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Mindsets of Health and Healthy Eating Intentions

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Abstract

Across two studies, we examined the relation between mindsets of health, expectancy-value and eating intentions. We also explored if relations are stronger for African Americans compared to White Americans. In Study 1, we conducted a correlational study (N= 158) to examine initial relations among constructs. In Study 2, we employed an experimental design (N = 205), and randomly assigned participants to either a growth mindset or a fixed mindset of health condition. In both studies, we measured participants' mindsets of health, expectancy-value beliefs, healthy eating intentions, past eating habits and demographics.

In Study 1, stronger growth mindsets of health predicted healthier eating intentions. Expectancy-value beliefs, namely, the extent to which individuals value healthy eating habits and expect to be able to manage their eating, mediated this relation. In Study 2, we successfully manipulated mindsets of health and individuals in the growth mindset condition reported healthier eating intentions, compared to those in the fixed mindset condition. Expectancy-value beliefs again mediated this link. Race only moderated the relation in Study 1, such that effects of growth mindsets on outcomes (i.e., eating intentions and expectancy-value beliefs) are stronger for African Americans compared to White Americans.

Study 1 provided initial evidence of a relationship between stronger growth mindsets of health and healthier beliefs and intentions. Study 2 offered experimental evidence. We discuss theoretical and practical implications.

Keywords: eating intentions; expectancy-value beliefs; growth mindsets; healthy eating; obesity; implicit theories

Mindsets of Health and Healthy Eating Intentions

In 2018, the Center for Disease Control and Prevention (CDC) reported 39.8% of adults in the United States met the criteria to be classified as obese, (i.e., their Body Mass Index is at or above 25). This high obesity rate is a cause for concern because obesity related illnesses, including Type II diabetes, high cholesterol, strokes, and heart attacks (Fabricatore & Walden, 2006) are amongst the leading causes of mortality in the US (WHO, 2016). Furthermore, with an approximate annual medical care cost of $147 billion, these illnesses have a large personal and societal economic impact (Mastellos, Gunn, Felix, Car & Majeed, 2014).

High obesity rates are attributed, amongst other causes, to poor diet and eating habits (NIH, 2012; Wright & Aronne, 2012). Thus, a possible way to reduce current obesity rates is via a change in eating habits. Previous research highlights psychological, situational, environmental, cultural, and economic factors that influence individuals' eating habits (e.g., Pliner & Mann, 2004; Popkin, Duffey & Gordon-Larsen, 2005; Torres & Nowson, 2007). In the current research, we examine psychological aspects, with a focus on how individuals' beliefs about the malleable (growth mindset) versus stable nature (fixed mindset) of their health inform their intentions to engage in healthy eating behaviors. Further, we explore whether these mindsets matter more for some groups than others.

Mindsets

Mindsets, originally referred to as implicit theories, are lay beliefs regarding the stability or malleability of a trait or attribute (Dweck & Leggett, 1988; Molden & Dweck, 2006). Broadly, individuals' mindsets fall into one of two categories: individuals who hold a fixed mindset believe that attributes are not changeable, whereas those with a growth mindset believe that attributes are changeable (Dweck, 2000). It is important to note that mindsets are domain specific and thus one can have a growth mindset in one domain (e.g., health) but a fixed mindset in

another (e.g., musical ability). Across domains or attributes, individuals' mindsets inform self-regulatory strategies. For example, individuals with fixed mindsets set performance focused goals (e.g., trying to outdo their peers) and when facing setbacks, they tend to feel more negative emotions and respond with helplessness. In contrast, individuals with a growth mindset set goals focused on learning, engage in mastery-oriented strategies and remain optimistic about the potential for future success even in the wake of setbacks (Burnette et al., 2013).

