

# ENHANCING BEHAVIORAL INTENTION IN OUT-OF-STOCK SITUATIONS-THE MEDIATING ROLE OF PERCEIVED PRODUCT UNIQUENESS AND PERCEIVED CONSUMPTION RISK

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## ABSTRACT

Out-of-stock situations evoke negative reactions from consumers and cause losses to retailers and manufacturers. This study examines how stockouts can be justified to promote positive behavioral intent. Drawing from Out-of-stock literature, this study examines the impact of the interaction between product type and OOS justification on consumers' behavioral intent. Through a 3\*3 experiment, it is found that consumers display more positive behavioral intent for utilitarian products whose stockout is attributed to high demand by other consumers. Conversely, for hedonic products, consumers are found to display a more positive behavioral intent when stockout is attributed to the retailer. The study further delves into the mediators influencing the relationship between product type, OOS justification, and behavioral intent. It is found that the relationship between OOS justification and behavioral intent is mediated by perceived consumption risk for utilitarian products and perceived uniqueness for hedonic products. Using the results of the study, retailers can tailor their OOS communication depending upon the product type.

**Keywords:** Out-Of-Stock, Product Type, Perceived Consumption Risk, Perceived Uniqueness, Behavioral Intent.

## INTRODUCTION

Extant research indicates that out-of-stock (OOS) can result in substantial revenue losses for manufacturers and retailers (Emmelhainz et al., 1991). While stockouts have short-term effects when consumers switch to a competing store or delay the purchase, long-term consequences can include a negative impact on customer satisfaction and word of mouth and loss of consumers to competitors (Zinn & Liu, 2001). OOS situations also induce negative emotions, such as frustration and confusion in the consumer (Dadzie & Winston, 2007). In the online context, OOS is found to have a significant negative impact on the order amount of the retailer (Son et al., 2019). Eliminating OOS was found to raise consumer equity by 56.2% in the long run (Jing & Lewis, 2011). However, stockouts are found to be a recurring issue despite advances in inventory tracking systems (Kim & Lennon, 2011). Extant literature shows that while stockouts are inevitable, the negative impacts of OOS situations are exacerbated or diminished depending upon the timing and how the stockout was justified to consumers (Kim & Lennon, 2011; Pizzi & Scarpi, 2013). Retailers may choose to provide consumers with justifications that are firm related (such as "*The retailer has exhausted stock*") or external attributions unrelated to the firm (such as "*High demand from other consumers caused the outage*"). OOS attributed to excess demand by other consumers denotes the popularity of the product, while OOS attributed to the retailer is not an indicator of popularity.

Ma et al. (2018) find that consumers have a more positive attitude towards the product and store for a consumer-related stockout than a retailer-related stockout. On the contrary, a consumer-related justification for OOS was found to lead to lower repatronage intention and decision satisfaction than a retailer-related justification (Pizzi & Scarpi, 2013). We posit that this difference in results is due to the type of product used as the experimental stimuli in both the studies. Ma et al. (2018) use a hard disk, which is primarily a utilitarian product, while Pizzi & Scarpi (2013) use a laptop that can have either hedonic or utilitarian dimensions depending upon the user. It can be used for hedonic purposes such as playing games and watching movies, or for utilitarian purposes such as statistical analysis and typing reports (Park & Mowen, 2007). Buying motives and mechanisms are found to be different for hedonic and utilitarian products (Ku et al., 2013; Rossiter et al., 1991) We posit that consumer response to OOS justifications is influenced by product type.

Extant studies that focus on the mechanism behind OOS response deliberate on consumer-related characteristics, i.e., how consumer traits such as consumer thinking style (Ma et al., 2018), product familiarity (Ge et al., 2009), sale proneness (Peinkofer et al., 2016) and product knowledge (Huang & Zhang, 2016) influence consumer responses to OOS situations.

Research has largely ignored the interaction between product-related factors such as product type and OOS justification. The present study bridges this gap in the literature and investigates how OOS justification and product-related characteristics such as type of product (utilitarian/hedonic product) influence behavioral intent.

This study is relevant as retailers may find it challenging to tailor OOS justifications in accordance with consumer-related characteristics. Determining the characteristics of each consumer, for example, the thinking style of each consumer is an effort-intensive process. However, retailers have greater control over product mix decisions, such as product type (Simonson, 1999). Therefore, in contrast to consumer-related attributes, retailers can easily tailor OOS communication according to the product-related attributes such as product type. Armed with the knowledge of how OOS communication can be tailored according to the type of product, retailers can employ suitable methods to minimize adverse reactions to stockouts.

The remainder of this study is organized as follows-the following section gives a brief synopsis of relevant OOS literature. Various hypotheses are derived, and a hypothetical model is presented. Finally, we conduct a 3\*3 experiment to test the hypotheses. The paper ends with discussion, managerial implications, and the limitations of the study.

