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Sexual Objectification in Women's Daily Lives: A Smartphone Ecological Momentary
Assessment Study

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Abstract

Sexual objectification, particularly of young women, is highly prevalent in modern industrialized societies. Although there is plenty of experimental and cross-sectional research on objectification, prospective studies investigating the prevalence and psychological impact of objectifying events in daily life are scarce. We used Ecological Momentary Assessment to track the occurrence of objectifying events over one week in the daily lives of young women (N=81). Participants reported being targeted by a sexually objectifying event—most often the objectifying gaze—approximately once every 2 days and reported witnessing sexual objectification of others approximately 1.35 times per day. Further, multilevel linear regression analyses showed that being targeted by sexual objectification was associated with a substantial increase in state self-objectification. Overall, individual differences had little impact in moderating these effects.

Keywords: sexual objectification; ecological momentary assessment / experience sampling; street harassment; self-objectification

In October 2014, domestic violence activist group ‘Hollaback!’ posted a video on YouTube to highlight the prevalence of street harassment and objectification in the lives of young women. The video shows hidden camera footage of a woman dressed in jeans and a black crewneck t-shirt walking the streets of New York City for ten hours. Over the course of the day, the camera recorded over 100 instances of objectifying behaviour directed towards her, including verbal harassment, stares, winks, whistles, and crude gestures. This video quickly went viral, amassing over 42 million views on YouTube as of March 2016.

While public interest in the sexual objectification of women may ebb and flow, a steady stream of research on the topic has emerged over the last two decades, following in the footsteps of Fredrickson and Roberts’ (1997) influential paper on ‘Objectification Theory’.

Yet, due to a lack of naturalistic studies we still know very little about the prevalence and psychological impact of sexual objectification in daily life. Most research on the prevalence of sexually objectifying events has relied on one-shot retrospective surveys such as the Schedule of Sexist Events (Klonoff & Landrine, 1995) and the Interpersonal Sexual Objectification Scale (ISOS; Kozee, Tylka, Augustus-Horvath, & Denchik, 2007). While retrospective questionnaires are ideal for administration to large samples (e.g., Hollaback!, 2016), their validity is undermined by cognitive and recall biases (Schwarz, 2011). Research on the psychological impact of sexual objectification, mostly conducted in the lab (e.g., Gervais, Vescio, & Allen, 2011; Saguy, Quinn, Dovidio, & Pratto, 2010), is unaffected by retrospective biases but often lacks ecological validity (Mitchell, 2012).

The present research aimed to track the prevalence and short-term impact of objectifying events in the daily lives of young women using ecological momentary assessment (EMA). Specifically, we employed EMA to assess the prevalence of targeted and witnessed objectification, and the effect of such experiences on women's preoccupation with their appearance (i.e., self-objectification) over time. We also explored a number of individual differences as potential moderators of these effects. To our knowledge, this study is the first to capture objectifying events as they occur in women's daily lives, and the impact that they have on self-objectification.

The prevalence of sexual objectification for women

Large-scale retrospective surveys suggest that sexual objectification is experienced frequently by females from a young age. A cross-cultural study spanning twenty-two countries and surveying over 16,000 women found that 84% first experience street harassment before the age of 17 (Hollaback!, 2016). Similarly, a recent Australian study estimates the lifetime prevalence of sexual harassment among women to be 87%, with harassment including everything from wolf-whistles and catcalls to more severe forms, such as groping and stalking (Johnson & Bennett, 2015). While these lifetime prevalence rates are alarming, they may be distorted by recall biases, and also do not reveal how often women are exposed to sexual objectification over shorter periods in their daily lives (e.g., a day or a week).

Human memory is far from perfect (Schacter, 1999). Recalling autobiographical events involves an active reconstruction process, biased by current knowledge and beliefs (Schacter, 1999; Thompson, Skowronski, Larson, & Betz, 2013). Retrospectively estimating the frequency of common daily events is particularly prone to distortion because individual instances of the event "blend into one global, knowledge-like representation" (Schwarz,

2011, p.29). If sexual objectification is as prevalent as retrospective studies have reported, accurately estimating the frequency of objectifying events over periods of weeks, months, or years may be difficult.

We are aware of only two previous investigations of women's experiences of objectifying events that used prospective designs. These studies used either event-contingent sampling—where participants are required to complete a survey as soon as possible after a sexually objectifying event occurs (Swim, Hyers, Cohen, & Ferguson, 2001, Studies 1 and 2), or daily diaries—where participants report on objectifying events at the end of each day (Brinkman & Rickard, 2009; Swim et al., 2001, Study 3). Using event-contingent sampling over two weeks, Swim et al. (2001) found that women were exposed to sexist events approximately once (Study 1) or twice (Study 2) per week. However, in these studies instances of sexual objectification comprised only one subset of these sexist events, and were reported only once (Study 1) or twice (Study 2) per month, on average. In contrast, using a daily diary approach resulted in much higher prevalence rates, with Swim et al.'s participants (2001; Study 3) reporting sexual objectification approximately 1.38 times per week and Brinkman and Rickard's (2009) participants reporting objectifying events approximately 1.29 times per day.

These event-contingent and daily diary studies are less prone to retrospective biases than long-term retrospective surveys. Nonetheless, prevalence estimates vary substantially across the four studies, ranging from once per month to more than once per day. It is quite likely that these discrepancies relate to the sampling methodology used, with daily diary studies (Brinkman & Rickard, 2009; Swim et al., 2001; Study 3) providing higher prevalence than event-contingent sampling studies (Swim et al., 2001; Studies 1 & 2). Given that event-contingent sampling relies on participants' being sufficiently motivated and remembering to complete a survey after each event, participants are likely to under-report events, particularly if they are relatively frequent (Reis & Gable, 2000). Daily diary studies are less burdensome as participants must only remember to complete one survey at the end of each day. However, end-of-day reports rely on participants' ability to accurately reconstruct events over an entire day, a difficult task unless the day is first divided into shorter episodes (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). In sum, neither daily diary nor event-contingent sampling approaches are well-suited to studying frequent daily occurrences, such as sexual objectification (Reis & Gable, 2000).