Mindsets, although extensively applied within educational contexts (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Degol, Wang, Zhang & Allerton, 2018; Paunesku et al., 2015) are also relevant in health domains including weight (e.g., Burnette, 2010), fitness (e.g., Orvidas, Burnette & Russell, 2018), tobacco use and cessation (e.g., Thai, Coa & Kaufman, 2016), and health behaviors (Bunda & Busseri, 2017). For example, individuals with growth, relative to fixed mindsets of weight, reported healthier eating and exercise behaviors (Parent & Alquist, 2015) and consumed fewer calories from unhealthy foods (Ehrlinger, Burnette, Park, Harrold, & Orvidas, 2017). Additionally, dieters who participated in a growth mindset of weight intervention, who faced severe setbacks, reported less weight gain at the end of the 12- week study, compared to those in an attention-matched and a no treatment control condition (Burnette & Finkel, 2012). Furthermore, in a fitness context, individuals with a growth, relative to a fixed mindset of fitness, reported higher past exercise frequency and future exercise intentions (Orvidas et al., 2018). Also, within the context of changing unhealthy smoking habits, individuals with a growth, relative to a fixed mindset of smoking, reported being former smokers rather than current smokers (Thai et al., 2016). Finally, within the context of general health, individuals with a growth mindset, compared to a fixed mindset of health, reported stronger intentions to engage in positive health behaviors (Bunda & Busseri, 2017).

We extend this work on mindsets and health in important ways. First, we examine the psychological process driving this relationship by focusing on expectancy-value beliefs. Additionally, we explore for whom mindsets matter most. Understanding how mindsets work to inform health behavior and under what conditions effects are strongest can help inform future intervention work.

Expectancy-Value

We propose that the extent to which an individual expects a successful outcome and thinks it is important (expectancy-value), is one underlying mechanism linking growth mindsets to healthy behaviors. Expectancy is how well the individual thinks or believes they will perform on the task (Eccles & Wigfield, 2002). Value is based on evaluations regarding the importance (attainment value), enjoyment (intrinsic value) and/or usefulness (utility value) of the task to the individual (Eccles, 2009). We suggest that mindsets of health come earlier in the psychological chain and inform expectancy-value beliefs. For instance, in a study on the role of mindsets in overcoming dieting related setbacks, individuals' expectations regarding dieting success mediated the relationship between weight mindsets and regulatory efforts (Burnette, 2010). Similarly, findings from research on the role of mindsets of fitness on exercise behaviors indicated that the extent to which the individual values fitness as a part of their identity influenced both their past exercise habits and future exercise intentions (Orvidas et al., 2018). In the current research, we merge the mindsets perspective with achievement motivation theory and suggest that mindsets relate to eating intentions, at least in part, because they inform individuals' expectancy-value beliefs.

Expectancy-value beliefs are core concepts in achievement motivation theory for understanding an individual's likelihood of engaging, persisting, and succeeding on a particular

goal or task and has important implications for engaging in healthy behaviors (Wigfield & Eccless, 2000). Overall, an individual is more motivated to undertake a task based on the extent to which they see themselves as efficacious and competent in ways relevant to the task, and evaluate it as having intrinsic, utility and/or attainment value (Wigfield & Eccless 2000). For example, research on the role of expectancy theory on healthy eating behaviors indicates that individuals who value a nutritious diet, understand the impact of nutrition on health, and expect healthy eating to positively impact their health engaged in healthier eating behavior (Blotnicky, Mann, & Joy, 2015). Similarly, the extent to which individuals perceived themselves as having the ability to be active and eat healthy influenced their engagement in exercise and healthy eating (Sabiston & Crocker, 2008). Finally, in a study on implicit theories of fitness, participants' self-efficacy and self-value regarding fitness predicted past exercise habits and future exercise intentions (Orvidas et al., 2018).

Moderators

In addition to examining the questions of do mindsets matter for healthy eating and why do they matter, we are also interested in *for whom* they matter most. Considerable research has shown that mindsets matter the most for those who are most at risk in the relevant domain. For example, in a large-scale mindset intervention aimed at increasing academic achievement, the intervention had the strongest effects for students at the greatest risk of dropping out of school (Paunesku et al., 2015). Furthermore, the meta-analysis of implicit theories and self-regulation (Burnette et al., 2013) indicates that growth mindsets are particularly impactful in instances of ego threat, defined as threats to self-identity that can arise from experiences such as negative feedback, setbacks, or stereotype threat. However, other work found that mindset interventions only had positive achievement outcomes for high achieving but not underperforming students

(Chao, Visaria, Mukhopadhyay, & Dehejia, 2017). Additionally, in a recent meta-analysis of growth mindset interventions in academics, the authors report a weak relationship between mindset interventions and academic achievement. Moreover, their findings show mixed support for the idea that growth mindsets can buffer those at risk from declines in academic performance; for example, their analyses revealed that mindset interventions were effective for low income students and students at risk of failing but not for students facing situational challenges (Sisk, Burgoyne, Sun, Butler, & McNamara, 2018).

