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# What Do We Know About the Health of First-Generation College Students? A First Look at Compensatory Health Beliefs and Behavior

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## Abstract

First-generation college students are less likely than continuing-generation students to reach graduation. Many colleges are working to bridge this divide; however, little is known about the physical health of first-generation students. As physical health is associated with academic success, it is important to understand the beliefs and behaviors underpinning the physical health of first-generation college students. The present study examined the relationship between a specific type of unhealthy belief, compensatory health beliefs (CHBs), and the health behaviors of college students, with a focus on eating practices. Participants were first- and continuing-generation students attending a liberal arts institution who completed an online questionnaire assessing CHBs, eating behaviors, and demographics. Higher levels of unhealthy CHBs predicted less healthy eating in first-generation students, but not continuing-generation students. These findings suggest that first-generation students are uniquely influenced by their health beliefs and should be considered in a holistic approach to encouraging academic success in first-generation students.

Very little is known about the physical health of students who are the first in their families to attend college (i.e., first-generation college students); even less is known about their health beliefs, which can be important predictors of health behaviors and overall physical health (Carpenter, 2010; McEachan, Conner, Taylor, & Lawton, 2011). This is unfortunate given the considerable research suggesting both that student physical health is associated with academic success and retention (DeBerard, Spielmans, & Julka, 2004; Kristjánsson, Sigfúsdóttir, & Allegrante, 2008) and that first-generation college students tend to have much lower rates of academic success and retention in post-secondary education than continuing-generation students (Cataldi, Bennett, & Chen, 2018; Ishitani, 2006; Lohfink & Paulsen, 2005). This gap in the literature is surprising given a growing body

of knowledge concerning first-generation college students (see Cataldi et al., 2018 and Chen, 2005 for a review) and an increase in resources aimed at developing the ‘whole student’ by improving the physical health of all college students (e.g., American College Health Association’s Healthy Campus 2020 initiative). The present study addresses this gap by providing a first look at the health beliefs and behaviors of first-generation college students, specifically focusing on eating practices.

## Compensatory Health Beliefs (CHBs)

Recently, psychologists have suggested that a particular form of health beliefs, called compensatory health beliefs (CHBs), may be important to consider in the adoption and maintenance of health behaviors (Rabiau, Knäuper, & Miquelon,

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2006). To understand what CHBs are, it is important to first recognize that adopting or maintaining any health behavior requires choices. Often, these choices represent a conflict between our immediate desires (e.g., having that brownie sundae) and our long-term goals (e.g., losing weight) or awareness of certain information (e.g., brownie sundaes are not healthy). CHBs help us to resolve this internal conflict, specifically in situations where our immediate desires prevail. In these situations, we may experience an unsettling feeling because our behaviors do not match our goals or principles. CHBs are useful for eliminating that unsettling feeling (Rabiau et al., 2006). When we activate a CHB, we are able to rationalize a 'bad' health behavior by emphasizing the positive merits of our 'good' health behaviors. For example, we may tell ourselves that we will go to the gym tomorrow morning to work off the dessert we had tonight. Thus, CHBs are a psychological mechanism that allow us to have personal health goals, a basic understanding of health, and participate in unhealthy behaviors all at the same time.

However, there are two major problems with CHBs (Knäuper, Rabiau, Cohen, & Patriciu, 2004). The most probable is that we fail to perform the compensatory behavior. If we do manage to perform the compensatory behavior, another problem is that the chosen behavior may not effectively compensate for the unhealthy behavior. Over time, both of these can negatively impact one's health and undermine health goals. Specific to eating habits, research has shown that high levels of CHBs are associated with greater caloric intake (Kronick, Auerback, Stich, & Knäuper, 2011), overweight and obesity status (Obara-Golebiowska & Przybylowicz, 2015), lower adherence to self-set dieting rules (Miquelon, Knäuper, & Vallerand, 2012), and overindulgence in desirable, high-caloric food (Kronick &

Knäuper, 2010). In short, high levels of CHB's can be predictive of negative health outcomes, and thus are important to consider when trying to understand the health of college students.

### **First-Generation College Students**

Nearly one third of students entering college are the first in their families to enroll in postsecondary education (Aud et al., 2012; Skomsvold, 2015). Though this number has been increasing, first-generation students are not accounting for a larger proportion of college graduates (Aud et al., 2012). While many colleges actively work to promote access for first-generation college students, retention of these students remains a significant issue (Engle & Tinto, 2008). Health challenges may also be significant during this period. Independent for perhaps the first time, facing unfamiliar expectations and pressures, first-generation college students may be particularly susceptible to making poor health decisions in response to new stressors, group norms, and peer pressure. First-generation college students also tend to underutilize campus support services (Engle & Tinto, 2008), further escalating their susceptibility to physical health challenges.