We addressed these limitations in the current study by using a more intensive signal-contingent EMA design, which does not rely on participants remembering to complete

surveys (cf. event-contingent sampling) or retrospectively recalling events over long periods (cf. daily diaries). Instead, participants were prompted to report whether a sexually objectifying event had occurred within the past 1-2 hours several times each day. Thus, signal-contingent EMA designs are ideally suited to capturing relatively frequent events in daily life (Reis & Gable, 2000).

The impact of objectifying events on women's self-objectification

A central tenet of Fredrickson and Roberts' (1997) Objectification Theory is that interpersonal objectification experiences lead to a process known as self-objectification, whereby women become preoccupied with their appearance, learning to internalise a third-person perspective on the self. To date, a number of experimental studies have demonstrated that exposure to objectifying environments leads to increases in women's momentary self-objectification (e.g., Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Tiggemann & Boundy, 2008). As previously mentioned, however, the ecological validity of such lab-based studies may be questionable. Cross-sectional correlational research has also provided support for Fredrickson and Roberts' (1997) claim, showing that women who report greater exposure to objectifying events in their daily lives also tend to score higher on trait measures of self-objectification (e.g., Kozee et al., 2007; Tylka & Kroon van Diest, 2014). Aside from the problems associated with retrospective biases, discussed earlier, such cross-sectional findings are exclusively "between-persons" and cannot be assumed to reflect how exposure to objectifying events influences self-objectification over time for any given individual (i.e., "within-persons"; Hamaker, 2012). To date, no existing research has explored how objectifying events in daily life influence momentary state self-objectification.

To our knowledge, only one study (Breines, Crocker, & Garcia, 2008) has explored women's self-objectification in daily life. Although this study used EMA to assess momentary fluctuations in state self-objectification, the researchers did not examine exposure to objectifying events or how this impacts self-objectification. Thus, the current study expands upon previous research by examining how exposure to objectifying events is related to (within-person) changes in self-objectification over time, providing the first test of this important tenet of Objectification Theory in the context of daily life.

The role of individual differences

Scant research to date has explored what individual differences make women more or less prone to encounter objectifying events, and what factors buffer women from self-objectifying in response to such events. Swim et al. (2001) examined a number of individual difference measures (modern sexism, traditional gender role beliefs, and feminist activism)

and found no evidence that they predict frequency of objectifying events. Regarding self-objectification, correlational research demonstrates that women high on neuroticism and low on openness and agreeableness tend to score higher on measures of trait self-objectification (Miner-Rubino, Twenge, & Fredrickson, 2002). The present study expands on previous research by exploring how a range of individual difference measures (body shame, self-esteem, restrained eating, trait self-objectification, and the Big 5 personality factors) are related to the frequency of objectifying events, mean levels of self-objectification, and the impact of objectifying events on state self-objectification in daily life. Fredrickson and Roberts (1997) posit that, with the exception of the Big 5, these individual differences are implicated in the objectification theory model as outcomes of self-objectification. Research has demonstrated that self-objectification leads to body shame (e.g., Noll & Fredrickson, 1998), restrained eating (e.g., Fredrickson et al., 1998), and reduced self-esteem (e.g., Choma, Visser, Pozzebon et al., 2010). However little is known about how these individual differences predict the ways in which women respond to objectifying events at an earlier step in the model.

The Current Study

The present research used EMA to assess the prevalence of objectifying events, levels of self-objectification, and the impact of objectifying events on self-objectification in women's daily lives, and explored several individual differences as potential moderators of that impact. Akin to Swim et al. (2001), in assessing objectifying events, we not only asked participants to report events in which they were directly targeted by objectification, but also events in which they witnessed objectification of other women. This witnessed objectification could be interpersonal – simply directed at another woman as opposed to the self, or could be witnessed via the media (e.g., witnessing objectifying billboards, TV shows, or magazines). Given Fredrickson and Roberts' (1997) claim that objectification in the media also facilitates self-objectification, and the abundance of correlational (Morry & Staska, 2001) and experimental research (e.g., Aubrey, Henson, Hopper, & Smith, 2009) supporting this link, we also examined how exposure to objectifying media in women's daily lives impacted state self-objectification.

Beyond this, we sought to extend upon Swim et al. (2001) and Brinkman and Rickard (2009) by examining the prevalence of distinct forms of objectification, including the objectifying gaze, catcalling/wolf-whistling, groping, sexual gestures, and sexual remarks. Johnson and Bennett (2015) found that of the different forms of objectification, the gaze and wolf-whistling were most commonly reported, experienced by approximately one-third of

Australian women over a twelve-month period. However, no research has explored the prevalence of these events on a daily basis.

Using EMA, we aimed to compare our prevalence estimates to previous studies that have used retrospective or daily diary designs. In line with Fredrickson and Roberts (1997), we hypothesized that objectifying events (both experienced and witnessed) would predict subsequent increases in state self-objectification. Although the inclusion of the individual differences in our study was somewhat exploratory, we predicted that individuals high in neuroticism and low in openness and agreeableness would be more likely to engage in state self-objectification, consistent with Miner-Rubino et al. (2002).

Method

Participants

Participants were 81 women, aged 18 to 46 ($M_{\text{age}} = 22.33$ years, $SD = 5.47$), recruited through advertisements posted around university buildings and via social media (e.g., Facebook, Gumtree). Participants predominantly identified as Caucasian (48.8%), East Asian (35.4%) and South Asian (13.4%), with 2 participants identifying as “other”. We aimed to recruit 100 women (by 31 December, 2015), but only managed to recruit 82 women who consented to participate. One participant withdrew during the initial lab session leaving a final sample of 81. All participants were required to own a smartphone running either Android (version 4.1 or higher) or iOS (version 7.1 or higher). Participant reimbursement comprised a fixed amount of AU\$30 plus additional incentives of up to AU\$20, contingent on EMA compliance, with maximum reimbursement for completing $\geq 85\%$ of EMA surveys. Compliance with the EMA protocol was generally high: half the participants completed $\geq 85\%$ of EMA surveys and received the maximum reimbursement.

