

Can Hand Washing Influence Hedonic Food Consumption?

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ABSTRACT

The act of hand washing has been a routine part of hygienic practices across time and society. Aside from its physiological effects, hand washing has also been shown to symbolically cleanse individuals of their transgressions. However, most research demonstrating the metaphorical effect of hand washing has mainly been focused within the domain of morality. The objective of the current research is to explore the role of hand washing on consumption behavior, and more specifically, hedonic food consumption. Across two studies, this article establishes the role of hand washing after hedonic food consumption as well as prior to a hedonic food choice. In Study 1, washing one's hands after consumption of hedonic food decreased perceived guilt. In Study 2, washing one's hands prior to choice led to an increased likelihood of choosing a more hedonic (compared to less hedonic) food item. Thus, by washing one's hands, individuals are provided with a license to indulge in hedonic foods without the guilt that is commonly associated with such a choice. Several implications for consumer behavior research and the effects of hand washing on food decision making are discussed. © 2015 Wiley Periodicals, Inc.

Wash you, make you clean; put away the evil of your doings from before mine eyes . . . (Isaiah 1:16, King James Bible).

Acts of hygiene have played an important role for many of the world's civilizations and cultures. Specifically, behaviors such as hand washing have been credited with promoting health and preventing the spread of diseases, and considered to be proper etiquette and an expected, routine behavior surrounding many contexts (i.e., coughing or sneezing, shaking hands, or preparing or eating food; Parker-Pope, 2007). Moreover, research has found that public health interventions focusing on hand washing or sanitizing interventions can lead to a variety of significant implications, including reduced absenteeism in schools (Lau et al., 2012) and lower child mortality rates (Burton et al., 2011). The practice and promotion of hand washing has become such an engrained public health topic throughout the world that October 15 of every year has been declared "Global Hand washing Day" (Centers for Disease Control and Prevention, 2013).

Furthermore, there is a significant amount of evidence to suggest that the act of hand washing is more than a simple act of hygiene; hand washing can also

function on a symbolic level. For example, for many of the world's cultures and religions, various acts of hand washing are used in important ceremonies and practices to metaphorically rid individuals of prior transgressions (i.e., as in the purification acts of Islam and Judaism prior to prayer). More recently, literature within psychology suggests that the act of cleansing one's hands can result in consequences that span beyond the scope of hygiene. For example, research has shown hand washing to alleviate the ramifications of unethical behavior (Zhong & Liljenquist, 2006) or even lead individuals to render less severe moral judgments (Schnall, Benton, & Harvey, 2010). However, while most of the metaphorical effects of hand washing have focused on the domain of morality and ethical behavior, very few have explored the influence of hand washing in other areas. One exception includes work by Lee and Schwarz (2010), in which hand washing was shown to wash away the negativity associated with postdecisional dissonance following a choice task. Taken together, prior work demonstrating the symbolic role of hand washing suggests that the simple act of hand washing appears to remove moral impurities by wiping the slate clean.

Given the metaphorical significance of the act of hand washing to “wash away” transgressions, it is likely that hand washing can influence many other behaviors included in individuals’ daily lives. One particular area of interest is the food domain, especially since hand washing is frequently involved in episodes concerning food consumption for hygiene purposes. Thus, the objective of the current research is to examine how hand washing can influence individuals’ food consumption, and more specifically, their consumption with regard to hedonic food. Since hand washing has the ability to rid individuals of negativity, a logical question that arises is whether hand washing can also eliminate the guilt that is associated with hedonic food consumption. Importantly, no research has attempted to explore the influence of hand washing within the context of food decision making, and thus the current work is among the first to do so. Therefore, this research advances knowledge with regard to food decision making by exploring a previously unexamined, albeit important, factor affecting food consumption.

CONCEPTUAL FRAMEWORK

The conceptual framework begins with a review of the literature on general food decision making, followed by a review of prior work on hedonic food consumption. Finally, the review considers the influential role of hand washing with regard to hedonic food consumption.

Food Decision Making

Evidence suggests that individuals execute over 200 food decisions per day (Wansink & Sobal, 2007). Often accompanying these decisions is an ever-increasing amount of information aimed at making individuals more knowledgeable about their food decisions, and ideally promoting healthy eating (Bublitz, Peracchio, & Block, 2010). However, despite the vast amount of options and information about food decision making that exists, individuals continue to indulge in unhealthy food choices. On a wider scale, such unhealthy choices are considered to be at the heart of the obesity epidemic currently facing the United States and other countries around the world (Bublitz, Peracchio, & Block, 2010; Roberts & Pettigrew, 2013).

As a result of this growing problem, researchers and experts alike have attempted to better understand how individuals make food decisions. Though biological and physiological factors have traditionally been identified as playing a key role in choices involving food (Vartanian, Herman, & Wansink, 2008), more recent findings suggest that a host of nonbiological factors, including social, psychological, and contextual drivers, can be just as influential (Block, 2012; Vartanian, Herman, & Wansink, 2008; Xie, Bagozzi, & Østli, 2013). To that end, recent government legislation has even attempted

to curtail the advertising of unhealthy, hedonic foods, citing such advertising as playing a key role in the growing obesity epidemic (Chabris & Simons, 2013). However, there is little doubt that individuals still must contend with a constant barrage of external stimuli with explicit persuasion goals, such as advertising and packaging, as well as social and behavioral stimuli that function more subtly to facilitate hedonic food choices.

