

How anxiety and loneliness affect consumers' preference for fashion products — the psychological consequences of COVID-19 —

Abstract

In this study, we analyzed the psychological impact of infectious threats such as COVID-19 on consumers' preferences for fashion products. Specifically, the relationship between two psychological states caused by covid-19 crisis, anxiety and loneliness, and people's preference for fashion products were tested. Using conjoint analysis, we found that both loneliness and anxiety are positively correlated with preferences for anime characters vs. human as spokesperson, while the interaction between loneliness and anxiety is negatively correlated with that. A semi-structured interview survey was also conducted to further explore the results. This study suggested that COVID-19 has changed consumers' perceptions of a product's "human image" and has also affected their product preferences.

Keyword

anxiety, loneliness, COVID-19, Conjoint analysis, Fashion

I. Introduction

The global pandemic of COVID-19 had a tremendous impact on global economy, causing recession, bankruptcies, and unemployment. In addition to the economic impact, the COVID-19 epidemic had a significant psychological impact on consumers around the world. By August 3, 2022, the number of new coronavirus cases worldwide has risen to 579 million, and the death toll to 6.41 million (Ritchie et al., 2020).

There is a need to study threats such as COVID-19 and consumer's adaptive responses to those threats. "The field of consumer research is uniquely positioned to shed light on questions related to responses to threats, including those that have arisen due to current circumstances," argued by Campbell et al. (2020).

While there could be numerous responses caused by COVID-19 pandemic, they can be broadly categorized into three types: cognitive response, emotional response, and behavioral response. This paper focuses on the emotional response triggered by COVID-19, and their influence on consumer behavior. Specifically, two emotional responses were considered relevant: anxiety and loneliness. When the pandemic first took place in Wuhan, China, people responded with great anxiety, and even fear, towards the coronavirus unknown to them before. Feeling anxious, many of them took irrational behaviors like panic buying and spreading rumors. After the severe consequences of coronavirus were fully acknowledged by the government, quarantine policy was enforced. During the prolonged quarantine time, many people have experienced yet another kind of emotion: loneliness. Many people felt been excluded from the rest of the world. Some of them got depressed, and even worse, committed suicide. Such emotional phenomenon may have profound influence on consumer behavior. People feeling anxious and worried about the being infected by the coronavirus may strive to avoid contacting other people during buying process, even to the extent that they avoid buying products that are perceived to be relevant to other people. On the other hand, people feeling lonely may pursue symbolic relationship with other people during consumption. The two emotions aforementioned may work in opposite direction. While

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anxiety may pull people from buying products which give a “smell” of other people, loneliness may push people to pursue products which signals a feeling of being connected to others. In another word, how lonely a person is may influence the effect of anxiety on him, and vice versa. Therefore, there might be an interaction effect between the two emotions.

Considering the importance of emotion on peoples’ consumption behavior and the profound impact of COVID-19 on our daily life, it is necessary to explore the influence of anxiety and loneliness on people’s consumption behavior during COVID-19 crisis. Such exploration may not only help us understand the current circumstances caused by COVID-19, but also provide us with insights beyond COVID-19 into other threats human might face in the future, including other kinds of pandemic, natural disasters, and wars. While existing literature fails to pay attention to this affair, the current study aims to fill this gap. Specifically, this paper is trying to answer the following three questions. First, do loneliness and anxiety affect consumers' preference? Second, consumers' preference for which attributes of products do loneliness and anxiety affect? Third, in the process described above, is there any interaction between the effect of loneliness and anxiety?

II. Literature review

1.Framework for consumer responses to threats

Coronavirus poses serious threats to our daily life. Millions of years of natural selection have equipped human a repertory of instruments or mechanisms to deal with all kinds of threats. Some of them may still be still useful nowadays, others may become maladaptation viewed from today's perspective. Therefore, it is important to understand COVID-19 and its consequences through the lens of threat.