In the current study, we are interested in whether growth mindsets can help groups at risk for less healthy eating. We specifically focus on African Americans as a group at risk based on previous research findings that generally African Americans report less healthy eating habits compared to white Americans (e.g. Cockerham, Bauldry, Hamby, Shikany & Bae, 2017; Delva, O'Malley, & Johnston, 2006; Malpede et al., 2013). African Americans have an obesity rate of 46.8%, compared to 37.9% in non-Hispanic Whites (CDC, 2018), indicating that, to the extent that poor eating habits are a contributing factor in developing obesity, it's important to address this risk factor in the groups for whom it exists. We explore if effects of growth mindsets on expectancy-value and eating intentions are stronger for African Americans relative to white Americans.

In summary, we address three main questions in the current research. First, do mindsets of health matter for intentions to engage in healthy behaviors? Second, why do they matter? Third, for whom do they matter? We hypothesize that growth mindsets will predict healthier eating intentions and this relation will be mediated by expectancy-value. And, the link between mindsets and outcomes will be stronger for subgroups (i.e., African Americans) who generally

report less healthy eating in the past. We test these hypotheses across two studies. The first is a correlational study and the second an experimental study.

Study 1

Methods and Materials

We recruited 200 participants from Amazon's Mechanical Turk (MTurk) to participate in the study. We paid the participants $.50 to complete an online Qualtrics survey which contained measures of mindsets of health, expectancy-value beliefs, healthy eating intentions and past eating behaviors. Because we were specifically interested in the possible moderation effects of race and in African Americans as an at-risk population, we used MTurk panels to recruit equal numbers of African American and white participants. The institutional review board approved all procedures. We excluded some participants for completing the study in an unreasonably long or short amount of time, $n= 34$, and we also excluded participants who failed attention checks, $n= 8$, (e.g. selected the wrong option on the item: "For this item select option 4/ Neutral"). This left a final sample of $N= 158$ participants, 61% female aged 20 to 70 years ($M= 36.77$, $SD= 11.83$). The final sample of participants contained n= 79 participants who identified as African American, n= 74 who identified as white and n= 5 who did not provide information on race/ethnicity.

Measures

Mindsets of Health. We adapted the Implicit Theories of Weight scale (Burnette, 2010) by replacing the word "weight" with the word "health." Our 4-item scale assessed mindsets of health (e.g., "No matter who you are, you can significantly change your health"). We recoded such that higher scores on this measure indicate a stronger growth mindset of health [1= "Strongly disagree" to 7= "Strongly agree"; α= .79].

Expectancy-Value. We created a 14-item measure assessing efficacy expectations and value beliefs based on Wigfield and Eccles' (2008) expectancy-value theory of achievement motivation. The scale measures expectancy (e.g., "I'm sure I can learn new information related to healthy eating"), utility value (e.g., "Learning how to make healthy food choices is important to me"), intrinsic value (e.g., "I like eating healthy foods") and attainment value (e.g., "Making healthy food choices makes me feel good about myself"). Higher scores on the measure indicate stronger expectancy-value beliefs [1= "Strongly disagree" to 7= "Strongly agree"; α= .91].

Healthy Eating Intentions Scale. To assess individuals' future eating intentions, we adapted the 7-item Dieting Intentions Scale (Cruwys, Platow, Reiger, & Bryne, 2013). Specifically, we replaced the phrases "go on a diet" with "change my eating behaviors" and "reduce my calorie intake" with "consume more healthy foods." We coded such that higher scores represent healthier eating intentions [e.g. 1= "Harmful" to 7= "Beneficial"; α= .86].

Past Eating Habits. We created a 5-item measure to examine past eating habits. Participants responded to 5 items (e.g., "How often do you monitor the portions of food you're consuming?"). Higher scores indicated healthier past eating habits [1= "Never" to 7= "Always" ; α=.92].

Demographics. We asked participants to report their age, gender, and race/ethnicity.