Materials

Baseline survey.¹

Body Shame. Body shame was assessed via the eight-item body shame subscale of the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996). Example items included “When I can’t control my weight, I feel like there must be something wrong with me” and “When I’m not the size I think I should be, I feel ashamed”. Participants rated each

¹ The baseline survey also included four other scales, which are not discussed in the present paper. These scales include the Positive and Negative Affect Schedule – Expanded Form (Watson & Clark, 1994), the Interpersonal Reactivity Index (Davis, 1980), and the Other-Objectification Questionnaire (Strelan & Hargreaves, 2005) administered separately to assess the objectification of women and men.

item on a scale from 1 (strongly disagree) to 7 (strongly agree). Reliabilities and descriptive statistics for all individual differences are provided in Table 1.

Trait Self-Objectification. The Self-Objectification Questionnaire (SOQ; Noll & Fredrickson, 1998) was employed to measure trait self-objectification. The questionnaire asks participants to rank the importance of ten different body attributes on the physical self-concept, five of which are observable appearance-based attributes (e.g., physical attractiveness, sex appeal, measurements), and five of which are non-observable competence-based attributes (e.g., energy level, health, physical coordination). Participants ranked the ten attributes on a scale from 1 (least impact on the physical self-concept) to 10 (greatest impact on the physical self-concept). A difference score for each participant was calculated reflecting the relative emphasis given to these two types of attributes, by subtracting the sum of the ranks for the competence-based attributes from the sum of the ranks for the appearance-based attributes. Difference scores ranged from -25 to 25, with higher scores reflecting greater trait self-objectification (i.e., greater emphasis on appearance-based attributes).

Restrained Eating. We assessed the extent to which participants restrained their food intake through an adapted version of Stice's (1998) Dietary Intent Scale (DIS). The DIS is a nine-item scale that measures intended restrained eating behaviour. Items were altered in the present study to reflect current, rather than future, behaviour. Example items include "I eat low calorie foods in an effort to avoid weight gain" and "I skip meals in an effort to control my weight". Participants responded on a scale from 1 (never) to 7 (always).

Self-Esteem. Rosenberg's (1965) ten-item self-esteem scale was administered. Example items include "On the whole, I am satisfied with myself" and "I take a positive attitude towards myself", with items scored on a scale from 1 (strongly disagree) to 4 (strongly agree).

Personality. We assessed personality via the 44-item Big Five Inventory (John, Donahue, & Kentle, 1991). The scale measured the five dimensions of personality – extraversion, agreeableness, openness to experience, neuroticism, and conscientiousness – with each item rated on a scale from 1 (disagree strongly) to 5 (agree strongly).

Table 1 about here

EMA survey. At each EMA prompt, participants completed a measure of state self-objectification (“since the last survey, have you been thinking about how you look to other people?”) rated on a scale from 0 (not at all) to 100 (very much so). This item was adapted from the self-surveillance subscale of McKinley and Hyde’s (1996) OBCS. Next, participants indicated whether they had been targeted by any sexually objectifying events since the previous survey, using a checklist adapted from Kozee et al. (2007). For this item, participants could select one or more of the following check-box options: i) catcalling, wolf-whistling, or car honking; ii) sexual remark made about body; iii) touched/fondled against will; iv) body looked at sexually; v) degrading sexual gesture; vi) other objectifying behaviour not listed above; and vii) none of the above. Finally, participants were asked to indicate whether they had witnessed someone else being targeted by sexually objectifying behaviors, using the same check-list with one additional response option, viii) media image/video, which was designed to capture sexual objectification in the media.²

Procedure

Participants attended an initial lab session where they completed the baseline survey. Participants then downloaded SEMA2, a custom-built application for delivering real-time surveys on Android and iOS smartphones, and received detailed instructions for completing EMA surveys. They were provided with examples of the different forms of objectification, and were told to make a personal judgment regarding whether they believed the behavior classified as objectification. Participants also practiced completing the EMA survey and could ask clarification questions before leaving the lab. Over the next seven days, participants were prompted to complete an EMA survey at random intervals ranging from 54 and 114 min between the hours of 10am and midnight (i.e., on average, participants were prompted to complete an EMA survey every 84 min, equating to 10 EMA surveys per day). Unanswered surveys expired after 15 min to prevent back-filling. On average, participants responded to 83% of EMA surveys (Median = 86%, SD = 13%, Range = 37 to 100%), reflecting very good compliance. One week later, participants attended a second lab session for debriefing and were reimbursed.

Data Preparation

Screening of responses to the EMA check-box items assessing objectifying events revealed that some events were rare (e.g., “touched/fondled against will” was reported 16 times). Thus, we collapsed responses on all of the event items into two binary Target and

² The EMA survey also contained nine items assessing momentary feelings, which were not analyzed for the current report.

Witness variables, where a value of 1 indicates that one or more sexually objectifying events occurred and a value of 0 indicates that no objectifying event occurred.³ While we first assessed the prevalence of the different forms of targeted and witnessed objectification separately, for all subsequent multilevel analyses we employed the binary Target and Witness variables.

Statistical Analyses

To account for the hierarchical data structure, where occasions (i.e., EMA surveys, $n = 5,768$) were nested within persons ($n = 81$), we analysed data using multilevel modelling with HLM version 7.01 (Raudenbush, Bryk, & Congdon, 2013). Specifically, we constructed a series of two-level random coefficient models.

