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ORIGINAL PAPER

Goals as identities: Boosting perceptions of healthy-eater identity for easier goal pursuit

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Abstract
People who think of their personal goals as identities are more likely to engage in goal-consistent behavior. However, no research has explored whether learning to frame goals as identities can be an effective strategy for pursuing goals in daily life. Across a series of studies, we assessed how incorporating a goal as part of one's identity impacts goal-consistent choices. In a pilot study, we established a positive correlational relationship between natural goal identification and goal-consistent decision-making. Individuals with stronger healthy-eater identities made healthier food choices in a behavioral choice task. In Studies 1 and 2, we employed longitudinal interventions to teach people to frame their healthy eating goals as identities. We found that people who learned to frame their goals as identities made healthier choices, felt their goals were easier to pursue, reported greater success at managing goals, and made food choices that they both perceived to be healthier and that were rated as healthier by independent evaluators. Across studies, our findings suggest that thinking of goals as identities makes it easier to engage in goal-consistent choices.

Keywords Motivation · Goals · Healthy-eater identity · Ease · Self-control

Goals are an important driving force in everyday life, shaping people's thoughts, feelings, and behaviors. For example, adopting a goal to be more fit may influence how people spend the hour after work. Setting a goal to save money may affect people's decisions about where to spend their vacation. People's daily actions are influenced by the specific goals they have. Yet despite having long-term goals and strong motivations to achieve them, people often face challenges that threaten to deter their daily progress.

One major obstacle that goal seekers face is overcoming the lure of temptations that, if acted upon, would hinder progress towards their long-term goal success. Indeed, in their daily lives, people are bombarded with opportunities to act in goal-inconsistent ways. A dieter walking past the candy aisle may feel the urge to grab a tasty treat. A student with an upcoming test may feel tempted to go to a party instead of staying home to study. Achieving one's goals often requires that individuals exert self-control—by resisting the dessert or declining the party invitation—and instead make choices that reflect their long-term goals (Trope and Fishbach 2000; Fishbach and Shen 2014). Over time, successful goal pursuit requires repeated instances of enacting goal-consistent rather than –inconsistent behavior.

What factors influence whether people will make goal-consistent choices in favor of long-term goal success? The present research explores one way to increase goal-consistent choices to help people become more successful at reaching their goals: framing goals as identities.

Goals as identities

People have multiple identities that make up their personal self-concept (Oyserman 2001). These identities include traits and characteristics, roles, social relationships, and group memberships (Stets and Burke 2003; Stryker and Burke 2000; Tajfel 1982). In addition to defining one's self-concept, identities are motivational—they influence thoughts, attitudes, and behavior across social contexts

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(e.g., Carter 2013; Burke 1991). Past work has found a link between a person's identities and identity-relevant behavior, suggesting that people prefer to enact identity-congruent versus identity-incongruent actions (Oyserman 2015). Indeed, people are motivated to pursue behaviors that are perceived as self-relevant and align with core identities (Identity Based Motivation Theory; e.g., Oyserman 2007, Oyserman et al. 2012). Furthermore, people are motivated to behave in ways that verify their identities (Burke and Harrod 2005; Stets and Burke 2003; Ryan and Deci 2003), and they find more subjective value in engaging in identity-congruent behaviors compared to behaviors that do not support their identities (Berkman et al. 2017).

Within the broader research on identity-based behavior, some research suggests *goals* too may become aspects of one's identity (e.g., Sheldon and Elliot 1999). For example, a person with a goal to eat healthier may adopt an identity as a health-conscious person. A person with a goal to run daily may self-identify as a runner. Notably, the extent to which a goal is perceived as an identity can vary person-to-person. While two people may have the same goal—e.g., running daily—one person may adopt being a runner as a core part of their self-concept, while the other might believe that running is an important goal, but not identify it as a central aspect of "who they are." According to Self-Determination Theory (Ryan and Deci 2000), reasons for pursuing personal goals can range from autonomous to controlled motives. Goals that are pursued for autonomous reasons (i.e., "want-to" goals) evoke interest or enjoyment, are viewed as important, or are viewed as a core part of identity, while goals pursued for controlled reasons (i.e., "have-to" goals) earn rewards, satisfy wishes of others, or avoid feelings of shame (e.g., Deci and Ryan 2000; Deci and Ryan 2012; Milyavskaya et al. 2014; Ryan and Deci 2000; Ryan and Deci 2017; Sheldon and Elliot 1999). Goals that are incorporated as aspects of one's identity are more likely to be pursued for "want-to" than "have-to" reasons.

Furthermore, past work on identity-congruent action suggests that people who hold goals as identities (e.g., "being a runner") should more often behave goal-consistently than people who simply have a goal (e.g., "to go running"). Previous research has found correlational links between goal identification[1] and goal-consistent behavior, such that the more goals are incorporated into one's identity, the more likely people are to engage in goal-consistent behavior (e.g., Sheldon and Elliot 1999; Verplanken and Holland 2002; Koestner et al. 2015; Koestner et al. 2008). This relationship between goal identities and goal-directed outcomes has been shown across many goal domains, including pro-environmental behaviors (e.g., Verplanken and Holland 2002; Steg et al. 2014), weight-loss (e.g., Werner et al. 2016; Koestner et al. 2008), academics (e.g., Werner et al. 2016), exercise (e.g., Strachan and Brawley 2008; Rhodes et al. 2016), healthy eating (e.g., Strachan and Brawley 2008; Strachan and Brawley 2009), and relationships (e.g., Sheldon and Houser-Marko 2001). Across these domains, people with goals that are identities are more likely to engage in goal-consistent action.

In addition, there is evidence that viewing goals as identities distinctly contributes to goal success beyond other factors known to impact goal attainment, such as self-regulatory ability (Sheldon and Kasser 1998) and goal commitment (Koestner et al. 2002). For example, while Sheldon and Elliot (1999) found a positive relationship between goal identification and goal success, their findings also demonstrated orthogonal relationships between goal identification and other known predictors of success, including self-efficacy, implementation intentions, approach (versus avoidance) goal framing, and general self-regulatory skills, suggesting that goal identification provides unique predictive value for goal success.

Framing goals as identities

In past work, the link between goal identification and behavior has often been studied as a correlational relationship, such that researchers have measured the extent to which participants view an existing goal as an identity and then observed the relationship between goal identification and goal-consistent behaviors. While this work has provided rich and consistent evidence that holding a goal as an identity is associated with goal-consistent behaviors, causal links between goal identification and goal success often cannot be concluded. In the present work we aimed to explore causal links between identity and goal-consistent choices by teaching people to think of their goals as identities.

Some recent research has explored the effects of using identity-consistent language to influence identity-consistent attitudes and behaviors. For example, one set of studies

[1] The current scholarly literature uses several terms and measurement tools for assessing the general construct that we are calling goal identification. For example, Goal Self-Concordance scales have been used to assess the extent to which people's goal-oriented motivations align with their authentic interests and values (Sheldon and Elliot 1999). Other self-report scales, such as the Healthy-Eater Identity Scale (Strachan and Brawley 2009) and the Exercise Identity Questionnaire (Anderson and Cychosz 1994) aim to assess a broad integration with core identity beyond alignment with authentic interests and values, directly assessing a person's beliefs about the extent to which their goals are identities. We acknowledge that these various operationalizations (e.g., autonomous motivation, self-concordance, identity measures) are overlapping constructs, thus we discuss the background research collectively.

found framing recycling behavior using nouns (e.g., "I am a recycler") versus verbs (e.g., "I recycle") made preferences for recycling stronger, more stable, and more resilient (Walton and Banaji 2004). Another series of studies found that framing helping behavior using nouns (e.g., "being a helper) versus verbs (e.g., "helping) fostered the perception that a behavior reflects an identity, and thus invoked action congruent with the identity (Bryan et al. 2014). While this research suggests that using words that signal identity can increase action, less research has explored whether actively adopting a goal as an identity has implications for effective goal pursuit. If people can increase the extent to which their goals are central to their self-concept, they may find it easier to make goal-consistent choices in their daily lives. In the present research, we tested whether goal identification can be manipulated and if strengthening the extent to which people view their goals as identities is an effective strategy for increasing goal-consistent behavior in the lab and in daily life.