Only one study has documented the physical health challenges of first-generation college students, finding that these students have lower self-reported ratings of physical health (Hixenbaugh, Dewart, & Towell, 2012). This same study reported that students considering dropping out of college had poor perceptions of their physical health, as well as low levels of social support. Thus, helping first-generation students succeed in college may require consideration of their experiences from a holistic perspective, including examining their health beliefs and behaviors. Regarding first-generation college

students, it has been noted “surprisingly little is known about their college experiences” (Pike & Kuh, 2005, p. 276).

One way to help first-generation college students is by providing them with something they often lack – availability and variety of resources (Dennis, Phinney, & Chuateco, 2005; Gibbons & Shoffner, 2004; Pascarella, Pierson, Wolniak, & Terenzini, 2004). Accordingly, these resources may be professional, financial, academic, and psychological. In providing psychological resources to first-generation college students, health behaviors, including beliefs about health, should be considered. As more colleges and universities begin to focus on developing the whole student, it becomes important to recognize how different types of health beliefs, such as CHBs, shape student behaviors so that resources can be allocated appropriately.

### Current Study

The goal of the present study was to examine the relationship between the health beliefs and behaviors of first-generation college students compared to continuing-generation students, with a specific focus on beliefs and behaviors related to healthy eating. It was predicted that the healthy eating behaviors of first-generation students would be negatively related to the extent to which they endorsed eating-specific CHBs (e.g., the more one endorsed unhealthy CHBs, the less healthy their eating habits). Importantly, it was predicted that this relationship would not exist for continuing-generation students – a moderating effect of the generational status on the relationship between unhealthy CHBs and healthy eating.

## Method

### Participants

Participants were undergraduate students attending a small, private, liberal arts institution in the Northeast United States. All undergraduate students at the institution were invited to participate in the study via a web link sent to their institutional email address. The study was open to the first 101 students to complete the informed consent procedure and study questionnaire. The study was completed entirely online. Participants responded to questions about their health beliefs and health behaviors, as well as providing basic demographic information. The questionnaire took between 10 and 30 minutes to complete.

Of the 101 participants, 22 reported being the first in their immediate family to attend college. Most participants reported that their parents were married (58%; divorced 26%) and in the middle-income bracket (61%; low-income 21%). The mean age of participants was 20.5 ( $SD = 2.2$ ; range 18-38) and the majority were female (64%) and white/Caucasian (88%). Participants had an average body mass index of 27.4 ( $SD = 7.0$ ; range 18-49) and most (52%) thought their eating behaviors were ‘somewhat’ healthy.

### Materials

Seven items ( $\alpha = .82$ ) made up the eating subscale of the compensatory health beliefs scale – demonstrated to be a reliable and valid instrument to measure CHB’s (Knäuper et al., 2004). Participants responded to each item on a Likert scale ( $M = .242$ ;  $SD = .70$ ; range 1-5) indicating how much they agreed or disagreed with the statement (e.g., “I can work off my unhealthy eating by exercising”).

Question	Answer									
How many times do you typically eat restaurant or fast food in one week (7 days)?	0	1	2	3	4	5	6	7	more than 7	
How many cans of pop do you typically drink in one day?	0	1	2	3	4	5	6	7	more than 7	
How many times do you typically eat fruit in one day?	0	1	2	3	4	5	6	7	more than 7	
How many times do you typically eat vegetables in one day?	0	1	2	3	4	5	6	7	more than 7	
How many times do you typically eat breakfast in one week (7 days)?	0	1	2	3	4	5	6	7	more than 7	
When eating restaurant food or fast food, do you eat all of the food served to you at one time?	Never Rarely Occasionally Sometimes Often Usually Always									

Figure 1. *Items included in the modified version of the Healthy Eating Vital Sign (Greenwood, Lin, Arguello, Ball, & Shaw, 2012) used to measure eating behavior.*

A modified version of the Healthy Eating Vital Sign (Greenwood, Lin, Arguello, Ball, & Shaw, 2012) was used to measure eating behavior (Figure 1). Participants indicated both their healthy eating habits (e.g., fruits and vegetables consumed, eating breakfast) and their unhealthy eating habits (e.g., drinking pop, finishing everything on the plate, eating restaurant/fast food). An eating behavior index was created by subtracting the sum of the unhealthy eating habits from the sum of the healthy eating habits. Thus, higher numbers represented healthier eating habits overall ( $M = 5.15$ ;  $SD = 4.59$ ; range -8 - +15).

Participants were asked to indicate the highest level of education completed by both their mother and their father. Consistent with the current literature on first-generation college students (e.g. Cataldi et al., 2018), participants were classified as first-generation college students if neither parent had experience in post-secondary education (i.e., neither parent had ever enrolled in a post-secondary institution). Finally, as self-control is known to be an important predictor of healthy eating practices (e.g. Crescioni et al., 2011; Junger & Van Kampen, 2010), participants also completed the Brief Self-

Control Scale (Tangney, Baumeister, & Boone, 2004;  $M = 46.6$ ;  $SD = 9.07$ ; range 22-64).