Random intercept models: Mean level of self-objectification and prevalence of objectifying events. We modelled mean levels of self-objectification and prevalence of interpersonal objectification (i.e., Target and Witness) and their associations with individual difference variables using a series of random intercept models. At the within-person level of each model, person i 's value on the outcome at time t was modelled by an intercept (π_{0i}) and a residual (e_{ti}) as shown in Equation 1:

$$Y_{ti} = \pi_{0i} + e_{ti} \quad (1)$$

With self-objectification (a continuous variable) as the outcome, the intercept (π_{0i}) represents person i 's mean level of self-objectification across all EMA occasions, and the residual (e_{ti}) represents how much person i 's score at time t deviates from their mean level. When modelling Target or Witness objectification (binary variables) as outcomes, a log-link function was added to the model shown in Equation 1. In this case, the intercept (π_{0i}) represents person i 's log odds of being targeted by or witnessing objectifying events across all EMA occasions. The log odds can be exponentiated to give the odds of being targeted by or witnessing an objectifying event.

For both continuous and binary outcomes, the intercept (π_{0i}) has a subscript i , indicating that it can vary between-persons. We modelled between-person variability in the intercept (π_{0i}) as a function of standardized scores on the individual difference variables (denoted below by the generic term $z_{Moderator_i}$). Specifically, at the between-person level, the intercept (π_{0i}) was treated as an outcome and modelled by a fixed intercept (β_{00}) reflecting the grand mean of the outcome in the sample, a fixed slope (β_{01}) reflecting the standardized

³ Out of a total of 4,777 completed EMA reports, women reported being targeted by multiple objectifying events on 57 occasions (1%) and witnessing multiple objectifying events on 120 occasions (2.5%).

association with the moderator⁴, and a random effect (r_{0i}) reflecting each person i 's deviation from the grand mean after accounting for the effect of the moderator, as shown in Equation 2:

$$\pi_{0i} = \beta_{00} + \beta_{01} (zModerator_i) + r_{0i} \quad (2)$$

Random slope models: Impact of objectifying events on self-objectification. We modelled the impact of witnessing or being targeted by an objectifying event (denoted by the generic term $Objectifying\ Event_{ti}$) on changes in state self-objectification, as well as potential moderating effects of individual difference variables, using a series of random slope models. The within-person equation for these analyses is shown in Equation 3:

$$Self - Objectification_{ti} = \pi_{0i} + \pi_{1i}(Objectifying\ Event_{ti}) + \pi_{2i}(Self - Objectification_{t-1i}) + e_{ti} \quad (3)$$

Here, person i 's level of self-objectification at time t is modelled as a function of an intercept (π_{0i}), and a slope (π_{1i}) representing the effect of being targeted by ($Target_{ti}$) or witnessing ($Witness_{ti}$) an objectifying event at time t , while controlling for person i 's level of self-objectification at time $t-1$ (captured by the slope π_{2i}). The “lagged” predictor, self-objectification $_{t-1}$, was person-centred (i.e., each person i 's mean across all occasions was subtracted from their score at each time-point) so that π_{0i} represents person i 's mean level of self-objectification across all occasions t on which no objectifying event was reported (i.e., when $Target_{ti}$ or $Witness_{ti} = 0$). By including the lagged predictor (self-objectification $_{t-1}$) in the model, the slope of objectifying events (π_{1i}) can be interpreted as the predicted change in self-objectification from $t-1$ to t as a function of person i reporting an objectifying event as having occurred between $t-1$ and t (recall that participants reported events “since the last survey”). $Target_{ti}$ and $Witness_{ti}$ were entered as predictors in separate models.

We allowed the both the intercept and slopes in Equation 3 to vary between-persons and modelled their associations with standardized scores on the individual difference variables (denoted below by the generic term $zModerator_i$) as shown in Equations 4-6:

$$\pi_{0i} = \beta_{00} + \beta_{01} (zModerator_i) + r_{0i} \quad (4)$$

$$\pi_{1i} = \beta_{10} + \beta_{11} (zModerator_i) + r_{1i} \quad (5)$$

$$\pi_{2i} = \beta_{20} + \beta_{21} (zModerator_i) + r_{2i} \quad (6)$$

Specifically, the within-person intercept (π_{0i}) and slopes (π_{1i} , π_{2i}) were treated as outcomes and modelled by fixed intercepts (β_{00} , β_{10} , β_{20}) reflecting the grand means of each outcome in the sample, fixed slopes (β_{01} , β_{11} , β_{21}) reflecting standardized associations with the moderator, and random effects (r_{0i} , r_{1i} , r_{2i}) reflecting each person i 's deviation from the grand mean after accounting for the effect of the moderator. We were particularly interested in β_{10} ,

⁴ For models including the Big Five personality traits, we entered all five predictors simultaneously and estimated 5 fixed slopes ($\beta_{01} \dots \beta_{05}$), reflecting the unique effects of each personality dimension.

reflecting the average (within-person) impact of exposure to an objectifying event on change in state self-objectification, and β_{11} , which represents the moderating effect of individual difference measures (e.g., self-esteem) on the within-person impact of objectifying events on self-objectification.⁵

Results

Prevalence Statistics: Targeted Objectification

Women in our study reported being targeted by sexual objectification on 299 out of 4,777 completed EMA surveys (occasions). On average, women reported being targeted 3.69 times per week ($SD = 5.22$, Median = 2, Range = 0 to 26), with 75% of participants (i.e., 61 women) being targeted by objectification at least once during the week. A total of 380 objectifying behaviours were reported over these 299 occasions, with women being targeted by a single objectifying behaviour on the majority of occasions (81%) and a maximum of five objectifying behaviours reported on two occasions (<1%). Figure 1a depicts the prevalence of the different forms of objectification, showing that women were most frequently targeted by the objectifying gaze (55% of events), followed by other forms of objectification (18%), and catcalls/wolf-whistles (11%).