There is strong evidence to suggest that individuals’ food consumption is influenced by environmental factors. Contrary to traditional beliefs that it is physiological signals that regulate food intake, recent findings suggest that nonphysical, external factors have a stronger influence on consumption (Vartanian, Herman, & Wansink, 2008). Research from a variety of domains has demonstrated that individuals are affected by a host of contextual, social, and psychological factors that result in overconsumption and indulgence. For example, contextual factors, such as the size of the food container (Wansink & Kim, 2005), label of the food item (Aydinoglu & Krishna, 2012; Finkelstein & Fishbach, 2010; Irmak, Vallen, & Robinson, 2011), and even the type of other, nonfocal surrounding food items (Chandon & Wansink, 2007), have been shown to greatly influence individuals’ choice of foods, as well as their subsequent consumption of those foods. There is also much research to demonstrate that individuals are influenced by social factors, such as the behavior of others in their environment, as guides for their food decisions and intake (Burger et al., 2010; Cialdini & Goldstein, 2004; McFerran, Dahl, Morales, & Fitzsimons, 2010).

Furthermore, there is also ample evidence to suggest the interaction of environmental and psychological factors can greatly influence food decisions and consumption. For example, when individuals are led to believe that they have made progress toward a health goal, they are more likely to subsequently make poorer food choices (Fishbach & Dhar, 2005; Fishbach & Zhang, 2008; Wilcox, Vallen, Block, & Fitzsimons, 2009). Importantly, consumption often serves as a reparative mechanism such that people wanting to repair negative moods consume larger amounts of food generally, and more hedonic and indulgent foods specifically (Atalay & Meloy, 2011; Garg, Wansink, & Inman, 2007; Tice, Bratslavski & Baumeister, 2001). For example, Garg, Wansink, and Inman (2007) found that people watching a sad movie consumed more hedonic, but not more healthful, food than those watching a happy movie. Similarly, Bagchi and Block (2011) found that people consume hedonic foods to help assuage the pain of payment associated with high imputed costs of consumption (e.g., cash payments vs. credit payments, or the relative difficulty [ease] of earning cash). Ironically, while people use hedonic food to repair negative affect, such indulgent consumption also leads to further negative affect and feelings of guilt and regret.

Hedonic Food Consumption and Guilt

Much prior literature has demonstrated that there is often a discernible difference between consumption that is considered utilitarian in nature, versus that which is considered hedonic. Although utilitarian experiences are marked by necessity, reasoning, and functionality, those that are hedonic are consummatory, wasteful, and indulgent (Dhar & Wertenbroch, 2000; Hirschman & Holbrook, 1982; Okada, 2005). Moreover, past research has described hedonic consumption as appealing to the “multisensory, fantasy, and emotive aspects of one’s experience with products” (Hirschman & Holbrook, 1982, p. 92), thus leading to these types of hedonic experiences and products to be conveyed as “sinful pleasures” (Giner-Sorolla, 2001). Within a food context, hedonic products are often represented as fattening and unhealthy items (i.e., French fries or chocolate cake; Alba & Williams, 2012; Bagchi & Block, 2011; Belei, Geyskens, Goukens, Ramanathan, & Lemmink, 2012; Irmak, Vallen, & Robinson, 2011; Kivetz & Keinan, 2006; Ramanathan & Williams, 2007), and are commonly perceived as better in taste relative to healthier, nonhedonic counterparts (Wertenbroch, 1998). For example, research by Raganathan, Naylor, and Hoyer (2006) finds that when a food was presented as unhealthy, individuals inferred that food to be better in taste and even enjoyed it better when they actually consumed it, relative to a healthy food.

Due to the experiential enjoyment that characterizes hedonic foods, a sense of guilt is often evoked when they are consumed (King, Herman, & Polivy, 1987; Kivetz & Simonson, 2002; Okada, 2005). Specifically, since the benefit derived from hedonic foods is perceived to be gratifying in the short-term, such foods often represent a lapse in one’s self-control at attempting to stay in line with more healthful, long-term best interests (Ramanathan & Williams, 2007). Since consuming such foods stands counter to long-term health goals (Wansink & Chandon, 2006), they become harder to justify (Shiv & Fedorikhin, 1999). As a result of this “wasteful” consumption, a sense of guilt can ensue (Kivetz & Keinan, 2006; Kivetz & Simonson, 2002; Okada, 2005).

As a result of the potential guilt associated with hedonic foods, individuals commonly utilize a variety of justification mechanisms to mitigate the guilt experienced when consuming these foods. For example, when individuals sense that they have achieved a health goal, even vicariously, they will tend to feel like they have a license to indulge, and hence make relatively more hedonic food choices among a set of alternatives (Fishbach & Dhar, 2005; Wilcox et al., 2009). Specifically, individuals will consider the consumption of indulgent foods justified when those food items are presented in ways that deem them not as tempting, hedonic foods, thus going undetected as guilty pleasures (Coelho do Vale, Pieters, & Zeelenberg, 2008; Giner-Sorolla, 2001). For example, when hedonic foods are packaged into smaller units (Coelho do Vale, Pieters, & Zellenberg, 2008), la-

beled as relatively healthy (Chandon & Wansink, 2007; Irmak, Vallen, & Robinson, 2011), or even included in a meal along with other healthy foods (Chernev, 2011), individuals tend to feel justified to consume them, and often tend to increase their consumption of the hedonic items. However, despite prior research documenting various justification mechanisms that lead to an increase in hedonic food consumption, most have involved direct, contextual cues inherent in the immediate food environment. The current work builds on the extant literature on the justification of hedonic food consumption by examining another type of justification mechanism that is independent of the food context itself, namely hand washing, by demonstrating its effect on subsequent behavior with regard to hedonic food.