## Results

Multiple regression analysis was used to test if unhealthy CHBs significantly predicted eating behavior across the entire sample. Multiple regression was selected for the data analysis in order to accommodate the addition of self-control, which was included in the analysis as a control variable because it was related to eating behavior. The results of the regression indicated CHBs statistically significantly predicted eating behavior overall,  $F(2, 98) = 5.99$ ,  $p = .004$ ,  $R^2 = .11$ . The significant and negative relationship between eating behavior and CHBs ( $b = -1.30$ ,  $p = .043$ ) revealed that as participants' levels of endorsement of unhealthy CHBs increased, healthy eating decreased.

To test the hypothesis that the generational status of students (first-generation vs. continuing-generation) would moderate the effect of CHBs on eating behavior, a hierarchical multiple regression was conducted. As with the multiple regression analysis of the entire sample, self-

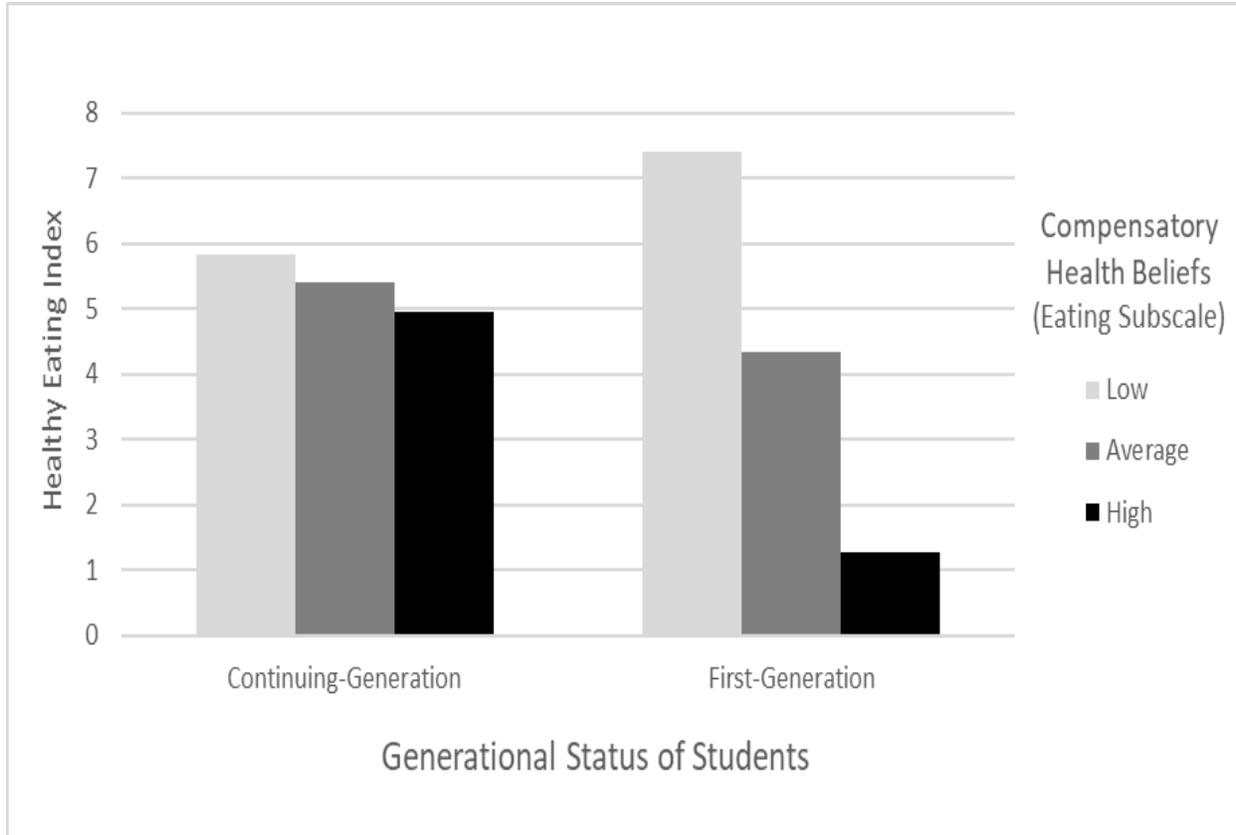


Figure 2. *Compensatory health beliefs (CHBs) were differentially related the eating behaviors of first-generation versus continuing-generation students. Higher levels of unhealthy CHBs were associated with more unhealthy eating behaviors in first-generation students and lower levels of unhealthy CHBs were associated with healthier eating behaviors. CHBs did not appear to be related to the eating behaviors of continuing-generation students.*