The present work

Three studies sought to provide evidence for the role of goal identification in making goal-consistent choices.[2] First, a pilot study sought to replicate past work and establish a positive correlational relationship between goal identification and goal-consistent decisions. We used a behavioral choice task in which dieters decided whether they wanted to eat healthy or unhealthy snacks. Studies 1 and 2 employed longitudinal designs to ask whether an identity-based intervention can assist goal seekers with making healthier choices in their daily lives. Across the studies, we used self-report, behavioral choice tasks, and daily diary methods in both lab-based and real-world longitudinal protocols to test whether adopting goals as identities increases goal-consistent behavior and aids successful goal pursuit. Together, this work is the first to explicitly teach people to identify with their goals as a strategy for effective goal pursuit. Data for all studies along with analyses, syntax, materials, and pre-registrations are available at: https://osf.io/zq7gk/.

Pilot study

In a pilot study, we sought to establish initial correlational evidence that stronger goal identification leads to more goal-consistent choices. Specifically, we tested whether people who naturally identify more with their healthy eating goals are more likely to choose healthy over unhealthy foods. We predicted that participants with greater healthy-eater identity would make healthier choices in a binary food choice task. We also predicted they would report having greater health goal success in their daily lives. Finally, we predicted that healthy-eater identity would predict self-control success above and beyond the effect of dieting goal strength.

Methods

In exchange for course credit, 185 undergraduates participated in a lab study about goals (M_{age} = 18.80 years, SD_{age} = 1.42, 118 females). The sample size was determined a priori based on a power analysis anticipating small correlations (r = 0.20) to ensure at least 80% power.

Health goal strength

In a pre-screen survey, participants responded to two items to assess general health goal strength, including "I have goals to eat healthy" and "I strive to be healthy and fit" each on a scale from 1 (*not at all*) to 5 (*completely*).

Healthy-eater identity

Upon arriving at the lab, participants first reported their level of healthy-eater identity by responding to a nine-item Healthy-Eating Identity Scale (Strachan and Brawley 2009), which included the following items, "I consider myself to be a healthy-eater," "Eating healthy is part of the way I have chosen to live my life," "When I describe myself to others, I usually include that I eat healthy," "I have numerous goals relating to healthy-eating," "Healthy eating is important to my self-concept," "Others see me as someone who eats healthy," "For me, living a healthy lifestyle means more than just eating healthy, "I would feel a real loss if I were forced to give up eating healthy," and "Eating healthy is something I think about often," each from 1 (*strongly disagree*) to 7 (*strongly agree*), (α = 0.90).[3]

[2] Across studies, we test these questions within the domain of health as dieting goals are commonly held by college students (Milyavskaya et al. 2015). However, we do not expect there is anything specific about this domain that would not translate to other goal domains.

[3] Participants also responded to two additional measures of goal identity, including a single-item visual Goal-Self Overlap scale (modeled from Aron et al. 1992) and a five-item Goal Self-Concordance measure (Sheldon and Elliot 1999; Koestner et al. 2002). The three measures of goal identity (Healthy-Eater Identity, Goal-Self Overlap, and Goal Self- Concordance) were highly correlated (α = .91). For simplicity and ease of interpretation, we use the Healthy-Eater Identity Scale for analyses across all studies. However, analyzing the results using a composite measure of all three does not change the results. Analyses using the three-item measure are reported in the supplemental materials.

Table 1 Zero-order correlations between pilot study measures

	1	2	3
1. Healthy eating goals	–		
2. Healthy-eater identity	.50***	–	
3. Healthy foods chosen (percent)	.04	.18*	–
4. Goal success	.40***	.56***	.16*

*p < .05, **p < .01, ***p < .001

Food choices

Next, participants completed a binary food choice task (modeled from van der Laan et al. 2014) designed to assess self-control decisions as measured by healthy vs. unhealthy snack choices. Participants saw a series of 60 randomly paired food images and words. Each pair included one healthy (e.g., apple, carrots) and one unhealthy (e.g., cookies, cake, chips) snack, although there were not any labels presented that would indicate healthiness category. The foods were randomized in order and pairing on each side of the computer screen. For each trial, participants were instructed to use computer keys to quickly indicate their preferred choice. To encourage realistic choices, participants were told that one of the snacks they selected would be chosen at random for them to eat at the end of the study.

Healthy eating success

Next, participants self-reported their general success at healthy eating on a single item measure, "When you try to eat healthy, how successful are you usually?" ranging from 0 (*not at all successful*) to 10 (*extremely successful*).

Lastly, participants responded to demographic questions including age, gender, and race. Before leaving the lab, participants were debriefed and thanked.

Results

Food choices

To compute a measure of goal-consistent decisions, across all trials of the computer food choice task, we calculated the percentage of trials in which healthy choices were selected for each participant. Across the sample, people generally chose mostly healthy options (66.40% healthy choices on average). However, even within the generally healthy choices participants made, as predicted, there was a significant positive correlation between healthy-eater identity and healthy choices, $r(183) = 0.18$, $p = 0.017$. The stronger their healthy-eater identity, the greater the number of healthy foods participants selected (See Table 1 for zero-order correlations between all measures). In addition, healthy-eater identity remained positively correlated with healthy food choices even after controlling for strength of participants' health goals, $r(180) = 0.18$, $p = 0.016$, indicating that healthy-eater identity was associated with healthy choices above and beyond goal strength.

Goal success

As predicted there was a significant positive correlation between healthy-eater identity and goal success, $r(183) = 0.56$, $p < 0.001$, such that participants with greater healthy-eater identity indicated they were more successful at eating healthy in their daily lives. In addition, healthy-eater identity remained positively correlated with goal success even after controlling for the strength of participants' healthy eating goals, $r(180) = 0.48$, $p < 0.001$, indicating that healthy-eater identity has unique explanatory power when predicting goal success.

Study 1

In the pilot study, the extent to which people identified healthy eating as a core aspect of their self-concept was associated with healthier food choices in a binary food choice task. In an experimental study, we explored whether it is possible to strengthen healthy-eater identity to increase goal-consistent choices on the same behavioral choice task. We designed and tested an identity-based intervention aimed at shaping peoples' identification with their goal, beginning at the goal setting phase. We reasoned that training people to set their goals as identities may impact how goal seekers face challenges in their daily lives in the same way as people who naturally view their goals as identities.

We trained people to adopt their goals as identities over a 3-week period and explored impacts on momentary food choices, goal progress, and success. We also explored three possible processes through which identifying with the goal leads to goal success: by increasing the ease of goal pursuit (Werner et al. 2016), by increasing effort towards goal pursuit (Werner et al. 2016), or by decreasing obstacles encountered throughout goal pursuit (Milyavskaya et al. 2015). We predicted that adopting a goal as an identity, compared to simply setting a goal, would impact peoples' experiences throughout goal pursuit, by (1) making goal pursuit feel easier, (2) increasing effort, and (3) decreasing obstacles, together leading to greater goal success.

Methods

In exchange for course credit, 196 undergraduates with healthy eating goals[4] participated in a 3-week study about New Year's resolutions. The study began in early January,

[4] Participant were eligible for study participation if they responded that they *agree* or *strongly agree* with the statement "I have goals to eat healthy" in a pre-screen measure at the beginning of the semester.

right as many people were naturally setting resolutions. The sample size was set a priori to attain a minimum of 50 participants per each of the three experimental conditions. This is the recommended minimum sample size needed per experimental condition (Simmons et al. 2013). We oversampled to account for expected attrition based on the following inclusion criteria: (1) Participants needed to participate in two lab sessions separated by a 3-week period, and (2) Participants needed to complete at least one online survey per week. A total of 31 participants did not participate in the second lab session. Six additional participants completed less than one survey per week. The final sample included 159 participants (M_{age} = 19.23 years, SD_{age} = 3.30, 119 females).