Hand Washing as a Justification for Hedonic Food Consumption

Considering the important role that hand washing plays in the daily lives of individuals, there is a need for a better understanding of how it affects behavior. The potentially large implications that hand washing can have across a variety of contexts demands a more nuanced understanding of the underlying process of hand washing and specific consumption behavior. Though prior research has examined the symbolic significance of hand washing in a primarily moral and ethical domain, this research attempts to answer the question of how the physical act of hand washing metaphorically cleanses and rids individuals of the stigma associated with hedonic choice via a lowered state of guilt (Okada, 2005). Since the consumption of hedonic items evokes a sense of guilt, and because hand washing has been found to rid individuals of transgressions, it is predicted that hand washing will decrease the guilt associated with hedonic food consumption, since it will serve as a justification mechanism for the consumption of hedonic food. Stated formally:

H1: The act of hand washing (vs. a lack of hand washing) will lead individuals to experience less guilt after consuming a hedonic food item.

Due to the ability of hand washing to reduce the guilt associated with indulging in hedonic food, this research also explores the notion that hand washing can provide a preliminary justification for a hedonic food choice. Since prior research has found that hand washing serves as a mechanism to rid individuals of past transgression by “washing” away the negativity (Lee & Schwarz, 2010; Zhong & Liljenquist, 2006), the current research posits that hand washing can provide individuals with a justification for indulgence through a similar mechanism. In particular, this research proposes that hand washing can provide a clean slate that eliminates the negativity associated with a future transgression. Thus, the current work suggests that when it precedes the opportunity, hand washing will lead

individuals to feel licensed to subsequently partake in hedonic food consumption. Thus,

H2: Individuals will be more likely to choose a hedonic food after an act of hand washing (vs. a lack of hand washing).

Importantly, though some work has examined hand washing prior to making judgments involving morality (i.e., Zhong, Strejcek, & Sivanathan, 2010) or performance on an anagram task (Kasper, 2013), no research has determined how hand washing can serve as an *a priori* mechanism for actual product choice. Furthermore, the current research also contributes to the literature on food consumption by proposing hand washing as a new mechanism for hedonic food choice. Despite much research having examined a variety of methods justifying hedonic choice (i.e., Kivetz & Simonson, 2002; Kivetz & Zheng, 2006), no work has considered hand washing as a justification mechanism. Therefore, this work provides new insight into both the psychological implications and consequences of hand washing on hedonic choice behavior.

STUDY 1

The central goal of Study 1 was to examine the idea that hand washing leads to a reduction in the guilt associated with consuming a hedonic food item. The study employed a two (condition: no hand washing vs. hand washing) between-subjects design.

Method

Design and Procedure. Forty eight participants from a large, Northeastern United States urban university participated in this study for course credit (58% female; mean age 23.04 years). Participants entered the laboratory and sat at an individual computer station. After filling out consent forms, all participants were given a bag with 50 M&M's® candies that they were told they could enjoy during the research hour. Note that prior work has established that M&M's® are considered a hedonic product (Dhar & Wertenbroch, 2000). Thus, these candies were selected as the hedonic product of interest in this research. To allow participants some time to eat the candies, participants were given a filler study that lasted approximately 20 minutes. After completing the filler study, participants were given the main study. Participants were first told that the study researchers were interested in their opinions about consumer products. All participants were given a picture of a product (i.e., a single packet Purell® wipe), but those in the hand washing condition were also given the actual product and instructed to try it (Zhong & Liljenquist, 2006; Zhong, Strejcek, & Sivanathan, 2010). To be consistent with the cover story, questions about the Purell® wipe followed, in-

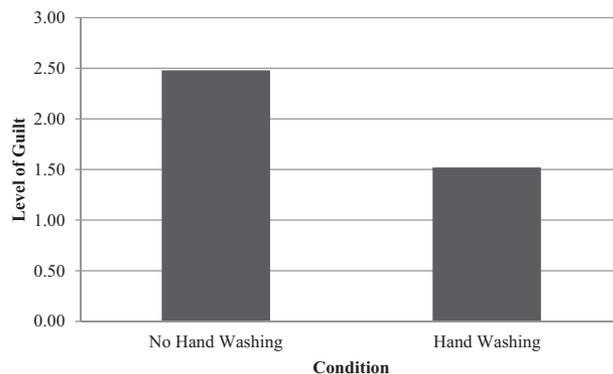


Figure 1. The effect of condition on perceptions of guilt after hedonic consumption.

cluding questions concerning participants' general attitude toward the product (good/bad, positive/negative, desirable/undesirable, favorable/unfavorable, and likeable/dislikeable; $\alpha = 0.96$). Next, participants rated how guilty they felt at the moment, assessed on a 7-point scale (1 = not at all guilty, 7 = very guilty), as a means of assessing their momentary feelings of guilt. In addition, the number of candies participants ate was assessed by having them count the number of candies that remained in their bags. Finally, participants answered general demographics questions.

Results

An analysis of variance (ANOVA) was conducted with how guilty participants felt as the dependent variable, and condition as the independent variable. Results demonstrate a significant main effect for condition ($F(1, 46) = 5.54, p < 0.05$). Specifically, participants who actually used the Purell® wipe (i.e., those in the hand washing condition) felt considerably less guilty than those who did not use the Purell® wipe ($M_{hand\ washing} = 1.52$ vs. $M_{no\ hand\ washing} = 2.48$). Figure 1 demonstrates these results. Importantly, there was no difference between conditions in the number of candies consumed prior to the manipulation, nor in attitudes about the cleansing product.