We randomized all measures within the survey to avoid order effects.

Results

We used Hayes' (2013) PROCESS macro, an add-on for SPSS, to test all hypotheses. The PROCESS macro is an SPSS observed variable analysis tool used to analyze statistical models involving mediation, moderation, and their combination, i.e., conditional process modeling. In this analysis, we used Model 4 (Figure 1) to assess if there is an indirect effect of

mindsets on eating intentions via expectancy-value beliefs. We used Model 1 to examine

moderation. See Table 1 for means, standard deviations, alpha scores and correlations between

the scales.

Mediation

First, stronger growth mindsets of health predicted healthier eating intentions, b= .36,

$t(156)$= 3.78, p<.001, 95% CI [0.17, 0.54]. Stronger growth mindsets of health also predicted

expectancy-value beliefs, b= .39, $t(156)$= 6.85, p< .001, 95% CI [0.28, 0.51] and expectancy-

value significantly predicted healthy eating intentions, b= .66, $t(156)$= 5.48, p<.001, 95% CI

[0.42, 0.90]. There is a significant indirect effect, b= .26, 95% CI [0.14, 0.41]. With the inclusion

of expectancy-value beliefs in the model, there is no direct effect of mindsets of health on

healthy eating intentions, b= .10, $t(156)$= .99, p= .32, 95% CI [-0.10, 0.29].

Moderation

To explore whether mindsets matter more for African Americans than White Americans,

we examined whether race moderated the relationship between mindsets of health and outcomes.

First, we were interested in whether race moderated the relationship between mindsets of health

and healthy eating intentions. Before conducting this analysis, we conducted an independent

samples t-test see whether there were differences in past healthy eating habits. Results show

significant differences in past eating habits based on race, $t(151)$= 2.77, p = .006, whereby

African Americans reported less healthy past eating habits (M= 4.01, SD= 1.08) compared to

White Americans (M= 4.52, SD= 1.18). We used Hayes' Process Model 1 (Figure 2) for the

moderation analysis. Results indicate that race moderated the relationship between growth

mindsets of health and healthy eating intentions, b= .43, $t(153)$ = 2.22, p= .03, 95% CI [0.05,

0.81], such that effects of growth mindsets on eating intentions are significantly stronger for

African Americans b= .57, 95% CI [0.14, 0.41], compared to white participants b= .15, 95% CI [0.13, 0.42].

Next, we examined whether race moderated the relationship between mindsets of health and expectancy-value beliefs. While the effects of growth mindsets on expectancy-value beliefs are significant for both groups, they are stronger for African Americans, b= .55, 95% CI [0.39, 0.71] than for white participants b= .23, 95% CI [0.07, 0.40].

Discussion

Study 1 provided initial evidence that stronger growth mindsets of health predict individuals' intentions to engage in healthier eating habits, and that this relationship is mediated by expectancy-value beliefs regarding healthy eating. Further, this study indicates that growth mindsets of health might matter more for individuals at greater risk for less healthy eating habits. In the next study, we used an experimental design both in an attempt to replicate these findings and to examine the feasibility of manipulating mindsets of health.

Study 2

Methods and Materials

We preregistered the hypotheses, procedures and analyses for this study on the Open Science Framework (LINK BLINDED FOR PEER REVIEW) prior to data collection. We recruited 224 participants on Amazon's Mechanical Turk to participate in the study. They were paid $.75. At the beginning of the survey, we used Qualtrics to randomly assign the participants to read either a growth mindset or a fixed mindset article. We formatted these articles to look like popular psychological news articles and they contained information that either portrayed one's health as fixed and unchangeable, or as changeable through effort and hard work. Similar articles

have been previously used and shown to be effective at temporarily manipulating the mindsets of

research participants (e.g., Burnette, 2010; Chiu, Hong, & Dweck, 1997).

Following our pre-registration plan, before analysis, we excluded participants who

completed the study in an unreasonable amount of time, *n*= 5, failed embedded attention checks,

n= 14, or provided irrelevant information for the article summary and evidence (e.g., writing

"learning" for the article summary and "none" as the evidence provided in the article). This left a

final sample of 205 participants, 51% Black, 60% female aged 18 to 76 years (*M*= 37.16, *SD*=

12.21).

