FEAR OF MISSING OUT: CONCEPTUALIZATION, MEASUREMENT, AND RELEVANCE TO MARKETING

By

Dominik Neumann

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Information and Media—Doctor of Philosophy

2020

ABSTRACT

FEAR OF MISSING OUT: CONCEPTUALIZATION, MEASUREMENT, AND RELEVANCE TO MARKETING

By

Dominik Neumann

Although commonly used as an advertising appeal and a marketing strategy, the Fear of Missing Out (FOMO) has received little attention in marketing-relevant literature. One reason for this lack of attention might be rooted in issues with a clear conceptual understanding of the FOMO experience. In this dissertation I aimed to address these problems with prior conceptualizations by providing a detailed exploration of the FOMO concept using mixed methods. I introduced the concept of FOMO and its relevance in marketing research and practice in Chapter 1. I discussed issues with its prior conceptualization and operationalization in scholarly research and provided an overview of this dissertation project. In Chapter 2, I reviewed prior literature on the contexts in which FOMO has been studied in the past, and the definitions used to conceptualize FOMO as a trait or state. In Chapter 3, I utilized the findings of 27 semi-structured, in-depth interviews in a phenomenological study to propose the FOMO process. This FOMO process is a context-independent conceptual framework explaining how FOMO is experienced cognitively and affectively. This process is dynamic and comprised of four mechanisms, which are described by the interplay between social comparison, missed prior opportunities, counterfactual thinking, negative affect, and two distinct ways of coping, which are either paralyzing or motivating action. In Chapter 4, I developed a conceptually and methodologically sound measurement scale for consumers' proneness to engage in this FOMO process using qualitative and quantitative methods, such as interviews, expert feedback, and surveys. I used interview data from Chapter 3 to construct a large pool of items, which were then

inspected by experts in the field to ensure face validity. I used four quantitative samples to reduce the number of scale items and explore dimensionality, to show robustness of the scale, and to demonstrate its temporal stability as well as convergent and discriminant validity. Results indicated a robust and temporally stable, four-dimensional proneness to engage in the FOMO process construct consisting of 16 items. These items described the dimensions: (1) tendency to socially compare, (2) dispositional counterfactual thinking, (3) negative trait affect, and (4) sensitivity to missed opportunities. In Chapter 5, I showed that the FOMO process is positively related to financial, ethical, and recreational risk perceptions; consumers who are more likely to engage in the FOMO process are also more likely to engage in these risky behaviors. However, the FOMO process is also shown to be unrelated to social risks. The overall findings of the qualitative and quantitative research studies reported in this dissertation project are discussed in Chapter 6 specifically, with respect to its relevance for marketing and advertising literature and practice. Therefore, in this dissertation, I provided three major contributions to marketing and advertising theory and practice: First, I explored the FOMO experience itself and extend prior theorizing of this concept by proposing the FOMO process. Thus, I showed that the result for this FOMO process is a negative affective experience, which led me to caution marketers and advertisers to use FOMO appeals in their strategy, because these negative affective and highly cognitive processes might have adverse effects on advertising effectiveness. Second, I offered a tool for market researchers to assess the proneness to engage in the FOMO process, which can be used for market segmentation and strategic planning for advertising and communication design and targeting. And third, this dissertation project is the first to tie the FOMO experience to risk-seeking behavior. This has implications for consumer behavior research as perceived consumer risk is at the heart of consumer decision-making processes.

ACKNOWLEDGEMENTS

I am grateful for helpful comments received from Drs. Nancy Rhodes, Esther Thorson, David Ewoldsen, Patricia Huddleston, Ashley Sanders-Jackson, and Kira Kolb. I further would like to extend my appreciation for comments from Jean-Luc Wagner and Eleni Lionas.

TABLE OF CONTENTS

LIST OF TABLES ..... **vii**

LIST OF FIGURES ..... **viii**

Chapter 1: Introduction **1**

Chapter 2: Literature Review **4**
Fear of Missing Out Across Contexts 7
Prior Definitions of Fear of Missing Out 11
Fear of Missing Out as Cognition 14
Fear of Missing Out as Negative Affect 16

Chapter 3: Conceptualizing Fear of Missing Out **19**
Method and Materials 21
Participants and sampling. *23*
Procedure. *25*
Preparation of qualitative interview data. *26*
Codebook development and coding of interview data. *26*
Construct development 27
Proposition Development 32
The first mechanism: Cognition. *32*
The second mechanism: Negative affect. *33*
The third mechanism: Paralyzing action. *34*
The fourth mechanism: Motivating action. *35*
Fear of Missing Out as a Process 35
Similarities and Differences of FOMO Across Context 37
Discussion 38
Theoretical implications *38*
Managerial Implications *39*
Limitations and Future Research *39*
Summary of Conceptual Development Results 40

Chapter 4: Operationalizing Fear of Missing Out **41**
Proneness to Engage in the FOMO Process 41
Tendency to socially compare. *41*
Sensitivity to missed opportunities. *42*
Dispositional counterfactual thinking *43*
Negative trait affect. *43*
Existing Scales 44
The Scale Development Process 46
Overview *46*
Samples. *49*