Discussion

The results from Study 1 support H1. Participants who physically interacted with the Purell® wipe and thus actually cleansed their hands felt less guilty after consuming the hedonic food product (H1). However, when participants did not use the Purell® wipe, and therefore did not physically interact with it, they experienced relatively more guilt, as they were not able to wash away the guilt associated with having consumed the hedonic food product. Thus, these results suggest that through the act of hand washing, participants were able to wash away their guilt. While these results are consistent with prior research on the clean slate effect (i.e., Zhong &

Liljenquist, 2006), they are among the first to show the ability of hand washing to wash away the guilt associated with hedonic food consumption.

STUDY 2

Though the results of Study 1 are consistent with previous findings demonstrating the ability of hand washing to eliminate the negativity associated with past transgressions, an interesting question that arises is whether hand washing has the ability to preempt such transgressions. In other words, can hand washing prior to partaking in a guilt-laden food choice lead individuals to be more likely to do so? The goal of the next study was to explore this idea. An additional goal of the next study was to rule out the potential alternative explanation that the greater amount of effort realized by hand washing may have lead individuals to feel like they should indulge in hedonic food. Thus, the next study rules out this alternative explanation by providing a neutral product use condition to ensure that any effects observed are truly due to hand washing.

Method

Design and Procedure. One hundred sixty-four participants from a large, northeastern urban university participated in this study for course credit. The study was run as a 2 (product: Purell® vs. pencil) × 2 (condition: no product use vs. product use) between-subjects design. A Purell® wipe was used as the cleansing product; a pencil was used as the neutral control product. As they entered the laboratory, all participants were given a survey with a picture of a product, but those in the product use condition were given the actual product to try. A researcher observed the participants in the product use conditions to ensure that they actually used the products as instructed. To be consistent with the cover story that they were evaluating the product, all participants first answered a few filler questions about the stimuli that they had just seen (all items measured on a 7-point scale). Questions included their general attitude toward the Purell® wipe or pencil product (good/bad, positive/negative, desirable/undesirable, favorable/unfavorable, and likeable/dislikeable; $\alpha = 0.96$).

After participants answered these measures, they were asked to imagine that they were at a local coffee shop and had to choose a coffee drink from an available selection. Participants were presented with pictures and descriptions of three different coffee drinks (i.e., House Blend Coffee, Creamy Cappuccino, and Decadent Chocolate Latte) that were selected based on results from a pretest using 50 participants from the same sample population. Paired sample *t*-tests assessing the extent to which participants considered the items to be hedonic on a 7-point scale (1 = not at all hedonic, 7 = very hedonic) indicated that the House Blend Coffee

was considered the least hedonic ($M_{\text{House}} = 2.70$) and significantly less hedonic than the Creamy Cappuccino ($M_{\text{Cappuccino}} = 4.78$, $t(49) = -7.52$, $p < 0.001$), which was significantly different from the most hedonic Decadent Chocolate Latte ($M_{\text{Latte}} = 5.98$, $t(49) = -5.47$, $p < 0.001$; $M_{\text{House}} = 2.70$ vs. $M_{\text{Latte}} = 5.98$, $t(49) = -10.52$, $p < 0.001$).

Finally, participants were told that as a token of appreciation, the researchers wanted to give them one *actual* snack item at the end of the experiment. Participants saw a picture of three different snacks (Stick of Sugar-free Gum, Pretzel, Chocolate Chip Cookie) and chose one. Again, these particular snack items were chosen based on a pretest using 50 participants from the same sample population. Paired sample *t*-tests indicated that participants rated the Sugar-free Gum significantly less hedonic than the Pretzel ($M_{\text{Gum}} = 2.72$ vs. $M_{\text{Pretzel}} = 3.98$, $t(49) = -3.89$, $p < 0.010$) and the Pretzel was significantly less hedonic than the Chocolate Chip Cookie ($M_{\text{Cookie}} = 5.98$, $t(49) = -9.62$, $p < 0.001$; $M_{\text{Gum}} = 2.72$ vs. $M_{\text{Cookie}} = 5.98$, $t(48) = -12.463$, $p < 0.001$). Based on their responses on the snack choice, participants were given this snack as they exited the room.

Results

Hypothetical Drink Selected. The drink selected was coded numerically from least hedonic to most hedonic (House Blend Coffee = 1, Creamy Cappuccino = 2, and Decadent Chocolate Latte = 3). Results revealed a significant product × condition interaction ($F(1, 160) = 4.29$, $p < 0.05$). Planned follow-up contrasts showed that participants who used the Purell® wipe (i.e., engaged in hand washing) selected a more hedonic drink than those who did not use the Purell® wipe ($M_{\text{Purell}^{\text{®}} \text{ used}} = 2.40$ vs. $M_{\text{Purell}^{\text{®}} \text{ not used}} = 1.97$; $F(1, 160) = 5.24$, $p < 0.05$). In addition, results indicated that participants who used the Purell® wipe selected a more hedonic drink than those who used the pencil ($M_{\text{Purell}^{\text{®}} \text{ used}} = 2.40$ vs. $M_{\text{pencil used}} = 2.04$; $F(1, 160) = 4.82$, $p < 0.05$). Figure 2A illustrates these results.

