



# Exposure to body focused and non-body focused others over a week: A preliminary investigation of their unique contributions to college women's eating and body image



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## ABSTRACT

This study investigated how exposure to non-body focused others (i.e., those who are not preoccupied with their body weight/shape or appearance) and exposure to body focused others uniquely affect young women's eating and body image over a week, within a day, and from one day to the next. For seven consecutive days, 92 female college students completed nightly online questionnaires about their daily experiences. Between-persons, multilevel modelling revealed that higher average levels of exposure to non-body focused others over the week uniquely predicted greater intuitive eating, greater body appreciation, and less dietary restraint, whereas higher average exposure to body focused others predicted these outcomes in the opposite direction. Within-persons, exposure to body focused others did not predict eating and body image, but exposure to non-body focused others did. On days when women had more exposure to non-body focused others than their personal average level or than the previous day's level, eating and body image were better. These findings are the first to suggest that independent of exposure to body focused others, level of exposure to non-body focused others – within and across days – contribute positively to eating and body image.

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## 1. Introduction

Body image is a complex multidimensional construct composed of thoughts, feelings, attitudes, and behaviors related to one's body and weight (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). A plethora of research indicates adverse outcomes associated with poor body image including increased risk of psychopathology such as anxiety, depression, and lower self-esteem (Johnson & Wardle, 2005; Kostanski & Gullone, 1998; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006; Wilson, Latner, & Hayashi, 2013), as well as a greater risk of disordered eating (e.g., Goldschmidt, Wall, Loth, & Neumark-Sztainer, 2015; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Stice, 2002; Stice, Marti, & Durant, 2011). Conversely, recent research suggests that positive body image is uniquely associated with greater self-esteem, optimism, proactive coping, intuitive eating (i.e., eating according to one's hunger/fullness signals and cravings), and less

disordered eating (Avalos, Tylka, & Wood-Barcalow, 2005; Tylka & Wood-Barcalow, 2015).

Understandably, there has been a concerted effort in the field to determine what factors influence body image. Interpersonal factors, both familial and peer, have emerged as important in this regard as research shows a positive relationship between the body image levels of mothers and daughters (Kichler & Crowther, 2001; Rieves & Cash, 1996), married partners (Oh & Damhorst, 2009), and individuals in the same peer group (Paxton, Schutz, Wertheim, & Muir, 1999). Paxton and colleagues found that levels of body image concern and use of extreme weight loss behaviors (such as fasting, vomiting, and using laxatives) amongst teenage girls were uniquely predicted by how often girls talked about dieting and weight with their friends, how preoccupied with weight and dieting they perceived their friends to be, and how often their friends actually used extreme weight loss behaviors themselves. When looking within persons, Kelly, Miller, and Stephen (2016) found that unless college women treated themselves with more self-compassion than was typical for them, frequent interactions with body focused others on a given day were associated with greater body image concerns, a lesser tendency to eat intuitively, and less body appreciation. Further evidence for the social influences on body image comes from the literature on “fat talk,” which refers to talking negatively about

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one's own body or eating (Nichter & Vuckovic, 1994). Both correlational and experimental studies have shown that engaging in and also hearing fat talk are associated with increased body dissatisfaction, negative affect, and disordered eating (Cruwys, Leverington, & Sheldon, 2016; Mills & Fuller-Tyszkiewicz, 2018; Ousley, Cordero, & White, 2008; Salk & Engeln-Maddox, 2011, 2012). These studies suggest that exposure to people who display attitudes and behaviors reflective of body preoccupation can have damaging effects on one's own body image and eating.

Although the problematic consequences and correlates of interacting with body focused others are well documented, no studies to our knowledge have directly examined the effects of interacting with others who simply place less importance on their body weight/shape – that is, non-body focused others. Although there is some research suggesting that interacting with those who espouse body satisfaction and acceptance leads women to feel more satisfied with and accepting of their own bodies (Rudiger & Winstead, 2013; Tucker, Martz, Curtin, & Bazzini, 2007), studies have found that college women consider positive body talk to be less typical, more surprising, and also less credible than negative talk about one's body (Barwick, Bazzini, Martz, Rocheleau, & Curtin, 2012; Corning & Bucchianeri, 2016). Thus, it may be that rather than an overt display of body positivity, a more typical alternative to encountering body-preoccupied others is interacting with others who do not seem preoccupied with trying to control their body weight and shape. It remains unknown whether interacting with others who are not body-preoccupied might influence one's own body image attitudes and behaviors.

There is indirect evidence to suggest that interactions with non-body focused individuals may, in fact, be personally beneficial. In one study, participants heard a vignette in which someone displayed a challenging response to fat talk that minimized the importance of focusing on one's physical appearance (e.g., "I think feeling happy and healthy is so much more important than focusing on how I look") or else a colluding one (e.g., "Yeah I've been thinking about going on a diet too. Maybe then I wouldn't feel so fat") (Ambwani, Baumgardner, Guo, Simms, & Abromowitz, 2017). Those who heard the challenging response felt less negative affect and reported a lower likelihood of subsequently engaging in fat talk. Anecdotes from qualitative research further support the idea that not only is being around others who are focused on their body detrimental to one's own body image, but that interacting with non-body focused others can be helpful for one's body image. For example, a participant in Wood-Barcalow, Tylka, and Augustus-Horvath, (2010) qualitative study stated:

"If you're around people who are picking at themselves or saying 'I look bad' or 'I hate my thighs' you're going to be more inclined to pick at yourself more and look at areas that aren't perfect. If you're around people that don't talk about that sort of thing it's easier to have positive self-image" (Wood-Barcalow et al., 2010, p. 110).