“Threat is broad and non-specific construct. Qualitatively different kinds of threats influence human health and welfare, and these distinct kinds of threat elicit distinct neurochemical, affective, cognitive, and behavioral responses,” As Murray & Schaller (2012) have suggested, there are different kinds of threats, and quest into each kind of threat should be guided under context-specific principals or frameworks. Campbell et al. (2020) provided a conceptual framework for consumers' reactions to threats associated with COVID-19 crisis. According to their framework, in the wake of the COVID-19 pandemic, consumers who felt being threatened would fall into a state of disruption, feel ontological insecurity, and responded adaptively. Ontological security reflects the degree to which consumers feel their world, and their roles within it, are secure and predictable (Laing, 2010). If consumers' daily and predictable lives are disrupted, consumers will feel unsafe, uncertain, and anxious. When consumers’ ontological security is disturbed, they have a significant emotional investment in reestablishing trust that the world is predictable(Garfinkel, 2016). Ontological insecurity can lead to various consumer responses. Campbell et al. (2020) identified many kinds of response associated with threat, including short-term affective and psychological responses (e.g., fear), long-term psychological responses (e.g., anxiety or depression), and behavioral reactions (e.g., increased purchase and consumption of alcohol). As an example of behavioral reactions, Loxton et al. analyzed consumer spending data of consumers from Australia and the United States and noted that two common responses of consumers during the coronavirus were panic buying and herd mentality(Loxton et al., 2020).

Faced with threats, human beings seek safety for self-defense and survival(Griskevicius & Kenrick, 2013), which will in turn influence their choices or behaviors. There are many studies probe into the effect of threats on consumer behavior. For example, Based on research in evolutionary psychology, Huang & Sengupta 2020) demonstrated that threatened people tend to

prefer atypical products to typical products. According to their study, in order to cope with threats such as infectious diseases, humans have evolved a behavioral psychological immune system in addition to their physiological counterpart. Moreover, because infectious disease is so harmful to the well beings of human, the human physiological immune system may sometimes overreact, resulting in aversion to stimulus that are actually noninfectious, but in some way wrongly evoking the threat of disease. One of the overreactions stemmed from physiological immune system is called people-avoidance motive, by which individuals avoid people in general, which means they will show this tendency in every situation, no matter the current situation is directly relevant to real human or not. They surmised that because typical products have the image of many people, people who feel threatened prefer atypical products to typical products (Y. Huang & Sengupta, 2020).

Another study digs into this issue is that of Galoni et al. (2020). Based on appraisal tendency framework, they have proved that infectious threats give rise to an assessment of uncertainty and an assessment of infectivity, which will arouse a joint feeling of fear and disgust, and in turn increase individuals' preference for familiar products. According to them, feeling fear or disgust alone, consumers tend to reject or act inactively, but the joint effect of fear and disgust motivates consumers to regain control and prefer familiar products than unfamiliar products (Galoni et al., 2020).

2. Anxiety

Anxiety is a negative psychological state triggered by vague or suspenseful threat, and is often characterized by tension, apprehension, and worry (Baumeister, 2007). The concept of anxiety is academically approached in two different ways: one sees anxiety as a stable personality trait, and the other insists upon the situational nature of anxiety. The former is referred to as trait anxiety, and the latter is referred to as state anxiety (Spielberger, 1966). Also, anxiety is a context specific construct. There exist various kinds of anxiety, including speech anxiety, technology anxiety, test anxiety, etc. Given this paper's concern for current COVID-19 situations, this paper adopts the state conceptualization of anxiety, and the context of anxiety is restricted to COVID-19 crisis.

Anxiety is widely studied in consumer behavior literature, usually in a context-specific fashion and focusing on the consequences of it. For example Lee et al. (2011) studied the effect of stereotype threat on consumer's purchase intention. They found that the awareness of stereotype threat will make consumers sensitive to the identity of service providers: whether they are in-group members or out-group members, and lower their purchase intention for out-group providers. They pointed out that consumer's lowered purchase intention for out-group providers is triggered by heightened anxiety. Lowe et al. (2019) studied effect of anxiety induced by low pitch sound on consumers. Through seven studies in different domains, they demonstrated that low-pitch-sound-induced anxiety will lead to more risk-avoidant behaviors, such as increased willingness to paying for more car insurance or trying food with lower taste uncertainty. The work of Rahimah et al. (2018) on green consumption behavior revealed that consumer's death anxiety is positively correlated with consumer's pro-environmental behavior and environmental concern, which positively contribute to green-product purchase attitude, which in turn leads to a higher green-product purchase intention. In mobile shopping adoption literature, technological anxiety was found to moderate the positive effect of facilitating conditions on intention to use through the mediation of utilitarian performance expectancy and hedonic performance expectancy, with consumers scoring higher on technological anxiety have lower utilitarian performance expectancy

and hedonic performance expectancy (Yang & Forney, 2013).