Figure 1a and 1b about here

Prevalence Statistics: Witnessed Objectification

Women reported witnessing objectification in 763 EMA surveys (occasions). On average, women reported witnessing objectification 9.42 times over the week ($SD = 10.82$, Median = 6, Range = 0 to 56), with 88% of participants (i.e., 71 women) witnessing objectification at least once during the study. A total of 943 objectifying behaviours were reported across these 763 occasions. Again, witnessing one objectifying behaviour on a given occasion was most common (84%), with a maximum of five forms of witnessed objectification per occasion (<1%). Figure 1b depicts the prevalence of the different forms of witnessed objectification, demonstrating objectification in the media to be most prevalent (64% of events), followed by the objectifying gaze (13%).

⁵ For models including the Big Five personality traits, we entered all five predictors simultaneously and estimated 5 fixed slopes ($\beta_{11} \dots \beta_{15}$), reflecting the unique effects of each personality dimension.

Multilevel Modelling

Results from random intercept models with Target and Witness objectification as outcomes are shown in Table 2. Estimates of β_{00} reflect the average log-odds of being targeted by or witnessing sexually objectifying events across the 7-day EMA sampling period. When converted to odds (see OR values and 95% CIs in Table 2) they indicate that, for the average woman, the odds of being targeted and witnessing an objectifying event were 0.07 and 0.18, respectively. Expressed as probabilities, the average woman had a .065 chance of being targeted and a .154 chance of witnessing an objectifying event on any given occasion.

Estimates of β_{01} in Table 2 reflect the moderating effect of individual difference variables on the odds of being targeted by and witnessing objectifying events. Of the nine dispositional variables, only openness significantly moderated the odds of being targeted, with women scoring higher on openness predicted to have increased odds of being targeted by objectification. The estimated odds ratio for Openness indicates that a participant scoring 1 SD above the mean on Openness was predicted to have 41% greater odds of being targeted by objectifying events than someone scoring at the mean. None of the individual difference variables were reliably related to the odds of witnessing sexually objectifying events.

Table 2 about here

Results of random-intercept models with self-objectification as the outcome are shown in Table 3 (see Mean Level). On average, women in our sample reported a mean level of self-objectification of 34.35 (on a scale from 0 to 100) across the 7-day EMA sampling period (see β_{00} estimate in Table 3, under Mean Level). This is slightly lower than the mean typically observed in questionnaire measures such as the OBCS-Self Surveillance scale (e.g., Calogero & Thompson, 2009; McKinley & Hyde, 1996). However, women scoring higher on restrained eating and body shame, and those scoring lower on self-esteem and Extraversion, reported higher mean levels of self-objectification (see β_{01} estimates in Table 3, under Mean Level). The strongest effect was found for body shame: a participant scoring 1 SD higher than average was predicted to have a mean level of self-objectification 8.16 (\pm 4.45) scale points higher than someone with an average score on body shame. Given that self-objectification was assessed on scale from 0 to 100 this effect is moderate in magnitude, but it may

nevertheless be practically important. Surprisingly, trait self-objectification (as measured by the SOQ) was not reliably related to mean levels of state self-objectification assessed using EMA (see Table 3), although the association was in the predicted positive direction. Thus, women who ranked appearance-based body attributes as highly important to their self-image in the lab at baseline did not reliably report greater preoccupation with their appearance in daily life during the following week.

Results of the random-slope models predicting change in self-objectification as a function of being targeted by or witnessing objectifying events are shown in Table 3 (see Effects of Being Targeted and Witnessing). Estimates of β_{10} revealed that both being targeted by and witnessing sexually objectifying events were associated with increases in self-objectification. However, the increase in self-objectification was much larger when being targeted by versus witnessing objectifying behavior. Specifically, for the average participant, being targeted predicted an 11.95 (± 3.51) point increase in self-objectification, whereas witnessing was only associated with an increase of 3.29 (± 2.57) scale points.

Given the high prevalence of being targeted by the objectifying gaze relative to other forms of objectification (see Figure 1a), we conducted additional analyses separately examining the impact of being targeted by the objectifying gaze versus other objectifying behaviors. Specifically, occasions on which women reported being targeted by objectifying behavior were divided into Gaze-Only occasions ($n = 154$), on which a woman was targeted by the gaze in the absence of any other objectifying behavior, versus Other-Target occasions ($n = 145$), on which a woman was targeted any other objectifying behavior plus or minus the objectifying gaze. This analysis revealed that both being targeted by the objectifying gaze ($\beta = 13.18$, $SE = 2.23$, 95% CI [8.75, 17.60], $p < .001$) and being targeted by other forms of objectification ($\beta = 10.94$, $SE = 2.66$, 95% CI [5.65, 16.23], $p < .001$) were associated with significant increases in self-objectification, and that these two slopes did not differ significantly from each other in magnitude $\chi^2(df = 1) = 0.43$, $p > .50$.

Similarly, given the greater prevalence of witnessing objectification in the media compared with other forms of objectification (see Figure 1b), we conducted further analyses separately examining the impact of witnessing media objectification versus witnessing other objectifying behaviors. Specifically, occasions on which women reported witnessing objectifying behavior were divided into Media-Only occasions ($n = 512$), on which a woman had witnessed objectification in the media in the absence of any other objectifying behavior, versus Other-Witness occasions ($n = 251$), on which a woman witnessed any other objectifying behavior plus or minus objectification in the media. This analysis revealed that

both witnessing objectification in the media ($\beta = 3.25$, $SE = 1.69$, 95% CI [-0.12, 6.62], $p = .059$) and witnessing other forms of objectification ($\beta = 4.05$, $SE = 2.07$, 95% CI [-0.07, 8.17], $p = .054$) were associated with small (marginally significant) increases in self-objectification and that these two slopes did not differ significantly from each other in magnitude $\chi^2(df. = 1) = 0.08$, $p > .50$.

Finally, moderation analyses revealed that the impact of being targeted on self-objectification was marginally amplified among participants scoring higher on restrained eating and body shame, and marginally attenuated among individuals with higher self-esteem, although none of these effects were statistically significant at $p < .05$. Conscientiousness was marginally, but again non-significantly, related to a reduced impact of witnessing objectifying events on self-objectification.