Thus, there is preliminary, albeit indirect, support for the notion that simply being exposed to others who are not focused on the appearance of their bodies may positively influence one's own body image.

Social learning theory (Bandura, 1971) might help explain how exposure to body focused and non-body focused others might affect one's own body image and eating attitudes. The theory suggests that humans are likely to learn and enact a given attitude or behavior if they observe – consciously or not – someone else experience reinforcing consequences for displaying said attitude or behavior. Given the current culture's promotion of the thin ideal, individuals who are preoccupied with their body and/or pursue the thin ideal may receive certain forms of reinforcement, such as compliments on their body or for their dedication to a weight-loss regimen (Wertheim, Mee, & Paxton, 1999). An observer may notice this reinforcement, consciously or unconsciously, thereby

motivating her to adopt similar body-preoccupied attitudes and behaviors (Tiggemann & Barbato, 2018). Alternatively, one might interact with others who display less preoccupation with their appearance, and who therefore eat in a more intuitive and less restrictive manner. Here, an observer may notice the benefits of being less body focused, for example, the freedom associated with eating what one desires without guilt and anxiety and the ability to pursue meaningful relationships and activities without undue concern about one's appearance (Andrew, Tiggemann, & Clark, 2015; Sandoz, Wilson, Merwin, & Kellum, 2013; Schoenefeld & Webb, 2013). This reinforcement may then induce the observer to adopt a similar orientation toward her own body and eating to experience these same outcomes.

Although theoretical and empirical studies provide indirect and/or preliminary support for the idea that exposure to non-body focused others may be beneficial – just as exposure to body focused others is costly – no research to our knowledge has examined whether these forms of exposure are indeed unique contributors to people's body image and eating habits. Just as positive body image contributes uniquely to eating, well-being, self-esteem, and coping beyond the contribution of negative body image (Avalos et al., 2005; Tylka & Wood-Barcalow, 2015), exposure to non-body focused others might also contribute uniquely to body image and eating beyond the variance explained by exposure to body focused others. If this were the case, important theoretical implications would ensue about the role of social factors in eating and body image. There would also be important practical implications regarding not only what social contexts and groups to avoid but also which ones to seek out.

A correlational study would allow researchers to isolate the unique variance in body image and eating explained by exposure to body focused and exposure to non-body focused others. However, cross-sectional correlational designs frequently rely on retrospective recall over a long period of time, which can result in biased and inaccurate recall (Schwarz & Sudman, 1994). We therefore sought to examine our research questions in the context of a 7-day daily diary study. First, such a design would result in more accurate reports from participants on their experiences by having them reflect on the last 24 hours only. Second, unlike cross-sectional correlational designs, obtaining daily data from participants for a week makes it possible to examine the extent to which average levels of each form of social exposure over a week contribute to body image and eating between-persons, and to examine the extent to which fluctuations in these forms of social exposure within a person from one day to the next contribute to her body image and eating. Identifying the levels at which relationships are present and absent has important theoretical and practical implications (Curran & Bauer, 2011). Finally, such a design would allow us to ascertain the directionality of the relationship between these forms of social exposure and body image and eating patterns to determine whether certain types of social interactions precede body image and eating patterns, and/or whether eating habits and body image influence the extent to which others are perceived to be body focused and non-body focused.

### 1.1. Study objectives and hypotheses

The main goal of the current study was to examine the unique contributions of exposure to body focused others and exposure to non-body focused others on college women's own body image and eating both between-persons, over the course of a week, and within-persons, from one day to the next and within a given day. At the between-persons level, we hypothesized that average levels of exposure to non-body focused others and exposure to body focused others over the week would contribute unique variance to body image and eating attitudes. We hypothesized (1a) that college

women who on average had more frequent interactions with non-body focused others over the week would generally report better overall body image and higher body appreciation, and more intuitive and less restrained eating. We also expected (1b) that those with a higher mean frequency of interactions with body focused others over the week would have worse overall body image and eating. At the within-persons level, we hypothesized that (2a) on days when participants had more exposure to non-body focused others than what was typical for them, their body image would be better and their eating would be less restrained and more intuitive. We also expected (2b) that on days when women had more exposure to body focused others than usual, body image and eating would be worse. Finally, we hypothesized (3) that changes in the frequency of these forms of exposure from one day to the next would predict participants' subsequent eating and body image (e.g., increased exposure to non-body focused others would be associated with subsequently more adaptive eating and body image), but that changes in their eating and body image would not predict the frequency of their subsequent self-reported exposure to body focused and non-body focused others.