## **CONCEPTUAL BACKGROUND AND HYPOTHESES**

### **Consumer Reactions to OOS situations**

Consumers experience negative reactions when their behavioral freedom is curtailed due to OOS situations (Brehm, 1966). Studies on consumers' reactions to OOS began by classifying consumer responses to OOS situations. Zinn & Liu (2008) consolidated consumer responses to OOS in an acronym- SDL- Substitute, Delay, or Leave. Consumers may choose to either substitute with the same brand or substitute with another brand. Alternatively, consumers may choose to leave without purchasing the item or may purchase at another store. Consumer response to stockouts has been studied by various researchers (Azeem et al., 2019; Dadzie & Winston, 2007; Fitzsimons, 2000; Jing & Lewis, 2011; Kim & Lennon, 2011; Ma et al., 2018; Pizzi & Scarpi, 2013). Table 1 provides a summary of important studies on consumer responses to stockouts.

<b>Study</b>	<b>Examines</b>	<b>Findings</b>	<b>Did not study</b>	<b>This study</b>
Ma et al. (2018)	<ul style="list-style-type: none"> <li>Consumer Thinking style (Holistic vs. Analytic)</li> <li>Consumer Attribution (consumer-side vs. retailer-side)</li> </ul>	Consumer thinking style influences attitude towards the product and retailer. The impact of consumer thinking style on attitude is mediated by consumer attribution.	<ul style="list-style-type: none"> <li>Stockout wording</li> <li>Impact of product Type</li> <li>Psychological mechanism of perceived product uniqueness and perceived consumption risk</li> </ul>	Examines the influence of the interaction between justification wording and product type on behavioral intent. The mediation of perceived popularity and perceived consumption risk is also studied.
Ku et al. (2014)	<ul style="list-style-type: none"> <li>An alternative product which is OOS (not mentioned vs. OOS due to demand vs. OOS due to supply)</li> <li>Self-concept (independent vs. interdependent)</li> </ul>	The presence of a previously unconsidered option that is sold out due to high demand influences consumer choice such that consumers seeking differentiation exhibit a strong preference for the initially chosen product. Conversely, consumers seeking assimilation show a weaker preference for the initial product.	<ul style="list-style-type: none"> <li>Impact of product Type</li> <li>Mediation of perceived product uniqueness and perceived consumption risk</li> </ul>	
Pizzi & Scarpi (2013)	<ul style="list-style-type: none"> <li>Justification wording (Firm-related vs. Firm unrelated)</li> <li>Disclosure Timing (Before vs. after selecting the product)</li> </ul>	Ex-ante, firm-related communication diminishes the damage caused by stockouts	<ul style="list-style-type: none"> <li>Impact of product Type</li> <li>Psychological mechanism of perceived product uniqueness and perceived consumption risk</li> </ul>	
Kim & Lennon (2011)	<ul style="list-style-type: none"> <li>Timing of notification (Before vs. After making a choice)</li> <li>Preference (Preferred item OOS vs. non-preferred item is OOS)</li> </ul>	Stockouts evoke negative emotions resulting in negative store image and low decision satisfaction, consequently leading to reduced behavioral intent.	<ul style="list-style-type: none"> <li>Stockout wording</li> <li>Impact of product Type</li> <li>Psychological mechanism of perceived product uniqueness and perceived consumption risk</li> </ul>	
Ge et al. (2009)	Impact of the presence of an OOS product on consumer choice	Sold out products may create a sense of urgency for consumers to expedite their purchases and enhance the perceived attractiveness of products similar to the sold-out products	<ul style="list-style-type: none"> <li>Stockout wording</li> <li>Impact of product Type</li> <li>Psychological mechanism of perceived product uniqueness and perceived consumption risk</li> </ul>	

From the above Table, we notice that extant research has studied consumer-related variables such as consumer thinking style (Ma et al., 2018), self-concept (Ku et al., 2014), consumer preference (Kim & Lennon, 2011), etc. Retailers have far greater control over product-related variables than over consumer-related variables. This makes a strong case to study the impact of product-related variables in the OOS context. As stated in the introduction, we contend that the differing results of Ma et al. (2019) and Pizzi & Scarpi (2013) regarding the impact of OOS attribution on consumer evaluation are due to the product type. We hence examine the interaction between product type and OOS justification. Further, we study the mechanism that drives consumer responses to the interaction between OOS justifications.

## **Impact of OOS justification and Product Type on Behavioral Intent**

### **Conceptualization of behavioral intent**

Kim & Lennon (2011) conceptualize behavioral intent as a combination of purchase intent and intention for word-of-mouth communication. According to Zeithaml et al. (1996), behavioral intent is an indicator of “*whether customers will remain with or defect from the company.*” This definition pertains only to behavioral intent with respect to the store and does not take account of behavioral intent with respect to the product. In order to derive a more holistic picture, this study takes into consideration behavioral intent with respect to the product as well as behavioral intent with respect to the store. Behavioral intent w.r.to the product (henceforth referred to as product behavioral intent) is the synthesis of product purchase intent and word of mouth where product purchase intent is the intent to buy the same product without shifting to another product, and word of mouth is the possibility of endorsing the product to friends. Behavioral intent w.r.to the store (henceforth referred to as store behavioral intent) is a union of store purchase intent and word of mouth where store purchase intent is the intention to visit the same store and purchase without switching to another store, and word of mouth is the possibility of endorsing the store to friends.