Table 3 about here

Discussion

As anecdotal evidence (e.g., Bates, 2014) and social media activism (e.g., Hollaback!, 2014) suggest, objectifying events are frequently experienced by young women in Western industrialized societies. Despite this, little work has empirically examined the prevalence and impact of such events in women's daily lives. The purpose of our research was to address this important issue. Using EMA with a young female Australian sample, we found that women are targeted by objectifying events, on average, 3.69 times per week (i.e., approximately once every two days) and witness sexual objectification, on average, 9.42 times per week (i.e., more than once per day). We also found that both experienced and witnessed objectification lead to increases in state self-objectification. Overall, individual differences did not play a big role in moderating these effects.

One of the main aims of this paper was to compare the prevalence of objectifying events using EMA to previous estimates using prospective designs (Brinkman & Rickard, 2009; Swim et al., 2001). In their daily diary study, Brinkman and Rickard (2009) found that women reported an average of 1.29 objectifying events per day. This estimate, however, incorporated both experienced and witnessed objectifying events. If we summarize our findings across the Target and Witness categories, we found a slightly higher estimate of 1.87

objectifying events per day (0.53 experienced, and 1.35 witnessed). Similarly, our results suggest objectifying events are more common than reported by Swim et al. (2001), who reported approximately one objectifying event every five days. There are two possible explanations for these discrepancies. First, our results may reflect that objectifying events are becoming increasingly common for young women. Alternatively, as our methodology differs from prior studies (Brinkman & Rickard, 2009; Swim et al., 2001), it is possible that EMA more accurately captures the prevalence of women's experiences of objectifying events, which may have been underreported previously. We therefore believe our estimate provides a higher and likely more accurate representation of women's experienced and witnessed objectification.

Our results also go beyond previous prospective studies to distinguish between different forms of objectifying events. Consistent with Johnson & Bennett's (2015) correlational study, our findings demonstrate that more subtle forms of objectification are most commonly experienced by women – in our sample, the objectifying gaze was the most common, followed by catcalls/wolf-whistles. Although more invasive and overt forms of objectification (e.g., groping, sexual gestures) were less commonly experienced, all forms were reported at least once in our sample. Thus, while such severe instances of objectification may not be common everyday experiences, they still occur frequently enough to have been captured in a 7-day EMA study with a sample of 81 women. In terms of witnessed objectification, objectification in the media was the most prevalent, observed almost daily by women. This is not surprising, given that recent content analyses reveal that over one-third of female artists in music videos are shown in provocative dress (Aubrey & Frisby, 2011), and 83% of females shown on the cover of Rolling Stone in the 2000s were depicted in a sexualized way (Hatton & Trautner, 2011). Thus, even despite recent efforts to reduce objectifying portrayals of women in the media (e.g., Vranica, 2016), such images are still highly prevalent.

Extending upon correlational (e.g., Kozee et al., 2007) and lab-based research (e.g., Fredrickson et al., 1998), our results provide further support for Fredrickson and Roberts' (1997) Objectification Theory by demonstrating a link between objectifying events and self-objectification in the real world. Women reported higher levels of self-objectification following exposure to objectifying events. Although this effect was stronger for objectifying events in which women were personally targeted, an effect still emerged for witnessed objectification. Thus, merely witnessing objectification of other women was sufficient to increase women's preoccupation with their appearance.

Overall, the individual differences examined had little influence in making women more or less prone to encountering or being impacted by objectifying events. Women high in Openness were more likely to be targeted by objectification, although this effect was relatively small and warrants replication. In terms of the influence of the individual differences on state self-objectification, our findings demonstrate that women high in body shame, restrained eating and self-esteem, and low in Extraversion report greater state levels of self-objectification. None of the other Big Five factors had any effect on state self-objectification, and thus we did not replicate the findings of Miner-Rubino et al. (2002).

Of all the moderators tested, it is perhaps surprising that trait self-objectification did not moderate any of the effects. In fact, this measure did not even significantly correlate with mean levels of state self-objectification. One possible explanation for this lack of alignment between state and trait self-objectification is our choice of measures. For trait self-objectification, we employed the SOQ (Noll & Fredrickson, 1998), which asks participants to rank order the importance of observable vs. non-observable body-related attributes to their self-concept. In contrast our measure of state self-objectification was adapted from the OBCS self-surveillance subscale (McKinley & Hyde, 1996), which asked participants about the extent to which they had been thinking about their appearance. As Calogero (2011) has argued, these two widely used measures of self-objectification do not necessarily tap into the same construct – it is possible to value physical appearance without necessarily engaging in a process of self-surveillance. In line with this, some evidence suggests that SOQ scores do not correlate that strongly with self-surveillance scores, and that the two measures predict different outcomes (e.g., Hill & Fischer, 2008; Kozee & Tylka, 2006). The lack of relationship between trait and average levels of state self-objectification in the current study may be due to measurement differences. Future research should investigate how strongly trait self-objectification correlates with average levels of state self-objectification in daily life, using more similar measures.

Although this is the first study to examine women's daily experiences of objectification using EMA, our study does come with some limitations and directions for future research. Due to resource and time constraints, in the present study we were unable to assess contextual characteristics of the objectifying events, including factors such as location of the event, characteristics of the perpetrator, or situational features (e.g., if the participant had been alone or with friends). These factors all likely play a role in moderating the effect of objectifying events, and as such, future EMA research would benefit from greater attention to contextual factors.