## 2. Method

### 2.1. Participants

In order to meaningfully examine within-persons variability, participants who completed at least four of the eight surveys were included in the analyses. One hundred and eleven out of 143 participants met this criterion, 15 of whom were removed for failing to complete their surveys within the required window of time. Another four participants who had outlying BMIs ( $> 3$  SDs from the mean; all above 40) were subsequently removed, leaving a final sample of 92 female undergraduates. Participants' age ranged from 17 to 25, with an average age of 19.7 ( $SD = 1.93$ ). The ethnic composition of the sample was 50% Caucasian, 21% East Asian, 1.6% Southeast Asian, 4% Black/African, 9.7% South Asian, 1.6% Middle Eastern, 1.6% West Indian/Caribbean, 1.6% Aboriginal, and 8.1% unknown. In terms of relationship status, 52% reported that they were single, 37% in a relationship, and 11% casually dating. The mean number of surveys completed was 6.67 ( $SD = 1.2$ ). In terms of survey completion, 83% of participants completed 6 or more surveys, and 25% completed all eight, despite only being asked to complete seven out of eight. Data conformed to the missing at random assumption and study day did not predict the likelihood of missing data.

### 2.2. Procedure

This study was approved by the university's research ethics committee, and all participants provided consent. Participants were made aware in study advertisements that they would be asked about their personal body image experiences. However, in order to avoid demand characteristics, additional peripheral study variables were emphasized, and participants were not aware of the specific hypotheses of the study. The study was advertised through the university's research participant pool to all female undergraduate students enrolled in psychology courses. The study was called "A Daily Diary Study of Personality, Feelings and Body Image" and participants received additional research credit for a psychology course in compensation for their involvement. The study was completed over an 8-day period by each participant. Each day at 4:00 pm participants were emailed a link to complete the survey online via Qualtrics. Participants were given a 7-hour window of time (from 4:00–11:00 pm each night) within which to complete the survey to account for any evening demands or obligations that would

have put constraints on participants' ability to complete the survey otherwise. Participants were instructed to complete at least seven out of the eight surveys that they were sent.

### 2.3. Measures

BMI was assessed via self-reported weight and height four to six days before the daily diary portion of the study. The mean BMI in the sample was 22.47 ( $SD = 3.28$ ). All other measures were completed on a nightly basis with participants reporting on their experience that day. As such, these measures were modified so that item wording assessed participants' thoughts, feelings, and behavior "that day" rather than in the past, or on average.

#### 2.3.1. Exposure to non-body focused and body focused others

To assess participants' frequency of daily interactions with body focused and non-body focused others, the research team created a 5-item face valid measure. It should be noted that the brevity of this measure stems from the fact that the study was developed with other primary research questions in mind, limiting the number of additional items that could be added. Because we believed that participants were likely to have multiple interactions throughout a day, it would not be feasible to collect details about each specific interaction and interaction partner at the end of the day without substantially increasing the burden on participants, and/or compromising the accuracy of the data collected. As such, we asked them to provide an overall rating of the frequency of their interactions with certain types of people each day from 1 (*not at all*) to 5 (*constantly*). The question asked, "Today, how often did you interact with people who. . ." and then provided five statements. These statements were factor analyzed using Principle Component Analyses and the scree plot revealed two underlying factors as expected. A Promax rotation was first applied, and revealed two uncorrelated factors ( $r = .08$ ) allowing us to apply a Varimax rotation, which subsequently revealed that the two factors explained 23.5% and 17.1% of the variance. Items loading onto the first factor (Exposure to Body Focused Others) include: "were talking about dieting" (.87), "were focused on body image" (.94), and "were focused on exercise and working out" (.83). Items loading onto the second factor (Exposure to Non-Body Focused Others) include: "had 'normal' eating habits (i.e., people who eat flexibly without being restrictive or overly preoccupied with calories)" (.91) and "focus little on body image" (.91). None of the items evidenced cross loadings of more than .20 with the other factor. The range of Cronbach's alphas across study days was .85 to .89 for Exposure to Body-Focused Others and .73 to .86 for Exposure to Non-Body Focused Others. Average frequency of exposure to non-body focused others over the week was 2.97 ( $SD = 0.87$ ), and average frequency of exposure to body focused others over the week was 2.00 ( $SD = 0.83$ ).

#### 2.3.2. Body Appreciation Scale

Body appreciation was measured using the Body Appreciation Scale (BAS, [Avalos et al., 2005](#)). Body appreciation is the ability to value, respect and care for one's body regardless of its size or shape. This 13-item scale was modified to assess the past 24 hours and included items such as "I respect my body" and "I take a positive attitude towards my body." Participants rated these items daily on a scale from 1 (*never*) to 5 (*always*) according to how they felt about their body that day. Among college women, the BAS demonstrates good construct and incremental validity as it is negatively related to body preoccupation and dissatisfaction ( $r_s = -.79$  and  $-.73$ , respectively,  $p_s < .001$ ), and positively related to favourable appearance evaluation ( $r = .68$ ,  $p < .001$ ) ([Avalos et al., 2005](#)). Additionally, body appreciation contributes unique variance to indices of psychological well-being over and above other body image measures. The range of Cronbach's alphas across study days was .95 to .96 in the

current study. Mean weekly BAS across participants was 3.37 ( $SD = 0.76$ ).

### 2.3.3. Body Image States Scale

Daily satisfaction with one's body was measured using the Body Image States Scale (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). This 6-item scale is rated on a 9-point Likert-type scale that asks participants to endorse statements about their body satisfaction. Sample items from our modified scale included, "Today I felt extremely 'satisfied' to 'extremely dissatisfied' with my body size and shape" and "Today I felt that I looked 'a great deal better' to 'a great deal worse' than the average person." The scale has been shown to yield scores that are internally consistent, valid, and stable among college women (Cash et al., 2002). The Cronbach's alphas across the study days ranged from .83 to .90. Mean weekly score across participants was 5.10 ( $SD = 1.11$ ).