Item Generation (Step 1) 49
Face Validity (Step 2) 50
Item Reduction and Dimensionality (Step 3) 50
Sample and data preparation. *50*
Exploratory factor analysis. *52*
Further item reduction. *54*
Dimensionality. *54*
Scale Validation (Step 4) 57
Sample and procedures. *57*
Results *59*
Temporal Stability (Step 5) 59
Sample and procedures. *59*
Results *60*
Convergent, Content, and Discriminant Validity (Step 6) 60
Convergent and discriminant validity. *61*
Content validity. *63*
Discussion of the Scale Development Results 64

Chapter 5: Fear of Missing Out and Consumers' Risk Perceptions 65
Measures 66
Results and Discussion 67

Chapter 6: General Discussion 71
Theoretical Implications 71
Fear of Missing Out and Embodied Cognition *73*
Cognitive Dissonance Theory *74*
Limitations & Future Research Directions 76
Managerial Implications 78

Conclusion 80

APPENDIX 82
Appendix 1: Interview Guide 83
Appendix 2: Codebook 86
Appendix 3: Distribution of Codes Across Contexts 92
Appendix 4: Survey – Exploratory analysis (Sample 1) 96
Appendix 5: Survey – Confirmatory analysis (Sample 2) 104
Appendix 6: Survey – Confirmatory analysis (Sample 3) 108
Appendix 7: Survey – Retest reliability analysis (Sample 4) 116

REFERENCES 123

LIST OF TABLES

Table 1 Examples for studies examining FOMO within different roles and contexts 8

Table 2 Example definitions of the FOMO concept in prior literature 12

Table 3 Overview of available demographics of interviewees in this study 24

Table 4 Prior FOMO scales developed in scholarly research 45

Table 5 Overview of scale development process 47

Table 6 Demographic composition of the quantitative samples across all studies 48

Table 7 Exploratory factor analysis results (sample 1) 53

Table 8 Model fit tests of four-factor solution (samples 1, 2, and 3) 55

Table 9 Items included in the final scale (sample 1) 56

Table 10 Intercorrelations of FOMO components and other constructs 62

Table 11 Final codebook for qualitative coding 86

LIST OF FIGURES

Figure 1 Counts of codes assigned in qualitative interview data 28

Figure 2 Conceptual model of the FOMO process 36

Figure 3 Confirmatory factor analysis results 58

Figure 4 Path model of the FOMO process predicting risk-attitudes 70

Figure 5 Distributions of Counts of Social Get-together Codes 92

Figure 6 Distributions of Counts of Vacations with Friends Codes 92

Figure 7 Distributions of Counts of Family Events Codes 93

Figure 8 Distributions of Counts of Personal Life Choices Codes 93

Figure 9 Distributions of Counts of Career Opportunities Codes 93

Figure 10 Distributions of Counts of Advertising Codes 94

Figure 11 Distributions of Counts of Products and Brands Codes 94

Figure 12 Distributions of Counts of Services Codes 94

Figure 13 Distributions of Counts of Financial Investments Codes 95

Figure 14 Distributions of Counts of Breaking News Events Codes 95

Chapter 1: Introduction

Within the last decade the Fear of Missing Out (FOMO) has become a well-known phenomenon in popular culture, business strategy, and academia alike. Businesses design advertising and marketing strategies that leverage customers' FOMO by indicating possibly forgoing rewarding experiences. These practices aim to motivate consumers to purchase products and services. One notable recent example was the promotion of the FYRE festival, which, among other deceptive practices, leveraged FOMO to sell tickets to an underfunded and disorganized failure of a music festival (Poulsen, 2019; Talbot, 2019). However, scholarly research examining FOMO in the context of marketing and advertising is still in a nascent phase. Within the marketing literature FOMO has been linked to increased cognitive effort, opportunity cost overestimation, and threats to customer loyalty (Hayran, Anik, & Gürhan-Canli, 2020b; Hodkinson, 2019; Weiss & Kivetz, 2019), but with inconsistent findings. Some research identified negative effects of the FOMO experience on consumer behavior outcomes, such as threats to consumer loyalty (Hayran, Anik, & Gürhan-Canli, 2020a). Others found a positive connection of FOMO and consumer behavior outcomes, such as increased likelihood to buy when anticipating envy of others and elation (Good & Hyman, 2020). These differences may bedue to a lack of conceptual and operational understanding of the FOMO experience and issues with its operationalization.

Overall, prior literature in FOMO is characterized by disagreement with its conceptualization and operationalization (Abel, Buff, & Burr, 2016). That is, prior scholarship on FOMO has been hindered because FOMO has been examined in a variety of roles, such as a dependent, independent, mediating, or moderating variable (Chai et al., 2019; Milyavskaya, Saffran, Hope, & Koestner, 2018; Przybylski, Murayama, DeHaan, & Gladwell, 2013; Reer,

Tang, & Quandt, 2019). Further, in prior literature FOMO has been conceptualized and operationalized as a trait, individual difference, and state (Abel et al., 2016; Przybylski et al., 2013). These differences in conceptualization are indicative of a lack of concrete understanding of what FOMO is, how it is experienced, which factors play a role, and how these factors can be conceptualized. Further, these disagreements call for a redefined perspective of the construct. Based on the construct's first definition as, "a pervasive apprehension that others might be having rewarding experiences from which one is absent" (Przybylski et al., 2013, p. 1841), early research conceptualized FOMO as a cognitive or affective experience that has negative consequences for individuals' well-being (e.g., Reer et al., 2019). FOMO has been tied to various negative outcomes, such as problematic smartphone usage, depression, problematic drinking behavior, and a decrease in healthy sleep (Elhai, Gallinari, Rozgonjuk, & Yang, 2020; Milyavskaya et al., 2018; Riordan, Flett, Cody, Conner, & Scarf, 2019).