Before arriving at the lab, in a mass prescreening questionnaire, all participants responded to an online survey with two items to assess healthy eating goals, "To what extent are you currently trying to eat mostly healthy foods?" and "To what extent are you currently trying to "watch what you eat" and avoid eating unhealthy foods?" both on a scale from 0 *(not at all)* to 7 *(completely)*. The study then included three main parts.

Lab session one

In the lab, participants first completed a baseline measure of the binary food choice task used in the pilot study. Next, participants self-reported their healthy-eater identity using the nine-item Healthy-Eating Identity Scale (Strachan and Brawley 2009).[5] Next, participants self-reported their healthy eating goal success on the single item measure used in the pilot study, "When you try to eat healthy, how successful are you usually?" ranging from 0 (*not at all successful*) to 10 (*extremely successful*). Participants then responded to demographic questions including age and gender before moving on to the last section of Session 1, setting New Year's Resolutions. Participants were randomly assigned to one of three conditions:

1. *Identity condition (N = 53)* Participants first set a New Year's resolution related to healthy eating. After setting their resolution, participants read the following: "Research has shown that people are far more successful at enacting healthy behaviors when they adopt their healthy eating goals as part of their identity. For example, instead of thinking "I want to make healthy choices" you could think "I am a healthy person." How will you make healthy eating a part of who you are?" They then responded to the following two prompts: "Please describe how you will approach your New Year's resolution as an aspect of your self-concept" and "When you think of yourself as a healthy person, what does this mean to you?" Finally, they read, "Reminder: Over the next 3 weeks, remember that you will be most successful if you think about how eating healthy is part of who you are. Remember, think about being a healthy person as your new identity. New Year, New Me."
2. *Goal setting condition (N = 57)* Participants set a New Year's resolution related to healthy eating. After setting their resolution, participants read the following: "Research has shown that people are far more successful at enacting healthy behaviors when they remind themselves to stick with their goals. Over the next three weeks, you will probably encounter situations that make sticking with your resolution feel difficult. During those times, remember the goals you set for making healthy choices and the importance of eating healthy. How will you stay committed to your goals? They then responded to two prompts: "Please describe how will you work towards your New Year's resolution" and "When you think about your New Year's resolution, what do you plan to do?" Finally, they read: "Reminder: During difficult times, remember the goals you set for making healthy choices and the importance of eating healthy."
3. *Control condition (N = 49)* Participants reported what they think are the five most common New Year's Resolutions.

Participants were reminded that they would return for the second lab session in approximately three weeks. Participants also learned they would be e-mailed to complete three brief online check-ins per week, intended to encourage continued participation in the study and remind participants about their strategy.

Online reminder surveys

Over the course of three weeks, participants received a total of nine e-mail reminders about their continued participation in the study. E-mails were sent approximately every other day throughout all days of the week. Each e-mail included the link to a survey where participants logged on with a unique identifier. In each survey, participants reported on their current mood, how healthy their day had been overall, and their overall goal progress. The primary purpose of the surveys was to remind participants (in the two experimental conditions) to continue thinking about their New Year's

[5] As in the pilot study, participants also responded to two additional measures of goal-identity, the single-item visual Goal-Self Overlap scale (modeled from Aron et al. 1992) and a five-item Goal Self-Concordance measure (Sheldon and Elliot 1999; Koestner et al. 2002). For ease of interpretation, we again only discuss the Healthy-Eater Identity Scale, however using a composite scale does not change the results. In addition, for an implicit measure of healthy-eater identity, participants responded to an implicit healthy eating identity Implicit Association Task (IAT) (modeled from Young et al. 2013). Full analyses using each measure are presented in the supplemental materials.

Resolution. During each survey, participants responded to open-ended questions. Participants in the identity condition responded to the question, "Please describe how you are thinking about your health goal as a part of your self-concept in your daily life," while participants in the goal setting condition responded to the item, "Please describe how you are thinking about your New Year's resolution in your daily life." Participants in the control condition were simply invited to provide any comments.[6] Example responses from participants in the identity condition included, "I will think of myself as someone who eats healthy and works out instead of someone who wants to do these things, but never does," and "Thinking about myself as a healthy person means feeling like a healthy person, feeling healthy and comfortable with how I choose to live." Example responses from participants in the goal setting condition included, "I will be mindful about what I eat, when I eat it, and how much exercise I get," and "I plan to eat healthier on a consistent basis, with foods I actually enjoy."

Lab session two

The first half of lab session two was very similar to session one. After arriving at the lab, participants first completed the binary food choice task. Next, participants completed the Healthy-Eater Identity scale. Next, participants reflected on their experiences over the past three weeks and responded to the following items:

Ease

Participants responded to two items to assess the overall ease of their goal pursuit, including "Over the past three weeks, how easy and natural has it been for you to be healthy?" ranging from 1 (*not at all*) to 7 (*completely*) and "Over the past three weeks, how laborious and taxing has it felt to engage in healthy behaviors? (reverse coded), (modeled from Werner et al. 2016).

Effort

Participants responded to a single item measure to assess their overall effort towards their goal pursuit, "Over the past three weeks, I have tried really hard to eat healthy" from 1 (*not at all true*) to 7 (*extremely true*), (modeled from Werner et al. 2016).

Obstacles

Participants self-reported their experience of obstacles, "Over the past three weeks, I have encountered obstacles to eating healthy" from 1 (*not at all true*) to 7 (*extremely true*), (modeled from Milyavskaya et al. 2015).

Goal progress

Lastly, participants responded to four items to assess overall goal progress from 1 (*not at all*) to 7 (*completely*) (modeled from Milyavskaya et al. 2015), including "Over the past three weeks, I have made progress towards my goals to eat healthy," "I am on track with my goals to eat healthy," and "I feel like I have achieved my goal to eat healthy." Participants also responded to the item "Over the past three weeks, how healthy have you eaten overall?" from 1 (*not at all healthy*) to 7 (*extremely healthy*). These four items were averaged together for an overall measure of goal progress ($\alpha = 0.91$).

Before leaving the lab, participants chose one of several snacks.[7] Participants were thanked and debriefed.

[6] Although the primary purpose of the nightly surveys was to remind participants in both experimental conditions to continue thinking about their New Year's Resolution, the surveys also provided participant opportunities to report their experiences throughout the study. We did not have specific predictions about these daily measures. Analyses comparing daily mood, self-reported healthiness, and progress between conditions are reported in the supplemental analyses.

[7] To be consistent with the instructions we gave in the computerized food choice task, we allowed participants to choose a snack at the end of the study. An anonymous reviewer suggested we also explore whether the identity manipulation influenced snack choices. Since there were a variety of snacks participants could choose from, we ran exploratory analyses predicting the amount of calories in participants' snack choices. We conducted a one-way ANCOVA controlling for baseline healthy-eater identity. There were no significant differences in snack choice calories between the identity condition ($M = 129.74$ cal, $SE = 14.37$), the goal setting condition ($M = 135.87$ cal, $SE = 13.85$), or the control condition ($M = 142.63$ cal, $SE = 14.93$), $F(3,155) = 0.66$, $p = .56$. While we might have expected participants to make healthier choices after the identity manipulation, there may be several reasons why we did not observe a difference in this measure. Specifically, unlike in the computerized food choice task, we did not offer a binary choice of unambiguously healthy or unhealthy snacks, nor were participants aware of nutritional information when making their choice. Rather we offered a variety of snacks that may have been ambiguous in the extent to which they were personally perceived as "healthy" (e.g., a granola bar could be healthy or unhealthy depending on the other options or on personal beliefs). There also might be other extraneous factors that affected snack choice. For example, participants did not actually eat the food in the lab; several participants mentioned they would give the snack to their roommate/friend. We also did not assess participant hunger or time of day, both of which may have influenced momentary snack choice and introduced random variance into the measure. Thus, we do not believe snack choice in the lab is a strong test of participants' healthy eating behavior. Rather we believe Study 3, in which we assess behavior in participants' every day life, is a much stronger test of the relationship between identity and real eating behavior.