Actual Snack Selected. Once again, an ANOVA was conducted with snack selected as a dependent variable, and product and condition as independent variables. As in the drink selected choice analysis, the actual snack selected was coded numerically from least hedonic to most hedonic (Stick of Sugar-free Gum = 1, Pretzel = 2, and Chocolate Chip Cookie = 3). Results revealed a significant product × condition interaction ($F(1, 160) = 7.17$, $p < 0.01$). Following a similar pattern to the drinks selected dependent variable, planned follow-up contrasts showed that participants who used the Purell® wipe selected a more hedonic snack than those who did not use the Purell® wipe ($M_{\text{Purell}^{\text{®}} \text{ used}} = 2.54$ vs. $M_{\text{Purell}^{\text{®}} \text{ not used}} = 2.07$; $F(1, 160) = 6.20$, $p < 0.05$). Results also indicated that participants who used the Purell® wipe selected a more hedonic snack

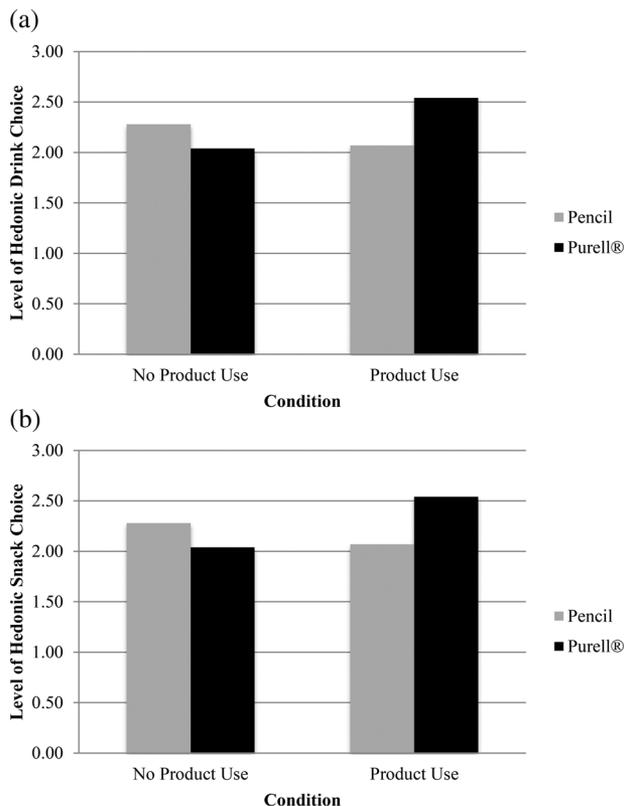


Figure 2. (A) The effect of product and condition on hypothetical drink choice. (B) The effect of product and condition on actual snack choice.

than those who used the pencil ($M_{\text{Purell}^{\text{®}} \text{ used}} = 2.54$ vs. $M_{\text{pencil used}} = 2.04$; $F(1, 160) = 9.15$, $p < 0.01$). Figure 2B illustrates these results.

Attitude Measures. Attitudes toward the products were not expected to differ across conditions. As anticipated, results of an ANOVA with product and condition as independent variables demonstrated there were no significant interactions or main effects on participants' general attitude toward the products ($F < 1$).

Discussion

The results from Study 2 confirm H2, thereby lending support to the notion that hand washing increases the likelihood of selecting a relatively more hedonic food option in both hypothetical and actual choice scenarios. Much like prior research has shown (i.e., Lee & Schwarz, 2010), participants who used the Purell[®] wipe appeared to have cleansed their mental slate. With regard to food consumption, this translated into participants choosing relatively more hedonic food options from a series of choice sets, presumably due to the notion that the embodiment of cleansing produced an opportunity for indulging in hedonic food. On the contrary, participants who had used a neutral item, namely the pencil, were not as likely to choose a hedonic food item, nor were participants who did not use either

the Purell[®] wipe or pencil. Thus, by merely varying individuals' interactions with certain products, there were very different decision outcomes in terms of hedonic food consumption.

GENERAL DISCUSSION

Without a doubt, individuals are bombarded with food-related stimuli and information on a daily basis. While making decisions with regard to food consumption is a routine part of individuals' lives, they often struggle with such choices. Though there is a wealth of resources available for individuals to make healthy food consumption choices, recent evidence suggests that they do not always gravitate toward optimal options. As an example, contemporary work in this area has shown that individuals increasingly choose to consume hedonic, and often unhealthy, food alternatives (Bublitz, Peracchio, & Block, 2010).

The main goal of the current research was to understand how the act of hand washing can serve as a justification mechanism that can influence hedonic food consumption. The findings from two studies suggest that hand washing acts as a justification mechanism for hedonic food consumption, such that individuals perceive that they have a clean slate from having metaphorically cleansed themselves of the negativity associated with hedonic food. Importantly, the current research demonstrates that this effect occurs via a lowered state of guilt. Thus through hand washing, individuals are provided with a license to indulge in hedonic food without the guilt that is commonly associated with such a choice. In addition, this work shows that hand washing can serve as a preemptive justification for hedonic food choice. Unlike prior work, which has shown that hand washing rids individuals of the negativity associated with a transgression *after* the fact, this work shows that hand washing prior to a transgression (i.e., hedonic food choice) can act as a license to engage in the "negative" behavior. By cleansing one's hands prior to the food choice, individuals felt a sense of having a clean slate from which they could then choose hedonic food items.

The current research contributes to the understanding of emotions during the consumption process, with particular regard to hedonic food products. Much prior work has shown that emotions can greatly influence the consumption decisions that individuals make (Ramanathan & Williams, 2007). Moreover, there is research to suggest that guilt in particular functions as one of the most influential emotions during the process (Okada, 2005). While other work has examined various mechanisms that individuals undertake to lessen the guilt associated with hedonic consumption (i.e., Shiv & Fedorikhin, 1999), no research has explored the impact of hand washing on emotions during consumption. In particular, the current research demonstrates that hand washing can lessen the guilt associated with hedonic choice both before and after consumption. Thus,

this work contributes to the literature on emotions and hedonic food consumption by showing how a previously unassociated, mundane, and common behavior can nevertheless have a profound influence on such consumption.