To address these disagreements in conceptual understanding of the FOMO experience, and to provide a robust measurement, in this dissertation, I present both a conceptual synthesis of prior theorizing with respect to FOMO and a methodologically sound measurement scale. I followed a two-step process similar to prior research in scale development (Brakus, Schmitt, & Zarantonello, 2009; Homburg, Schwemmle, & Kuehnl, 2015): (1) I conceptually defined the FOMO process and its components, and (2) I developed a measurement scale for the trait *proneness to engage in the FOMO process* following scale development best practices (Carpenter, 2018; Churchill, 1979; DeVellis, 2017; Worthington & Whittaker, 2006). I further tested the measurement scale within the context of consumer behavior, specifically with respect to consumers' risk perceptions. Hence, I provided novel evidence for the applicability of the

concept in marketing and advertising research. This dissertation provides valuable findings for additional research within the fields of marketing, advertising, and consumer behavior.

I aim to address gaps in prior literature; not only in marketing, but also social psychology and communication. Thus, in Chapter 2 I will review the relevant literature on FOMO, focusing on prior conceptualizations, operationalizations, definitions, and its understanding as cognition and affect. In Chapter 3 I present a conceptual framework that unifies prior theories and breaks the FOMO construct down in its underlying subprocesses. In Chapter 4 I provide a scale instrument that can be used in future research and consumer segmentation to examine consumers' FOMO across contexts and within the marketplace. Last, in Chapter 5 I provide evidence for the relevance of FOMO in both the marketing literature and practice. In Chapter 6, I will discuss the findings of this dissertation project in light of marketing and advertising theory and practice.

Chapter 2: Literature Review

In this dissertation I developed a scale based on qualitative insights. However, an initial theoretical conceptualization summarizing the existing literature in consumer behavior, social psychology, and communication is indispensable (DeVellis, 2017). In the following chapter I will review and synthesize prior literature as well as qualitative findings from a phenomenological interview study. Thereby, I will establish the theoretical framework that determines the proneness to engage in the FOMO process consequently developed and tested.

To date, there are only a few research studies investigating the role of FOMO within marketing and advertising. Specifically, the cognitive and affective processes within consumers who experience FOMO are not well understood. Results of studies examining FOMO in marketing and advertising show mixed results of the effects of the FOMO experience on outcomes of consumer behavior. For example, some researchers find negative effects of the FOMO experience, such as threats to consumer loyalty (Hayran, Anik, & Gürhan-Canli, 2020b). That is, using online surveys, experimental research, and field studies, Hayran, Anik, and Gürhan-Canli (2020b) show that an individual's perceived self-relevance of the experience that they miss out on ("how relevant is this to me?") is an important factor in the FOMO experience. More importantly, they report decreases in redo/revisit intentions and word-of-mouth of consumers, who are experiencing FOMO during an experience. They tested these effects within the context of local festivals and events, new restaurants participants imagined visiting, after hour get-togethers, vacations that might be missed because of summer school, and museum visits and loyalty programs. In all cases their study suggested that consumers, who associated an activity with the experience of FOMO were likely to not engage in the activity again.

However, others find positive effects, such as favorable brand evaluations of culturally symbolic brands (Kang, Son, & Koo, 2019). That is, Kang, Son, and Koo (2019) hypothesized that among other variables (e.g., price acceptability and brand reputation), FOMO has a positive effect on brand excitement and brand engagement, and that brand excitement itself positively predicts brand engagement. They conducted research in the context of culturally symbolic brands in the Chinese market using an online survey instrument. Their findings indicated that FOMO had the strongest effect on brand excitement (significantly outperforming other predictors, such as quality consciousness of consumers and brand reputation). Though, not directly affecting brand engagement, this research (Kang, Son, Soo, 2019) showed that the FOMO experience positively affected consumers' excitement about culturally symbolic brands in the Chinese market and that brand excitement, in turn, was a strong driver for brand engagement. Thus, it appears that the FOMO experience, despite its potentially negative effects on consumer behavior, also has found to be positively related to outcomes relevant to consumer behavior.

Research outside the domains of marketing and advertising show similar discrepancies. That is, a plethora of research connected FOMO to social media usage (e.g., Reer et al., 2019). Several studies used the FOMO experience to explain increases in social media engagement and significant relations between the FOMO experience and social media usage. For example, Reer et al. (2019) showed, using an online experiment, that participants' FOMO was a mediating variable between social comparison orientation and psychosocial well-being as dependent variables, and the dependent variable social media engagement. Similar findings on FOMO and social media use have also been reported by early research on FOMO (Przybylski et al., 2013).