In conclusion, although consumer behavior literature tends to study context-specific anxiety, the accumulative results show somewhat general consequence of various anxiety: the avoidant tendency of consumers. Lee et al. (2011) suggested that “anxiety plays a unique role in generating an avoidance response, more so than other negative emotions such as sadness or anger.” Such avoidance-inducing effect of anxiety could be explained by the behavioral inhibition system (BIS). BIS is a neuropsychological system that provide aversive motivation. BIS suppresses behaviors which may entail dangerous consequences through inhibition of current goal-achieving behaviors (Kimbrel et al., 2012). BIS is commonly associated with the emotional state of anxiety (Baumeister, 2007; Kimbrel et al., 2012). This paper proposed that anxiety triggered by coronavirus-relevant message will motivate consumers to avoid others when making decisions, even symbolically in situations like buying or consumption.

3. Loneliness

Loneliness is a common psychological phenomenon which is increasingly prevalent among modern societies with the rise of capitalism and technological devices. Due to the current COVID-19 pandemic and the corresponding quarantine life, more people are struck by loneliness, and the effect of loneliness are expected to remain even after the pandemic. Therefore, Wang et al. (2021) urged that there is a “need to revisit the phenomenon of lonely consumers to better prepare academic researchers, public policy makers and commercial managers in the postCOVID-19 era.”

According to Huang & Fishbach (2021), loneliness is “the unpleasant feeling of social isolation, which occurs when social needs are not adequately met”, and “a subjective experience” which is “sometimes caused by (and operationalized as) objective social exclusion.”

West et al.'s review (1986) suggested that a great portion of population might suffer from loneliness, and in general younger people reported feeling lonelier than older people, women ed feeling lonelier than men, unmarried reported feeling lonelier than married. Moreover, loneliness was associated with depression and bereavement, might be the outcome of parental abuse or neglect, and might lead to alcoholism or decreasing physical health.

Loneliness in consumer behavior literature have also been widely researched. However, the result is somewhat mixed. On the one side, lonely people were found to be more interested in previously owned products (F. Huang & Fishbach, 2021), show greater tendency to anthropomorphize non-human agents (Epley et al., 2008), prefer nostalgic products (Loveland et al., 2010), and consuming comfort food is found to have the effect of relieving loneliness (Troisi & Gabriel, 2011). On the other side, loneliness motivates people to prefer minority-endorsed products (J. Wang et al., 2012), choose angular product- or logo-shapes over circular ones (Chen et al., 2021), and develop materialistic values (Pieters, 2013). It seems that that loneliness motivates people towards two opposite directions. On the one hand, loneliness motivates people to seek social connections; on the other hand, loneliness makes people more introvert and seek less connections with others.

The contradictory findings could be reconciled by clarifying the types of loneliness. One important typology of loneliness is the typology by time (Shiovitz-Ezra & Ayalon, 2010). This typology allows loneliness to be classified into situational loneliness and chronic loneliness. Situational loneliness is often caused by painful events in life, such as divorce or bereavement. However, after a short period of suffering, a situational loner can gradually recover from loneliness. On the other hand, chronic loneliness is a more stationary condition that arises from the

inability to build satisfactory social relationships over many years. It is possible that situational loneliness activates people's need for belonging and motivates people to seek connections with others. People who experience loneliness chronically, however, may give up seeking connections with others through learned helplessness. They want to be different from others and refrain from contacting with others. The loneliness caused by COVID-19 and the associated quarantine is situationally triggered, and after the pandemic those lonely people will go back to their normal life. Therefore, this paper deems the loneliness caused by COVID-19 crisis as situational loneliness, and this loneliness activate people's need to belong and push them to seek connection with others.

III. Hypothesis

Motivated by the psychological immune system, consumers who are threatened by coronavirus will feel anxious and tend to avoid people. Not only do they avoid direct contact with people, but also show avoidance tendency in the consumption situation. For example, consumers' preference for products that have strong people's image will be reduced.

H1: Anxiety lowers consumers' preference for products that have strong people's image.

The quarantine life associated with COVID-19 makes people feel lonely. In order to cope with loneliness, they try to seek connection. They not only create relationships with others directly in real life, but also seek symbolic connections with others in consumption situations. Therefore, it could be argued that lonely people prefer products that have a person's image.

H2: Loneliness increases consumers' preference for products that have strong people's image.

Consumers during COVID-19 pandemic will first feel anxious about infection. However, as the quarantine life is prolonged, people gradually feel lonely. Anxiety forces people to avoid others, while loneliness makes people seek connection with others. In fact, in COVID-19 pandemic, many consumers feel a sense of contradiction about meeting others. On the one hand, they worried about getting infected and feel it is better not to meet others for the time being. On the other hand, they are desperately eager to meet others. The negative feelings brought by loneliness may weaken people's other-avoidance motive. Therefore, it could be argued that there is a negative interaction effect between anxiety and loneliness, and loneliness can alleviate the effects of anxiety.