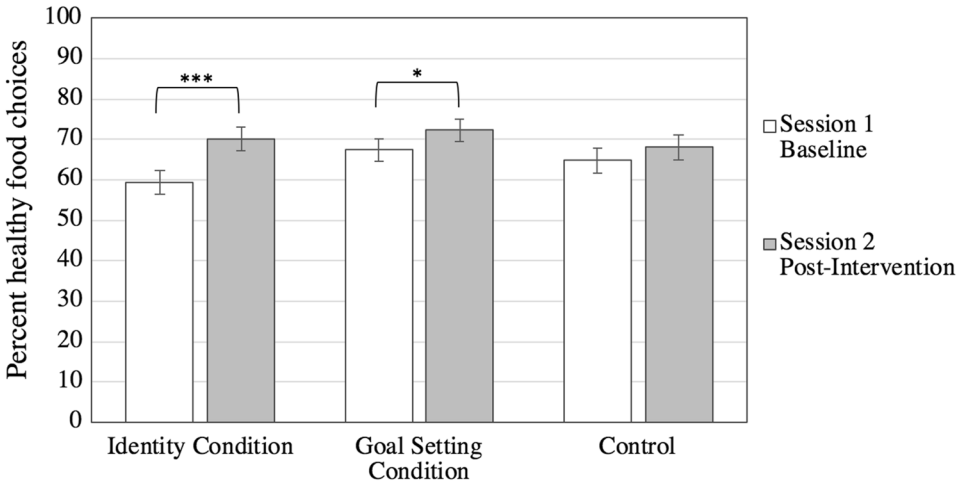

Fig. 1 Significant interaction between time and condition on participants' healthy food choices (Study 1). Error bars represent standard error. ***p < .001, **p < .01, *p < .05

Results

Baseline correlations at time 1

Baseline healthy-eater identity and the food choice task

Replicating the results of the pilot study, there was a significant positive correlation between healthy-eater identity and healthy food choices on the food choice task, $r(157) = 0.48$, $p < 0.001$. Participants with naturally greater healthy-eater identity selected more healthy foods. Healthy-eater identity remained positively correlated with healthy food choices even after controlling for strength of participants' health goals, $r(156) = 0.40$, $p < 0.001$.

Baseline healthy-eater identity and goal success

Replicating the results of the pilot study, there was a significant positive correlation between natural healthy-eater identity and goal success, $r(157) = 0.61$, $p < 0.001$. Participants with greater healthy-eater identity indicated more successful goal pursuit. In addition, healthy-eater identity remained positively correlated with goal success even after controlling for the strength of participants' healthy eating goals, $r(156) = 0.47$, $p < 0.001$.

Effects of the identity-based goal intervention on food choices

Next, we assessed the impacts of the identity-based intervention on the food choice task. Importantly, we were interested in how the manipulation might impact choices above and beyond the influence of peoples' existing healthy-eater identity. Therefore, in the following analyses from session two, we controlled for baseline healthy-eater identity collected during session one. To test whether the manipulation influenced food choices, we conducted a mixed model repeated measures ANCOVA with time (pre/post-intervention) as the within-subjects factor and intervention type (identity condition/goal setting condition/control) as the between-subjects factor (Fig. 1). There was a significant main effect of time, $F(1, 155) = 9.13$, $p = 0.003$, such that, on average, participants selected a greater number of healthy foods during Session 2 ($M = 70.36\%$, $SD = 21.33$) compared to Session 1 ($M = 64.0\%$, $SD = 21.23$). There was no significant main effect of condition, $F(2, 155) = 0.85$, $p = 0.440$. However, as predicted, there was a significant interaction between time and condition, $F(2,155) = 3.25$, $p = 0.040$, $\eta_p^2 = 0.041$. Participants in the identity condition increased their healthy food choices by 10.7% ($SD = 15.4$) from Session 1 to Session 2, $F(1, 52) = 25.69$, $p < 0.001$, $d = 0.33$, compared to participants in the goal setting condition who only increased their healthy food choices by 4.8% ($SD = 13.7$) from Session 1 to Session 2, $F(1, 56) = 7.11$, $p = 0.01$, $d = 0.11$. There was no significant increase in healthy food choices for participants in the control condition ($M = 3.3\%$, $SD = 16.2$), $p = 0.153$ (Fig. 1).

Effects of the identity-based goal intervention on psychological processes

Next, we were interested in how our manipulation might impact three possible experiences throughout goal pursuit: ease, effort, and experienced obstacles.

Ease

To determine the impact of condition on the reported ease of goal pursuit, we conducted a one-way ANCOVA. Adjusted means are presented. There was a significant main effect of condition on the extent to which people reported their goal pursuit had felt easy, $F(2,155) = 3.95$, $p = 0.021$, $\eta_p^2 = 0.048$. Participants in the identity condition reported their goal

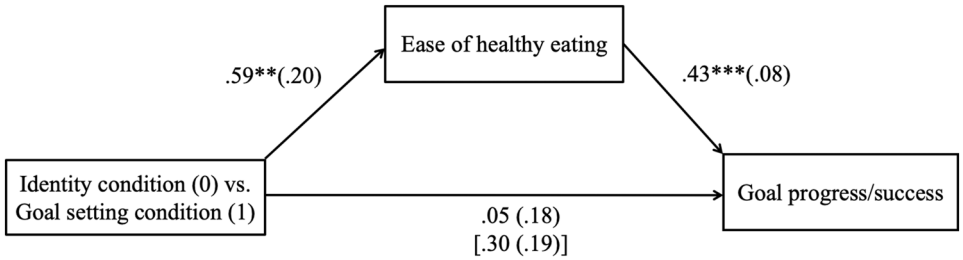

Fig. 2 Unstandardized regression coefficients (and standard errors) from the mediation model in which participants in the identity condition (coded as 0) compared to participants in the goal setting condition (coded as 1) experienced easier goal pursuit which led to greater goal progress (Study 1). Values in brackets represent the direct associations; values without brackets represent associations when all variables are included in the model. ***p < .001, **p < .01, *p < .05

pursuit felt significantly easier ($M = 4.71$, $SE = 0.15$) than both participants in the goal setting condition ($M = 4.12$, $SE = 0.14$), $p = 0.006$, and participants in the control condition ($M = 4.34$, $SE = 0.16$), $p = 0.045$. There was no significant difference between the goal setting and control condition on the extent to which people reported their goal pursuit had felt easy, $p = 0.29$.

Effort

To determine the impact of condition on the extent to which participants reported putting effort into their goal pursuit, we conducted a one-way ANCOVA. There were no significant differences between conditions on the extent to which participants reported putting effort into their goals, $F(2,155) = 0.14$, $p = 0.86$.

Obstacles

To determine the impact of condition on the extent to which participants reported experiencing obstacles to eating healthy, we conducted a one-way ANCOVA. There were no significant differences between conditions on the extent to which participants reported experiencing obstacles to eating healthy, $F(2,155) = 1.48$, $p = 0.23$.

Mediation analyses

Out of the three possible mediators we explored—ease, effort, and obstacles—we found that condition only significantly impacted the extent to which participants reported goal pursuit had felt easy over the 3-weeks. To test whether ease significantly mediated the relationship between condition and the extent to which participants felt they had made progress toward their goals, we used the PROCESS macro (Hayes 2012) to conduct a mediation analysis using a bootstrapped estimate of the indirect effect of condition on progress through ease. We compared our two primary experimental conditions—the identity condition (0) to the goal setting (1) condition—as there were no significant differences in ease or progress between the goal setting and control conditions and this comparison provides the strongest test of our effects. Using 10,000 resamples, the 95% confidence interval of the indirect effect was significant, [−0.45, −0.07]. Participants in the identity condition reported their goals felt significantly easier to pursue than participants in the goal setting condition, $b = -0.59$, $SE = 0.20$, $p = 0.005$, which led them to feel that they had made significantly more progress towards their goals, $b = 0.43$, $SE = 0.08$, $p < 0.001$ (Fig. 2).

