., “*The most effective activity I (want to) use to achieve the goal of “Healthy” is*”). Participants then rated how enjoyable, in their view, each of the two activities was, on a scale from 1 = *not enjoyable at all* to 7 = *very enjoyable* (see Elliott & Church, 1997; Fishbach & Choi, 2002; Fishbach et al., 2004, for similar items; the available option “*don’t know*” was not chosen by any participant). The enjoyment ratings of the two different activities were correlated with $r = .21$ ($p < .001$).

Results and Discussion

A repeated measures ANOVA confirmed that the activity participants considered most effective for their approach goal was significantly more enjoyable to them ($M = 4.90$, $SD = 1.61$) than the activity they considered most effective for their avoidance goal ($M = 4.03$, $SD = 1.79$), $F(1,237) = 38.92$, $p < .001$, $\eta_p^2 = .14$.

In sum, Study 1 supports that the means people use to pursue their approach goals tend to be higher in intrinsic enjoyment than the means people use to pursue their avoidance goals. In Study 2a to

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2c, to further scrutinize this association, I reversed the test to demonstrate that activities that are lower in intrinsic enjoyment are more likely to be means for avoidance rather than approach goals, i.e., show higher avoidance than approach instrumentality.

Study 2: Means enjoyment and instrumentality for approach vs. avoidance goals

A first effort to test whether activities that are lower in intrinsic enjoyment tend to be instrumental for avoidance goals and means that are higher in intrinsic enjoyment tend to be instrumental for approach goal had mixed success (Precursor 1 to Study 2). I therefore improved the study design (e.g., by increasing the sample size and participant payment) in two additional studies (Precursor 2 to Study 2 and Study 2) with better results. The two precursors are described in the SOM. The final study is described here.

Method.

Participants. I opened up the study for 500 HITS on Amazon's Mturk. Mturk returned 505 respondents. 11 failed to correctly respond to an instructed response item ("*To help us monitor data quality, please select the middle option (4).*", Meade & Craig, 2012) and were therefore excluded from all analyses. Accordingly, the remaining sample consisted of $N = 494$ Mturkers (491 provided their age and gender: 43.8 % female, 18 to 74 years, $M_{\text{age}} = 35.0$ years, $SD = 11.39$). Mturkers received \$0.35 for their participation in the study. Post-hoc analyses revealed that, given that the repeated measures of goal instrumentality correlated with $r = .29$ (see below), the sample size in this study would have been sufficient to detect a small interaction effect of $f = .08$ with a power of 80% and an α -level of 5% (Faul et al., 2007).

Procedure. The study had a mixed design with one between-subjects factor (enjoyable vs. non-enjoyable means activity) and one within-subjects factor (approach vs. avoidance valence). Depending on random assignment, participants were asked to either name an enjoyable or a not enjoyable goal-

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directed activity. In the “enjoyable activity” condition, the instructions were as follows: “*Please name one activity that you engage in on a regular basis that fulfills the following two criteria: –The activity is very enjoyable. –The activity helps you to attain a personal goal.*” Typical enjoyable activities were “exercising” or “walking.” Participants in the “not enjoyable activity” received a similar instruction, only the first criterion was changed to “*The activity is not enjoyable.*” Typical unenjoyable activities were “exercising” or “cleaning.” Next, as a manipulation check, I asked “*How much do you enjoy this activity?*” (1 = *not at all*, 7 = *very much*).

Finally, for the within-subjects factor, participants responded to eight items designed to assess their activity’s instrumentality for approach and avoidance goals. The four items to measure instrumentality for approach goals were “*With this activity, I can improve something or achieve something new.*”, “*With this activity, I want to achieve a positive state.*”, “*With this activity, I want to make something positive happen in my life.*”, and “*With this activity, I want to gain something positive for my life.*” The four items to measure instrumentality for avoidance goals were “*With this activity, I want to maintain something or prevent a loss.*”, “*With this activity, I want to remove a negative state.*”, “*With this activity, I want to prevent something negative from happening in my life.*”, and “*With this activity, I want to remove something negative from my life.*” (scales from 1 = *not at all*, 7 = *very much*). A principal component analysis with varimax rotation of this questionnaire confirmed its two-factor structure (Eigenvalue criterion). Only the four approach goal instrumentality items loaded highly on the first factor (factor loadings from .76 to .85) and only the four avoidance goal instrumentality items loaded highly on the second factor (factor loadings from .69 to .85). No cross-loading was larger than .21. The first factor explained 41.59% of the overall variance and the second factor explained an additional 23.01% of the overall variance. I aggregated all approach goal instrumentality items ($M =$

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5.95, $SD = 4.96$; Cronbach's $\alpha = .84$) and all avoidance goal instrumentality items ($M = 4.96$, $SD = 1.43$; Cronbach's $\alpha = .79$). These two aggregate scores were moderately correlated ($r = .29$, $p < .001$).