### **OOS justification and product type**

When a stockout occurs, retailers can choose to inform the consumers in various ways. On the basis of attribution theory given by Weiner (1974), Pizzi & Scarpi (2013) posit that retailers can justify the stockout in one of two ways- by internal/retailer-related attributions of responsibility, or by external/retailer-unrelated attributions of responsibility. Internal or retailer-related stockout attributions refer to justifications in which the retailer takes responsibility for the stockout. This can include messages such as “*the retailer informs you that it has exhausted the stock*” (Pizzi & Scarpi, 2013). External or firm-unrelated attributions involve attributing the responsibility for the stockout to others such as high demand by other consumers, manufacturer delays, or shipment delays. Though external attribution can refer to any stakeholder other than the retailer, this study is limited to high demand by other consumers (referred to as consumer-related OOS). This can include messages such as “*the product is no longer in stock because of the large number of requests already received from other customers*” (Pizzi & Scarpi, 2013).

Consumer attitudes are found to be impacted differently depending upon how these stockouts are communicated (Pizzi & Scarpi, 2013). Consumers infer product desirability from soldout products (Ge et al., 2009). When OOS messages are framed such that responsibility for the stockout is attributed to other consumers, consumers may construe that the product has sold

out due to high demand and thus infer that the product is popular. Consumer-related OOS is an effective cue while selling products in which consumers seek popularity and ineffective while selling products in which consumers seek uniqueness. On the other hand, retailer-related OOS justifications do not give cues about the prior popularity of the product. It follows that when consumers seek exclusivity, they would be more likely to have a positive assessment of retailer-related OOS products over consumer OOS products.

Consumer choices are driven by both utilitarian and hedonic motivations. Products are classified as primarily utilitarian or hedonic, even though many products have both facets to different degrees (Dhar & Wertenbroch, 2000). A utilitarian product is preferred for functional needs. According to the “*social-proof mechanism*,” consumers depend upon others’ opinions to construe the value of a product (Cialdini & Goldstein, 2004). Similarly, Worchel & Brehm (1971) assert that consumers gauge the worth of a product by the perception of relative demand. Consumers tend to choose popular utilitarian products as “*if everyone is trying it, it must be good*” (Jang et al., 2015). Consumer-related OOS may act as a mechanism to signal the relative popularity of the product. If many consumers preceding them have bought the product leading to a situation of stockout, consumers assume that the OOS product is of good quality. It follows that consumers have a positive evaluation of OOS caused due to demand by other consumers for utilitarian products. Hence, we hypothesize that-

*H1: For utilitarian products, consumer-related OOS compared to retailer-related OOS would lead to a more positive behavioral intent towards product and store.*

Unlike utilitarian products, hedonic products are consumed for pleasure (Ku et al., 2013). While consuming hedonic products, consumers have the need for self-expression and seek to differentiate themselves from others. This stimulates the ‘*snob effect*’ or a preference for a commodity because others are not consuming the same commodity (Van Herpen et al., 2009). Das et al. (2018) found that consumers of hedonic products want to express themselves by consuming a unique product and not a popular one.

Consumer-related OOS would make a hedonic product seem popular, thus reducing the degree of exclusivity. However, retailer-related OOS does not give any explicit information regarding consumer preference for the product, thus not making the product seem commonplace. Hence, we posit that for hedonic products, consumers would prefer a retailer-related OOS product over a consumer-related OOS product.

*H2: For hedonic products, retailer-related OOS compared to consumer-related OOS will lead to a more positive behavioral intent towards product and store.*

### **Mediating role of perceived product uniqueness and perceived consumption risk**

Consumers’ risk perception is found to influence purchase decisions (Sheau-Fen et al., 2012). Perceived consumption risk is defined as the uncertainty in product performance and the anticipation of post-consumption adverse outcomes (Campbell & Goodstein, 2001). Risk related information is used to assist decision making in such a way that consumers prefer the option which presents a lower risk (Aqueveque, 2006). Consumers tend to pay more attention to cues when they are risk-averse (Prendergast et al., 2010). Consumers tend to use extrinsic cues such as product packaging, brand names, or customer reviews to reduce risk (Agarwal & Teas, 2001). OOS justifications can act as such extrinsic cues that impact risk perception. Consumer-related OOS acts as a cue of the product popularity and quality as it signals that many people have bought the

product already. Retailer-related OOS does not give a clear signal about prior popularity. The perceived consumption risk associated with a product which many others have bought already is low as consumers infer that the odds of so many consumers buying an inferior product are small (Ku et al., 2013). Hence, we hypothesize that consumer-related OOS leads to lower perceived consumption risk than retailer-related OOS.

*H3: Consumer-related OOS, compared to retailer-related OOS will lead to lower perceived consumption risk.*

According to uniqueness theory, people experience negative emotions if they possess products that are highly similar to others (Snyder & Fromkin, 2012). They are happy when they perceive themselves to be moderately dissimilar from others (Snyder & Fromkin, 2012). People seek to establish their uniqueness and counter conformity by choosing products that are not popular and distinctive from the products possessed by others (Lynn & Snyder, 2002). OOS justifications may act as cues through which consumers gauge the popularity of the product. Ku et al. (2014) posit that OOS justifications act as social cues that help consumers evaluate a product in terms of perceived uniqueness or popularity.

Consumer-related OOS indicates that many people have bought the product already, thus increasing the popularity and decreasing the perceived uniqueness associated with the product. On the other hand, retailer-related OOS does not indicate prior demand for the product. It follows that products associated with a consumer-related justification are considered to be more commonplace and less unique than products associated with retailer-related justification. Hence, we hypothesize that consumer-related OOS leads to lower perceived uniqueness than retailer-related OOS.