### 2.3.4. Intuitive Eating Scale-2

The 23-item Intuitive Eating Scale-2 (IES-2; Tylka & Kroon Van Diest, 2013) was used to assess the extent to which participants ate intuitively in accordance with their satiety signals and/or cravings, as opposed to dietary rules and/or weight goals. Each night participants completed the IES-2 according to their eating behavior that day by rating items such as "If I was craving a certain food I allowed myself to have it" and "I tried to avoid certain foods high in fat, carbohydrates or calories" (reverse scored) on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Scores on the IES-2 have shown good reliability and validity among college women (Tylka & Kroon Van Diest, 2013). Cronbach's alphas ranged from .87 to .90 across days in the current study. Average intuitive eating over the week was 3.48 ( $SD = 0.48$ ).

### 2.3.5. Dietary Restraint item

A one-item measure taken from the Restraint subscale of the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) assessed dietary restraint, in line with prior research using this item as a standalone measure (Kelly & Stephen, 2016). The statement, "I have been trying to limit the amount and/or types of food I eat in order to influence my shape or weight (whether or not I have succeeded)" was rated by participants from 1 (*not at all*) to 5 (*frequently*) according to their eating habits that day. Mean scores on this brief measure across study days were strongly correlated with scores on the Restraint subscale of the EDE-Q ( $r = .67$ ), which was administered 4–6 days before the daily diary stage of data collection. This correlation supports the item's validity as an indicator of dietary restraint. Average weekly dietary restraint across participants was 2.15 ( $SD = 1.02$ ).

## 2.4. Analytic strategy

Multilevel modeling, using PROC MIXED in SAS 9.3, was used to test our hypotheses. Multilevel modeling is the preferred approach when examining hierarchical data sets such as this one in which assessment days (level-1) were nested within participants (level-2). By using maximum likelihood estimation, multilevel modeling makes use of all available data, including from those participants for whom observations are missing, an inevitable occurrence when administering multiple repeated measures over time (Snijders & Bosker, 1999). Before carrying out our analyses, all predictor variables were centered. In order to examine Hypothesis 1, between-persons (level-2) predictors were created by taking the mean of participants' scores on the variable in question across days of the study. Between-persons exposure to body focused and non-body focused others therefore represented the average level of daily exposure to these people that each participant experienced over the course of the study period.

Two sets of within-person (level-1) predictor variables were calculated for exposure to non-body focused and body focused others. In the first set that addressed Hypothesis 2, we subtracted participants' relevant exposure score on a given day  $t$  from their personal mean level of exposure across the week. These within-person variables represented the extent to which a participant had more or less exposure to non-body focused and body focused others on day  $t$  of the week *relative to her personal average level of exposure over the week*. We can therefore refer to these within-person scores as daily deviations from a participant's personal mean. For the second set of within-persons predictor variables that addressed Hypothesis 3, the LAG function in SAS was first used to create variables representing the level of each variable on the previous day, i.e.,  $t-1$ . The DIF function was then used to create variables representing the change in a participant's score on a given variable between the present day  $t$  and the previous day  $t-1$ . Difference variables were also created for the criterion variables – intuitive eating, body acceptance, dietary restraint, and body image. We used these difference variables to verify that it was not in fact changes in the various criterion variables from one day to the next that were contributing to more or less (actual or perceived) subsequent exposure to body focused and non-body focused others.

Hypotheses were tested with two series of multilevel models. Criterion variables were participants' raw scores on measures of body image and eating across all study days. In the first set of models, we examined how different social interactions might influence eating and body image within a given day and across a week. Fixed effects at level-1 were daily deviation in exposure to body focused others and daily deviation in exposure to non-body focused others. Level-2 fixed effects were the covariate BMI, mean exposure to body focused others, and mean exposure to non-body focused others. Including exposure to body focused and non-body focused others as simultaneous predictors allowed us to control for any shared variance between the variables, which may have represented participants' amount of exposure to other people more generally.

In the second set of models, we examined how changes in exposure to body focused and non-body focused others from one day to the next might influence eating and body image. The only level-2 fixed effect was the covariate BMI. Level-1 fixed effects were the two within-persons difference scores representing changes in a participant's level of exposure to non-body focused others from the preceding day and changes in her level of exposure to body focused others, as well as a covariate lagged variable representing levels of the relevant criterion variable on the preceding day. This model would enable us to determine whether the change in exposure to non-body focused and/or body focused others a given participant experienced from yesterday to today contributed to her body image and eating today, controlling for her body image and eating yesterday.

## 3. Results

### 3.1. correlations and intraclass Correlations

Intraclass correlations (ICCs) were computed for all study variables (see Table 1). ICCs represent the proportion of total variance in scores that can be attributed to between-persons differences (Koch, 1982). The ICCs for exposure to body focused others and exposure to non-body focused others were .50 and .44, respectively. These numbers indicate that level of exposure to these types of people varied roughly as much between-persons over the week as it did within a given person from one day to the next. Exposure to non-body focused others, in particular, showed slightly more temporal variability than stability. As reported elsewhere (Kelly & Stephen, 2016), ICCs for criteria variables ranged from .56 (dietary restraint)

**Table 1**  
Zero-Order Correlations, Intraclass Correlations (ICCs), and Means and Standard Deviations (SDs) of Study Variables.