H3: Loneliness has a negative moderating effect on H1, where loneliness alleviates the effect of anxiety.

IV. Methods

1. Conjoint Analysis

In order to comprehensively deal with factors that are expected to have complex and conflicting effects, this study decided to use conjoint analysis. Conjoint analysis is a technique for dealing with the trade-offs between competing factors faced by buyers, and is one of the techniques for decision-makers to handle situations in which two or more attributes vary simultaneously (Green et al., 2004). In addition, in conjoint analysis, it is also possible to "obtain the scale (partial utility) of individual evaluation for each factor from the overall evaluation of the combination of various

factors prepared in advance"(Noguchi 2018).

In studies using conjoint analysis, respondents are usually given several product profiles. Each profile consists of a combination of different levels of attributes. Respondents evaluate preference and purchase intent towards each profile against other profiles. From the evaluation data, partial utility representing the importance of each attribute can be calculated.

The preference U_{ik} for the profile k of consumer i can be calculated by the following equation (Ueda 2021).

$$U_{ik} = \sum_j \beta_{ij} \cdot x_{kj}$$

where j represent attribute, x_{kj} represent the level given to attribute j of the profile k . From each coefficient β_{ij} , the partial utility value $\hat{\beta}_{ij}$ of the attribute j can be estimated. Also, the

relative importance of the attribute j can be estimated by the following equation:

$$I_j = (\max \beta_j - \min \beta_j) / \sum_j (\max \beta_j - \min \beta_j)$$

2.Design of Survey

This study used hypothesized brand of casual fashion product as the target product category.

Fashion has been a \$1.75 trillion industry, and sales of many major fashion brands are growing rapidly around the world (Carolyn, 2015). The COVID-19 pandemic brings new opportunities to online trading of fashion product, and the global online apparel retail market size will grow by around US\$80 billion from 2020 to 2024(Businesswire, 2020). This surge of market size may be driven by the psychological effect of COVID-19 on consumers. According toPhillips & McQuarrie (2011), image is central to fashion for it is "above all a visual phenomenon that consists of a constructed image – whether on the runway, in a celebrity photo, as clothing worn on the street, or in the pages of a fashion magazine". When consumers buy fashion products, they often have an "image of people" in their minds (such as a model or a celebrity wearing that fashion product). However, their perception and response to that image can be influenced by feelings of anxiety and loneliness, which in turn can influence their preference for fashion products. Therefore, this paper deems it suitable to use fashion product as the target product. Because actual fashion brands may adopt different manufacturing process, such as handmade fashion products and fashion products mass-produced by machines, and people's preference for different fashion products may be various, this paper uses hypothetical fashion brand to avoid biases caused by different actual fashion products.

A lot of attributes can trigger "people's image", including "brand name", "origin", "number of comments on the Internet", "brand recognition," and "advertising character." Brand name is the key asset of a brand, and a successful brand name will create positive brand image(Aaker, 2009). According toThakor & Lavack (2003), the origin of a product affects consumers' brand perception. What is important here is not the true origin of the product, but the origin that consumer recognize. The number of comments on the Internet can also influence consumers' purchasing decisions when an infectious threat exists. According to the unpublished experimental data from Galoni et al., when exposed to an infectious threat, consumers prefer potato chip brands reviewed by 100 people to 500 people (Galoni, Carpenter, and Rao 2019, unpublished data). According to Huang & Fishbach (2021), people who are exposed to threats prefer atypical products to typical products because they are motivated to avoid people. Since typical products

have a high level of brand recognition, it could be argued that high brand recognition can trigger image of many people. Infectious threats also reduce consumers' preference for anthropomorphic products (Epley et al., 2008). Thus, when infectious threats are present, advertising character (anime character vs. celebrities) may affect consumers' preference for the brand.

Based on the literatures listed above, this paper argues that the five brand attributes, "brand name", "origin", "number of comments on the Internet", "brand recognition", and "advertising character" are relevant and appropriate for representing "human image". For each attribute two levels were given. Specifically, two hypothesized brand names, "Freeman" and "Freelife", were given to the attribute "brand name"; "United Kingdom" and "Switzerland" were given to "origin"; "30000" and "3000" were given to "number of comments on Internet"; "high recognition" and "low recognition" were given to "brand recognition"; "celebrities" and "anime character" were given to "advertising character", among which all the former ones representing "strong human image" while the latter ones represent comparatively "weak human image".