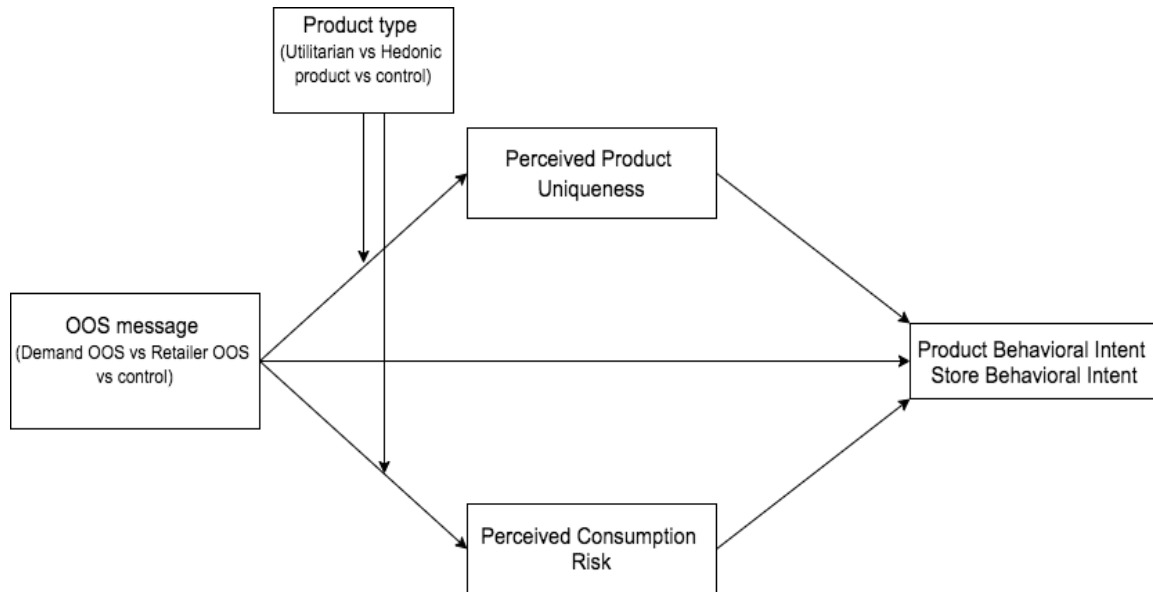
*H4: Consumer-related OOS, compared to retailer-related OOS will lead to lower perceived uniqueness.*

Dhar & Wertenbroch (2000) argue that consumer goals while buying utilitarian and hedonic products are different. While purchasing utilitarian products, consumers are found to prefer products that are scarce due to high demand (Ku et al., 2013). If many people have already bought a product, the probability of buying an inferior product that does not perform as intended is small, thus reducing the amount of risk associated with the purchase. Xiang et al. (2015) found that perceived risk has a significant negative influence on the intention to use utilitarian smartphone applications, while it does not have a significant impact on intention to use hedonic applications. Hence, the consumer goal while buying utilitarian products is to lower perceived consumption risk. On the other hand, while purchasing hedonic products, consumers are found to prefer supply scarce products that are unique and possessed by few others (Ku et al., 2013). Whitley et al. (2018) find that consumers with hedonic purchase motivations exhibit a higher preference for perceived uniqueness. Consumers prefer hedonic products that are unique and different from products possessed by others (Lynn & Snyder, 2002). Hence the consumer goal while buying hedonic products is to increase perceived uniqueness.

In the current research context, consumer-related OOS reduces the perceived consumption risk associated with utilitarian products, which positively influences behavioral intent. Perceived consumption risk does not mediate while considering hedonic products as consumers seek to attain the goal of perceived uniqueness while buying hedonic products. Retailer-related OOS products seem more unique than consumer-related OOS products as they seem to be possessed by fewer consumers. This increase in perceived uniqueness leads to a more positive behavioral intent for hedonic products. We hence hypothesize that,

*H5: Perceived consumption risk will mediate the effect of OOS justification on behavioral intent for utilitarian products, whereas perceived uniqueness will mediate the effect of OOS justification on behavioral intent for hedonic products.*

The proposed hypotheses are summarized in Figure 1



**FIGURE 1  
REPRESENTATION OF HYPOTHESES**

### **EXPERIMENTAL DESIGN**

In this study, we explore the impact of OOS justification and product type on behavioral intent. A 3\* 3 between-subjects design was adopted. Participants were randomly allotted to one of the nine possible conditions to generate matched groups (Pourhoseingholi et al., 2012).