Measures

After we manipulated mindsets of health, participants answered questions regarding the

comprehensibility and clarity of the article and then completed the same measures as Study 1:

mindsets of health, expectancy-value beliefs, healthy eating intentions and past eating behaviors.

Analyses indicated that measures are reliable (see Table 2 for alpha values).

Results

We conducted the following analyses in accordance with our pre-registered plan. See

Table 2 for means, standard deviations, alphas, and bi-variate correlations of all study variables.

Manipulation Check (H1):

An independent samples t-test confirmed that the mindset manipulation was successful.

Individuals in the growth mindset condition (*M*=6.10, SD= .85) reported significantly stronger

growth mindsets of health compared to those in fixed mindset condition (*M*=5.21, *SD*= 1.34),

$t(203) = -5.64$, $p < .001$, $\eta^2 = .14$. While those in the fixed mindset condition reported lower

average scores than those in the growth mindset condition, we note that the score is relatively

high on a 1-7 scale. As such, we propose that individuals in this group have a "weaker growth

mindset", rather than a true fixed mindset, of health. Consequently, in analyses using these self-reports, we discuss findings in terms of strong versus weak growth mindsets of health.

Mediation (H2-H5)

We used the same Hayes' (2013) PROCESS Model 4 (Figure 1) used for Study 1. Participants in the growth mindset condition, relative to the fixed mindset condition reported healthier eating intentions b = .38, $t(203) = 2.84$, $p= .005$; 95% CI [0.12, 0.64] and stronger expectancy-value beliefs of health, b = .26, $t(203) = 2.11$, $p = .04$; 95% CI [0.02, 0.50]. Additionally, individuals reporting stronger expectancy-value beliefs also reported healthier eating intentions, b = .75, $t(202) = 13.51$, $p < .001$; 95% CI [0.64, 0.86]. Finally, there is an indirect effect of the mindset condition on healthy eating intentions via expectancy-value beliefs b=.19, 95% CI [.03, .39]. There was no significant direct effect of growth mindsets on healthy eating intentions when expectancy-value beliefs are included in the model, b= .18, $t(202) = 1.89$, $p = .06$; 95% CI [-0.01, 0.37].

Moderation (H6)

Although not a pre-registered analysis, we were once again interested in whether the African American participants in our sample reported less healthy eating habits compared to white participants. Similar to Study 1, we conducted an analysis examining the relationship between race and past eating behaviors. However, this study failed to replicate the relation between race and past healthy eating, $t(199)= -1.16$, $p= .25$.

Next, for hypothesis 6, we conducted a two-way ANOVA with condition (growth vs. fixed mindset) and Race (Black vs. white) as the independent variables, and healthy eating intentions and expectancy-value beliefs as the outcome variables. While Levene's test for equality of variances was violated, ANOVA is robust with large sample sizes (Norman, 2010),

and because we wanted to adhere to pre-registered analyses, the ANOVA results are reported. There is no condition by race interaction for healthy eating intentions $F(200) = .31$, $p= .58$ or for expectancy-value beliefs $F(200) = .04$, $p= .84$.

Exploratory analyses

Since the analysis based on participants' assigned condition failed to replicate the moderation findings from Study 1, we were curious to know whether this would be different if we conducted the analysis based on individuals' self-reported mindsets of health. To conduct this analysis, we used Hayes' PROCESS Model 1 (Figure 2). Results from this analysis indicated that, unlike Study 1, race did not moderate the relationship between mindsets of health and healthy eating intentions, b= .12, $t(197) = 1.20$, $p= .23$, 95% CI [-.08, .31] or expectancy-value beliefs, b= .09, $t(197) = .95$, $p= .34$, 95% CI [-.09, .27]

Discussion

Consistent with previous experimental work on mindsets, we were able to successfully manipulate mindsets of health using simple articles that portrayed health as fixed or malleable. Further, this study confirmed the mediation findings from Study 1 indicating that higher growth mindsets of health promote stronger expectancy-value beliefs which in turn predict healthier eating intentions. Since we manipulated mindsets of health, the findings suggest that growth mindsets of health can cause an increase in expectancy-value beliefs regarding healthy eating— although we lack causal evidence for the subsequent link to eating intentions. Additionally, we failed to replicate the moderation effects of race found in Study 1.