To conduct conjoint analysis of five or more attributes as in this case, it is necessary to present at least eight profiles to respondents. In order to avoid placing an excessive burden on respondents, attributes more than five was not considered. The process of conducting the survey is described as follows. First, articles and images about coronavirus were presented to respondents to make them feel infectious threat. This method is based on the paper of Huang & Sengupta (2020) and was proven to effectively triggered the perceived threat of coronavirus among respondents. Next, questions about respondents' demographic attributes, such as gender and age, were presented. The degree of loneliness and anxiety of the respondents were then assessed. The items about loneliness are based on items from Huang & Fishbach (2021). The items related to anxiety are based on the items of Motoyoshi (2021) and was adjusted to suit the current circumstances (the original items were devised during the second wave of COVID-19 in Japan, and this paper deleted the descriptions about the specific waves to represent the general anxiety experienced by respondents). Next, respondents were asked about their interest in casual fashion, where four options, "not interested at all", "not very interested", "somewhat interested", and "very interested", were presented. Those who chose "somewhat interested" or "very interested" were randomly presented with the eight profiles, and their willingness to pay for each profile were recorded. Respondents were guaranteed that there was no difference in quality among the eight profiles other than the five attributes. The reason that we conducted a conjoint survey only on people who are interested in casual fashion products is that it is seldom for people who are not interested in fashion to imagine the fashion product.

V. Survey results

1. Outline of the Implementation

The survey was conducted using the Internet panel from a Japanese survey company. The implementation outline is shown in Table 1.

Table 1 Outline of the Survey

Research Methodology	Internet Research
Survey Company	Intage Corporation
Region	Japan
Implementation Period	2022/02/28~2022/03/02
Number of Samples	1065
Average Age	45 years old

Age	Male		Female	
20s	105	9.9%	103	9.7%
30s	105	9.9%	108	10.1%
40s	108	10.1%	104	9.8%
50s	108	10.1%	106	10.0%
60s	109	10.2%	109	10.2%

2. Overview of analysis

the conjoint

Of the 1065 samples, 475 respondents said they were "somewhat interested" or "very interested" in casual fashion. Among those samples, 201 samples gave the same rating to all profiles. This could be due to the laziness of some respondents. Apart from that, if a respondent gives all profiles the same evaluation score, his individual partial utilities could not be calculated. Thus, those samples were excluded. The conjoint analysis was conducted using the remaining 274 samples.

The partial utilities of the five attributes, "brand name", "origin", "number of comments on the Internet", "brand recognition", and "advertising character" are shown in Figure 1, and the relative importance of each level is shown in Figure 2.

The relative importance of each attributes shows the importance consumers attach to each attribute. As is shown on figure 2, "number of comments on the Internet" was the most important attribute, with "advertising characters" came in second place and "brand recognition" in third place. "Brand name" and "country of origin" occupied four and five places, but the p-values of the partial utilities of these two attributes were large (0.32 and 0.56, respectively), which renders the coefficients of these two attributes suspicious. The result shows that consumers may not respond to the difference of people's image contained in "brand name" and "origin".

3. Manipulation check

A manipulation check was conducted to verify whether this study successfully manipulated "people's image" across all the five attributes using a separate sample of 80 respondents. The reason to use a separate sample was to avoid laying too much burden on respondents, as evaluating 8 profiles is already a laborious work.

The procedure of the manipulation check is described as follows. Respondents were presented with two different profiles. The first profile contained all the levels of attributes which represent "weak people's image" (e.g., "low recognition"), while the second profile contained all the levels of attributes which represent "strong people's image" (e.g., "high recognition"). Within-subject design was used because this reflects the nature of conjoint analysis survey in which respondents evaluate each profile against other profiles. Respondents were then asked to rate the degree of "people's image" for each attribute of the two profiles. Because "people's image" is a relatively intuitive concept, degree of "people's image" was measured using a single 7-point-item: "Please evaluate the degree of 'people's image' for each attributes, with 1 point stands for 'weak people's image' and 7 point stands for 'strong people's image'."