In addition, this research contributes to the understanding of the consequences of hand washing on behavior. Though prior work has explored behavior subsequent to hand washing, it has been mainly in the context of moral and ethical transgressions (i.e., Zhong & Liljenquist, 2006; Zhong, Strejcek, & Sivanathan, 2010). One exception to this research has been recent work by Lee and Schwarz (2010), who examine the effects of hand washing on cognitive dissonance arising from a difficult choice, and demonstrate the ability of hand washing to rid individuals of mental discomfort. However, aside from the aforementioned research, no other work has explored the effects of hand washing within the realm of decision making. The current research adds to the literature on the psychological effects of hand washing by exploring how the act of hand washing can affect individuals' choice, specifically in regard to hedonic food. As well, this work establishes the notion that actual, physical hand washing (vs. the mere priming of the concept) is necessary for the observed effects to occur, therefore making an additional contribution by highlighting the difference between embodied and primed cleansing.

The current work can provide beneficial insights for the use of hand washing within the food industry. Specifically, food retailers may benefit from providing cleansing mechanisms surrounding consumers' choices, such as antibacterial hand gel to ward off germs prior to touching food, an "oshibori" towel given before the start of a meal as a preparation, or a moist towel provided as a cleansing mechanism after a meal (Figueras, 2010), particularly when those choices involve hedonic products. Based on the results from this research, one would expect that providing individuals with such opportunities to cleanse their hands will result in more hedonic food choices, or feeling less negative and guilty about having made hedonic choices. Importantly, such effects would likely go unnoticed by consumers, since actions to presumably ensure hygiene at a food venue would generally be positively regarded. Individuals will assume these actions are routine procedures taken on by the retailer in the consumer interest, yet in reality the unintended consequences arising from such actions would likely benefit retailers.

While the findings from the current research can provide insight with regard to hand washing and hedonic food consumption, there are a few limitations that should be noted. First, the research utilized participants from the United States. One could argue that other cultures and societies have differing views of hand washing (Wallendorf & Nelson, 1986), and thus the effects found in this research may not translate onto other populations. Nevertheless, given the vast historical importance and popularity of hand washing in many different world cultures and religions, it is likely that the

current results generalize across cultures. Another potential limitation may be the isolated choice sets that participants had to make decisions from in the second study. Though the products ranged in terms of how hedonic they were perceived to be, they were still unlikely representations of an actual menu, which would include several more items that may in turn influence the effects observed in this research. Finally, a case could be made that the laboratory setting of the current research differs from the much more social contexts found in real settings. As a result, there may be additional influences in an actual choice context that may not have been captured here.

Based on the potentially large consequences resulting from hand washing on food consumption, it may be worthwhile for future research to extend the effects provided in this research. Similarly, it may be interesting to determine whether the effects of hand washing endure long after the action, or if they are merely limited to immediate, subsequent behavior. If hand washing wipes the slate clean, as was found in the current research, then it is likely that individuals will feel licensed to indulge in hedonic foods for an entire consumption episode. However, these effects are not expected to last beyond a fairly short time span from hand washing to consumption, as the link between the hand washing behavior and its metaphorical effect on guilt and consumption may be weakened over time. Additionally, future work could examine whether the observed effects are happening on a conscious level. If so, it is possible that the act of hand washing can cause consumers to wittingly skew calorie and nutrition estimates, which could result in overconsumption. Although the current research investigates the effects of hand washing with regard to hedonic food consumption, future research should explore this process in the context of other, perhaps nonhedonic, food items. Although there is no guilt associated with consuming nonhedonic foods, it is possible that hand washing might activate a different process for "wiping the slate clean" in the healthy food domain. For example, it could be possible that hand washing can act to vicariously fulfill a health goal without any additional explicit action.

The findings from this research can also provide insight for other areas of behavior beyond the food domain. If hand washing can reduce the guilt associated with hedonic food choice, then it may be possible that hand washing can also motivate individuals toward hedonic consumption of any type. One particular context may be luxury products. Given that such products are considered unnecessary and guilt-inducing (Kivetz & Simonson, 2002), the ability for hand washing to lead to similar effects as those found in the current research is likely. Similarly, it may be possible that the effects of hand washing can be seen in other contexts involving excessive spending, such as gambling or binge shopping. Finally, since the current work finds that hand washing can rid individuals of the general negativity associated with transgressions, another potential implication may involve risk-taking. Specifically, hand

washing may empower individuals to take more risks across a variety of consumption situations, including financial, social, or even health decisions. It may be interesting to examine these effects in future research.

Furthermore, efforts should be made to assess other ways of “cleansing” that may be sufficient to provide the effects found in the current work. For example, behaviors, such as cleaning one’s house, washing the dishes, or even taking a shower may be perceived in the same way as the hand washing manipulation in the present research, and hence lead to similar effects with regard to hedonic food consumption. Additionally, it is important to bring to light other ways in which the effects of physical cleansing may manifest. One such instance may include incorporating “clean” foods in one’s diet, or engaging in a detox plan, which may lead individuals to perceive that they have cleansed themselves in some capacity, and thus lead to an increase in the consumption of hedonic food subsequently.