Study 2

In Study 1, we found that participants who adopted identity-based healthy eating goals reported it was easier for them to make healthy choices in daily life, reported making greater progress toward their health goals, and increased their healthy food choices on a binary food choice task compared to participants who simply set healthy eating goals but did not frame those goals as identities. Study 1 provided initial evidence that teaching people to think of their goals as part of their identity can influence important goal outcomes. However, in Study 1, the primary dependent variables were all collected during lab sessions rather than captured as people navigated goal-related choices in everyday life. In Study 2, we sought to replicate with a higher-powered design to assess daily goal pursuits and actual eating behavior outside of the lab. Participants took pictures of their meals and reported their food choices for a 10-day period. All participants set a healthy-eating goal but some framed the goal as an identity while others did not. In an effort to replicate the mediation we found in Study 1, participants also reported on the ease of goal pursuit using several self-report measures. We predicted that participants who adopted their healthy eating goal as an identity compared to merely setting the goal would make healthier choices in everyday life and would experience goal pursuit as easier. Study 3 followed

a pre-registered and publicly available data collection and analysis plan. Pre-registration, coding examples, data, and materials are available at: https://osf.io/zq7gk/.

Method

In exchange for course credit, 277 undergraduates participated in a 10-day online study about daily life (M_{age} = 18.60, SD = 1.19, 194 females). The sample size was set a priori in order to attain 200 participants to detect the effect size from the interaction in Study 1, d = 0.41, with 80% power. We oversampled by 25% to account for expected data loss based on the following pre-registered inclusion criteria: Participants must: (1) complete surveys on Day #3 and Day #10 which included the experimental randomization and the final dependent measures, respectively (2) complete at least seven of the 10 daily surveys, including at least two from the baseline period and five from the post-manipulation period, and (3) upload at least two pictures per each completed survey. A total of 92 participants (33%) did not complete the final survey on Day #10. Sixteen additional participants (6%) completed less than seven total surveys. The final sample included 169 participants (M_{age} = 18.47, SD = 0.93, 115 females).

Upon enrolling in a study about the lives of college students, participants learned their participation would entail 10 days of nightly surveys in which they would upload photos of their meals and respond to survey questions about their daily lives. There was no mention of healthy eating or having goals to be healthy at the time of study enrollment. The initial enrollment survey also collected demographic questions including age and gender.

Days 1–3: Baseline phase

For the first three days, participants uploaded pictures of up to three meals they ate that day. Participants also wrote a description of their meals. Participants self-reported how healthy their day had been overall on a scale from 1 *(very unhealthy)* to 7 *(very healthy)*. The baseline subjective report of healthiness in food choices was comprised of the average ratings from the 3-day period.

Day 3: Pre-intervention baseline measures

After providing three days of food reports, participants reported the following items.

Healthy eating goals (baseline)

To assess baseline health goals, participants responded to the same two items from Study 1, "To what extent are you currently trying to eat mostly healthy foods?" and "To what extent are you currently trying to "watch what you eat" and avoid eating unhealthy foods?" both on a scale from 0 *(not at all)* to 7 *(completely),* (α = 0.90).

Healthy eating identity (baseline)

To assess their baseline healthy-eating identity, participants responded to the nine-item Healthy-Eating Identity Scale (Strachan and Brawley 2009), (α = 0.89).

Goal success (baseline)

To assess baseline healthy eating goal success, participants responded to three measures, each from 1 *(not at all)* to 7 *(completely)*, including "When I try to watch what I eat, I am usually successful," "I have good self-control when I want to eat healthy," and "It's usually easy for me to stick to a diet" (α = 0.81).

Day 3: Goal intervention

At the end of Day 3, all participants were given the goal to try to eat healthier for the next week. In addition, participants were randomly assigned to one of two conditions:

1. *Identity condition (N = 84)* Participants were instructed to frame their healthy eating goal as an identity. They read: "Before you get started with your goal, please think about how your goal can become an identity. For example, instead of thinking "I want to make healthy choices" you could think "I am a healthy person." Thinking about your goal as an identity should help you make healthy choices in your everyday life. How will you make healthy eating a part of who you are? Please describe how you will approach your goal as an aspect of your self-concept."
2. *Goal setting condition (N = 85)* Participants were instructed to think about their healthy eating goal. They read, "Before you get started with your goal please think about your goal and how you will work towards it. Feel free to describe any thoughts that you have about your goal below.

Days 4–10: Post-intervention phase

For seven additional days following the intervention, participants continued to participate in nightly surveys. As in the baseline phase, participants uploaded pictures of up to three meals they ate that day, wrote a description of their meals, reported how unhealthy or healthy their

day had been overall, and responded to an open ended question to provide thoughts about pursuing their goal. Similar to Study 1, participants in the identity condition were asked to "describe how you are thinking about your healthy eating goal as a part of your self-concept" while participants in the goal setting condition were invited to provide any thoughts about their healthy eating goal. The post-intervention subjective report of food choice healthiness was comprised of the average ratings from the seven-day period.

Day 10: Final measures

After providing the completed food reports for the duration of the study, participants reported the following items in the final Day 10 survey.

Ease (post-intervention)

Participants responded to the two items used in Study 1 (Werner et al. 2016) as well as six additional items to assess the overall ease of their goal pursuit, each on a scale from 1 (*not at all*) to 7 (*completely*). For example, items included "Over the past week, eating healthy has been easy" and "Over the past week, healthy choices have felt automatic." The eight items were averaged for an overall measure of easiness of goal pursuit ($\alpha = 0.82$).

Goal progress (post-intervention)

Participants responded to the four items used in Study 1 to assess their overall progress towards their healthy eating goal, each on a scale from 1 *(not at all)* to 7 *(completely)*. Items included, "Over the past week, I have made progress towards my goals to eat healthy," "I feel like I am on track with my goals to eat healthy," "I feel like I have achieved my goal to eat healthy," and "Over the past week, how healthy have you eaten overall?" The four items were averaged for an overall measure of goal progress ($\alpha = 0.91$).

Results

Data coding

Five undergraduate research assistants who were blind to the goals and experimental conditions of the study evaluated each uploaded photo for healthiness using a scale from 0 *(very unhealthy)* to 10 *(very healthy)*. Coders were instructed to consider general healthiness, nutritional value, and portion size when making their judgments. During training, coders saw example photos that might be rated as 0 *(very unhealthy)* and examples that might be rated as 10 *(very healthy)*. Full coding instructions are available on the OSF project page.

When making their evaluations, coders viewed both the photos and the participants' descriptions of the photos. In rare cases where only a photo or only a description was provided, coders relied on this singular information to determine the healthiness rating. Photos were presented in randomized order and each photo was rated by at least two coders. A one-way random effects intraclass correlation analysis (Shrout and Fleiss 1979) revealed adequate reliability between coders, ICC(1,3) = 0.75, 95% CI [0.70, 0.82], thus a rating for each photo was calculated by averaging across coders. The baseline measure of healthiness in food choices was comprised of the average healthiness ratings on photos uploaded for the 3-day baseline period. Similarly, the post-manipulation measure of healthiness of food choices was comprised of the average healthiness ratings on photos uploaded for the seven days following manipulation. Across conditions, participants uploaded an average of 21.83 photos over the 10-day period, just over two photos per day. There were no between-group differences in the number of photos uploaded, $t(167) = 0.97$, $p = 0.33$.

Baseline correlations at time 1

Baseline healthy-eater identity and food choices

Replicating the results of the pilot study and Study 1, there was a significant positive correlation between healthy-eater identity and healthiness of foods eaten, as measured by the photo ratings, $r(163) = 0.40$, $p < 0.001$, and by self-reported healthiness, $r(163) = 0.37$, $p < 0.001$. Participants with greater healthy-eater identity ate healthier foods during the baseline phase. In addition, healthy-eater identity remained positively correlated with healthiness of food even after controlling for the strength of participants' healthy eating goals, as measured by the photo ratings, $r(160) = 0.30$, $p < 0.001$, and self-reported healthiness, $r(160) = 0.29$, $p < 0.001$.