#### **Pretest**

##### **Product type**

In order to choose products that consumers consider as primarily utilitarian or hedonic, a pretest was administered. 6 products- sunscreen, camera, chocolate, perfume, a drinking tumbler, and an alcoholic beverage were chosen. Respondents (N=30, female=15,  $M_{age}= 25.7$ ) rated these five products on a seven-point, five-item scale adopted from (Park & Moon, 2003). Participants responded to five statements regarding their buying decisions for each of the products anchored at 1 = “*strongly disagree*,” and 7 = “*strongly agree*.” Out of the five items, three items corresponded to hedonic buying, and two items corresponded to utilitarian buying. Every product was rated on the mean of utilitarian buying decision and the mean of hedonic buying decision. Drinking tumbler ( $M_{drinkingtumbler} = 2.95$ ,  $SD = 1.62$ ,  $t_{29} = 1.22$ ,  $p=0.23$ ) was rated as the most utilitarian product based on the means obtained for utilitarian buying decision, perfume ( $M_{Perfume} = 5.84$ ,  $SD = 1.06$ ,  $t_{29} = 0.93$ ,  $p=0.36$ ) was rated as the most hedonic product based on the means obtained for hedonic

buying decision and camera ( $M_{\text{camera}} = 4.24$ ,  $SD = 0.76$ ,  $t_{29} = 1.31$ ,  $p=0.2$ ) was found to be equally utilitarian and hedonic.

### OOS justification

OOS justification was pretested ( $N=30$ , female=14,  $M_{\text{age}} = 23.6$ ). The participants were given two justifications adopted from Pizzi & Scarpi (2013). The message for consumer-related OOS justification was- "*the product is no longer in stock because of the large number of requests already received from other consumers.*" The message for retailer-related OOS justification was- "*the retailer informs you that it has exhausted the stock.*" The participants responded to each of the sentences on a one-item, seven-point scale adapted from Pizzi & Scarpi (2013)- "*Who do you think is responsible for the stockout*" anchored at '*1=100% retailers' responsibility*' and '*7=100% responsibility of other consumers*'. A paired sample t-test indicated a significant difference between retailer-related justification ( $M=3$ ,  $SD = 1.61$ ) and firm unrelated justification ( $M= 4.65$ ,  $SD= 1.6$ ),  $t_{29}= -4.11$ ,  $p<0.01$ .

### Experimental Stimuli

Based on the pretest, drinking tumbler, perfume, and camera were chosen as the test objects. Following Pizzi & Scarpi (2013) and Ma et al. (2018), the experimental stimuli were varied in terms of capacity, while comparable prices were offered to control for price. Brand loyalty is found to influence substitution in an OOS situation (Puligadda et al., 2012). To control for brand loyalty and familiarity, the brand name was chosen to be XYZ. For example, if a respondent was considering a hedonic product, two perfumes of the same brand XYZ were offered with one costing Rs. 1000 for 150 ml and the other costing Rs.999 for 100 ml. They were informed that both products were of comparable quality. During the survey, each respondent encountered a webpage displaying two options of the product- a 150 ml perfume vs. a 100 ml perfume, six tumblers of 500 ml capacity vs. nine tumblers of 500 ml capacity, or a camera with 32GB memory vs. a camera with 64GB memory.

Respondents were asked to choose the alternative which they preferred. The dominating option, i.e., the option with higher capacity, was out-of-stock. Responses from respondents who chose the non-dominating option were not considered for analysis. Respondents who chose the dominating option were redirected to a webpage showing that the product was out-of-stock with one of the three OOS justification manipulations. The effect of other confounding variables such as price, brand name, product involvement, and product knowledge were controlled. After this, respondents were redirected to fill out a questionnaire.

### Questionnaire

The stimulus with one of twenty-seven possible scenarios was followed by scales measuring perceived consumption risk, perceived uniqueness, and behavioral intent. Behavioral intent towards product (Cronbach's  $\alpha=0.82$ ) and store (Cronbach's  $\alpha=0.86$ ) were measured by two three-item, seven-point scales adapted from Grewal et al. (2003). Perceived consumption risk (Cronbach's  $\alpha=0.75$ ) was measured using a three-item, seven-point scale adapted from Sweeney et al. (1999). Perceived uniqueness was measured using a three-item, seven-point scale adapted from Franke and Schreier (2008). The scales used in the pretest were used to check the manipulation of product type (Cronbach's  $\alpha=0.69$ ) and OOS justification. Product involvement



(Cronbach's  $\alpha=0.72$ ) was measured by seven-point, ten-item scales adopted from Park & Moon (2003). Product knowledge (Cronbach's  $\alpha=0.83$ ) was measured by a seven-point, one-item scale adopted from (Huang & Zhang, 2016). Factor analysis with varimax rotation showed that all items had loading higher than 0.6 and loaded on the specified factors. This was followed by questions seeking gender and age.

## Participants

A sample of 288 adults from multiple programs of a management institute in India participated voluntarily. The sample had 36 percent of females. The mean age was 28.7. Students were chosen to participate in this study as the setting of this study is online retail. The entire sample shopped online, thus making them apt for a study on online stockouts. Further, a typical online shopper in India is a man aged 25-34 (Bhattacharya, 2016). The sample characteristics of this study are similar to a typical online shoppers' profile, making the sample suitable for a study on online stockouts.