Results and Discussion

The analysis of the manipulation check revealed that participants had, as intended, named a less enjoyable activity in the “non-enjoyable means activity” condition ($M = 2.37$, $SD = 1.23$) than in the “enjoyable means condition” ($M = 6.23$, $SD = 0.88$), $F(1,489) = 1610.75$, $p < .001$, $\eta_p^2 = .77$.

A mixed model ANOVA revealed no main effect of the between-subject factor enjoyment condition, $F(1,492) < 0.01$, $p = .997$, $\eta_p^2 = .00$, but a main effect of the within-subjects factor goal valence on instrumentality ratings, $F(1,492) = 229.41$, $p < .001$, $\eta_p^2 = .318$, indicating that overall, activities were considered more instrumental for achieving approach goals than for achieving avoidance goals. This main effect was moderated by the expected goal valence by enjoyment condition interaction, $F(1,492) = 45.04$, $p < .001$, $\eta_p^2 = .084$ (see Figure 1). Simple effects analyses revealed a full crossover interaction: For avoidance goals, non-enjoyable activities were considered more instrumental ($M = 5.18$, $SD = 1.28$) than enjoyable activities ($M = 4.75$, $SD = 1.53$), $F(1,492) = 11.51$, $p = .001$, $\eta_p^2 = .023$. For approach goals, enjoyable activities were considered more instrumental ($M = 6.16$, $SD = 0.83$) than non-enjoyable activities ($M = 5.73$, $SD = 1.12$), $F(1,492) = 23.80$, $p < .001$, $\eta_p^2 = .046$.²

[insert Figure 1 here]

While the two Precursor studies to Study 2 (see SOM) showed the predicted crossover pattern with some restrictions (only after excluding supposedly unattentive participants or only descriptively or marginally significant), minor improvements in study design, first and foremost an increase of the sample size, helped to detect the predicted crossover pattern exactly as predicted in Study 2. In sum, these results suggest that enjoyable activities are considered as more instrumental for approach goals

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than for avoidance goals, whereas non-enjoyable activities are considered as more instrumental for avoidance than for approach goals.

In sum, Study 1 and Study 2 with its precursors confirm the expectation that in people's personal goal pursuits, activities that serve approach goals tend to be experienced as more intrinsically enjoyable than activities that serve avoidance goals. Study 3 now tests the hypothesis that people may perceive a "fit" between goal valence and means experience that could, in turn, affect as how *effective* they consider a given means. Specifically, the "natural" association in people's daily lives of avoidance goals with unpleasant means and of approach goals with pleasant means may have downstream consequences on whether a given means is perceived as "right" for a given goal. A similar fit effect between means and motivational orientations has already been demonstrated in the context of regulatory fit theory (e.g., Higgins, 2000; 2005). Accordingly, approach (eager) means are preferred for the pursuit of promotion goals (that is, goals that pursue growth and advancement), whereas avoidance (vigilant) means are preferred for the pursuit of prevention goals (that is, goals that pursue to maintain the status quo or uphold an important standard) and this preference can be explained by a "feelings of rightness" stemming from the natural fit of goals and means. Transferred to approach and avoidance goals and the experience of their means, I predict higher ratings of means effectiveness if the means' lower vs. higher enjoyment fits with the valence of the goal it serves.

Study 3: Fit effect of means experience and approach/avoidance instrumentality on effectiveness

In Study 3, I manipulated whether a more or less enjoyable means, a sweet or bitter placebo substance, was described as instrumental for either an approach (as increasing performance) or an avoidance goal (as preventing performance from decreasing) in a subsequent attention task. "Fit" was operationalized as combinations of the sweet placebo and approach goal valence or the bitter placebo and avoidance goal valence. "Non-fit" was operationalized as combinations of the sweet placebo and

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avoidance goal valence or the bitter placebo and approach goal valence. If the combinations of goals and means that "fit" generalize to a "feeling of rightness," then the placebos in the "fit" condition should be rated by participants as more effective than in the "non-fit" condition.