Baseline healthy-eater identity and goal success

Replicating the results of the pilot study and Study 1, there was a significant positive correlation between healthy-eater identity and goal success, $r(163) = 0.50$, $p < 0.001$. Participants with greater healthy-eater identity indicated more successful goal pursuit. In addition, healthy-eater identity remained positively correlated with goal success even after controlling for the strength of participants' healthy eating goals, $r(160) = 0.41$, $p < 0.001$.

Effects of condition on open-ended responses (manipulation check)

Although the primary purpose of the open-text responses in each nightly survey was to remind participants about their goal, based on a request from an anonymous reviewer, we conducted exploratory content coding of the free responses from each nightly survey. Four coders who were blind to study goals and condition coded the open responses to each nightly survey. Coders first identified themes that emerged. We found that compared to participants in the goal setting condition, participants in the identity condition used significantly more identity-based language, $t(216) = 4.18$, $p < 0.001$, significantly more emotion-based language (e.g., "I feel good when I eat healthy"), $t(216) = 4.04$, $p < 0.001$, and discussed significantly fewer obstacles and distractions to healthy eating, $t(216) = -6.86$, $p < 0.001$. There was no significant difference between conditions on the extent to which participants reported putting effort into their goal pursuit, $t(216) = 0.12$, $p = 0.91$.

Effects of the identity-based goal intervention

Next, we assessed the impacts of the identity intervention on healthy choices, ease of goal pursuit, and goal success after the 1-week intervention period. Despite randomly assigning participants to condition, there were baseline differences between groups on healthy-eater identity, such that at baseline, participants in the goal setting condition reported greater healthy-eater identity ($M = 4.36$, $SD = 1.13$) than participants in the identity condition ($M = 3.85$, $SD = 1.28$), $t(161) = -2.67$, $p = 0.008$. These baseline differences were also reflected in the healthiness of foods eaten, such that over the three day baseline period, participants in the goal setting condition reported eating healthier foods ($M = 4.02$, $SD = 1.02$) than participants in the identity-based goal condition ($M = 3.65$, $SD = 1.06$) $t(165) = -2.26$, $p = 0.024$. Because of these unexpected differences between conditions, in subsequent analyses, we controlled for baseline healthy-eater identity.

Condition and self-reported healthiness of food choices

To assess the impacts of the identity versus goal setting condition on healthy eating behavior, we conducted a mixed model repeated measures ANCOVA with time (pre/post-manipulation) as the within-subjects factor and intervention (identity/goal setting) as the between-subjects factor (Fig. 3a). There was a significant main effect of time, $F(1, 165) = 33.1$, $p < 0.001$, such that participants reported eating healthier after the intervention ($M = 4.27$, $SD = 0.91$) compared to the baseline period ($M = 3.84$, $SD = 1.05$), $t(166) = -5.64$, $p < 0.001$, $d = -0.47$. There was no significant main effect of condition, $F(1, 165) = 1.56$, $p = 0.21$. However, as predicted, there was a significant interaction between time and condition, $F(1,165) = 6.94$, $p = 0.009$, $\eta_p^2 = 0.04$. Participants in the identity condition reported significantly increasing their healthy eating from baseline ($M = 3.66$, $SD = 1.06$) to post-intervention ($M = 4.29$, $SD = 0.89$), $t(82) = -5.59$, $p < 0.001$, $d = 0.57$. This increase in healthy eating between the baseline and post-intervention periods was significantly greater than the increase between the baseline ($M = 4.02$, $SD = 1.03$) and post-intervention ($M = 4.26$, $SD = 0.93$) periods among participants in the goal setting condition, $t(83) = -2.36$), $p = 0.02$, $d = 0.24$, suggesting that the intervention increased healthy eating among participants in the identity condition more than the goal setting condition (Fig. 3a).

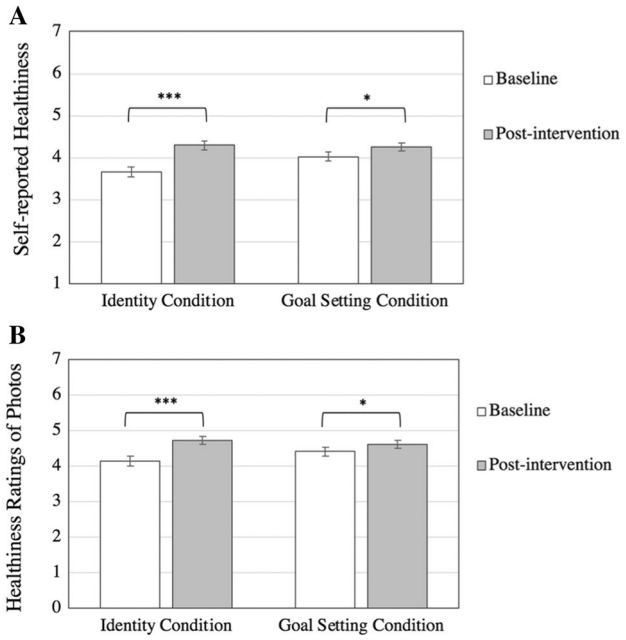

Fig. 3 Significant interaction between time and condition on Study 2 self-reported healthiness of participants' food choices (**a**) and objective ratings of healthiness (**b**). ***p < .001, **p < .01, *p < .05

Condition and healthiness of food choices as rated by independent evaluators

To assess the impacts of the identity versus goal setting condition on objective healthy eating behavior as measured by the photos uploaded, we conducted a mixed model repeated measures ANCOVA with time (pre/post-manipulation) as the within-subjects factor and intervention (identity/goal setting) as the between-subjects factor (Fig. 3b). As predicted, there was a significant main effect of time, $F(1, 163) = 20.97$, $p < 0.001$, $\eta_p^2 = 0.114$,

such that participants uploaded pictures after the intervention that were rated as healthier ($M = 4.67$, $SD = 0.08$) compared to the baseline period ($M = 4.27$, $SD = 0.10$), $t(164) = -4.52$, $p < 0.001$. There was no significant main effect of condition, $F(1, 163) = 0.29$, $p = 0.59$. Consistent with self-reported healthiness, there was a significant interaction between time and condition, $F(1,163) = 2.77$, $p = 0.034$, $\eta_p^2 = 0.03$. Participants in the identity condition significantly increased the healthiness of their eating from baseline ($M = 4.14$, $SD = 1.31$) to post-intervention ($M = 4.72$, $SD = 1.12$), $t(81) = -4.14$, $p < 0.001$, $d = 0.48$. This increase in healthy eating between the baseline and post-intervention periods was significantly greater than the increase between the baseline ($M = 4.41$, $SD = 1.13$) and post-intervention ($M = 4.62$, $SD = 0.92$) periods among participants in the goal setting condition, $t(82) = -2.08$), $p = 0.041$, $d = 0.23$, again suggesting that the intervention more effectively increased healthy eating among participants in the identity condition compared to the goal setting condition (Fig. 3b).

Condition and ease

Next, to determine the impact of condition on the reported ease of goal pursuit, we conducted a one-way ANCOVA. There was a significant main effect of condition on the extent to which people reported the pursuit of their health goal had felt easy, $F(1, 160) = 7.01$, $p = 0.009$, $\eta_p^2 = 0.042$. Participants in the identity condition reported that it felt easier to eat healthy ($M = 3.82$, $SE = 0.11$) than participants in the goal setting condition ($M = 3.42$, $SE = 0.11$), $p = 0.009$.

Mediation analyses

To test whether ease of healthy eating significantly mediated the relationship between condition and the extent to which participants reported making progress toward their goals, we used the PROCESS macro (Hayes 2012) to conduct a mediation analysis using a bootstrapped estimate of the indirect effect of condition on progress through ease. Comparing the identity condition (0) to the goal setting condition (1), using 10,000 resamples, the 95% confidence interval of the indirect effect was significant, [−0.50, −0.07]. Participants in the identity condition reported it felt easier to eat healthy than participants in the goal setting condition, $b = -0.40$, $SE = 0.15$, $p = 0.008$, which led to more progress towards their goals, $b = 0.68$, $SE = 0.08$, $p < 0.001$ (Fig. 4a).