## Results of Manipulation Check

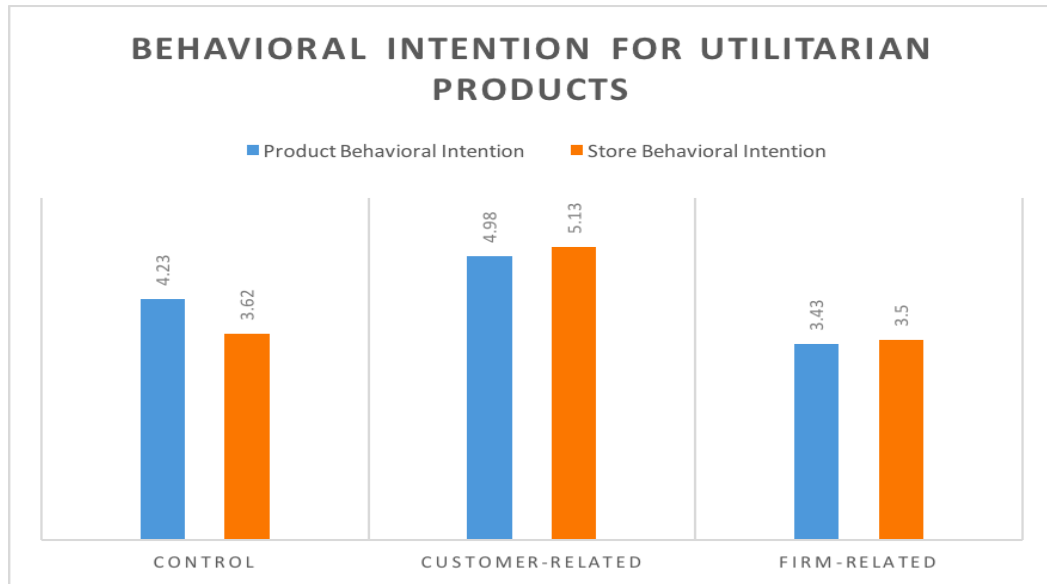
ANOVA results suggest that the OOS manipulation was successful, as significant differences were found between OOS attributed to other consumers ( $M_{\text{consumer-related}} = 4.53$ ,  $SD = 1.87$ ) and OOS attributed to the firm ( $M_{\text{retailer-related}} = 4.01$ ,  $SD = 1.2$ ;  $M_{\text{control}} = 3.36$ ,  $SD = 0.92$ ;  $F_{(2,285)} = 15.73$ ,  $p < 0.01$ ). Product type manipulation was also found to be successful ( $M_{\text{utilitarian}} = 3.12$ ,  $SD = 1.3$ ;  $M_{\text{hedonic}} = 4.97$ ,  $SD = 2.34$ ;  $M_{\text{both}} = 4.12$ ,  $SD = 1.4$ ;  $F_{(2,285)} = 43.14$ ,  $p < 0.01$ ).

## RESULTS

### Interaction between OOS justification and Product Type

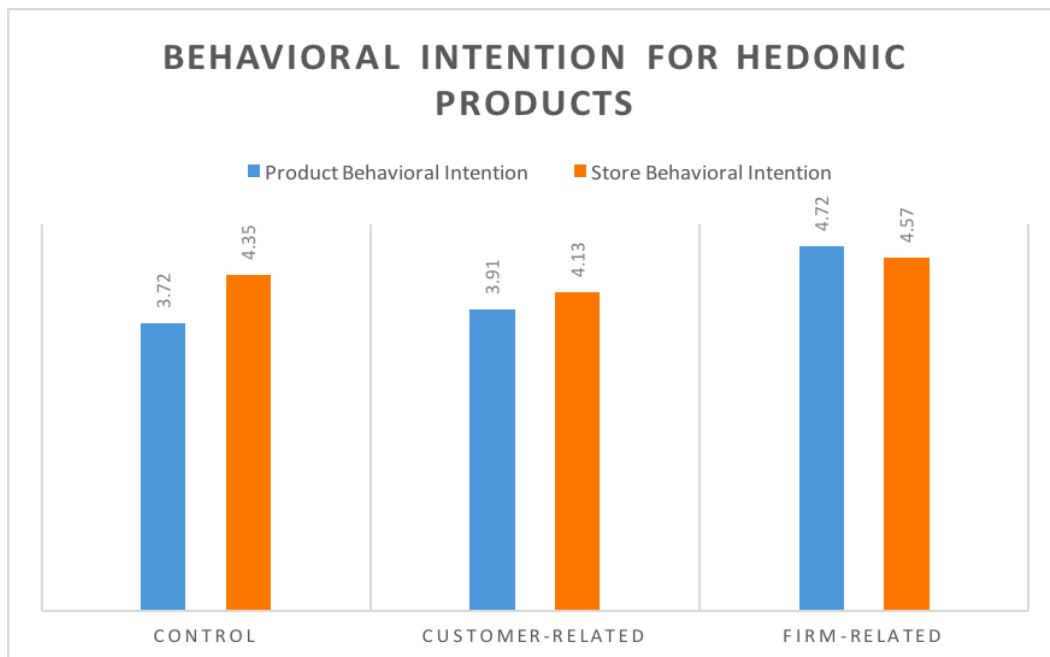
H1 and H2 predicted that OOS justification and product type would interact such that consumer-related OOS would lead to a more positive behavioral intent than retailer-related OOS for a utilitarian product and vice versa for a hedonic product. To test H1 AND H2, MANCOVA was run in between OOS justification and product type with store behavioral intent and product behavioral intent as dependent variables. We controlled for product involvement and product knowledge by adding them as covariates. A statistically significant interaction effect was found between OOS justification and product type on both product behavioral intent,  $F_{(2,277)} = 15.55$ ,  $p < 0.05$  and store behavioral intent,  $F_{(2,277)} = 5.25$ ,  $p < 0.05$ ; Wilks'  $\Lambda = 12.32$ ,  $p < 0.05$ . The effect of covariates was found to be insignificant.