However, others found that the involvement of social media was not a necessary condition for FOMO to occur (Milyavskaya et al., 2018). That is, Milyavskaya et al. (2018) used

an online survey design to examine participants' judgements of an activity that they had planned to do and an alternate activity. Possible planned activities in their experimental design were completing an assignment, reading a book, or seeing a friend. The possible alternative activities were watching a TV show, going to a party with a reminder from a friend, or going to a party with a reminder from social media. Thus, this study (Milyavskaya et al., 2018) aimed at examining the effects of social media involvement versus when social media was not involved; an approach several other studies prior to this described research have failed to account for (e.g., Przybylski et al., 2013). Their (Milyavskaya et al., 2018) results indicated that the reported FOMO experience was more severe when the chosen activity was non-social, but alternative activities were social in nature. More importantly, they did not find significant differences in FOMO when comparing the two alternatives going to a party with a reminder from a friend versus a reminder from social media, indicating that social media was not a driving force behind the FOMO experience, but rather the experience of the party itself.

Reasons for the differences in findings across fields of inquiry and within the exploration of FOMO include the concept's lack of a clear theoretical foundation and the field's discordance with respect to the FOMO experience itself. That is, in the past, researchers have embedded FOMO within Self-Determination Theory (Przybylski et al., 2013) and Construal Level Theory (Dogan, 2019), and others proposed a response framework for externally initiated FOMO appeals (Hodkinson, 2019). Prior research has operationalized FOMO as mediator, moderator, dependent, and independent variable (e.g., Good & Hyman, 2020; Rifkin, Chan, & Kahn, 2015; Xie, Wang, Wang, Zhao, & Lei, 2018) and conceptualized FOMO as trait and state (Abel et al., 2016; Przybylski et al., 2013). In the following sections I will review prior conceptualizations, operationalizations, and definitions of FOMO across contexts to provide a better justification for

the need of this research. I will elaborate on two specific ways FOMO has been conceptualized in the past, namely FOMO as cognition and FOMO as affect.

Fear of Missing Out Across Contexts

The Fear of Missing Out has been a popular research topic in recent years within a broad range of contexts. Table 1 provides just an exemplary excerpt of how the concept has been conceptualized and operationalized, to what variables it was related, and in which contexts it has been examined. Thus, Table 1 shows the vast way in which FOMO has been used in the past, especially with respect to the study context and its use within each of these different contexts. The various roles FOMO played (trait, state, antecedent, mediator, moderator, and outcome), are as diverse as the contexts in which it has been used. That is, FOMO has been a concept of interest for advertising and consumer behavior, and also in the contexts of wellbeing, (social) media use, health risks, recreational activities, social belonging, financial investments, travels, and news information (for references see Table 1). However, across these contexts, FOMO has been conceptualized and operationalized differently, which serves as an indicator of a poor understanding of the concept and the experience itself.

For example, some studies found that FOMO increases individuals' perceived Facebook stress with respect to their need for belonging (Beyens, Frison, & Eggermont, 2016). That is, FOMO has found to be a mediator between need to belong and need for popularity as independent variables, and Facebook use, and perceived Facebook stress with respect to popularity and belonging as dependent variables using commonly used Likert-type scales to assess each variable in the model. Others found that FOMO was positively predicted by social networking site (SNS) use and thus acted as a mediator between SNS use and online

Table 1 Examples for studies examining FOMO within different roles and contexts

Conceptualization	Operationalization	Context	Related variable	Example, Author (year)
Trait FOMO	Antecedent	SNS use	Social media usage urges	Abel et al. (2016)
State FOMO	Antecedent	Wellbeing	Unhealthy sleeping patterns	Adams et al. (2017)
Trait FOMO	Mediator	Learning	Learning and problematic internet use	Alt et al. (2018)
Trait FOMO	Mediator	SNS use	Social needs and stress	Beyens et al. (2016)
Trait FOMO	Antecedent	Advertising	Social media fatigue	Bright et al. (2018)
Trait FOMO	Mediator	SNS use	Social media use and online vulnerability	Buglass et al. (2017)
Trait FOMO	Moderator	Wellbeing	Social media use and subjective wellbeing	Chai et al. (2019)
Trait FOMO	Moderator	Investments	Mobile app news and investment allocation	Clor-Proell et al. (2019)
Trait FOMO	Mediator	SNS use	Social anxiety & Facebook use	Dempsey et al. (2019)
State FOMO	Outcome	Cultural studies	Interdependent/independent self-construal	Dogan (2019)
State FOMO	Mediator	Consumer behavior	Anticipated emotions & purchase behavior	Good et al. (2020)
Trait FOMO	Antecedent	Career	Career choices	Hanlon (2016)
State FOMO	Antecedent	Leisure activities	Loyalty	Hayran et al. (2020a)
Trait FOMO	Outcome	Travel & SNS use	Social media use and studying abroad	Hetz et al. (2016)
State FOMO	Outcome	Advertising	FOMO appeals and consumer responses	Hodkinson (2019)
Trait FOMO	Antecedent	Branding	Brand excitement and brand engagement	Kang et al. (2019)
Trait FOMO	Antecedent	Social belonging	Attention to social cues during inclusion	Lai et al. (2016)
Trait FOMO	Antecedent	Leisure activities	Sport involvement & team identity salience	Larkin et al. (2016)
State FOMO	Antecedent	Wellbeing	Negative affect, fatigue, stress, and sleep	Milyavskaya et al. (2018)
Trait FOMO	Antecedent	Wellbeing	Needs, social media use, risky driving	Przybylski et al. (2013)
State FOMO	Outcome	Social belonging	Social belonging and enjoyment of social events	Rifkin et al. (2015)
Trait FOMO	Antecedent	Health risks	Risky drinking behavior	Riordan et al. (2019)
Trait FOMO	Antecedent	News information	Sharing of fake news	Talwar et al. (2019)
Trait FOMO	Antecedent	Leisure activities	Social media sharing of a movie	Tefertiller et al. (2020)