Next, to test whether ease of healthy eating also mediated the relationship between condition and healthy eating behavior, we used the PROCESS macro (Hayes 2012) to

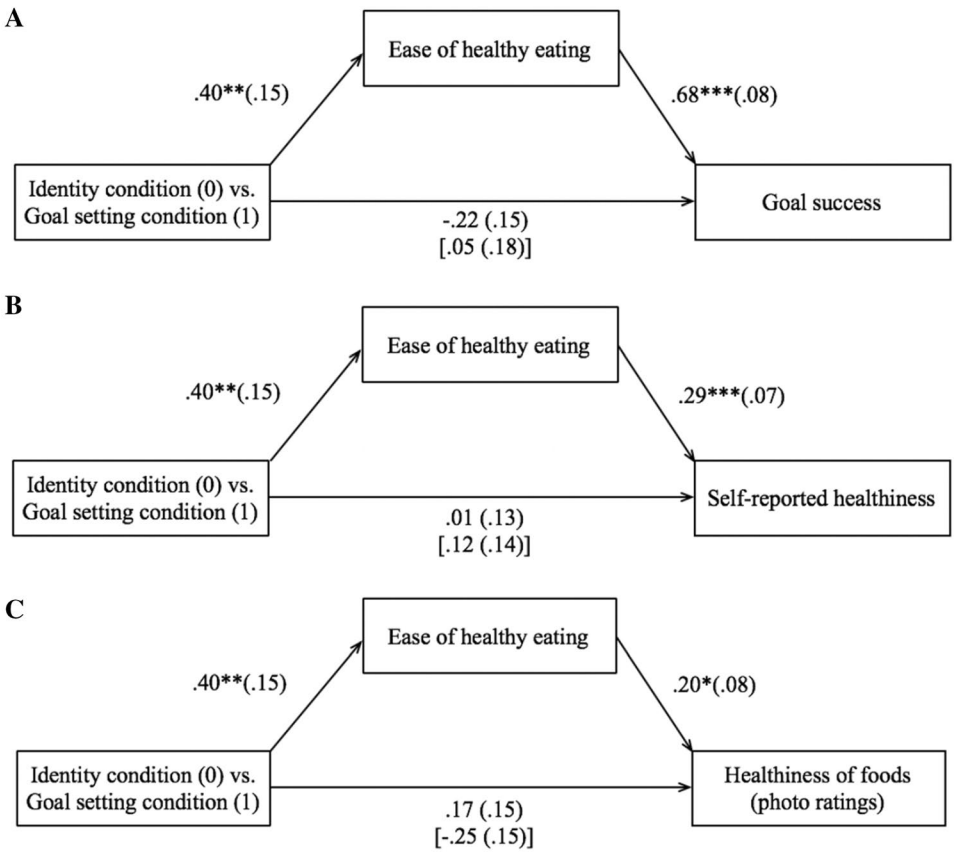

Fig. 4 Unstandardized regression coefficients (and standard errors) from the Study 2 mediation model in which participants in the identity condition (coded as 0) compared to participants in the goal setting condition (coded as 1) reported eating healthy felt significantly easier which led to greater goal success (**a**), reported healthier food choices (**b**), and healthier food choices as rated by independent evaluators (**c**). Values in brackets represent the direct associations; values without brackets represent associations when all variables are included in the model. ***p < .001, **p < .01, *p < .05

conduct a mediation analysis using a bootstrapped estimate of the indirect effect of condition on self-reported healthiness of food choices through ease. Comparing the identity condition (0) to the goal setting condition (1), using 10,000 resamples, the 95% confidence interval of the indirect effect was significant, [−0.23, −0.03]. Participants in the identity condition felt it was easier to eat healthy than participants in the goal setting condition, $b = -0.40$, $SE = 0.15$, $p = 0.008$, which led them to eat healthier foods, $b = 0.29$, $SE = 0.07$, $p < 0.001$ (Fig. 4b). Furthermore, using the photo ratings of healthiness of foods eaten, the 95% confidence interval of the indirect effect was also significant, [−0.18, −0.01]. Participants in the identity condition felt it was easier to eat healthy than participants in the goal setting condition, $b = -0.40$, $SE = 0.15$, $p = 0.008$, which led them to eat healthier foods, $b = 0.20$, $SE = 0.08$, $p = 0.011$ (Fig. 4c).

General discussion

Across three studies, we demonstrated that stronger identification with healthy eating goals is associated with making more goal-consistent choices. In a pilot study, people who had stronger healthy eating identities made healthier food choices. In Study 1, we employed an intervention aimed to help participants think of their goals as more a part of their identity. We found that participants who set identity-based New Year's resolutions made healthier binary food choices in the lab and felt they had made more progress towards their health goals across a 3-week period than both participants who focused on the importance of their goals and those who did not set any resolutions. We also found that when goals were framed as identities, they felt easier to pursue, which led people to feel more successful overall. In Study 2, we replicated these results outside of the lab, assessing real-world eating behavior in people's daily lives. Relative to participants who merely set a goal, participants who framed their healthy eating goals as identities felt that it was easier to eat healthy and, in turn, healthier meals.

Our findings are consistent with past work suggesting that, across a variety of domains, the extent to which people identify with their goals is positively associated with goal-directed behavior (e.g., Sheldon and Elliott 1999; Verplanken and Holland 2002; Koestner et al. 2015). Indeed, we found support for this relationship even after controlling for the effects that goal strength has on influencing goal-directed behavior, suggesting that framing goals as identities can encourage goal-consistent actions beyond simply increasing motivation alone. Furthermore, a primary contribution of this work is that it is the first to test whether people can be taught to strengthen their identification with a goal as an intervention strategy for successful goal pursuit. Teaching people to do this at the goal setting phase of goal pursuit may have downstream consequences that help combat the challenges people face along the path to goal achievement.

It is important to note that the post-intervention differences in healthy food ratings were relatively small. One reason may be our sample. Given that these were college students, it is possible that lifestyle or budgetary limitations constrained the healthiness of participants' food choices so that healthiness ratings were unlikely to go much beyond the midpoint of the scale. Though the range of healthy ratings did span the full ten points of the scale, the distribution was a fairly normal distribution, and the standard deviations were nearly one full scale-point in both conditions, sampling from a population who has greater access to both healthy and unhealthy foods may increase the size of the effects. In addition, the relatively small difference observed between groups may also be due to the fact that we used a stringent test of our hypothesis; the other experimental condition also set healthy eating goals for the week, set intentions for how to eat healthy, and had accountability to the research team. As a result, they also ate healthier relative to baseline. Future research could see if a more representative sample as well as different types of control conditions result in larger effect sizes.

Easier goal pursuit

Of the three possible mechanisms we tested in Study 1—ease, effort, and decreased obstacles—we found that only perceived ease emerged as a mediator of the relationship between identity and goal-consistent choices. This effect replicated in Study 2. This is consistent with past work that found self-concordant goals led to more goal progress because they felt subjectively easier to pursue not because people invested more effort in them (Werner et al. 2016). Moreover, while some past work using experience sampling methodology has linked "want-to" motivation to the experience of encountering fewer obstacles during goal pursuit (Milyavskaya et al. 2015), other work has found that "want-to" motivation leads to the perception of fewer and less disruptive obstacles only for future (not past) obstacles (Cummings et al. 2017). Future work can do more to disentangle the relative effects of ease, effort, and perceived obstacles across different measurement methods.

In addition, why exactly goal pursuit feels easier is still an open question. One of the most frequent challenges people encounter during goal pursuit is the temptation to make goal-*in*consistent choices. Indeed, one study found that people spend about a quarter of the time they are awake feeling pulled to do something that would undermine a current goal they hold (Hofmann et al. 2012). The notion that a goal at hand is a central aspect of one's identity—a part of who a person *is*—may change the meaning of a self-control

conflict. For people who adopt goals as identities, encountering a temptation does not simply involve a choice between a goal and a temptation but involves a decision to either act in an *identity*-consistent or –inconsistent way. People typically strive to behave in ways that align with their values, goals, and identities, and experience discomfort when their behavior contradicts their deeply held values (Festinger 1962; Baumeister 2010). By framing goals as identities, people may find it easier to resist engaging in identity-incongruent actions.