T-tests were conducted to check if there was no difference of degree of people's image between the two levels of each attribute using Welch Two Sample t-test of R. The results indicate that respondents successfully discern the difference of "people's image" of the two levels among

"number of comments on the Internet", "brand recognition", and "advertising character". Respondents rated the degree of "people's image" of "3000" number of comments on the Internet ($M=5.28$, $SD=1.53$) significantly lower than "30000" one ($M=5.90$, $SD=1.05$), $t(80)=-3.00$, $p=.003$. Respondents rated the degree of "people's image" of "low recognition" ($M=3.41$, $SD=1.66$) significantly lower than "high recognition" ($M=5.96$, $SD=.93$), $t(80)=-11.98$, $p<.001$. Respondents rated the degree of "people's image" of "anime characters" ($M=4.55$, $SD=1.65$) significantly lower than "celebrities" ($M=6.13$, $SD=.91$), $t(80)=-7.48$, $p<.001$. However, no significant difference was found between "Freelife" ($M=4.88$, $SD=1.59$) and "Freeman" ($M=5.06$, $SD=1.05$), $t(80)=-.74$, $p=.458$. Also, no significant difference was found between "Switzerland" ($M=4.35$, $SD=1.81$) and "England" ($M=4.41$, $SD=1.78$), $t(80)=-.22$, $p=.826$.

In conclusion, the degree of "people's image" among the three attributes, "number of comments on the Internet", "brand recognition", and "advertising character", were successfully manipulated. The difference of degree of "people's image" among "brand name" and "origin" were not significant, though the mean of the levels representing "strong people's image" were higher than the levels representing "weak people's image" across both attributes. Since the degree of "people's image" for "brand name" and "origin" may not be successfully manipulated, the remainder of the paper will focus on the three attributes left.

4. Conjoint analysis results

Since the number of levels for all the attributes were set to two, for mathematical reasons, the partial utility of the two levels in each attribute are opposite to each other. Regarding "number of comments on the Internet", the partial utility for "30000" is 3.76 ($t(274) = 6346$, $p<0.001$), and -3.76 for "3000" ($t(274)=-6346$, $p<0.001$). Regarding "brand recognition", 2.75 for "high recognition" ($t(274)=4650$, $p<0.001$), and -2.75 for "low recognition" ($t(274)=-4650$, $p<0.001$). Regarding "advertising characters", -2.53 for "celebrities" ($t(274)=-4290$, $p<0.001$), and 2.53 for "anime character" ($t(274)=4290$, $p<0.001$). As a result, respondents preferred products with more comments than products with fewer comments, preferred products with more recognition to products with less recognition, and preferred anime characters to celebrities. It could be surmised why products with more comments and more recognition are preferred. Products that are evaluated and recognized by more consumers are less risky and more reliable. However, how loneliness and anxiety affect these attributes cannot be determined by conjoint analysis alone. The effects of loneliness and anxiety was analyzed using regression analysis, in which the individual utilities calculated by the conjoint analysis was used as dependent variables.

Figure 1. Partial utilities

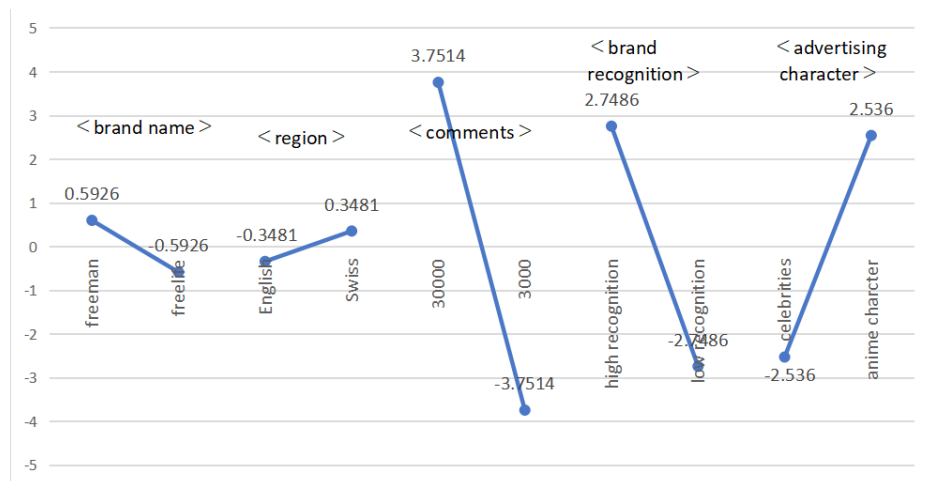
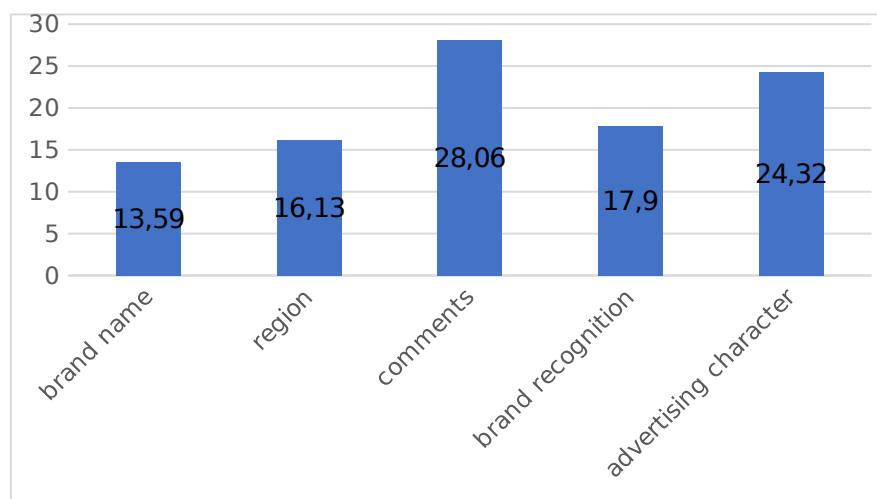