Method

Participants. Participants were recruited via an email newsletter for Psychology students maintained by the Department of Psychology. Participants received course credit for their participation. The goal was to collect a sample of at least 100 participants. A sample of $N = 104$ adults (68% female) between 18 and 70 years ($M = 33.0$ years, $SD = 13.7$) participated in the study. No participant was excluded from the analyses. The sample size in this study would have been sufficient to detect a medium effect of $f = .28$ with a power of 80% and an α -level of 5% (Faul et al., 2007).

Procedure. The experiment used a one-factorial, between-subjects design comparing a fit condition to a non-fit condition. To allow for follow-up analyses, I included, within each condition, both possible combinations representing fit or non-fit, respectively. Hence, I randomly assigned both approach vs. avoidance goal valence and sweet vs. bitter placebo taste separately: In the fit condition ($n = 50$), either the approach goal was paired with the sweet placebo or the avoidance goal was paired with the bitter placebo. In the non-fit condition ($n = 54$), either the approach goal was paired with the bitter placebo or the avoidance goal was paired with the sweet placebo.

The experimenter remained blind to whether she administered the sweet or the bitter placebo to participants. No participant received any active medical ingredient in the substance. The informed consent form explained that the objective of this study was to test whether certain natural ingredients that can be obtained from pharmacies without prescription can support attention. Participants were furthermore informed that one group of participants would receive a placebo instead of an active substance, but that the experimenter was blind to their assignment to the substance or the placebo

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condition. It was emphasized that participants could drop out at any time during the experiment without any negative consequences. Next, participants received a questionnaire about potential food and medication allergies to make sure that none of the substances could harm them. None of the participants indicated any allergies that required exclusion from participation. Participants then received written instructions that informed them that they would be provided with a few drops of a substance before working on an attention task. The instructions manipulated their impression that the substance was either instrumental for an approach goal, namely to achieve an increase in attentional performance, or instrumental for an avoidance goal, namely to prevent a decrease in attentional performance during the task. Instructions were as follows: *“The attention-supporting substance helps you to improve/maintain your attentional performance. Concentrating on lengthy tasks is difficult for many people. With this herbal supplement and through the innovative combination of natural ingredients, an increase/a decrease in attentional performance can be achieved/prevented.”* (first version: approach goal valence, second version: avoidance goal valence).

The experimenter then provided participants with five drops of one of the substances and explained that these would be absorbed via the oral mucosa and that it was therefore imperative for participants to keep them in their mouths for about 20 seconds before swallowing. This was done to ensure that participants actually tasted the substance. As a bitter placebo, participants received “tinctura amara.” As a sweet placebo, participants received an Elderflower syrup mix with water. I assumed that both would be relatively unknown substances. All placebos were administered directly on participants’ tongues via a dark brown glass pipette, making it impossible for participants to notice their colors.

After having received the placebo substances, all participants were instructed to work on an attention task at a computer, the Continuous Performance Test (Rosvold, Mirsky, Sarason, Bransome, & Beck, 1956). It consists of two parts, each consisting of 5 blocks with 31 stimuli each. In the first part,

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participants were required to press the space bar on their keyboard whenever the letter “X” occurred on the screen. After a 2-minute break, part two required participants to press the space bar whenever the letter “X” was followed by the letter “A.” The entire test took about 12 minutes. This particular task was chosen because error rates tend to be low (and they were in our study, in which most participants erred only once or twice), thereby allowing participants to attribute their good performance to the effectiveness of the substance they took. Furthermore, it is very boring for healthy participants, thereby making it sufficiently hard for them to keep up their attention.

Upon task completion, participants were administered a final questionnaire: Among other measures (see comment below and OSF page), it contained the central measure of means effectiveness. Effectiveness was measured with two items, namely *“As how effective would you consider the natural substance you took?”* (1 = *not effective at all*, 7 = *very effective*) and *“How well has the natural substance you took helped you to maintain/increase your attention?”* (1 = *not at all*, 7 = *very much*). Both items were highly correlated ($r = .85$, $p < .001$; Cronbach’s $\alpha = .93$) and averaged to receive an aggregate score for substance effectiveness ($M = 3.18$, $SD = 1.57$). The questionnaire also contained a manipulation check assessing how much participants actually enjoyed the taste of the substance they took (*“How pleasant/unpleasant was the taste of the substance?”*, scale from 1 = *very unpleasant* to 7 = *very pleasant*).³

Aside from the measures described here, various other variables not relevant for the current hypothesis were assessed either before or after the substance intake and attention task (including participants’ need for cognition, openness, attention deficit symptoms, subjective health and life satisfaction at baseline, difficulty of the attention task, importance to do well on it etc.). All items can be found under “materials” on the OSF page.