Results further indicated that for utilitarian products, consumer-related justifications led to higher behavioral intent than retailer-related justifications (product behavioral intent-  $M_{\text{consumer-related}} = 4.98$  vs.  $M_{\text{retailer-related}} = 3.43$ ; store behavioral intent-  $M_{\text{consumer-related}} = 5.13$  vs.  $M_{\text{retailer-related}} = 3.5$ ), supporting H1 as shown in Figure 2.



**FIGURE 2**  
**INTERACTION BETWEEN UTILITARIAN PRODUCTS AND OOS JUSTIFICATION**

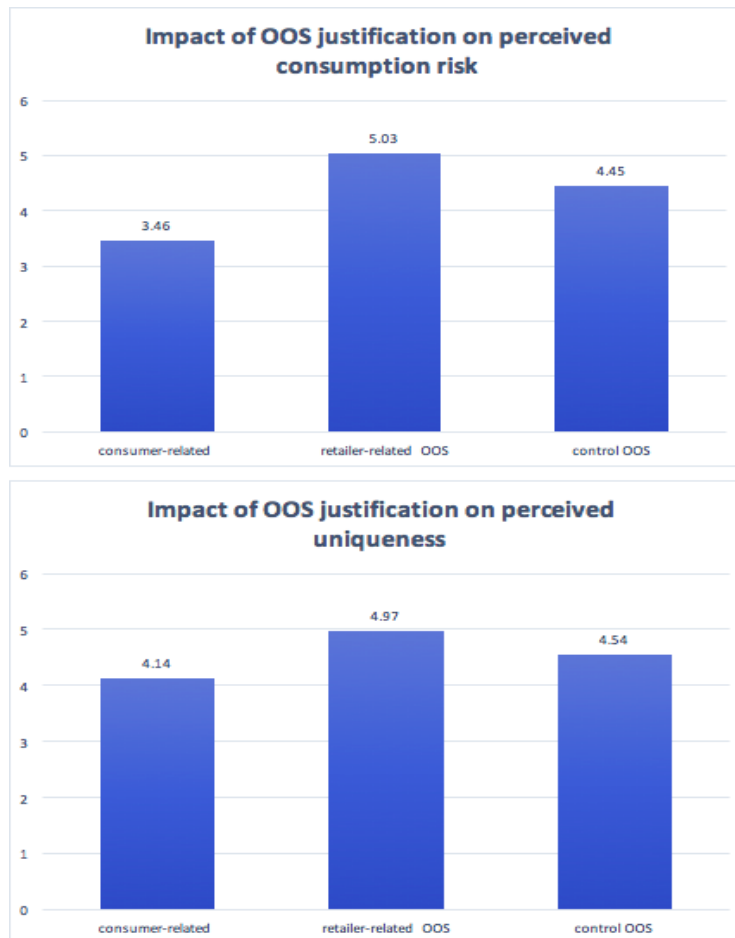
On the other hand, for hedonic products, retailer-related justifications led to higher behavioral intent than consumer-related justification (product behavioral intent-  $M_{\text{consumer-related}} = 3.91$  vs.  $M_{\text{retailer-related}} = 4.72$ ; store behavioral intent-  $M_{\text{consumer-related}} = 4.13$  vs.  $M_{\text{retailer-related}} = 4.57$ ), supporting H2 as shown in Figure 3.



**FIGURE 3**  
**INTERACTION BETWEEN HEDONIC PRODUCTS AND OOS JUSTIFICATION**

### Effect of perceived consumption risk and perceived uniqueness

Two-way ANOVA was run with OOS justification and product type as independent variables and perceived consumption risk as the dependent variable. A statistically significant interaction was found between OOS justification and product type on perceived consumption risk ( $F_{(2,279)} = 42.26, p < 0.01$ ). A Tukey post hoc test revealed that the perceived consumption risk was statistically significantly lower for consumer-related OOS ( $M = 3.46, SD = 1.2, p < 0.05$ ) and higher for retailer-related OOS ( $M = 5.03, SD = 1.28, p < 0.05$ ) when compared to control OOS ( $M = 4.45, SD = 2.18, p < 0.05$ ) (shown in Figure 4). This lends support to H3.



**FIGURE 4**  
**IMPACT OF OOS JUSTIFICATION ON PERCEIVED CONSUMPTION RISK AND PERCEIVED UNIQUENESS**

Similarly, for perceived uniqueness, two way ANOVA revealed a significant interaction was found between OOS justification and product type on perceived uniqueness ( $F_{(2,279)} = 82.1, p < 0.01$ ). A Tukey post hoc test revealed that the perceived uniqueness was statistically significantly lower for consumer-related OOS ( $M = 4.14, SD = 1.64, p < 0.05$ ) and higher for retailer-related OOS ( $M = 4.97, SD = 1.83, p < 0.05$ ) when compared to control OOS ( $M = 4.54, SD = 1.03, p < 0.05$ ) (shown in Figure 4). This lends support to H4.

