Group Identity and Unhealthy Food Consumption among College Students: the Theory of Normative Social Behavior

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ABSTRACT *: Theresearch suggests that peers on campus are important reference groups for college students' unhealthy behavior, including unhealthy eating behavior. Guided by the Theory of Normative Social Behavior, the current study examined the role of group identity in the descriptive norms and unhealthy food consumption link. The results suggest that the magnitude of the association between descriptive norms and unhealthy food consumption was greater as group identity with same-sex students on campus became stronger. The findings demonstrate that students were likely to model unhealthy food consumption of same-sex peers on campus.*

KEYWORDS –*The theory of normative social behavior, descriptive norms, unhealthy food consumption, group identity*

I.   INTRODUCTION

As obesity is a national epidemic, healthy eating has been encouraged as a way to stay healthy and fit [1]. Nevertheless, friends' and peers' unhealthy food consumption has a great deal of impact on college students' food intake that may prevent them from eating healthfully [2]. The social normative model of eating [3] suggests that the effects of social comparison of eating lead people to closely match their food intake with others at the table. Indeed, the idea that people look for what is fitting behavior from others is well documented in the social norm literature [4]. Based on the idea, the theory of normative social behavior (TNSB) [5] adds that some attributes intensify the effects of normative beliefs on behavior. For instance, the TNSB posits that perceived closeness toward members of a referent group (i.e., group identity) would moderate the relation between perceived prevalence of a behavior (i.e., descriptive norms) and enactment of the behavior. In other words, individuals are likely to consume unhealthy foods if they believe that others eat unhealthily, especially when they feel closer to the others. Although considerableresearch has been conducted examining the role of group identity in the relation between descriptive norms and students' drinking [6,7], research is limited on understanding group identityinthe descriptive norms -unhealthy food consumption link. Given this, the current study extended the TNSB by testing group identity as a moderator in this link.

II.   UNHEALTHY FOOD CONSUMPTION

It is important to describe what it means to be eating unhealthily as food could be classified as healthy or unhealthy. Healthy foods include whole grains, fruits, vegetables, dairy, meat/poultry/fish, and good fats [8]. On the other hand, fried and fatty foods, sweets, and sugar-sweetened beverages as well as food at fast food restaurants and processed food are considered as unhealthy food [9]. Healthy eating, however, is much more complex, and a high degree of health literacy is required to interpret it. Healthy eating is about consuming nutrient-rich food in balance 8. The key is making good choices from every food group and getting the most nutrition out of the calories. Thus, when people do not control portion sizes, they can gain weight or be over-weight even if they eat exclusively healthy food, and it is considered unhealthy eating. There are other ways to eat unhealthily. Eating from only one food group (e.g., fruits) is considered unhealthy eating because it is an unbalanced diet, and, of course, regularly choosing unhealthy foods is unhealthy eating. Given this broader understanding of unhealthy eating, the present study focused on one type of unhealthy eating, unhealthy food consumption.

III.   GROUP IDENITY AND THE TNSB

Research on the TNSB emphasizes identifying the attributes that may change the effects of descriptive norms on behaviors [5]. Thus far, a number of factors have been recognized as moderators in the association, including group identity [6]. Group identity is defined as people's desires to follow referent others whom they perceive similarity between themselves and members of the group [5]. The TNSB suggests that the link between descriptive norms and behavior is stronger for individuals who perceive high group identity than low group identity in regards to a reference group. The idea that people's behaviors are more likely to be influenced by those they consider close, rather than distant, is not new. Social comparison theory [10], social identity theory

[11], and deviance regulation theory [12] focus on the importance of perceived close identification with peer groups on behavior. Thus, descriptive norms among the groups to which students closely relate by identification may have a vast influence on their own consumption when compared with the groups to which they distantly relate by identification.