Figure 2. Relative importances



5. Regression Analysis

The basic statistics for each variable are shown in Table 2. Since all attributes have two levels, the partial utility for each level is opposite to each other, so it is sufficient to use either level as dependent variable. "High recognition", "30,000", and "celebrities" were chosen as the dependent variables. As a result of a simple linear regression analysis on "anxiety" and "loneliness", a significant result was only found between "anxiety" and "number of comments on the Internet" ($t=2.695$, $p<0.01$). "Anxiety" was found to have a negative correlation with respondents' preference for larger number of comments. This result is consistent with the result of Galoni et al. (2020).

However, when multiple regression analysis was performed and the interaction term of "anxiety" and "loneliness" was added, the effect of all three explanatory variables on "celebrities" became significant. The results of the multiple regression analysis are shown in Table 3. Table 3 shows that both "loneliness" and "anxiety" have a negative impact on preferences for "celebrities," while the interaction term of loneliness and anxiety has a positive effect. Such effect was not seen in "brand recognition" and "number of comments on the Internet".

Table 2 **Basic**

Variable name	Degree of freedom	Mean	Standard Deviation	Minimum Value	Maximum Value
Variable names	Estimates	Confidence interval			p-value
Anxiety	274	3.79	0.905	1.00	5.00
Loneliness (Slice)	22.04	274	6.02 ~ 9.83	1.00	9.00
High recognition	274	2.75	5.40	-12.5	22.5
Loneliness	-2.96	274	-5.08 ~ -0.84		0.006
30,000 (Comments)	274	3.75	7.29	-21.0	40.0
Anxiety	-5.32	274	-8.54 ~ -2.09		0.001
Celebrities	274	2.54	8.53	-22.5	50.0
Loneliness*	0.79	274	0.26 ~ 1.33		0.004
Anxiety					

statistics for each variable

Table 3 Results of Multiple Regression Analysis

6. Discussion

The result suggests that both loneliness and anxiety alone motivate people to avoid people in making buying decisions, but when these two emotions come together, they offset the effect of each other. However, such effect only happened when respondents considered the attribute “advertising character”. When it came to other attributes, no such effect was found. This result partially proves hypotheses 1 and 3, namely, anxiety lowers consumers' preference for products that have strong people's image, and loneliness alleviates the previous effect. However, the result that loneliness also reduces preference for popular actors contradicts hypothesis 2. This does not mean that people who feel situational loneliness will during COVID-19 pandemic will avoid others. One possible explanation is that loneliness affects people in multiple ways. People who feel situational loneliness do prefer building symbolic connections with others and thus prefer real advertising character like celebrities. But in the meantime, they also seek comfort in anime advertising character, since anime characters are often characterized as cute, lovely, and adorable, and their preference for anime character outweighed their preference for real person.

Unfortunately, this line of reasoning cannot be tested using existing data, since this paper's design of conjoint analysis treat "anime character" and "celebrities" as the two opposite side of one variable. In fact, the effect of loneliness on those two may go through different mechanisms. This paper conducted a semi-structured interview to test this hypothesis.

VI. Semi-structured interview

A semi-structured interview was conducted to see whether being cute is the reason lonely people prefer anime character than celebrities when considering fashion product.