Note. SNS = social networking site, Examples organized in alphabetical order based on first author of the respective research study

vulnerability (i.e., individuals' susceptibility to psychological, reputational, or physical wellbeing) and consequently, individuals' trait-self-esteem (Buglass, Binder, Betts, & Underwood, 2017). Additionally, utilizing EEG measures, some research reported a positive correlation between trait-FOMO and the right middle temporal gyrus in an inclusion condition (not in exclusion or neutral conditions). The right middle temporal gyros is a brain region responsible for the processing of social stimuli (Brunet et al., 2000).These findings therefore indicated that individuals, who are more prone to experience FOMO, pay greater attention to positive internal states of others when being presented stimuli of social inclusion, but not when being when being presented stimuli of social exclusion (Lai et al., 2016). The authors additionally found a greater activation of the secondary somatosensory cortex, which has been found to be a neural correlate of social pain experiences (Kross, Berman, Mischel, Smith, & Wager, 2011). Thus, according to Lai et al., the participants' reaction, which is similar to the experience of social pain, to the social inclusion stimuli might be explained by participants' feelings of being socially excluded during the social inclusion clue.

Similar examples can be found in the marketing and advertising literature: Some studies claim that FOMO appeals threaten customers' loyalty (Hayran, Anik, & Gürhan-Canli, 2020b). That is, using a three-item subscale of a previously developed FOMO measure (Przybylski et al., 2013), the authors found that participants in experimental and survey research as well as in field studies were consistently more likely to experience FOMO when a given alternative activity that was manipulated to be high (versus low) in favorability and high (versus low) in self-relevance, but not when the alternative activity was manipulated as high (versus low) in popularity. There were no effects on FOMO of popularity for social media (e.g., "likes" on a social platform) or for non-social media manipulations (e.g., recommendations of friends or statistics). Further, the

authors found that the increase in FOMO based on favorability and self-relevance led, for example, to a decrease in revisit intentions of a restaurant participants imagined dining at when presented with the manipulated alternative activities. Additionally, this study (Hayran, Anik, & Gürhan-Canli, 2020b) showed that the FOMO experience was associated with 1) a decrease in revisit intentions of summer school, when participants were presented with missed vacations, 2) a decrease in willingness to work longer hours in the office, when presented with after hour get togethers participants missed, and 3) with accepting a lower Dollar amount to leave a current event at a local museum to engage in an alternative activity. These findings are indicative of severe threats to re-visit/re-purchase intentions of consumers, and therefore constitute threats to customer loyalty. Further, a qualitative study by Hodkinson (2019) revealed that the FOMO experience is accompanied by high cognitive load when processing externally initiated FOMO appeals (i.e., advertising appeals that explicitly state that consumers are missing out on something). This high cognitive load might block cognitive capacities throughout a decision-making process and thus hinder decisions that are made more deliberately.

However, other studies in marketing and advertising show that when consumers anticipate elation and envy of others, their experienced FOMO might actually lead to higher purchase likelihood of, for example, experiential products (Good & Hyman, 2020). That is, the authors used a scenario design in an online survey study in which they manipulated the severity of the FOMO appeals (FOMO-laden appeal versus non-FOMO appeal) by indicating that participants' friends posted pictures and favorable comments about a music concert. They assessed anticipated elation, anticipated envy from other people, and comforting rationalization using previously established scale in the literature. They measured FOMO using an unpublished FOMO scale (Good, 2019) and purchase likelihood by asking about the probability participants

would buy a ticket and attend the concert (0-100% scale). Their results indicated that FOMO was negatively predicted by comforting rationalization, but positively by anticipated elation and anticipated envy of others, which in turn resulted in higher purchase likelihood for the concert.

In this chapter I aim to explore and describe the FOMO experience across different contexts to carve out a conceptual definition and framework that unifies FOMO across contexts. This is important, because the FOMO experience has, in the past, only been examined *within* specific contexts, and *not across*. By using theory-in-use (TIU) approaches to explicate the concept for a multitude of different contexts I provide scholars and practitioners with a detailed understanding of the FOMO experience.