One additional limitation of the present study is that we did not control for individual sensitivities to objectification, and thus cannot guarantee that all participants were identifying exactly comparable events as objectifying. In the initial lab session, we provided participants with detailed examples of the different objectifying behaviours, and we instructed them to respond if they deemed the behaviour to be unwanted or inappropriate. However, this is ultimately a somewhat subjective judgement. For one woman, experiencing a gaze from a male may be personally construed as flattering, and thus, not registered as objectification. For another woman, however, it may be interpreted as an objectifying experience. Future research should thus account for how individual sensitivities to objectification shape both the reported frequency of experiencing such events, and the impact it has on the self. One variable that may impact a woman's sensitivity to objectification is individual differences in enjoyment of sexualisation (Liss, Erchull, & Ramsey, 2011). Women who like to self-sexualize may construe fewer behaviours as objectifying, and may not always consider such behaviours unwanted or inappropriate. Finally, while our results suggest that objectification experiences are common in the lives of Australian women, cross-cultural research is much needed to examine the prevalence of such events in different cultural contexts. With research suggesting that 83% of women have experienced sexual harassment in Egypt (Egyptian Center for Women's Rights, 2008), and studies showing similar figures in Saudi Arabia (Afeich, 2014), it would be fruitful for researchers to explore the prevalence and impact of objectifying events in non-Western nations as well.

In sum, our findings suggest that objectifying events are extremely common in women's daily lives, and that both experiencing and witnessing objectifying events leads women to self-objectify. The current study adds to the literature on objectification by examining real-world objectifying experiences, measured in close to real-time, and demonstrating some of the negative consequences that can arise from ostensibly minor as well as severe forms of objectification.

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Table 1.

Means, Standard Deviations, Reliabilities, and Correlations Among Baseline Measures

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Self Objectification Questionnaire (SOQ)	2.05	13.95	-								
2. Self-esteem	2.96	0.50	-0.18	0.88							
3. Body Shame	3.49	1.29	.27*	-.47**	0.84						
4. Restrained Eating	2.42	0.89	.28*	-.26*	.62**	0.90					
5. Extraversion	3.34	0.79	0.07	.42**	-0.18	-0.07	0.87				
6. Agreeableness	3.86	0.61	-0.09	0.10	0.02	-0.07	0.13	0.78			
7. Conscientiousness	3.54	0.63	-0.03	.24*	-0.02	0.09	.25*	.30**	0.82		
8. Neuroticism	3.04	0.76	0.14	-.54**	.31**	0.20	-.46**	-.29**	-.43**	0.83	
9. Openness	3.62	0.56	-0.14	0.22	-0.15	-0.11	.33**	0.02	.23*	-0.04	0.74

Note. Alphas are listed in the diagonal. N = 74-80. * $p < .05$, ** $p < .01$. No alpha provided for SOQ due to rank-ordered nature of scale.

Table 2.

Results of Logistic Random Intercept Models Predicting the Odds of Being Targeted By or Witnessing Objectifying Events in

Daily Life

Moderator	Targeted by Objectifying Events					Witnessing Objectifying Events				
	Parameter	Est. (SE)	OR	95%CI	p	Parameter	Est. (SE)	OR	95%CI	p
Average (no moderator)	β_{00}	-2.69 (0.15)	0.07	[0.05, 0.09]	< .001	β_{00}	-1.70 (0.14)	0.18	[0.14, 0.24]	< .001
Restrained Eating	β_{01}	0.04 (0.17)	1.04	[0.74, 1.45]	.827	β_{01}	0.10 (0.12)	1.11	[0.87, 1.41]	.401
Body Shame	β_{01}	-0.22 (0.18)	0.80	[0.56, 1.14]	.218	β_{01}	0.03 (0.17)	1.03	[0.74, 1.44]	.858
Self-Esteem	β_{01}	0.36 (0.19)	1.43	[0.99, 2.08]	.057	β_{01}	0.17 (0.14)	1.18	[0.89, 1.57]	.241
Trait Self-Objectification	β_{01}	0.09 (0.19)	1.09	[0.75, 1.59]	.634	β_{01}	0.04 (0.15)	1.04	[0.77, 1.41]	.802
Big Five										
Extraversion	β_{01}	-0.12 (0.20)	0.89	[0.60, 1.32]	.555	β_{01}	0.20 (0.19)	1.22	[0.84, 1.77]	.301
Agreeableness	β_{02}	0.14 (0.18)	1.15	[0.80, 1.65]	.458	β_{02}	-0.17 (0.18)	0.84	[0.59, 1.19]	.327
Conscientiousness	β_{03}	-0.22 (0.24)	0.80	[0.50, 1.29]	.358	β_{03}	-0.20 (0.18)	0.82	[0.58, 1.16]	.261
Neuroticism	β_{04}	-0.39 (0.21)	0.68	[0.45, 1.02]	.062	β_{04}	-0.08 (0.23)	0.93	[0.58, 1.48]	.746
Openness	β_{05}	0.34 (0.15)	1.41	[1.04, 1.91]	.027	β_{05}	0.23 (0.14)	1.25	[0.95, 1.66]	.115

Note.

Separate models were conducted with Target and Witness as outcomes and with each individual difference variable as a predictor (except the Big Five, which were entered simultaneously in one model).

Due to missing data on individual difference variables and the numbers of parameters estimated in each model, d.f. for each model vary from 71 (Big Five models) to 80 (no moderator models).

Table 3.
Results of Random Intercept and Random Slope Models predicting Self-Objectification in Daily Life