	BMI	Exposure to non-body focused	Exposure to body focused	Intuitive eating	Dietary restraint	Body appreciation	Body satisfaction	ICC	Mean (SD)
BMI	—	-.09	.11	-.14	.33**	-.24*	-.31**	—	22.47 (3.28)
Exposure to non-body focused	—	—	.23*	.36***	-.08	.15	.13	.44	2.97 (0.87)
Exposure to body focused	—	.22*	—	-.28**	.36***	-.20†	-.05	.50	2.00 (0.83)
Intuitive eating	—	.10	.06	—	-.49***	.62***	.46***	.66	3.48 (0.48)
Dietary restraint	—	.07	.00	-.10	—	-.46***	-.40***	.56	2.15 (1.02)
Body appreciation	—	.12	.07	.32**	.03	—	.77***	.77	3.37 (0.76)
Body satisfaction	—	.15	-.03	.22*	-.07	.43***	—	.57	5.10 (1.11)

Note. Between-persons correlations are above the diagonal, within-persons correlations are below.

†  $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

to .77 (body appreciation), indicating that although all variables displayed more between-persons variance, scores on criteria variables still varied within persons from one day to the next.

Within- and between-persons correlations between study variables are presented in Table 1, where within-persons correlations reflect the relationship between daily deviations on day  $t$ . There was a small positive correlation between exposure to non-body focused and exposure to body focused others at both the between-persons and within-persons level, perhaps reflecting an overlap in frequency of weekly and daily social interactions more broadly. At the within-persons level, neither form of exposure was related to criteria variables. At the between-persons level, a higher mean level of exposure to non-body focused others was associated with higher mean levels of intuitive eating, over the week. A higher mean level of exposure to body focused others was associated with lower mean levels of intuitive eating and body appreciation ( $p < .10$ ), and higher mean levels of dietary restraint.

### 3.2. Multilevel models predicting body image variables

#### 3.2.1. Body appreciation

At the between-persons level, mean exposure to non-body focused others (Hypothesis 1a) positively predicted body appreciation over the week, and mean exposure to body focused others (Hypothesis 1b) negatively predicted body appreciation at a trend-level,  $p = .07$  (Table 2). Within-persons, daily deviations in exposure to non-body focused others (Hypothesis 2a) positively predicted body appreciation, but daily deviations in exposure to body focused others (Hypothesis 2b) was not a predictor,  $p = .68$ . As shown in Table 3, preceding change in exposure to non-body focused others was predictive of that day's body appreciation at a trend level, while exposure to body focused others was not a significant predictor ( $p = .51$ ). Furthermore, changes in body appreciation from the preceding day did not predict that day's exposure to non-body focused others,  $\beta = 0.04$ ,  $SE = .07$ ,  $p = .59$ , or body focused others  $\beta = -0.08$ ,  $SE = .07$ ,  $p = .30$  (Hypothesis 3). In sum, participants who on average had greater interactions with non-body focused others over the week also tended to have higher average levels of body appreciation. In addition, a given participant's body appreciation was higher on days when she was exposed to more non-body focused others than they usually were, and when their exposure to non-body focused others was higher than the previous day.

#### 3.2.2. Body satisfaction

There were no between-persons predictors of body satisfaction as assessed by our daily version of the Body Image States Scale (Hypothesis 1). At the within-persons level, daily deviation in exposure to non-body focused others (Hypothesis 2a) was a positive predictor but daily deviation in exposure to body focused others (Hypothesis 2b) was not a significant predictor,  $p = .60$  (see Table 2).

Therefore, participants reported better body satisfaction on days when they reported more exposure to non-body focused others than what was typical for them. In the second model (see Table 3), within persons change in exposure to non-body focused others from the preceding day was significantly predictive of that day's body satisfaction, suggesting that increases in exposure to non-body focused others compared to the previous day was related to better body satisfaction. Changes in exposure to body focused others from the previous day did not significantly predict body image,  $p = .86$ . Additionally, changes in body satisfaction from the previous day did not predict that day's exposure to non-body focused others ( $\beta = 0.03$ ,  $SE = .03$ ,  $p = .33$ ) or exposure to body focused others ( $\beta = 0.02$ ,  $SE = .03$ ,  $p = .52$ ), providing further evidence that it was differences in exposure to non-body focused others across days that influenced body satisfaction on a given day rather than the vice versa (Hypothesis 3).

### 3.3. Multilevel models predicting eating variables

#### 3.3.1. Intuitive eating

At the between persons-level, mean exposure to non-body focused others (Hypothesis 1a) was a positive predictor of intuitive eating and mean exposure to body focused others (Hypothesis 1b) was a negative predictor (see Table 2). At the within-persons level in the first model, there was a trend for daily exposure to non-body focused others (Hypothesis 2b) to positively predict intuitive eating,  $p = .05$ , whereas daily exposure to body focused others (Hypothesis 2b) was not a significant predictor (see Table 2). At the within-persons level in the second model, preceding change in exposure to non-body focused others was a significant positive predictor of intuitive eating on a given day, whereas preceding change in exposure to body focused others was not,  $p = .43$  (see Table 3). Two follow-up multilevel models sought to shed further light on the directionality of these relationships and examined whether preceding changes in intuitive eating predicted exposure to body focused and non-body focused others. In these models, changes in intuitive eating from one day to the next significantly predicted exposure to non-body focused others  $\beta = 0.25$ ,  $SE = .09$ ,  $p = .005$ , but did not predict exposure to body focused others,  $\beta = 0.10$ ,  $SE = .09$ ,  $p = .27$  (Hypothesis 3). Therefore, participants typically ate more intuitively if their average level of exposure to non-body focused others was high, and less intuitively if their average level of exposure to body focused others was high. On days when participants had more exposure to non-body focused others than usual and on days when this exposure was greater than the day before, their intuitive eating was also greater. In addition, participants reported greater exposure to non-body focused others on days when their intuitive eating was greater than the day before.