While the TNSB examined various health behaviors, for instance, drinking [6] and healthy diet and exercise [13], research has yet to test unhealthy food consumption. Because social behaviors may have unique expectations and features, normative perceptions may have different effects on individuals' behavior depending on the nature of the behavior. For example, it has been consistently found that among college students, drinking alcohol may be a model behavior. However, it is unclear how college students view eating unhealthy foods. Given that healthy eating have been promoted as a way to stay healthy, unhealthy food consumption may have some negative implications among students [14]. Nonetheless, it is somewhat difficult for students to maintain a healthy lifestyle for numerous reasons. They are notorious for gaining weight during their first year (i.e., the "freshman 15") because of reduced level of activities, buffet-style meals, and heavy night snacks [15]. In an environment that reinforces consumption of unhealthy foods, it may be regarded as a normative behavior.

Descriptive norms traditionally were conceptualized as norms among typical college students [7]. Peers on campus have considerable influence on students' eating habits because students may develop eating disorder symptoms when they believe that they are not as thin as their peers [2]. Based on the TNSB, the relation between descriptive norms and unhealthy food consumption would be stronger for individuals who have high group identity with the referent group, since they may feel close with the group and are more likely to match the behavior. Alternatively, individuals with low group identity would be guided less by norms concerning the behavior because they may identify less with the reference group. In the present study, sex-specific reference group was considered because same-sex norms are more strongly associated with individuals' behavior than opposite-sex norms [7], especially eating behaviors [16]. In other words, female students on campus are more likely to monitor and imitate other female students' unhealthy food consumptionsrather than those of the male students. Accordingly, sex-specific referent groupwas considered in the following hypothesis:

Hypothesis: The magnitude of the association between descriptive norms and unhealthy food consumption behavior will become greater as group identity becomes stronger.

IV. METHODS

1.1 Participants and procedures:

A total of 205 undergraduate students(52 males, 153 females)participated in the current study. Participants wererecruited in undergraduate communication courses in a university located inthe MidwesternUS.Respondents' agesranged from 18 to 32 years (*M*=23.83, *SD*=3.37). The sample consisted of 62.1 percent Caucasian, 27.1 percent African American, 4.9 percent Asian American, 2.5 percent Hispanic, and 3.4 percent other ethnicities.

Data were collected by administering a self-report questionnaire. Consent procedures were completed by all participants.The questionnaire measured respondents'unhealthy food consumption and descriptive norms and group identity with same-sex students on campus. Demographic questions included sex, age, and ethnicity.

1.2 Measurements:

Unhealthy food consumption. To assess respondents' total unhealthy foodconsumption in an average week, four items were developed for the purpose of the current study. Before the introduction of the scale, unhealthy foods were defined for the participants as follows:

Unhealthy foods are typically ready-to-eat convenience foods containing high levels of saturated fats, salt, or sugar, and little or no fruit, vegetables, or dietary fiber; they thus have little or no health benefits [17].

Respondents were asked to think of their food consumption in the last three months. The first question asked was, "During an average week, how many times a week didyou consume unhealthy foods?" This item was answered by, 0="never" and 7="daily." The next three questions asked the respondents to estimate their daily unhealthy food consumption in three categories: fried and fatty foods, sweets, and sugar-sweetened beverages. Examples of foods and serving sizes in each category were provided. For fried and fatty foods, one serving is equivalent to a hamburger, a slice of pizza, or a small fries. For sweets, one serving is equivalent to a cookie or a small slice of cake. Fried and fatty foods and sweets were measured by, 0="0 serving" and 7="7 servings." An example of one serving of sugar-sweetened drink was a cup of soft drink, and this item was measured by, 0="0 cup" to 7="7 cups." To compute unhealthy food intake, the answers to questions 2, 3, and 4were first added, and the sum was multiplied by the answer to question 1. The *alpha* coefficient of the scale was .69, and scores ranged from 0 to 168servings (*M*=31.93, *SD*=26.84).

Descriptive norms. To assess descriptive normsin reference to same-sex students on campus, a modified version of the above unhealthy food consumption scale were developed for the purpose of the current

study. Specifically, four items assessed participants' perceptions of same-sex students' weekly unhealthy food consumption. The *alpha* coefficient of the descriptive norms scale was .85 for same-sex students on campus. Perceived same sax students' weekly unhealthy food intake ranged from 0 to 168servings (*M*=51.96, *SD*=35.19).