Prior Definitions of Fear of Missing Out

In prior research various conceptual definitions of FOMO have been proposed and used. Although most research to date has conceptualized FOMO as a trait or individual difference (e.g., Abel et al., 2016; Blackwell, Leaman, Tramposch, Osborne, & Liss, 2017; Lai et al., 2016) others have examined FOMO as a state, or momentary experience (e.g., Adams et al., 2017; Hayran et al., 2020a; Milyavskaya et al., 2018). Differences in conceptual definitions of FOMO, as exemplified in Table 2, are further observed with respect to the psychological nature of the FOMO experience. In the past, some researchers defined FOMO as a cognitive experience that involves significant cognitive load for individuals experiencing it (Bright & Logan, 2018; Hodkinson, 2019; Wegmann, Oberst, Stodt, & Brand, 2017), but others define the FOMO experience as a predominantly affective one, closely related to envy, social exclusion, jealousy, anxiety, and inadequacy (Abel et al., 2016; Hayran et al., 2020a; Reagle, 2015). Although most

Table 2 Example definitions of the FOMO concept in prior literature

Authors (year)	Conceptual definition
Abel et al. (2016)	"It has been suggested that when individuals feel they are missing out, they are experiencing feelings of irritability, anxiety, and inadequacy" (p. 34)
Elhai et al. (2016)	"Fear of missing out (FoMO) is a newer personality construct involving reluctance to miss important information, including social information" (p. 510)
Hayran et al. (2020a)	Likelihood "to experience an aversive feeling of missing out on known but unattended experiences" (p. 1)
Hodkinson (2019)	"*Externally initiated FOMO appeal* is defined as: Any initiating appeal, whether in person or impersonal, in which FOMO or 'missing out' is mentioned or specifically implied. *Commercial FOMO appeals* are defined as: Any initiating appeal, whether in person or impersonal, originating from an organization, in which FOMO or 'missing out' is mentioned or specifically implied and the context of which is the stimulation of demand, usage or purchase of a product" (p. 68)
Przybylski et al. (2013)	"Pervasive apprehension that others might be having rewarding experiences from which one is absent, FoMO is characterized by the desire to stay continually connected with what others are doing" (p. 1841)
Reagle (2015)	"Envy-related anxiety about missed experiences (fear of missing out) and belonging (fear of being left out) [, which are] characterized by some degree of social mobility, discretionary spending, leisure time, and social comparison"
Wegmann et al. (2017)	"FoMO is […] a more complex construct that could reflect a certain personal predisposition, but also a specific cognition regarding the fear of missing out on something that occurs online. […] FoMO could be considered a dispositional trait in terms of a relatively stable individual characteristic and as the general fear of an individual of missing out" (p. 34-35)

Note. Examples organized in alphabetical order based on first author of the respective research study

research on the FOMO experience has used the initially developed FOMO measure by Przybylski et al. (2013), some others either argued for FOMO's role qualitatively (Hodkinson, 2019; Reagle, 2015) or developed their own scales for social media FOMO (Wegmann, Oberst, Stodt, & Brand, 2017) or FOMO as a strict personally trait (Abel et al., 2016). I will more elaborate on these other measures of FOMO in a later section of this dissertation. Some prior research (Hayran et al., 2020a) conceptually differentiated FOMO from similar affective experiences, such as experienced and anticipated regret, envy, and feelings of social exclusion, and therefore aimed to elicit how FOMO is experienced. However, others have predominantly avoided a detailed discussion of the FOMO experience itself, and instead used the initial definition provided by Przybylski et al. (2013).

This initial definition of FOMO was built on the very broad foundations of Self-Determination Theory, which states that individuals' motivation is based on their needs for connectedness, competence, and autonomy. This definition (Przybylski et al., 2013) is problematic, because more recent research showed that threats to the needs of connectedness, competence, and autonomy are not necessary, but merely sufficient conditions for the FOMO experience to occur (Hayran et al., 2020a; Milyavskaya et al., 2018). It appears the initial definition provided might be too broad, and hence not descriptive of the FOMO experience. Other definitions, though, might be too narrow. For example, Wegmann et al. (2017), posited that the FOMO experience is dependent on content observed by individuals online, specifically on social media. This presumption is problematic because other research provided evidence in longitudinal, qualitative, and quantitative studies that FOMO can be experienced whether social media provided information or not (Hayran et al., 2020a; Milyavskaya et al., 2018; Reagle, 2015).

Again, these discrepancies across definitions call for a detailed exploration of the FOMO experience itself. That is, in this chapter I am interested in *how* consumers experience FOMO and whether this FOMO experience is similar across contexts instead of focusing on antecedents and effects of experiencing FOMO, the role of FOMO as an individual's predisposition, or its effectiveness as an advertising appeal. By being provided with a unifying definition and conceptual foundation of the FOMO experience across contexts, marketers and advertisers will be able to make more informed decisions on whether using FOMO appeals in their strategies and campaign designs is useful. In the following I provide a brief overview of two ways FOMO has been conceptualized in the past: FOMO as cognition and FOMO as negative affect. This narrative provides a summary of prior research that led to valid findings about the antecedents and effects of FOMO when conceptualized in two distinct ways. I propose there is a reason to believe that the process of experiencing FOMO might be comprised of *both*, cognition *and* negative affect. I, therefore, provide theoretical reasoning to consider a new and innovative way of conceptualizing FOMO, which I will investigate further and in a more detailed manner using a qualitative approach.