**Table 2**  
Fixed Effects for Models Predicting Intuitive Eating, Dietary Restraint, Body Appreciation, and State Body Image for Between- and Within-Persons Effects.

	Fixed Effect	$\beta$ (SE)	F	DF
Intuitive Eating	Intercept	3.52 (.05)	–	90
	Between Persons Predictors			
	Average non-body focused exposure	0.25 (.05)***	22.39***	90
	Average body focused exposure	–0.23 (.06)**	17.38***	90
	Within Persons Predictors			
	Deviation non-body focused exposure	0.04 (.02)*	5.72**	432
	Deviation body focused exposure	0.02 (.02)	1.47	432
Dietary Restraint	Intercept	2.19 (.10)	–	84
	BMI	0.46 (.16)	8.32**	84
	Between Persons Predictors			
	Average non-body focused exposure	–0.19 (.11)†	2.85	84
	Average body focused exposure	0.48 (.12)**	15.63**	84
	Within Persons Predictors			
	Deviation non-body focused exposure	0.00 (.05)	0.00	406
	Deviation body focused exposure	0.06 (.06)	0.96	406
Body Appreciation	Intercept	3.35 (.08)	–	83
	BMI	–0.27 (.13)*	4.38*	83
	Between Persons Predictors			
	Average non-body focused exposure	0.18 (.09)*	4.07*	83
	Average body focused exposure	–0.18 (.10)†	3.45 †	83
	Within Persons Predictors			
	Deviation non-body focused exposure	0.05 (.02)*	5.27*	406
	Deviation body focused exposure	0.01 (.02)	0.17	406
Body Satisfaction	Intercept	5.06 (.12)	–	84
	BMI	–0.53 (.19)**	7.53**	84
	Between Persons Predictors			
	Average non-body focused exposure	0.18 (.14)	1.7	84
	Average body focused exposure	–0.08 (.15)	0.30	84
	Within Persons Predictors			
	Deviation non-body focused exposure	0.12 (.05)*	5.12*	407
	Deviation body focused exposure	–0.03 (.06)	0.28	407

Note. BMI was an initial covariate in all models but was removed when it was not a significant predictor of a given criterion variable, which was the case for intuitive eating. Deviation refers to the extent to which scores on a particular day departed from participants' personal average score over the week. Unstandardized betas are reported.

- †  $p < .10$ .
- \*  $p < .05$ .
- \*\*  $p < .01$ .
- \*\*\*  $p < .001$ .

**Table 3**  
Fixed Effects for Models Predicting Intuitive Eating, Dietary Restraint, Body Appreciation and State Body Image Based on Changes in Exposure From the Previous Day.

	Fixed Effect	$\beta$ (SE)	F	DF
Intuitive Eating	Intercept	3.52 (.05)	–	82
	Lagged Intuitive Eating	–0.16 (.05)	9.25**	335
	Within Persons Predictors			
	Difference non-body focused exposure	0.02 (.01)	4.29†	335
	Difference body focused exposure	0.01 (.01)	0.64	335
Dietary Restraint	Intercept	2.14 (.11)	–	76
	Lagged Dietary Restraint	–0.29 (.05)	31.12***	314
	BMI	0.55 (.18)	9.08*	74
	Within Persons Predictors			
	Difference non-body focused exposure	–0.08 (.03)	6.17*	314
	Difference body focused exposure	0.05 (.04)	1.83	314
Body Appreciation	Intercept	3.34 (.08)	–	76
	Lagged Body Appreciation	–0.24 (.06)	15.15**	316
	BMI	–0.34 (.14)	5.74†	74
	Within Persons Predictors			
	Difference non-body focused exposure	0.03 (.02)	3.33†	316
	Difference body focused exposure	0.01 (.02)	0.43	316
Body Satisfaction	Intercept	5.08 (.13)	–	76
	Lagged Body Satisfaction	–0.16 (.05)	9.94**	316
	BMI	–0.49 (.21)	5.35*	74
	Within Persons Predictors			
	Difference non-body focused exposure	0.10 (.04)	7.80**	316
	Difference body focused exposure	–0.01 (.04)	0.03	316

Note. BMI was an initial covariate in all models but was removed when it was not a significant predictor of a given criterion variable, which was the case for intuitive eating. Lagged variables represent scores from the previous day  $t - 1$ . Difference scores represent the difference from day  $t$  and the previous day  $t - 1$ . Unstandardized betas are reported.

- †  $p < .10$ .
- \*  $p < .05$ .
- \*\*  $p < .01$ .
- \*\*\*  $p < .001$ .