control was entered in the first step of the hierarchical regression analysis as a control variable. In the second step, two variables were included: eating-specific CHBs and generational status. The CHB variable was centered before an interaction term between CHBs and generational status was created. This step was conducted in order to avoid potentially problematic high multicollinearity with the interaction term (Aiken & West, 1991). Next, the interaction term was added to the regression model, which accounted for a significant portion of the variance in healthy eating,  $\Delta R^2 = .047$ ,  $\Delta F(1, 96) = 3.98$ ,  $p = .048$ ,  $b = -3.76$ ,  $t(96) = -2.00$ ,  $p = .048$ . Thus, generational status was a significant moderator of the relationship

between compensatory health beliefs and healthy eating behaviors.

An examination of the interaction plot showed a differential relationship between CHBs and eating behaviors for first-generation versus continuing-generation college students. For first-generation students, higher endorsements of unhealthy CHBs was related to poor eating behaviors, while CHBs were not related to the eating behaviors of continuing-generation students.

### Discussion

The results of this study provide preliminary evidence of the importance of

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examining the unique health beliefs and health behaviors of first-generation college students. Consistent with the study hypothesis, the eating behaviors of first-generation college students were negatively related to their endorsement of eating-specific CHBs; higher levels of unhealthy CHBs predicted less healthy eating habits. The eating behaviors of continuing-generation students were not related to their endorsement of CHBs. In other words, first-generation students appeared uniquely susceptible to the consequences of utilizing CHBs.

Though only preliminary in nature, the results of this study suggest that first-generation college students may be more likely to rely on surface-level, quick and accessible, beliefs to make decisions about their health. These beliefs, CHBs, allow them to feel good in the moment as they rationalize their unhealthy choices, but may lead to unfortunate behavioral health consequences. An understanding of these unique health beliefs, however, may guide the creation and adoption of differential health-related resources for first-generation students versus continuing-generation students. For example, first-generation college students may need help recognizing inaccurate health beliefs, such as the idea that unhealthy eating can be “undone” by exercising, as well as access to resources to help them successfully carry out compensatory health behaviors that are based on accurate health beliefs. Further, the idea that not performing a negative health behavior at all might be easier than trying to compensate for it later can be incorporated into existing health programs that reach first-generation students. In sum, developing the whole student requires that we acknowledge the potential differences in health beliefs of our first-generation versus our continuing-generation college students.

As no previous research has examined the health beliefs and behaviors of first-generation college students, and the present study is preliminary in nature, these findings should be interpreted cautiously until replicated and expanded. This research utilized a convenience sampling methodology to obtain a relatively small sample of participants, so future research is needed to expand on these findings. Specifically, the number and diversity of first-generation college students included should be increased since the present study was bound demographically to undergraduate students at a small, private, liberal arts institution. Though Staklis (2016) reported that 20% of college students were first-generation in 2009, the 22% rate in the present study was slightly lower than the institutional rate of 31% and more recent national rates of around one-third (Aud et al., 2012; Skomsvold, 2015).

This discrepancy may be at least partly due to a self-selection issue, a limitation of the convenience sampling methodology, whereby only the first 101 students who responded to the email with the study link were accepted as participants. Hence, those students, both first- and continuing-generation, who were first to complete the online study questionnaire may have differed from the population of the study institution as a whole. Indeed, there were more female (64% sample vs. 46% study institution) and white/Caucasian (88% sample vs. 76% study institution) participants than that of the study institution as a whole. Future studies should consider a more direct approach to reaching first-generation college students, thus increasing the diversity and generalizability of the findings.

Further, a more objective measurement of eating behaviors, such as a food journal, would strengthen future studies

as the present study relied on self-reports of general eating habits. More specific eating habits could also be targeted, such as an analysis of the amount of calories, fat, sugar, or salt students consume. It would also be valuable if other measures of health behaviors, such as exercise, were considered in future studies to obtain a more comprehensive view of the physical health experiences of first-generation college students.

The present study is the first empirical examination of the health beliefs and behaviors of first-generation college students compared to continuing-generation students. Indeed, this first look at the health beliefs and behaviors of first-generation college students fills a gap in the literature by bridging what we know about the experiences of first-generation college students and our goals to improve the physical health and well-being of all college students. Further, a bigger picture surfaces in which we can begin to appreciate how the academic success and retention of first-generation college students might interact with their health beliefs, healthy behaviors, and overall physical health. Knowing that the physical health and health behaviors of first-generation college students may be uniquely related to their health beliefs, those providing resources to first-generation students can be better informed and provide more targeted interventions to that group with the goal of enhancing student success at the holistic level. As many colleges actively work to promote access to first-generation college students, considering their physical health may be a crucial link to enhancing the success of these students as well.

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