Fear of Missing Out as Cognition

In studies proposing FOMO to be a mainly cognitive experience, two processes have commonly been suggested, but seldom empirically tested: Social comparison and counterfactual thinking. In the following chapter I will focus on these processes. Observing social activities of others increases FOMO (Milyavskaya et al., 2018; Rifkin et al., 2015). Thus, negative upward social comparison might be an essential part of the FOMO experience. This has also been suggested by other authors who defined FOMO as a feeling of uneasiness about the possibility that others might have a better experience than one's self does (Blackwell et al., 2017). By

assessing one's life in the moment and comparing it to others, who seem to have better experiences, individuals are engaged in highly cognitive, negative, upward-comparison behavior. Social comparison is important for individuals to use in creating valid reference points for their self-assessment. In other words, people compare themselves, their situations, and their lives to others to evaluate themselves relative to a group or society (Festinger, 1954). This has important implications for marketing and advertising, in that reference groups and other objects of social comparison have a significant impact on consumer buying behavior (Moschis, 1976).

The other cognitive component commonly suggested but not empirically tested in the past are counterfactual thoughts when experiencing FOMO (Weiss & Kivetz, 2019). Counterfactual thinking is defined as "the imagination of alternative realities," (Markman, Gavanski, Sherman, & McMullen, 1993, p. 88). Individuals construct counterfactuals not just about past ("what could have been?"), but also possible future events ("what could be?") before and during decision-making (De Brigard, Rodriguez, & Montañés, 2017). Counterfactuals are commonly referred to in the FOMO literature (e.g., Milyavskaya et al., 2018). That is, when people experience FOMO, they perceive the current event they have chosen as less enjoyable, and the event they missed out on as more enjoyable (Rifkin et al., 2015). This finding is confirmed by other researchers (Adams et al., 2017; Blackwell et al., 2017), who state that individuals who experience FOMO perceive lives of others as more exciting. The importance of counterfactuals has also been suggested in the marketing and advertising literature, which suggested that consumers commonly produce counterfactuals before or after they purchase products (McConnell et al., 2000). Given that FOMO is a social concept that is driven by a fear of not feeling connected to peers and friends (Beyens et al., 2016), FOMO could serve as a motivator for purchase behavior: By imagining how not buying a product consumer might

experience a state of being socially excluded. This is especially true, when others did purchase that product and, therefore, are perceived as an in-group in consumers' social circle, which they are then not a part of. Consumers then might produce upward-oriented counterfactual thoughts of a world in which the product actual *was* purchased, and the individual ends up feeling excluded, because of this hypothetical and imagined alternative reality (Su, Jiang, Chen, & DeWall, 2016).

The relevance of social comparison processes and counterfactual thoughts to the FOMO experience becomes further apparent when consulting existing findings (Good & Hyman, 2020) that demonstrate that the FOMO experience leads to increased purchase likelihood as a result of anticipated envy of others. Anticipation of envy is not only a highly cognitive process that is part of a counterfactual "what if" scenarios, it is also a process of comparing the self to others in a more favorable way.

Fear of Missing Out as Negative Affect

Several prior research studies support the idea of FOMO being a predominantly affective experience (Abel et al., 2016; Elhai, Rozgonjuk, Liu, & Yang, 2020). That is, Abel et al. (2016) qualitatively argued for feelings of irritability, social anxiety, and inadequacy as drivers of experienced FOMO and present a FOMO measurement scale that includes items, such as "I am inclined to feel that I am a failure". Additionally, Elhai et al. (2020) showed using experience sampling methodology that FOMO is correlated with negative affect assessments (PANAS-short form) and further with increasing negative affect over time after adjusting for covariates, such as depression and anxiety assessments. However, the exact nature of this emotional experience differs across studies: Although the construct's label ("Fear of Missing Out") clearly indicates "fear" as a driving component, most research on FOMO argues for other affective responses like anxiety (Hayran et al., 2020a; Reagle, 2015), or desire and apprehension (Alt & Boniel-Nissim,

2018; Beyens et al., 2016; Elhai et al., 2016). After an initial fear reaction, individuals experience anxiety, uneasiness, and apprehension by imagining that others have more fun or are more included than themselves (Blackwell et al., 2017; Przybylski et al., 2013; Reagle, 2015).

Nevertheless, the exact nature of the affective component remains unclear. The only aspect that prior research has agreed upon seems to be that the experience of FOMO is accompanied by negative affect (Hodkinson, 2019; Milyavskaya et al., 2018). Given that negative affect often is comprised of multiple negatively valanced emotions like fear, distress, being upset, nervousness, shame, guilt, irritability, and hostility (Watson, Clark, & Tellegen, 1988), it might be reasonable to assume (based on previous definitions of FOMO and the role of affect) that, as suggested by appraisal theories of emotions, a blend of negative emotions comprise FOMO (Frijda, Kuipers, & ter Schure, 1989; Izard, 1977; Plutchik, 2001). That said, negative affect in the case of FOMO might have a unique composition of discrete emotions that play into the affective component.