Group identity. Aron, Aron, and Smollan's [18] inclusion of others in the self (IOS) scale was used to assess respondents' perceived group identity toward close same-sex friends and same-sex students on campus. Students were presented with sevenVenn diagrams, and each Venn diagram has two circles with one circle representing self and the other a specific group. Participants were asked to "select the pair of circles that you feelbest represents your own level of identification with _____," withthe references being close same-sex friends and same-sex students on campus. The measure was answered on a scale with 1 representing completely nonoverlapping circles (low group identity) and 7 representing nearlycompletely overlapping circles (high group identity). TheIOS scale has demonstrated good test-retest reliability and constructvalidity in assessing group identity [7]. Mean score of group identity with students on campus was 2.80 (*SD*=1.42).

Table I.Correlation Matrix,Means, and Standard Deviations of the Variables

	1	2	3	*M*	*SD*
1. GI same-sex students	--			2.80	1.42
2. DN same-sex students	-.04	--		51.96	35.19
3. Unhealthy food consumption	.15	.19*	--	31.93	26.84

Note. GI =Group identity; DN: Descriptive norms; *p*< .05

V. RESULTS

Means and standard deviations for study variables anda correlation matrix of the variables is presented in Table 1. *Hypothesis* was tested through two separatehierarchical regression analyses with unhealthy food consumption as a dependent variable. In each analysis, control variables (sex, age, and ethnicity) were added in the first step. Descriptive norms and the potential moderator were added in the second step. Then, the interaction term (product between descriptive norms and the moderator) was added in the third step. Following Aiken and West's [19] recommendations, before computing the interaction terms, they were centered around the means and then standardized.

Table II.Results of Moderated Hierarchical Regression Analyses

DV	Unhealthy food consumption	
	β^a	ΔR^2
Step 1: Controls		
Female	.09	
Age	.03	
Ethnicity	-.04	.01
Step 2:		
Descriptive norms (DN)	.18*	
Group identity with same-sex students on campus (GIS)	.17*	.06**
Step 3: Interaction term		
DN x GIS[b]	5.58**[b]	.05**
Total R^2		.12

Note.[a]Standardized β from the last step of the regssion equation (with all predictors in the model). [b]
Unstandardized β from the regression equations (see Aiken & West, 1991)* *p*< .05, ** *p*< .01, *** *p*< .001

As shown in Table 2, the three control variables did not predict individuals' unhealthy food intake. Next, descriptive normsaccounted for 6percent of the variance(*p*<.01). The interaction term was significantly associated with unhealthy food consumption (β= 5.58, *p*<.01), and it accounted for an additional 5 percent of the variance(*p*<.05). The entire model explained 12percent of the variance in the dependent variable (Table 2). To uncover the nature of the interaction, we conducted additional analyses suggested by Aiken and West [19]. These analyses concerned determining the slope and y-intercept of two regression lines. We calculated simple regression lines depicting the relation between descriptive norms and unhealthy food consumption for different values of group identity on the basis of the three-step regression analyses shown in Table 2. Simple regression lines were calculated for one standard deviation above the mean and one standard deviation below the mean.Thelink between descriptive norms and unhealthy food consumption was relatively stronger among students who havehigh identification with peers on campus (β=.39) than those who have low identification with the group (β=.04) (see Figure 1). Thus, *Hypothesis*wassupported by the data.