At the end of the experiment, participants were thanked and thoroughly debriefed.

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Results and Discussion

Manipulation check. The results of the manipulation check revealed that participants perceived the taste of the bitter substance as somewhat less pleasant ($M = 3.05$, $SD = 1.38$) than the taste of the sweet substance ($M = 3.45$, $SD = 1.47$), $F(1,102) = 1.98$, $p = .16$, $\eta_p^2 = .02$.

Substance effectiveness. A one-factorial ANOVA confirmed a significant effect of fit ($M = 3.54$, $SD = 1.45$) vs. non-fit ($M = 2.84$, $SD = 3.54$) on substance effectiveness ratings, $F(1,102) = 5.36$, $p = .023$, $\eta_p^2 = .05$. Accordingly, our hypothesis that fit increases effectiveness ratings relative to non-fit was supported by the data.

Ancillary analyses. I further explored which conditions drove the effect by subsequently conducting a 2 (taste of placebo: sweet vs. bitter) $\times$ 2 (approach vs. avoidance goal valence) ANOVA. Note, that in this analysis, power was lower than in the previous analyses (cell sizes ranged between 23 and 30), which renders any given results less conclusive. The analysis revealed neither a main effect of taste, $F(1,100) = .02$, $p = .89$, $\eta_p^2 < .001$, nor a main effect of approach vs. avoidance goal valence, $F(1,100) = .06$, $p = .81$, $\eta_p^2 = .001$. However, as could be expected from the previous analysis of the fit effect, it yielded a highly significant taste by approach vs. avoidance goal valence interaction effect, $F(1,100) = 8.27$, $p = .005$, $\eta_p^2 = .08$ (see Figure 2). Analyses of simple effects revealed that participants pursuing an approach goal with the sweet substance considered this substance to be marginally more effective than participants pursuing an approach goal with the bitter substance considered theirs, $F(1,51) = 3.79$, $p = .057$, $\eta_p^2 = .07$. Participants pursuing an avoidance goal with the bitter substance considered this substance as significantly more effective than participants pursuing an avoidance goal with the sweet substance considered theirs, $F(1,49) = 4.49$, $p = .039$, $\eta_p^2 = .08$, indicating a cross-over interaction. In sum, this study finds the expected fit effect. The presence of a crossover interaction pattern shown in the ancillary analysis furthermore provides first evidence that this fit effect is not driven by specific

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versions of fit and misfit – the predicted pattern of results held across combinations of goal valence for approach vs. avoidance and means enjoyment.

[insert Figure 2 here]

Overall Discussion

While goal pursuit is, by definition, motivated by the wish to attain some outcome, the experience of goal pursuit clearly matters as well: If goal pursuit is fun, people are more likely to persist in it, which ultimately should foster their goal attainment (Deci, Vallerand, Pelletier, & Ryan, 1991; Lepper, Corpus, & Iyengar, 2005; Vallerand & Bissonnette, 1992; Woolley & Fishbach, 2016). But does it matter, for the experience of goal pursuit, which kind of goals are pursued? The present research tested the proposal that how a given means of goal pursuit is experienced, the enjoyment derived from it, may vary as a function of this goal's approach or avoidance valence. The data supports that means for avoidance goals are experienced with lower enjoyment than means for approach goals.

In Study 1, participants reported that they experienced the most effective means for avoidance goals as lower in intrinsic enjoyment than their most effective means for approach goals. In Study 2, participants' reports indicate that the enjoyable goal-directed activities they use tend to be instrumental for approach goals, whereas the non-enjoyable goal-directed activities they use tend to be instrumental for avoidance goals. Both Studies 1 and 2 focused on everyday goals and thereby supported that in their everyday lives, people pursue avoidance goals with means that are relatively unpleasant compared to the means they pursue approach goals with. Study 3 then tested a downstream consequence of this "natural" association of unpleasant means with avoidance goals and more pleasant means with approach goals. Arguing from a "fit" perspective (see also Freitas & Higgins, 2002; Higgins, 2005; Lee & Aaker, 2004), I hypothesized that people would overgeneralize from the association and also judge a new means (with

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an alleged but no actual effectiveness) as more effective if its experience fit with the goal valence it was supposed to be instrumental for. This prediction was also supported by the data.