Moreover, just how easy goal pursuit feels is still left unanswered. Strategies that lead to more automatic decision-making can be exceptionally beneficial during goal pursuit, freeing up cognitive resources for other tasks (see Fujita 2011 for discussion). Although our self-report measures provide evidence linking goal-identification with perceived ease, they do not provide direct evidence of the automaticity of the decision-making process. Future research could explore the extent to which framing goals as identities can lead to automaticity in self-control using more implicit measures of decision automaticity (e.g., reaction time or mouse tracking) to determine the extent to which goal identification leads to reflexive goal-consistent choices.

Finally, perceived ease is likely not the only mechanism at work. Future work could explore other possible mechanisms through which adopting a goal as an identity leads to goal-consistent decisions. For example, it is possible that identifying with a goal increases the value of the goal-consistent choices (Berkman et al. 2017), increases the importance people place on the goal itself (Fishbach et al. 2003), makes goal-consistent choices feel more like habits (Galla and Duckworth 2015; Verplanken and Sui 2019), or increases feelings of cognitive dissonance that would arise from making goal-inconsistent choices (Festinger 1962).

Depth of engagement

Across studies, we found that relative to merely setting a goal, participants who framed their healthy eating goals as identities felt that it was easier to eat healthy and, in turn, ate healthier meals. One possibility is that the identity intervention could have led to greater participant engagement, perhaps due to the novel element of identity framing compared to a more a familiar goal setting experience. To explore the possibility that participants engaged more with the identity manipulation than with the goal setting manipulation, we compared the length of participants' responses to the open-ended prompts in both Studies 1 and 2. There were no significant differences in initial response length between the goal identification and goal setting conditions in Study 1: $t(104) = 1.55$. $p = 0.124$ nor Study 2: $t(158) = 1.37$. $p = 0.18$. Furthermore, we sent nightly surveys to *all* participants with the express purpose of keeping them engaged in involved in the study. In analyzing the open response data from nightly surveys, there continued to be no significant differences in length of responses between conditions through the end of the study, $t(537) = 0.32$. $p = 0.748$. Thus, our data suggests it is unlikely that the results can be explained by differences in engagement. In addition, these analyses are consistent with the mediation model wherein identity framing leads to healthy choices through ease rather than effort.

Identity-based goal pursuit

The present work is consistent with broader motivational theories of goal pursuit that suggest identity provides a motivational strategy for goal-directed action (e.g., Oyserman 2007, Oyserman et al. 2012; Burke and Harrod 2005; Stets and Burke 2003; Ryan and Deci 2003; Deci and Ryan 1985; Koestner 2008). For example, Self-Determination Theory suggests that autonomous motivation—relative to controlled motivation—is associated with better goal-related outcomes, including greater persistence, more positive affect, enhanced performance, and greater psychological well-being (Deci and Ryan 2008; Deci and Ryan 2011; Ryan and Deci 2017; Deci and Ryan 2012). The present work is consistent with SDT in suggesting that the *amount* of motivation is far less important than the *type* of motivation for predicting goal achievement. SDT further distinguishes between different types of autonomous motivation, including intrinsic, identified, and integrated forms of motivation. According to SDT, *identification* with an action involves identifying with the value of an activity and accepting responsibility for self-regulation, ultimately engaging in the behavior with a greater sense of autonomy. *Integration*, on the other hand, involves successfully integrating an identification with other aspects of the self, assimilating the behavior with a sense of who one is. The present work was not designed to distinguish between these different types of goal internalizations as strategies for goal pursuit, but given that participants learned the identity strategy from an external source and incorporated it into their daily life for only a relatively short period of time, it is possible they may have only identified with the goal rather than truly integrated it. Future research could further explore the intricacies of each specific type of motivation to see how they impact processes related to sustained goal pursuit.

The present work is also consistent with identity-based motivation theory which suggests that people prefer to act in identity-congruent ways and that identities provide a lens through which individuals can interpret and make meaning from their own actions (Oyserman 2007, Oyserman et al. 2012; Oyserman et al. 2017). Indeed, our findings demonstrate that an identity-frame is effective for goal-congruent action, yet we extend the theory by also suggesting *how* identity-framing leads individuals to make meaning out of behavior. Specifically, we demonstrate that an identity frame

in this context can lead goal-consistent choices to feel easier and more natural.

Furthermore, in addition to increasing goal-directed action, work exploring pursuit of the 'true self' suggests that adopting goals as identities can have broader psychological benefits. For example, while living in concordance with one's true self will naturally elicit behavior that aligns with one's own sense of identity (e.g., Koole et al. 2001; Paulhus 1993), it will also elicit behavior that feels autonomous, personally meaningful, and self-determined (e.g., Deci 1980; Deci and Ryan 1985). In conjunction with past research, this suggests that if individuals believe their goals are integrated with a true sense of self, goal-directed action will increase, yield positive experiences, and contribute to a sense of fulfillment and meaning in life (e.g., Schlegel and Hicks 2011; Schlegel et al. 2009; Koole et al. 2001; Strohminger et al. 2017; Sui and Humphreys 2015). Moreover, when habits can be linked to a "true self" identity, this may be particularly effective in eliciting goal-consistent action over time (Verplanken and Sui 2019). As living in accord with one's true self yields happiness (Schlegel and Hicks 2011), goals that are aligned with one's own sense of self should yield both goal-consistent action and life satisfaction. Future research should explore the intricacies of whether goals that are adopted as identities are also integrated with the true self, as well as how this integration impacts downstream outcomes for long term well-being during goal pursuit.

Additional avenues for future research

There are many aspects of goal pursuit, and people face unique self-regulatory challenges during each. For example, people must set goals, maintain effective striving towards goals, shield their goals from temptations, and disengage from goals that are unattainable. Indeed, goal pursuit is complex and multifaceted. While this research suggests framing a goal as an identity at the goal setting phase of goal pursuit may influence people's goal-related choices, future research could assess the role of identity during different self-regulatory challenges. For example, identifying with goals may impact peoples' implicit motives, their ability to juggle multiple goals, or their grit or perseverance in the face of obstacles. To better understand the specific self-regulatory benefits of viewing goals as identities, future research can continue to explore the role of goal identification within specific facets of goal pursuit.

In addition, a future line of work could explore the downstream consequences of self-control *failure* once a person identifies with a goal. Identity Theory (Burke 1980) would suggest that people who strongly endorse their identity—for example, as a healthy eater—would especially recognize when there is a discrepancy between their identity and their behavior and would experience negative affect from this incongruence. Furthermore, they should also strive for their future behavior to re-align with their goal identity (Burke 1980; Strachan and Brawley 2009). This also aligns with research on self-affirmation (e.g., Steele 1988; Aronson, Cohen and Nail 1999; Cohen and Sherman 2014; see Sherman and Cohen 2006 for review) which suggests that when people do not act in line with their identities, they may try to recover and re-affirm their identities by enacting identity-consistent behavior. For example, a dieter who is pressured to have cake at a party may then eat healthy the next day to recover confidence in his/her identity as a dieter. Once a goal is viewed as a central identity, will goal-inconsistent action be perceived as more threatening? Future research could explore the patterns of goal-consistent and inconsistent behavior observed following a self-control failure. Goal identification may promote quicker goal-reengagement after self-control failure.

Conclusion

> I realize that I don't feel like myself when I don't eat healthy or when I am inactive. I don't think about eating healthy as a means to look a certain way, I think about eating healthy as a means to feel more like myself.

This participant from the identity condition in Study 1 demonstrates how identifying with goals can motivate goal-consistent action by encouraging identity-congruent behavior. Together, this research suggests that framing goals as identities is one strategy that can help people more easily make goal-consistent choices in daily life in support of long-term goal success.

Compliance with ethical standards

Conflicts of interest All Author declares that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standard.

Informed consent Informed consent was obtained from all individual participants included in the study.

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