General Discussion

Across two studies, we demonstrated that mindsets of health predict healthy eating intentions and that this relationship is mediated by expectancy-value beliefs. In Study 1, we

found that the relationships between growth mindsets of health and both eating intentions and expectancy-value beliefs are strongest for a population at risk of unhealthy eating behaviors, namely, African Americans. In Study 2, these moderation findings failed to replicate. Further, in Study 2 we also showed that mindsets of health can be successfully manipulated—information that might be useful for the development of mindset interventions that address healthy eating.

Overall, the findings from these studies contribute to the existing mindset-related research on various health behaviors including exercise (Orvidas et al., 2018), weight-loss (Burnette & Finkel, 2012), and smoking cessation (Thai et al., 2016). Further, this research adds to the literature by delineating one mechanism, expectancy-value beliefs, by which growth mindsets inform healthy behaviors. Understanding this mechanism provides important insights for theory development and application.

Finally, this research adds to the existing literature on the utility of growth mindsets for improving outcomes in at risk populations by examining the relationship between mindsets of health and the eating behaviors of African Americans, a group considered to be at risk for less healthy eating habits. It is important to note that while we were able to show a stronger correlational relationship between growth mindsets of health and healthier eating intentions for African Americans, compared to white Americans in Study 1, we were unable to experimentally replicate these findings, nor replicate them using self-reports in Study 2. These inconsistent findings are similar to what is found in the literature with regards to some studies reporting that mindsets have strongest effects under an array of threatening conditions (e.g., Burnette et al., 2013), whereas other studies articulate exactly which threats strengthen effects. That is, the meta analyses by Sisk et al. (2018) found that those facing more chronic challenges, such as economic disadvantage or previous course failure, rather than situational challenges, such as stereotype

threat, are more likely to benefit from mindset interventions. These findings and others are

starting to uncover the complicated boundary conditions of mindset interventions. As Chao et al.

(2017) have shown, both self and situational factors can interactively influence the impact of

growth mindset messages. Overall, more work is needed to further reconcile these discrepancies

in findings in order to better understand for whom and when mindsets matter most.

Implications

Our research provides a nuanced understanding of the importance of mindsets in the

health domain and has important implications for psychological theory. The extant research

examining mindsets and health focus on attribute-specific mindsets (e.g., weight, fitness,

smoking). The current work extends this literature to examine mindsets of the broader construct

of health. These more general mindsets about the nature of health have the potential to impact a

variety of health-related goals and behaviors beyond the outcome of healthy eating intentions

examined in this research. Additionally, our research directly tested the psychological processes

linking mindsets to healthy intentions. Our work shows that believing that one can change one's

health can promote healthy eating intentions by encouraging beliefs that one will be successful at

eating healthy and that healthy eating is useful and intrinsically valuable. This work contributes

to a growing literature linking mindsets to important self-regulatory outcomes through

expectancy-value theory (Eccles & Wigfield, 2002; Orvidas et al., 2018).

In terms of practical implications, the current research shows that growth mindsets of

health and expectancy-value beliefs regarding healthy eating inform individuals' healthy eating

intentions, which can have important implications for their actual behaviors. Since unhealthy

eating habits contribute to obesity outcomes (Wright & Aronne, 2012), our findings expose a

potential area for intervention work aimed at helping individuals change or adopt healthier eating habits. Because mindsets can be manipulated, this provides leverage for intervening.

<div align="center">**Limitations and Future Directions**</div>

Despite the finding that mindsets matter and, together with expectancy-value beliefs, inform individuals' eating intentions, there are a few important limitations in the current study that are worth noting. First, in this study we addressed behavioral intentions rather than actual behavior. While research has shown that intentions can be predictive of future behavior (Armitage & Conner, 2001), actual behavioral data is more reliable than self- reported intentions (Webb & Sheeran, 2006). As such, future research should examine these research questions using behavioral data, for example by using food diaries to assess what participants are actually eating. Second, we had inconsistent findings regarding the utility of growth mindsets for at risk populations. More research is needed to investigate this discrepancy. Third, since we only manipulated mindsets of health in Study 2, we only have causal evidence for the link between mindsets and expectancy value and mindsets and eating intention and thus cannot speak to causality between expectancy value and eating intentions. More research is needed to articulate the key driving mechanisms that can be targeted in future interventions. Fourth, while we were specifically interested in, and recruited, African American participants for this study, there are other groups that can be considered to be at risk (e.g., individuals with higher BMI, lower SES etc.) and more work is needed to see if the growth mindset to healthy eating intentions link is stronger for these groups. Finally, in this research we only included one mediator and, while significant, these types of mediation analyses are biased to find significant indirect effects and do not tell us what other mediating variables inform the relationship between mindsets of health and eating intentions.