Another question that arises from the current research is how other types of rituals can influence consumers on a psychological level. While other types of cleansing and hygiene rituals may lead to similar results as hand washing, it may be interesting to assess the effect of noncleansing rituals on behavior. Research suggests that rituals act to give individuals a sense of control and diminish negative feelings (Norton & Gino, 2014). Given that feelings of guilt accompany hedonic consumption (Okada, 2005), it would be worthwhile to examine whether any ritual that can lead to a reduced guilt state can also increase the likelihood of choosing a hedonic product to consume. These questions may be worthwhile to examine in future research.

Though the act of hand washing is an important public health behavior, understanding some of the consequences found in this research can result in better healthy eating initiatives. Given that the current research found that hand washing leads to an increased likelihood of choosing a hedonic food option, a natural implication may be for food retailers to give individuals the opportunity to cleanse their hands after food decisions have been made. For example, rather than positioning hand sanitizing stations right at the entrance of a store, it may be more beneficial to give customers a sanitizing wipe while they wait for their meals to arrive. However, this may be a challenge for some retailers, given the potential monetary and logistical costs involved. Additionally, there is no guarantee that providing an opportunity to cleanse one’s hands at a later point in the consumption process will be beneficial, since another finding of the current work suggests that the guilt associated with hedonic consumption can be reduced through hand washing. Thus, providing an opportunity to cleanse one’s hands after ordering might still enable unhealthful consumption behavior (i.e., indulging in more of a hedonic food item than one normally would). Another possible implication of this work is to bring attention to the hand washing effect through consumer education. If individuals are made aware of the influence of hand washing on food consumption, it

is possible that the observed effects found here will be attenuated or eliminated. Such knowledge may be especially helpful for individuals who are restricting their food intake and trying to control their consumption of hedonic food (Phelan et al., 2008), potentially aiding in their fight against the consumption of hedonic food.

REFERENCES

- Alba, J. W., & Williams, E. F. (2012). Pleasure principles: A review of research on hedonic consumption. *Journal of Consumer Psychology, 23*, 2–18.
- Atalay, A. S., & Meloy, M. G. (2011). Retail therapy: A strategic effort to improve mood. *Psychology and Marketing, 28*, 638–659.
- Aydinoglu, N., & Krishna, A. (2012). Imagining thin: Why vanity sizing works. *Journal of Consumer Psychology, 22*, 565–572.
- Bagchi, R., & Block, L. (2011). Chocolate cake please! Why do consumers indulge more when it feels more expensive? *Journal of Public Policy and Marketing, 30*, 294–306.
- Belei, N., Geyskens, K., Goukens, C., Ramanathan, S., & Lemmink, J. (2012). The best of both worlds? Effect of attribute-induced goal conflict on consumption of healthful indulgences. *Journal of Marketing Research, 49*, 900–909.
- Block, L. (2012). Food decision making. *Journal of Consumer Research, 32*, 44–49.
- Bublitz, M., Peracchio, L., & Block, L. (2010). Why did I eat that? Perspectives on food decision making and dietary restraint. *Journal of Consumer Psychology, 32*, 378–390.
- Burger, J. M., Bell, H., Harvey, K., Johnson, J., Stewart, C., Dorian, K., et al. (2010). Nutritious or delicious? The effect of descriptive norm information on food choice. *Journal of Social and Clinical Psychology, 29*, 228–242.
- Burton, M., Cobb, E., Donachie, P., Judah, G., Curtis, V., & Schmidt, W. P. (2011). The effect of hand washing with water or soap on bacterial contamination of hands. *International Journal of Environmental Research and Public Health, 8*, 97–104.
- Centers for Disease Control and Prevention. (2013). Global hand washing day. Retrieved November 27, 2013 from <http://www.cdc.gov/features/globalhandwashing/>.
- Chabris, L., & Simons, M. (2013). Does this ad make me fat? *New York Times*. Retrieved May 28, 2014, from http://www.nytimes.com/2013/03/10/opinion/sunday/does-this-ad-make-me-fat.html?_r=0.
- Chandon, P., & Wansink, B. (2007). The biasing health halos of fast food restaurant health claims: Lower calorie estimates and higher side-dish consumption intentions. *Journal of Consumer Research, 34*, 301–314.
- Chernev, A. (2011). The dieter’s paradox. *Journal of Consumer Psychology, 21*, 178–183.
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology, 55*, 591–621.
- Coelho do Vale, R., Pieters, R., & Zellenberg, M. (2008). Sneaky small sins flying under the radar: Package sizes and consumption self-regulation. *Journal of Consumer Research, 35*, 380–390.
- Dhar, R., & Wertenbroch, K. (2000). Consumer choice between hedonic and utilitarian goods. *Journal of Marketing Research, 37*, 60–71.
- Figueras, L. (2010). Pick-me-up artists: Local chefs revive the intermezzo. *Sauce Magazine*. Retrieved February 20, 2014, from <http://www.saucemagazine.com/a/1331>.