### 3.3.2. Dietary restraint

As shown in Table 2, at the between-persons level, mean exposure to non-body focused others (Hypothesis 1a) negatively predicted dietary restraint at a trend level, and mean exposure to body focused others (Hypothesis 2b) was a significant positive predictor of restraint. At the within-persons level, daily deviations in exposure to non-body focused others and in exposure to body focused others did not significantly predict restraint (Hypothesis 2a and 2b) (Table 2). In the second model, preceding change in exposure to non-body focused others was a significant negative predictor of dietary restraint, while preceding change in exposure to body focused others was not,  $p = .18$  (Table 3). Additional multilevel models showed that changes in dietary restraint from one day to the next did not significantly predict exposure to non-body focused others,  $\beta = -0.04$ ,  $SE = .03$ ,  $p = .17$ , or exposure to body focused others,  $\beta = -0.03$ ,  $SE = .03$ ,  $p = .29$  (Hypothesis 3). Thus, participants who typically had higher levels of exposure to body focused others over the week tended to show more dietary restraint on average, and those who were generally more exposed to non-body focused others showed less. Additionally, participants reported engaging in less dietary restraint on days when their exposure to non-body focused others had increased from the previous day.

In summary, levels of exposure to non-body focused others uniquely predicted intuitive eating, dietary restraint, and body appreciation at the between-persons level. At the within-persons level, a greater-than-usual level of exposure to non-body focused others uniquely predicted greater body appreciation, intuitive eating and better body satisfaction on that day. Furthermore, increased exposure to non-body focused others relative to the previous day was associated with greater intuitive eating, body appreciation, and body satisfaction, as well as less dietary restraint. Exposure to body focused others was uniquely predictive of less body appreciation and intuitive eating, and greater dietary restraint at the between persons level only. Within-persons, exposure to body focused others was not predictive of body image or eating within a day or from one day to the next. Finally, with the exception of intuitive eating, changes in eating and body image from one day to the next did not predict subsequent self-reported exposure to non-body focused or body focused others.

## 4. Discussion

The current study examined whether college women's level of exposure to body focused and non-body focused others – over a week, within a day, and from one day to the next – uniquely contributed to their body image and eating behavior. Results supported Hypothesis 1a and 1b, such that exposure to non-body focused and body focused others each uniquely predicted body image and eating outcomes at the between-persons level, with exposure to non-body focused others predicting more adaptive body image outcomes. Our second hypothesis evidenced partial support, such that participants' body image and eating were better on days when they encountered more non-body focused others than usual (Hypothesis 2a). However, contrary to Hypothesis 2b, more exposure to body focused others than usual was not related to body image and eating within a day. Our third hypothesis was also partly supported. Changes in frequency of exposure to non-body focused others – but not body focused others – from one day to the next was predictive of subsequent eating and body image, whereas in general, changes in eating and body image from the previous day did not influence subsequent reports of exposure to body focused or non-body focused others.

These findings are the first to suggest that social interactions with non-body focused others (i.e., others who focus little on

controlling their body and eating) contribute uniquely to college women's body image and eating when controlling for the contribution of interactions with body focused others. Moreover, results suggest that exposure to non-body focused others are important both between- and within-persons. At the between-persons level, women who had consistently higher levels of exposure to non-body focused others over the week also tended to have on average, more positive body image (i.e., greater body appreciation and body satisfaction) and importantly, this relationship was not accounted for by their level of exposure to body focused others. In addition, women who on average interacted more frequently with body focused others reported more maladaptive body image and eating (i.e., lower body appreciation and greater dietary restraint), even when accounting for their exposure to non-body focused others. This study is the first to our knowledge to demonstrate that both these forms of exposure contribute unique variance to women's eating and body image, and that a greater level of exposure to adaptive body image displays in others may benefit women's own body image.

At the within-persons level, results revealed that the frequency of college women's interactions with non-body focused others over the week displayed moderate variability from day-to-day, and that these fluctuations were associated with fluctuations in their personal body image and eating. Specifically, more daily exposure to non-body focused others than usual was associated with women relating to their bodies, and eating, more adaptively than usual. We also found that increases in exposure to non-body focused others from one day to the next were associated with less restrained and more intuitive eating, and better body image, on the subsequent day. Of note, in nearly all cases, day-to-day changes in body image and eating did not influence participants' subsequent self-reported exposure to body focused or non-body focused others. Although replication is needed, these results suggest that over the days of the study, women's body image and eating did not lead them to perceive others' eating and body image attitudes in a certain way, or to affiliate more or less with certain types of people. Rather, the people that young women were interacting with led them to have certain types of body image and eating experiences.

The findings of this study extend previous research showing that body-preoccupied attitudes and behaviors in others are related to more maladaptive body image attitudes and eating behavior in self (Kelly, Miller, & Stephen, 2016; Oh & Damhorst, 2009; Paxton et al., 1999). However, the preliminary results of this study suggest that routine exposure to body focused others may be what is damaging to women's body image and eating, whereas day-to-day increases in this type of exposure may be less influential. Interestingly, though, exposure to non-body focused others was predictive of outcomes at both between- and within-persons levels. Given that the ICCs for exposure to non-body focused and body focused others were similar (.44 and .50, respectively), the fact that the former contributed to outcomes within-persons and the latter did not cannot be explained by the magnitude of within-person variability women experienced in these forms of exposure. Instead, it seems that participants' eating and body image were only sensitive to day-to-day fluctuations in exposure to non-body focused others.