Feeling cute is "a positive emotion" which are related to "harmless" and "relax", and makes people want to "protect" and "be together". According to Sherman & Haidt (2011), the response to cuteness will humanize the cute entities and promote social engagement. That is, cuteness gives people "a sense of healing" and satisfies their affinity motives. Therefore, it could be argued that lonely consumers seek cuteness in products and thus prefer anime character than celebrities.

Three undergraduate students from Bunka Gakuen University agreed to participate in the interview. Two of them were female and one of them was male. The interview was structured as follows. At the beginning, they were informed the objection of this study and asked consent to record the audio. All of them agree to be recorded. Then, they answered the questions about COVID-19 pandemic. For example, whether they felt anxiety or loneliness during the pandemic, and how they dealt with those emotions. Then, they answered the questions about fashion. For example, what were their favorite fashion brand and favorite fashion advertisement. At the end, they answered the questions about anime and advertisement using anime rather than celebrities. For example, whether they felt "a sense of healing" more when it came to anime character rather than celebrities.

All the interviewees were interested in fashion, which was not surprising because their university was famous for its fashion school. Both two female interviewees felt anxious and lonely during the pandemic. The male interviewee was neither anxious nor lonely, but very pleased at the fact that he did not have to go out and thus made life more effective. All of them agreed that anime character gave more sense of "healing" than celebrities. However, when they were asked if they prefer anime character over celebrities, they all denied. The reason they gave was quite identical: they did not think anime character fit fashion product well. One pointed out that anime characters were not good at presenting the feature of the fashion products. Celebrities, on the other hand, was suitable to present the fashion products which aimed at real people. Another pointed out that when using anime characters as advertising character, people would focus less on the products and more on the anime characters. Their unanimous answer might be due to their background: they came from a university which was related to fashion, and they were very familiar with fashion products. Interestingly, the two female interviewees who felt lonely during COVID-19 pandemic both stated that they became more interested in anime during the pandemic, whereas the male interviewee who did not felt lonely did not. This indicated that loneliness might truly motivate people to prefer anime character.

Although all three interviewees agreed that anime character gave more sense of "healing" than celebrities, they suggested some other characteristics that might be desired by lonely people. One interviewee stated that anime characters gave her "faith" to fight against coronavirus. Another stated that anime characters give him a sense of "pop", which means happy and joyful. In conclusion, apart from cuteness, lonely people may find anime characters preferable through many other reasons, which needs further investigation.

VII. Discussion, conclusions, and limitations

The COVID-19 pandemic has caused severe psychological consequences on consumers. Threat of coronavirus and the responding quarantine life have left consumers feeling anxious and lonely. On the one hand, people feel anxious about being infected and tend to avoid others. On the other hand, people feel lonely and try to seek connection with others. This study partially proved that anxiety and loneliness both lower consumers' preference for attributes of products which triggers "human image," while the interaction between anxiety and loneliness on the contrary increases their preference.

The finding that lonely people prefer "anime characters" to "celebrities" as advertising characters is contrary to the prior expectations. One interpretation of this unexpected result is that "it is not that lonely people do not like 'celebrities', but rather prefer 'anime characters' more". Semi-structured interview followed suggested that "cuteness", "faith", or "sense of pop" may be the mechanism, which needs further investigation.

The reason for the existence of the interaction between anxiety and loneliness could be explained by the contradictory feeling that "I want to meet others, but for the records of the coronavirus, it's better not to meet them now." In the semi-structured interview, all participants agreed with the statement that "during the COVID-19 pandemic, I had a contradictory feeling that I want to meet others, but feel like it's better not to do so for the time being."

One limitation of this study is that the interaction effect of anxiety and loneliness was only observed on the attribute "advertising character". The reason why only "advertising characters" are greatly affected by anxiety and loneliness could be "consumer imagination". Image is the core of fashion products, and consumers will imagine the figure of models or celebrities wearing fashion products when making decisions about purchasing the fashion products. In the semi-structured interview, all interviewees mentioned that they would imagine people wearing the fashion products before purchasing. Because "advertising characters" are more likely to be imaged than other attributes, it could be argued that this attribute is more strongly affected by anxiety and loneliness. Further research could be conducted on attributes besides "advertising characters" that are related to "human image" and are affected by anxiety and loneliness.

In addition, because this study confined the product genre to casual fashion products, the result may not necessarily be applicable to other product genres. Therefore, future researchers could explore the effects of anxiety and loneliness on other product genres.

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