Moderator	Mean Level				Impact of being Targeted on Self-Objectification				Impact of Witnessing on Self-Objectification			
	Parameter	Est. (SE)	95% CI	p	Parameter	Est. (SE)	95% CI	p	Parameter	Est. (SE)	95% CI	p
Average (no moderator)	β_{00}	34.35 (2.3)	[29.78, 38.92]	< .001	β_{10}	11.95 (1.76)	[8.44, 15.46]	< .001	β_{10}	3.29 (1.29)	[0.72, 5.85]	.013
Restrained Eating	β_{01}	5.75 (2.76)	[0.27, 11.24]	.040	β_{11}	2.76 (1.48)	[-0.19, 5.71]	.066	β_{11}	0.61 (1.15)	[-1.68, 2.89]	.598
Body Shame	β_{01}	8.16 (2.24)	[3.71, 12.62]	< .001	β_{11}	3.65 (1.96)	[-0.25, 7.55]	.066	β_{11}	0.49 (1.30)	[-2.09, 3.07]	.705
Self-Esteem	β_{01}	-6.75 (2.84)	[-12.40, -1.10]	.020	β_{11}	-3.63 (2.05)	[-7.71, 0.45]	.080	β_{11}	-1.15 (1.09)	[-3.32, 1.01]	.292
Trait Self-Objectification	β_{01}	3.07 (2.26)	[-1.43, 7.57]	.179	β_{11}	0.94 (1.48)	[-2.01, 3.90]	.527	β_{11}	-1.75 (1.27)	[-4.29, 0.79]	.173
Big Five												
Extraversion	β_{01}	-5.18 (2.45)	[-10.07, -0.29]	.038	β_{11}	-2.22 (1.85)	[-5.91, 1.47]	.235	β_{11}	-0.85 (1.65)	[-4.14, 2.44]	.608
Agreeableness	β_{02}	-1.95 (2.24)	[-6.42, 2.52]	.388	β_{12}	-0.66 (1.23)	[-3.12, 1.79]	.592	β_{12}	-0.98 (1.21)	[-3.39, 1.44]	.423
Conscientiousness	β_{03}	3.42 (2.49)	[-1.53, 8.38]	.173	β_{13}	0.88 (1.70)	[-2.51, 4.27]	.607	β_{13}	-2.60 (1.49)	[-5.58, 0.37]	.085
Neuroticism	β_{04}	4.24 (3.06)	[-1.87, 10.34]	.171	β_{14}	1.63 (2.15)	[-2.66, 5.93]	.450	β_{14}	-0.86 (1.57)	[-3.99, 2.28]	.588
Openness	β_{05}	3.36 (2.20)	[-1.02, 7.75]	.131	β_{15}	-2.06 (2.46)	[-6.97, 2.85]	.407	β_{15}	-0.32 (1.67)	[-3.64, 3.00]	.850

Note.

Separate models were conducted with Target and Witness as within-person predictors and individual difference variables as between-person predictors (except the Big Five, which were entered simultaneously in one model).

Due to missing data on individual difference variables and the numbers of parameters estimated in each model, d.f. for each model vary from 71 (Big Five models) to 80 (no moderator models).

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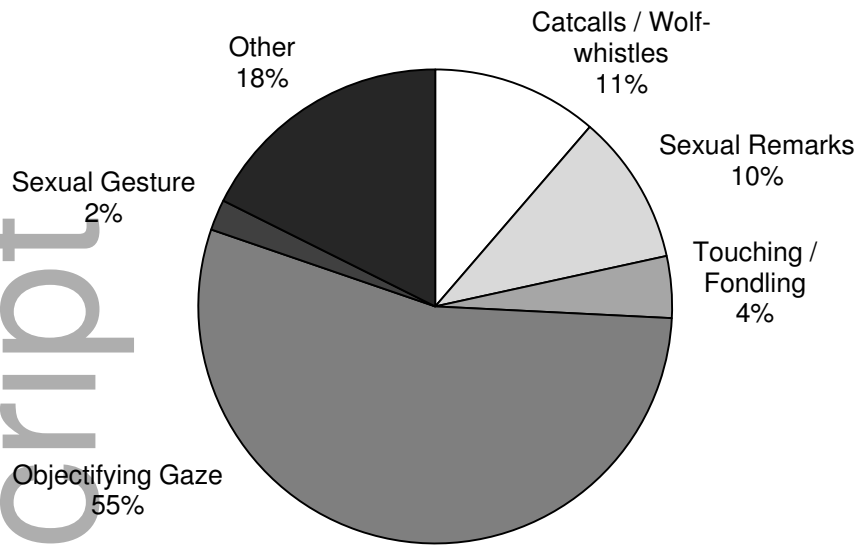


Figure 1a. Proportion of targeted objectification (N = 380 events) as a function of objectification type.

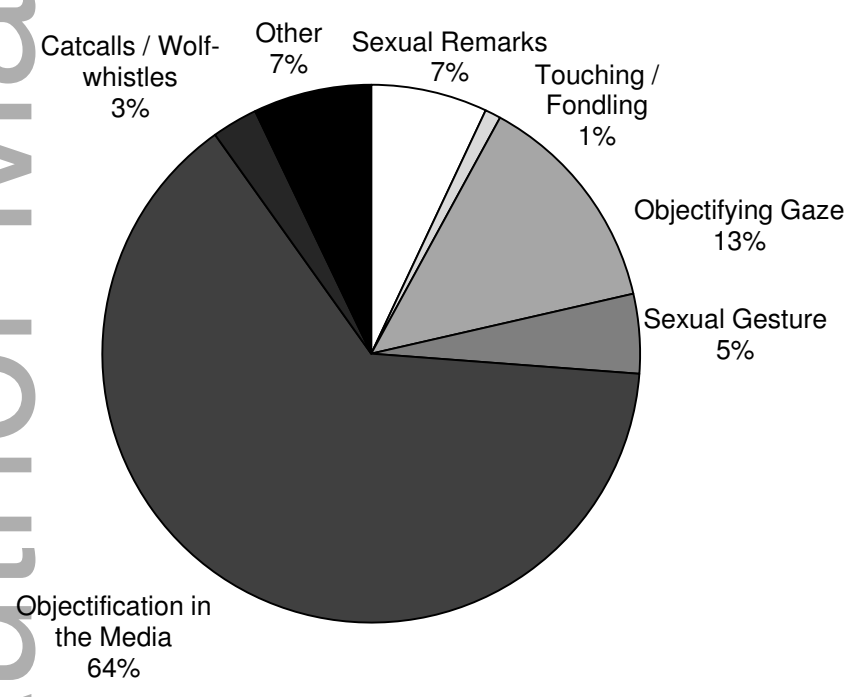


Figure 1b. Proportion of witnessed objectification (N = 943 events) as a function of objectification type.