### Moderated mediation effect

H5 states that the relationship between OOS justification and behavioral intent is mediated by perceived consumption risk for utilitarian products and perceived uniqueness for hedonic products. To analyze this, Hayes (2017) PROCESS version 3.3, model 8, was used with 10,000 bootstrap samples. OOS justification was dummy coded as 0=control, i.e., no OOS message, 1= consumer-related OOS, 2=retailer-related OOS. Product type was coded as 0 = control product, 1 = utilitarian product and 2= hedonic product. The results of the analysis are summarized in table 2.

Model 8	Product BI				Store BI			
	Utilitarian		Hedonic		Utilitarian		Hedonic	
	Indirect Effect	95% CI	Indirect Effect	95% CI	Indirect Effect	95% CI	Indirect Effect	95% CI
OOS justification→ perceived consumption risk→ BI	-0.65	[-1.32, -0.63]	0.47	[-0.42, 0.05]	-0.13	[-0.31, -0.04]	0.32	[-0.67, 0.7]
OOS justification→ perceived uniqueness→ BI	-0.01	[-0.07, 0.31]	0.52	[0.72, 1.21]	0.61	[-0.57, 0.33]	0.51	[0.28, 0.59]

From the above table, we find that the indirect effect of OOS justification on product and store behavioral intent is mediated by perceived consumption risk for utilitarian products (Indirect effect = -0.65, Boot SE = 0.23; 95% bias-corrected confidence interval (CI<sub>95</sub>) [-1.32, -0.63]; [-0.31, -0.04]), but not for hedonic products (CI<sub>95</sub> contains zero). This indirect effect is a result of consumers displaying higher behavioral intent for utilitarian products with consumer-related OOS justification than retailer-related justification, which significantly reduces perceived consumption risk.

Further, the indirect effect of OOS justification on product and store behavioral intent is mediated by perceived uniqueness for hedonic products (CI<sub>95</sub> [0.72, 1.21]; [0.28, 0.59]), but not for utilitarian products (CI<sub>95</sub> contains zero). This indicates that while buying hedonic products, a retailer-related justification compared to a consumer-related justification increases perceived uniqueness and, consequently, product and store behavioral intent. This lends support to H5.

## DISCUSSION

The results of this study show that while considering a utilitarian product, consumers have a more positive behavioral intent when OOS is attributed to other consumers than when OOS is attributed to the retailer. This can be explained by the preference of consumers for demand scarce utilitarian products as demand scarcity appeals provide social proof which consumers interpret to mean product superiority (Ku et al., 2013). Consumer-related OOS works in tandem with utilitarian products because if many consumers have bought the product already, then the product must perform as per expectations. The perceived consumption risk associated with purchasing a product which many others have bought already is low.

Conversely, when considering a hedonic product, we find that consumers have a negative behavioral intent when OOS is attributed to other consumers, and a positive behavioral intent OOS is attributed to the retailer. OOS attributed to consumers can be considered to be a cue indicating that the product is popular. A sense of uniqueness cannot be achieved by buying a product that is perceived to be popular and hence commonplace (Gierl et al., 2008). Likewise, our results indicate that the perceived popularity of the product is less for consumer-related OOS. Retailer-related OOS justification does not give any cues about the popularity of the product, thus giving a sense of exclusivity. Retailers can benefit by pairing consumer-related OOS cues with utilitarian products to signal popularity and retailer-related OOS with hedonic products to signal exclusivity.

## **CONCLUSION**

This study has several salient theoretical contributions. Firstly, although OOS messages were studied by previous researchers (Pizzi & Scarpi, 2013), the moderating effect of product type has remained unstudied. Through the lens of attribution theory, the current research shows that consumer attitudes are positive for a utilitarian product when OOS is attributed to consumers and likewise for a hedonic product when OOS is attributed to the retailer. Secondly, the psychological mechanisms while buying utilitarian or hedonic products are examined, which highlights that the major goal that consumers aim to meet while buying utilitarian products is low perceived consumption risk, and hedonic products is high perceived uniqueness.

Armed with the knowledge of how communicating the cause of OOS can minimize negative reactions to OOS situations, retailers can implement suitable methods to minimize negative reactions to stockouts. Firstly, for utilitarian products, retailers might benefit by conveying that the stockout occurred due to high demand, thus highlighting their popularity. For hedonic products, attributing responsibility to consumer demand is found to lead to negative consumer attitudes. Retailers can maintain the exclusivity of OOS hedonic products by attributing the responsibility of the stock out to themselves. Retailers can further use other cues such as positive reviews to reduce perceived consumption risk associated with utilitarian products. For hedonic products, they can maintain exclusivity by displaying low sales levels.

## **LIMITATIONS AND FUTURE RESEARCH DIRECTIONS**

The limitations of this study provide scope for further research. Firstly, this study is limited to products sold on an e-commerce platform; brick and mortar stores are not considered. In a brick and mortar store, the consumer has to specifically enquire about a product to learn that the product is out of stock, whereas stocked out products are on display in an online store. Stockouts are hence much more easily visible in an online store than in a brick and mortar store, which may impact consumer perception of the store. Further investigation can be done comparing consumer responses to online retailers and brick and mortar stores. Secondly, Pizzi & Scarpi (2013) show that the timing of OOS disclosure has an impact on consumer evaluation of the situation. Further research can be done on the interaction between the timing of disclosure and OOS justification. Finally, further investigation can also be done on the interaction between OOS justification and other product-related attributes, such as product complexity.

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