Figure1: Identification with Students on Campus as a Moderator of DN and Unhealthy FoodConsumption
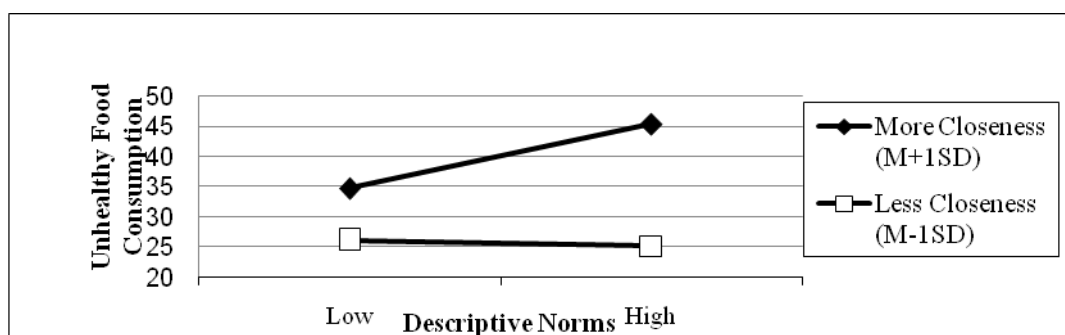
VI. CONCLUSION

The current study tested the moderating role of group identity in the TNSB [5]. The findings revealed that normative beliefs were strong forces that shape students' unhealthy food consumption. The current study predicted that group identity would change the association between descriptive norms and unhealthy food consumption. The results revealed that the effects of descriptive norms on behavior uniquely hinged on group identity with asex-specific referent group. Consistent with the TNSB and theories of group identity[5, 10, 11], the effect of descriptive norms on behavior was stronger among students who had high identification with same-sex peers on campus. Descriptive norms had greater impact on behavior among students who identify closely with same-sex peers on campus when compared with those who identify distantly with the peers.

We examined sex-specific peers because,for eating behavior, women may be more conscious of what other women may be consuming [16]. Alternatively, men would be more aware of other men's eating behavior. This idea is supported by the findings of social contagion hypothesis [17]: an individual's chance of becoming obese is increased by 57 percent if they have an obese friend, while the chance is somewhat smaller when they have an obese spouse (37 percent). It appears that the normative influence of same-sex friends may have a greater effect on individuals'eating behavior when compared with that of an intimate relational partner (opposite sex).

The findings of the present research add to the literature that unhealthy food consumption was examined using the TNSB. Thus far, the TNSB was tested by a number of behaviors, including drinking, smoking, peer communication, hand washing, and water conservation [6, 20]. It is meaningful to test distinctive behaviors using the TNSB. It would also be important to examine if collective norms [21] influence individuals' behaviors.Lapinski and Rimal [21] suggest that collective norms signify social environment that individuals act under. It would be interesting to study collective norms of unhealthy food consumption on college campuses.

There are important practical implications based on the findings of the current study. We found that college students perceive their same-sex peers on campus would consume more unhealthy foods than themselves. Furthermore, students are more likely to model behavior of other same-sex students on campus with whom they identify closely.It thus appears that interventions targetingthe student body as a unit may be useful to promote healthy lifestyles because students' behaviors are guided by behaviors of others on campus. For instance, healthy eating support groups with students on campus, rather than with close friends, may be an effective method to discourage unhealthy eating among college students. Specifically, healthy eating support

groups by sex may be more effective than a group with mixed sex.

Of course, the current study's findings are limited. One limitation involves the use of retrospective self-report method to gather the data, which can increase distortions and misrepresentations. However, it may be useful to gather this type of data until better methods are developed [22]. Another limitation is concerning the sample. The current sample is representative of the Communication and Media Department at the data collection site;nevertheless, the male/female ratio may be an issue. We should also note that we cannot make causal claims from the current study. Although prior findings that include manipulated norms suggest that descriptive norms influence behavior, the use of a cross-sectional design is a limitation [20].

In spite of these limitations, group identity as a moderator between descriptive norms and college students' unhealthy food consumption raises several issues forcampaign developers to consider. Findings suggest that the more students identified with same-sex peers on campus, the stronger the association is between descriptive norms and unhealthy eating behaviors. When developing campus-wide health campaigns, scholars should consider the influence of group identity on unhealthy eating behaviors. In a similar vein, healthy eating interventions in college campuses should focus on sex-specific messages (both written and graphics). Additional research is needed to evaluate the findings of the current study and to implement the findings in interventions promoting healthy lifestyles among college students.

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