Although these findings should be replicated, it is interesting to speculate as to why day-to-day variability in exposure to non-body focused others emerged as important, whereas variability in exposure to body focused others did not. Social learning theory provides a possible explanation. Within the current culture, women are socially reinforced for being thin (i.e., receive compliments, have more success romantically) and may face stigma for being heavier, which this theory would see as a punishment (Puhl & Brownell, 2001; Puhl, Andreyeva, & Brownell, 2008). Indeed, women implicitly associate being heavy with social rejection/punishment and activating this association leads women to restrict their eating

(Strahan, Spencer, & Zanna, 2007). Given the prevalence of the thin ideal, it may be that even on days when women were interacting with fewer body focused others than usual, the associations of weight with social acceptance/rejection were still frequently activated by other means, i.e., by exposure to social media, diet culture, television and magazines. As such, fluctuations in levels of body focused social interactions may not have been enough to prompt changes in eating and body image. However, encountering more non-body focused others than usual, or than the day before, may serve to actively draw women's attention to the rewards associated with eating flexibly and being less preoccupied with one's body, and reinforce in them more adaptive body image schemas and eating behavior (Wood-Barcalow et al., 2010). Relatedly, Strahan et al. (2007) found that exposure to media containing famous and successful female celebrities who were overweight was related to subsequently less restrained eating, and authors contend that this was because the images demonstrated to participants that success and happiness is not contingent on weight and appearance. While interesting to consider, no research has directly tested whether such social learning processes are indeed at play in determining one's daily and/or average body image attitudes and behaviors; thus, future research should test these underlying mechanisms. With the rise of movements promoting a broader conceptualization of health and beauty (e.g., Health at every size, Fat Acceptance, Body Positivity) it will also be important for future research to consider how these campaigns may shift media content and sociocultural beauty norms, as this type of activism could lead to societal level changes in women's schemas regarding the social implications of their weight and physical appearance.

#### 4.1. Limitations

There were a number of limitations to the current study. First, the correlational nature of the data collected precludes us from making causal conclusions as to the relationship between interpersonal interactions and body image; nevertheless, analyses do provide evidence for the hypothesized temporal relationships between study variables. It should also be noted that because our criterion variables tended to be correlated with one another, the individual findings we report may not be completely distinct from one another.

Second, although the operationalizations of exposure to "body focused" and "non-body focused" others were face valid and displayed adequate internal consistencies overall, the scale has not been validated, and the factors have only three and two items respectively. Furthermore, the non-body focused measure had only "acceptable to good" reliability across days. Thus, this study should be viewed as a preliminary investigation of the current research questions regarding the influence of different types of social exposure on body image outcomes. Future research should endeavour to measure these forms of social exposure with better validated items and should seek to collect objective reports of other people's behavior and attitudes rather than simply participant reports. Similarly, although the single-item measure of dietary restraint demonstrated good face and concurrent validity in the current study, it would be preferable to use a longer well-validated measure in future research.

Third, the study only lasted one week. There may be merit to employing longer assessment periods to understand the long-term contribution of exposure to non-body focused and body focused others, and whether within-person variability over a longer time period (e.g., from one month to the next) has similar or different consequences for one's eating and body image. Relatedly, it may be that awareness of different types of exposure may have changed over the course of the study. This interesting question was not

examined in the current study, but merits exploration in future research.

Finally, there were limitations associated with using a daily diary methodology, such that participants had to reflect back on an entire day when reporting on their experiences. As such we were unable to assess momentary experiences or to obtain detailed information about each specific interaction/interaction partner. Indeed, it is also possible that on some days, certain participants completed their nightly survey before a relevant social interaction. While the present design is preferable over cross-sectional methods that rely on longer recall windows (e.g., a month), the temporal coupling between social interactions and body image and eating may occur over smaller increments of time. Furthermore, the present study was unable to reveal what types of conversations and/or characteristics of participants' interaction partners contributed to participants' body image and eating – for example, was it the other's dispositional level of body image and eating behavior and/or the body and eating attitudes the other displayed in the current or previous day's interaction? Furthermore, information on the participant's role in the interaction will be important to examine in future research so as to determine whether her body image and eating vary as a function of how active her level of involvement was in body focused interactions (i.e., having initiated the interactions versus merely observing them). Future research should build on these preliminary findings to examine such questions using ecological momentary assessment and/or longitudinal dyadic assessment. It will also be important to examine whether demographic variables such as the ethnicity, age, and gender of participants and their interaction partners moderate these effects.

#### 4.2. Conclusions

Although preliminary in nature, the results of this study highlight the importance of developing a broader body of research, both experimental and correlational, examining how variation in levels of body/appearance-related social exposure influences young women's body image. Our results also offer precursory insight into how women may navigate their social context in a way that maximizes adaptive body image outcomes. Given that exposure to non-body focused and body focused others contributed *uniquely* to outcomes, women may experience benefits from trying to interact with more non-body focused individuals even if the frequency of their body focused interactions is high. Furthermore, the benefits of doing so may be readily experienced on that same day and even carry over to the next day. Promoting the inclusion of more non-body focused individuals in one's social sphere may be an integral part of protecting against maladaptive eating and body image patterns and of facilitating adaptive body image and eating.

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