The results reported here are not redundant (and partly inconsistent) with previous demonstrations of a so-called instrumentality heuristic (Labroo & Kim, 2009). According to the heuristic, people evaluate more effortful means as more effective to a given goal. The present research demonstrates a similar pattern for avoidance goals, for which less enjoyable means were considered as more effective (Study 3). In contrast, the heuristic is at odds with the result that more enjoyable means are considered *more* effective for approach goals. However, and this may explain the inconsistency with the instrumentality heuristic, enjoyment should not be considered the inverse of effort, as both very low and very high effort are experienced as unpleasant (Asseburg & Frey, 2013; Csikszentmihalyi, 2000; Van Tilburg & Igou, 2011).

Could dissonance reduction (Festinger, 1957) be a possible alternative explanation for the results of Study 3? Could it be that participants attributed higher effectiveness to the non-enjoyable activities or the bitter substance for avoidance goals because they needed to justify engaging in them/taking them? I believe that this is unlikely. First, in Study 3, the experimenter's instruction to ingest the substance probably already provided a sufficient explanation for why participants did so. More importantly, if dissonance reduction was at play, participants should have also considered non-enjoyable activities or the bitter substance as more effective for approach goals, which was not the case.

Potential limitations and future directions

This research is not without limitations. One major methodological limitation lies in the fact that in Study 3, the manipulation check indicated that there was only a tendency for the pleasant placebo to have a more enjoyable taste than the unpleasant placebo. Certainly, this makes it harder to clearly infer that the effect demonstrated in Study 3 is grounded in the fit/non-fit of means enjoyment and goal

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valence. While I took measures (e.g., experimenter blindness, the brown pipette to disguise the color of the substance) to make the experiences of taking the two placebos as comparable as possible, they may still have differed with regard to other characteristics, e.g., taste intensity. As a result, effectiveness ratings may also have differed as a consequence of such other characteristics and not as a consequence of how much these substances were enjoyed. Note however, that the merits of manipulation checks are debatable anyway, as they do not provide information about construct validity and cannot rule out that other factors affected by the manipulation are responsible for the effect on the dependent variable anyway (Fayant, Sigall, Lemonnier, Retsin, & Alexopolous, 2017; Sigall & Mills, 1998). Moreover, even small differences in taste enjoyment like the ones we found may have strong effects on the dependent variable. Given these limitations of interpreting manipulation checks, it appears as more important to control for potential confounding factors. As for many other means-related activities (e.g., mental or physical tasks), it may be more difficult to only manipulate their enjoyment without co-manipulating other characteristics (e.g., their difficulty, experienced autonomy etc.), the manipulation of the taste of a substance appeared like a relatively well-controllable operationalization. In sum, I still consider the present results as suggestive of an effect but strongly encourage attempts to replicate them.

Another limitation of this research lies in the fact that the data does not speak to *why* means for avoidance goal pursuit are enjoyed less than means for approach goal pursuit. As outlined above, there may be several reasons. On the one hand, the effect could reflect goal-dependent means selection: If the attainment of avoidance goals appears as more “pressing” than the attainment of approach goals, people may be more likely to sacrifice enjoyment in favor of effectiveness. The approach-motivated student may, for example prefer to study in a coffee shop and with friends, whereas the avoidance-motivated student may prefer to study at home and by himself. Accordingly, the effect could reflect goal-dependent means selection.

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On the other hand, the threat appraisals, evaluative anxiety, and vigilant attention to failure-relevant information that tends to accompany the pursuit of avoidance goals, may corrupt the experience of the means (Elliot & Church, 1997). The avoidant-motivated student may then experience even studying in a coffee shop and with friends as not enjoyable, as he would be preoccupied by negative cognitions about the possibility of failure. If this mechanism is responsible for the effect, then framing a goal with the same content and means as either approach- or avoidance-oriented should cause differences in the experience of the means. No such differences should occur if goal-dependent means selection was solely responsible for the effect described here.

In addition, the effects demonstrated in this research could also stem from a more general mechanism of affective transfer from the either positive or negative valence of the goal to the means (see also Kruglanski et al., in press). If this is the mechanism at play, then it should also be moderated by the strength of association between the goal and the means (Fishbach et al., 2004). To test this, one could “dilute” the strength of association by adding additional means that serve the same goal (Zhang, Fishbach, & Kruglanski, 2007). If this improved the experienced of a focal means that is instrumental to an avoidance goal, this would be evidence of affective transfer (Kruglanski et al., 2002).