- Finkelstein, S. R., & Fishbach, A. (2010). When healthy good makes you hungry. *Journal of Consumer Research*, *37*, 357–367.
- Fishbach, A., & Dhar, R. (2005). Goals as excuses or guides: The liberating effect of perceived goal progress on choice. *Journal of Consumer Research*, *32*, 370–377.
- Fishbach, A., & Zhang, Y. (2008). Together or apart: When goals and temptations complement versus compete. *Journal of Personality and Social Psychology*, *94*, 547–559.
- Garg, N., Wansink, B., & Inman, J. J. (2007). The influence of incidental affect on consumers' food intake. *Journal of Marketing*, *71*, 194–206.
- Giner-Sorolla, R. S. (2001). Guilty pleasures and grim necessities: Affective attitudes in dilemmas of self-control. *Journal of Personality and Social Psychology*, *80*, 206–221.
- Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic consumption: Emerging concepts, methods and propositions. *Journal of Marketing*, *46*, 92–101.
- Irmak, C., Vallen, B., & Robinson, S. (2011). The impact of product name on dieters' and nondieters' food evaluations and consumption. *Journal of Consumer Research*, *38*, 390–405.
- Kasper, K. (2013). Washing one's hands after failure enhances optimism but hampers future performance. *Social Psychological and Personality Science*, *4*, 69–73.
- King, G. A., Herman, C. P., & Polivy, J. (1987). Food perception in dieters and non-dieters. *Appetite*, *8*, 147–158.
- Kivetz, R., & Keinan, A. (2006). Repenting hyperopia: An analysis of self-control regrets. *Journal of Consumer Research*, *33*, 273–282.
- Kivetz, R., & Simonson, I. (2002). Earning the right to indulge: Effort as a determinant of customer preferences toward frequency program rewards. *Journal of Marketing Research*, *39*, 155–170.
- Kivetz, R., & Zheng, Y. (2006). Determinants of justification and self-control. *Journal of Experimental Psychology: General*, *135*, 572–587.
- Lau, C. H., Springston, E. E., Sohn, M. W., Mason, I., Gadola, E., Damitz, M., et al. (2012). Hand hygiene instruction decreases illness-related absenteeism in elementary schools: A prospective cohort study. *BMC Pediatrics*, *12*, 1–7.
- Lee, S. W. S., & Schwarz, N. (2010). Washing away post-decisional dissonance. *Science*, *323*, 709–714.
- McFerran, B., Dahl, D. W., Fitzsimons, G. J., & Morales, A. C. (2010). I'll have what she's having: Effects of social influence and body type on the food choices of others. *Journal of Consumer Research*, *36*, 915–929.
- Norton, M. I., & Gino, F. (2014). Rituals alleviate grieving for loved ones, lovers, and lotteries. *Journal of Experimental Psychology: General*, *143*, 266–272.
- Okada, E. M. (2005). Justification effects on consumer choice of hedonic and utilitarian Goods. *Journal of Marketing Research*, *42*, 43–53.
- Parker-Pope, T. (2007). Why hand washing may be your best medicine. *New York Times*. Retrieved February 20, 2013 from http://well.blogs.nytimes.com/2007/12/19/why-hand-washing-may-be-your-best-medicine/?_php=true&_type=blogs&_r=0.
- Phelan, S., Wing, R. R., Raynor, H., Dibello, J., Nedeau, K., & Peng, W. (2008). Holiday weight management by successful weight losers and normal weight individuals. *Journal of Consulting and Clinical Psychology*, *76*, 442–448.
- Ragunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The unhealthy = tasty intuition and its effects on taste inferences, enjoyment, and choice of food products. *Journal of Marketing*, *70*, 170–184.
- Ramanathan, S., & Williams, P. (2007). Immediate and delayed emotional consequences of indulgence: The moderating influence of personality type on mixed emotions. *Journal of Consumer Research*, *34*, 212–223.
- Roberts, M., & Pettigrew, S. (2013). Psychosocial influences on children's food consumption. *Psychology and Marketing*, *30*, 103–120.
- Schnall, S., Benton, J., & Harvey, S. (2008). With a clean conscience: Cleanliness reduces the severity of moral judgments. *Psychological Science*, *19*, 1219–1222.
- Shiv, B., & Fedorikhin, A. (1999). Heart and mind in conflict: The interplay of affect and cognition in consumer decision making. *Journal of Consumer Research*, *26*, 278–292.
- Tice, D. M., Bratslavsky, E., & Baumeister, R. F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology*, *80*, 53–67.
- Vartanian, L. R., Herman, C. P., & Wansink, B. (2008). Are we aware of the external factors that influence our food intake? *Health Psychology*, *27*, 533–538.
- Wallendorf, M., & Nelson, D. (1986). An archaeological examination of ethnic differences in body care rituals. *Psychology & Marketing*, *3*, 273–289.
- Wansink, B., & Chandon, P. (2006). Can "low-fat" nutrition labels lead to obesity? *Journal of Consumer Research*, *39*, 106–123.
- Wansink, B., & Kim, J. (2005). Bad popcorn in big buckets: Portion size can influence intake as much as taste. *Journal of Nutrition Education and Behavior*, *37*, 242–245.
- Wansink, B., & Sobal, J. (2007). Mindless eating: The 200 daily food decisions we overlook. *Environment and Behavior*, *39*, 106–123.
- Wertenbroch, K. (1998). Consumption self-control by rationing purchase quantities of virtue and vice. *Marketing Science*, *17*, 317–337.
- Wilcox, K., Vallen, B., Block, L., & Fitzsimons, G. (2009). Vicarious goal fulfillment: When the mere presence of a healthy option leads to an ironically indulgent decision. *Journal of Consumer Research*, *36*, 380–393.
- Xie, C., Bagozzi, R. P., & Østli, J. (2013). Cognitive, emotional, and sociocultural processes in consumption. *Psychology & Marketing*, *30*, 12–25.
- Zhong, C. B., & Liljenquist, K. (2006). Washing away your sins: Threatened morality and physical cleansing. *Science*, *313*, 1452–1453.
- Zhong, C. B., Strejcek, B., & Sivanathan, N. (2010). A clean self can render harsh moral judgment. *Journal of Experimental Social Psychology*, *46*, 859–862.

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