Conclusion

Obesity related illnesses, like diabetes and heart disease, contribute to a large share of the annual mortality rate and economic burden of disease (Fabricatore & Walden, 2006). Addressing individuals' eating behaviors presents one avenue through which we can combat the rising obesity rates. The current research merges the two theoretical frameworks of mindsets of health and achievement motivation theory (e.g., expectancy-value) to examine ways to improve eating intentions. Our findings indicate that stronger growth mindsets of health relate to healthy eating intentions via expectancy-value beliefs. Future research should further explore these findings, and their applicability to at risk populations, in an effort to create interventions aimed at enhancing healthy eating.

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Table 1

Means, standard deviations, alphas and correlations between scales (N= 158)

Variable	M	SD	α	1	2	3
1. ITH	6.00		1.04	0.79 -	-	-
2. EVB		5.89	0.85	0.91 .48**	-	-
3. HEI		5.66	1.28	0.92 .29**	.48**	-
4. Race	-	-	-	.07	-.03	.12
5. PHE		4.24	1.15	0.86 -.01	.32**	-.06

Note: ITH= Implicit theories of health, EVB= Expectancy- value beliefs, HEI= Healthy eating intentions, Race
African American, 1= White Americans, PHE= Past healthy eating *p < .05. **p < .01

Table 2

Means, standard deviations, alphas and correlations between scales (N= 158)

Variable	M	SD	α	1	2	3
1. Condition	-	-	-	-	-	-
2. ITH	5.64	1.22	.79	.37**	-	-
3. EVB	5.80	0.89	.92	.15*	.51**	-
4. HEI	4.40	1.01	.88	.20**	.52**	.70**
5. Race	-	-	-	-.02	-.19**	-.24**
6. PHE	5.80	0.96	.83	-.10	.14*	.46*

Note: Condition: 0= Fixed condition, 1= Growth condition, ITH= Implicit theories of health, EVB= Expectancy
HEI= Healthy eating intentions, Race: 0= African American, 1= White Americans, PHE= Past healthy eating *
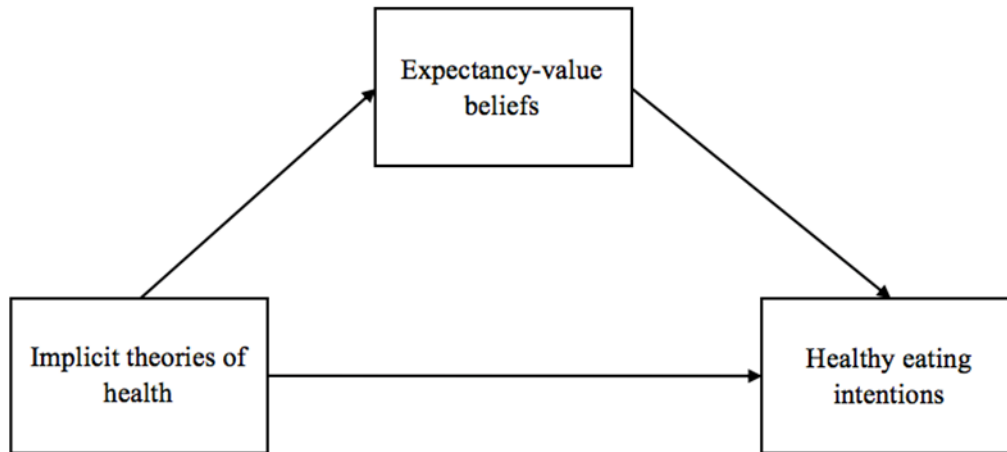
Figure 1

Hypothesized mediation model

Figure 2

*Hypothesized
moderation model*