Another interesting venue for future research could be to look at how individual differences in regulatory focus (e.g., Higgins, 1997) may interact with approach and avoidance goal valence to predict means enjoyment. According to regulatory focus theory, both prevention- and promotion-focused individuals approach desired end-states and avoid undesired end-states, but the end-states that they care about are qualitatively different: Promotion-focused individuals approach gains and avoid non-gains. In contrast, prevention-focused individuals approach non-losses and avoid losses (e.g., Scholer & Higgins, 2013). The theory only makes predictions about how promotion and prevention focus affect intrinsic experience depending on whether the means, not the goals (or in Higgins’ terminology the “regulatory

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references”) are approach or avoidance-oriented. Regulatory fit is provided if a person in a promotion focus uses approach (eager) strategies or if a person in a prevention focus uses avoidance (vigilant) strategies. Such fit then increases the enjoyment of goal-directed actions (Freitas & Higgins, 2002) and ultimately performance and well-being (for a review, see Higgins, 2012). While, according to the theory itself, it should not matter whether a promotion-focused person approaches gains or avoids non-gains, or whether a prevention-focused person approaches non-losses and avoids losses, it is however, certainly possible that people enjoy pursuing approach goals more with approach (eager) means and avoidance goals more with avoidance (vigilant) means and that a similar regulatory fit effect could occur for approach goals pursued with approach means as well as for avoidance goals pursued with avoidance means. Then the two separate fit effects of, on the one hand, regulatory focus and the means, and, on the other hand, approach/avoidance goal valence and the means, could add up or cancel each other out.

Future research may also address how the impression that unpleasant means are more effective for avoidance goals and pleasant means are more effective for approach goals affects peoples’ actual choices of means. Two questions appear relevant here: First, do people infer effectiveness (given that it is unknown) from enjoyment (given that it is known)? Would someone with an avoidance goal infer that a less enjoyable means is more effective, and, in turn, *favor* it over a more enjoyable one? Second, provided that people may experience a trade-off between subjective enjoyment and effectiveness (see also Maimaran & Fishbach, 2014; Raghunathan, Naylor, & Hoyer, 2006), what predicts whether people prefer the more enjoyable or the more effective means? For example, people may weigh effectiveness as more important when goal attainment is urgent or highly important. They may also weigh effectiveness more heavily when *planning* goal pursuit but enjoyment more heavily *during* goal pursuit (Woolley & Fishbach, 2015). Notably, given that the conclusions I derive from these data are correct, such a trade-

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off would not have to be considered for approach goals, where, as Study 3 suggests, people experience that higher enjoyment goes hand in hand with higher subjective effectiveness anyway.

Conclusion

The current research demonstrated, across various goals, a negative effect of avoidance (relative to approach) goal valence on the intrinsic enjoyment of goal-related means. It furthermore provides first support for a downstream consequence, namely a fit-effect on effectiveness ratings. In the future, it would be desirable to replicate these effects and to further study their causes (e.g., selection of means or [mere] experience) and consequences (e.g., on inferences about means effectiveness, means selection).

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Footnotes

¹ All sample sizes were determined before running the studies. Formal power analyses require the anticipation of effect sizes, and, in within-subjects designs like the Study 1 and 2, the anticipation of how much the repeated measures correlate with each other. Given that this research was novel, I was unable to make these predictions. Hence, I simply tried to err on the side of high power by having large samples that could detect small to medium effects. As in Study 3, the data collection was cumbersome, I relied on an informal rule of thumb (50 participants per cell in between-subjects designs), which, at the time of the study (January – March 2014), was still popular. I report, in all studies, the effect sizes I could have detected with the given samples and a target power of 80%.

I report all data exclusions, manipulations and direct replications below or in the supplemental online materials (SOM), and all measures either below or in the files (materials, codebooks) that are posted online along with the data on the Open Science Framework ([gosf.io/9g8zf](https://osf.io/9g8zf)) (Simmons, Nelson, & Simonsohn, 2012).

² The extent to which an activity was more strongly instrumentally related to approach goals than to avoidance goals (difference score: approach goal instrumentality – avoidance goal instrumentality) furthermore correlated positively with the enjoyment of the activity as assessed in the manipulation check, $r = .32$ ($p < .001$). The extent to which an activity was more strongly instrumentally related to approach goals than to avoidance goals was furthermore higher in the enjoyable condition ($M = 1.40$, $SD = 1.49$) than in the non-enjoyable condition ($M = 0.54$, $SD = 1.36$), $F(1,492) = 45.04$, $p < .001$, $\eta_p^2 = .084$.

³ In Study 3, the survey software, in fact, displayed all scales as ranging from 0 to 6 to participants. The software nevertheless saved already transformed scores ranging from 1 to 7. To be consistent across studies, data analysis was performed on these scores.

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Figures

Figure 1. Instrumentality ratings for means activities as a function of enjoyment condition and goal valence (Study 2). Error bars indicate standard errors.

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Effectiveness

Figure 2. Effectiveness ratings for placebos as a function of their taste and goal valence (Study 3). Error bars indicate standard errors.

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Supplemental Online Materials (Integral)

First precursor to Study 2

Method.

Participants. I opened up the study for 200 HITS on Amazon's Mturk. Mturk returned 207 respondents (203 provided their age and gender: 19 to 71 years, $M_{\text{age}} = 34.6$ years, $SD = 10.68$, 41.2% female). Mturkers received \$0.25 for their participation in the study.

Post-hoc analyses revealed that, given that the repeated measures of goal instrumentality correlated with $r = .29$ (see below), the sample size in this study would have been sufficient to detect a small to medium interaction effect of $f = .12$ with a power of 80% and an α -level of 5% (Faul et al., 2007).

Procedure. The study had a mixed design with one between-subjects factor (enjoyable vs. not enjoyable means activity) and one within-subjects factor (approach vs. avoidance valence). Depending on random assignment, participants were asked to either name an enjoyable or a not enjoyable goal-directed activity. In the "enjoyable activity" condition, the instructions were as follows: "*Please name one activity that you engage in on a regular basis that fulfills the following two criteria: –The activity is very enjoyable. –The activity helps you to attain a personal goal.*" Typical enjoyable activities were "exercising", "mturking", or "walking." Participants in the "not enjoyable activity" received a similar instruction, only the first criterion was changed to "*The activity is not enjoyable.*" Typical unenjoyable activities were "exercising," "working", or "cleaning." Next, as a manipulation check, I asked "*How much do you enjoy this activity?*" (1 = not at all, 7 = very much).

Finally, participants responded to eight items designed to assess their activity's instrumentality for approach and avoidance goals. The four items to measure approach goal instrumentality were "*With this activity, I can improve something or achieve something new.*", "*With this activity, I want to achieve a positive state.*", "*With this activity, I want to make something positive happen in my life.*", and "*With*

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this activity, I want to gain something positive for my life.” The four items to measure avoidance goal instrumentality were “*With this activity, I want to maintain something or prevent a loss.*”, “*With this activity, I want to remove a negative state.*”, “*With this activity, I want to prevent something negative from happening in my life.*”, and “*With this activity, I want to remove something negative from my life.*” (scales from 1 = *not at all*, 7 = *very much*). A principal component analysis with varimax rotation of this questionnaire confirmed its two-factor structure (Eigenvalue criterion). Only the four approach goal instrumentality items loaded highly on the first factor (factor loadings from .74 to .89) and only the four avoidance goal instrumentality items loaded highly on the second factor (factor loadings from .63 to .89). No cross-loading was larger than .23. The first factor explained 43.00% of the overall variance and the second factor explained an additional 24.18% of the overall variance. I aggregated all approach goal instrumentality items ($M = 6.00$, $SD = 0.87$; Cronbach’s $\alpha = .85$) and all avoidance goal instrumentality items ($M = 5.12$, $SD = .1.36$; Cronbach’s $\alpha = .81$). These two aggregate scores were moderately correlated ($r = .29$, $p < .001$).

Results and Discussion.

The analysis of the manipulation check revealed that participants had, as intended, named a less enjoyable activity in the “no enjoyment” condition ($M = 2.76$, $SD = 1.35$) than in the “enjoyment condition” ($M = 6.21$, $SD = 0.90$), $F(1,204) = 481.71$, $p < .001$, $\eta_p^2 = .70$.

A mixed model ANOVA revealed no main effect of enjoyment condition, $F(1,205) = 0.13$, $p = .710$, $\eta_p^2 = .001$, but a main effect of goal valence, $F(1, 205) = 80.00$, $p < .001$, $\eta_p^2 = .281$, indicating that overall, activities were considered more instrumental for achieving approach goals than for achieving avoidance goals. The predicted goal valence by condition interaction emerged as only marginally significant, $F(1,205) = 3.30$, $p = .081$, $\eta_p^2 = .016$.

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Given this result, I further explored the data and noticed that 23 participants showed no variance in their responses across the eight goal instrumentality items. It was unclear whether this reflected poor data quality or whether participants truly wanted to assign the same goal instrumentality ratings to their activity on all eight items. When repeating all analysis without these participants, the predicted interaction effect of goal valence by condition came out more clearly, $F(1,182) = 5.21, p = .024; \eta_p^2 = .016$. Simple effects revealed that descriptively the pattern came out as predicted, but non-significantly so. For approach goals, enjoyable activities were considered as somewhat more instrumental ($M = 6.01, SD = 0.74$) than not enjoyable activities ($M = 5.81, SD = 0.99$), $F(1,182) = 2.42, p = .12; \eta_p^2 = .013$, whereas for avoidance goals, not enjoyable activities were considered as somewhat more instrumental ($M = 5.07, SD = 1.18$) than enjoyable activities ($M = 4.80, SD = 1.40$), $F(1,182) = 2.12, p = .15; \eta_p^2 = .012$.

As these results were inconclusive, I attempted to replicate this precursor, with some improvements.

Second precursor to Study 2

Method.

Participants. To increase the power to detect significant effects, I requested 300 participants from Mturk. I received 317 responses. To improve data quality and distinguish participants who truly wanted to assign the same instrumentality ratings to their activity across all eight items from participants who did not pay attention to the item content, I included an instructed response item in this replication (*“To help us monitor data quality, please select the middle option (4).”*, Meade & Craig, 2012). Five participants failed to correctly respond to the instructed response item and were therefore excluded from all analyses, leaving a final sample of $N = 312$ (310 provided their age and gender: 18 to 70 years, $M_{\text{age}} = 33.4$ years, $SD = 10.38$, 42.6% female).

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Post-hoc analyses revealed that, given that the repeated measures correlated with $r = .25$ (see below), the sample size in this study would have been sufficient to detect a small interaction effect of $f = .10$ with a power of 80% and an α -level of 5% (Faul et al., 2007).

Procedure. Aside from the larger sample size and the instructed response item, the design and procedure were exactly the same as in the first precursor to Study 2. As in the first precursor, the eight items assessing approach and avoidance goal instrumentality showed the required factor structure. Only the four approach goal instrumentality items loaded highly on the first factor (factor loadings from .71 to .84) and only the four avoidance goal instrumentality items loaded highly on the second factor (factor loadings from .68 to .82). No cross-loading was larger than .19. The first factor explained 37.94% of the overall variance and the second factor explained an additional 22.59% of the overall variance. I averaged all approach goal instrumentality items ($M = 5.92$, $SD = 0.93$; Cronbach's $\alpha = .78$) and all avoidance goal instrumentality items ($M = 4.91$, $SD = 1.35$; Cronbach's $\alpha = .77$). These two aggregate scores were moderately correlated ($r = .25$, $p < .001$).

Results and Discussion.

The analysis of the manipulation check revealed that participants had, as intended, named a less enjoyable activity in the “no enjoyment” condition ($M = 2.44$, $SD = 1.26$) than in the “enjoyment condition” ($M = 6.29$, $SD = 0.72$), $F(1,307) = 1098.39$, $p < .001$, $\eta_p^2 = .78$.

As in Study 2a, a mixed model ANOVA revealed no main effect of enjoyment condition, $F(1,310) = 1.11$, $p = .293$, $\eta_p^2 = .004$, but a main effect of goal valence, $F(1, 310) = 162.98$, $p < .001$, $\eta_p^2 = .345$, indicating that overall, activities were considered more instrumental for achieving approach goals than for achieving avoidance goals. This time, the predicted goal valence by condition interaction emerged as highly significant, $F(1,310) = 21.83$, $p < .001$, $\eta_p^2 = .066$. Simple effects revealed that the predicted crossover pattern also came out, albeit not as clearly as predicted: For approach goals,

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enjoyable activities were considered as clearly more instrumental ($M = 6.15$, $SD = 0.73$) than not enjoyable activities ($M = 5.68$, $SD = 1.05$), $F(1,310) = 21.83$, $p < .001$; $\eta_p^2 = .066$. For avoidance goal, not enjoyable activities were considered as only somewhat more instrumental ($M = 5.04$, $SD = 1.17$) than enjoyable activities ($M = 4.78$, $SD = 1.49$), $F(1,310) = 2.89$, $p = .09$; $\eta_p^2 = .009$.

Given, that the difference for avoidance goal was only marginally significant, I attempted a third replication. This time I tried to increase data quality by raising the payment to Mturkers for this HIT from \$0.25 to \$0.35. I also substantially increased the power by requesting 500 participants. Study 2 in the article describes this replication.