To understand the possible affective nature of the FOMO experience is important in marketing and advertising, because mood, affect, and valence of arousal have significant impact on decisions consumers make (Luce, 1998) and on attitudes toward advertisings and brands (Holbrook & Batra, 1987). Given the connection of FOMO and feelings of social exclusion, the FOMO experience might be important to consumer decision-making outcomes, since research on social exclusion and consumer behavior showed a significant effect of feelings of social exclusion on brand switching behavior (Su et al, 2016). That is, Su et al. (2016) found that consumers, who feel chronically or temporarily excluded are more likely to show brand switching behavior than consumers who did not feel socially excluded. (Hodkinson, 2019). Its

connection to anticipated positive emotions has resulted in a significant impact on likelihood to buy in the past (Hayran et al., 2020a).

Consequently, cognitive processes as well as negative affect seem to be important components of the FOMO experience. In that, they should not be seen isolated from each other, that is FOMO as being either cognitive or emotional/affective. In this current research I propose that the FOMO experience is both cognitive and affective and therefore might be more complex as prior research studies have conceptualized it.

Chapter 3: Conceptualizing Fear of Missing Out

The variability of operationalizations and conceptualizations of the FOMO concept across and within disciplines is a clear indicator of the need for qualitative foundational research. Thus, in this chapter, I aimed to shed light on *how* FOMO is experienced irrespective of context, and how the shared meaning of the experience is understood by individuals. It is important to provide scholars and practitioners with a detailed understanding of the cognitive and affective processes throughout the FOMO experience. This is because in the future, scholarly research across disciplines will be able to examine the concept based on a shared understanding, and practitioners in marketing and advertising understand the benefits and possible pitfalls of utilizing FOMO appeals in their message strategies. Without awareness of the cognitive and affective ramifications for consumers who experience FOMO, marketing and advertising managers might cause more harm than good by using FOMO within their integrated campaigns. One example for how practitioners might cause harm to their organizations by using FOMO appeals is that prior research showed threats to loyalty, because experiencing FOMO during an activity decreases chances of consumers engaging in the same activity again. The purpose of this chapter, which describes a phenomenological study, is to examine the cognitive and affective processes that are at play when one experiences FOMO, and to explore the essence of the FOMO experience across contexts.

Using semi-structured, qualitative interviews, I closely followed a theory-in-use (TIU) approach for building marketing and advertising theory (Zeithaml et al., 2020). TIU approaches are suited to examining individuals' mental models of concepts in a particular domain or context (Argyris & Schon, 1974). However, I utilized a TIU approach to describe the FOMO experience

for multiple contexts. Thus, I was more generally interested in consumers' mental model of FOMO and merely borrowed from the TIU methodology.

Given the contrasting conceptualizations of FOMO in the past (i.e., FOMO as cognitive or affective experience), I intended to focus on both the cognitive and affective processes involved in the FOMO experience. To that end, I decided to use qualitative methods and follow recommendations for TIU approaches for theory building and phenomenological research design (Creswell & Miller, 2000; Gioia, Corley, & Hamilton, 2012; Kvale & Brinkmann, 2009; Zeithaml et al., 2020). This methodology allows researchers to explore and describe how FOMO is experienced and what the underlying mechanisms of FOMO are. It is important to investigate FOMO across contexts, because the experience has been previously examined in various fields of inquiry. I therefore aimed to provide a broad theoretical framework of the FOMO experience. By using the phenomenological method, I was able to gain a deeper understanding of the shared meaning of the subjectively encountered FOMO experience across consumers in various contexts. I was able to generate theoretical propositions, which informed the scale development procedures described in Chapter 4.

For marketing and advertising, specifically, it is important to gain a sophisticated understanding of the FOMO experience across context, because a plethora of different life stages, lifestyles, and consumer decisions might be affected by consumers' FOMO. Thus, gaining a holistic understanding of FOMO across all aspects of life is crucial for marketing and advertising practitioners when designing strategies. Further, I aimed to develop a taxonomy of situations in which FOMO might present differently. FOMO is conceptually closely related to (anticipated) regret, which can be experienced prospectively (anticipated regret) or retrospectively (regret) (Gilovich & Medvec, 1995; Tsiros & Mittal, 2000). However, FOMO is

experienced in the present (Hayran et al., 2020a). FOMO, just like (anticipated) regret, can be experienced in varying aspects of life, such as (1) brands and products, (2) services, (3) advertisements, (4) financial investments, (5) social get-togethers or parties with friends, (6) trips or vacations with friends, (7) family-related events, (8) career opportunities, (9) personal life choices, and (10) important breaking news events. Given the close conceptual proximity of FOMO and (anticipated) regret we decided to focus on these aforementioned aspects of life, which have found to be relevant to regret (Beike, Markman, & Karadogan, 2008; Gilovich & Medvec, 1995; Roese & Summerville, 2005; Tsiros & Mittal, 2000). Consequently, these activities and life events form the contexts of interest in this chapter.

Method and Materials

Theory-in-use approaches (Argyris & Schon, 1974) for theory building have been successfully used in the past to explore consumers' mental models of abstract concepts, such as market orientation (Kohli & Jaworski, 1990) and service quality (Parasuraman, 1985). A recent publication in the *Journal of Marketing* proposes TIU approaches to be particularly useful to construct phenomenological research studies when developing grounded theory research; whether by itself or in combination with other approaches (Zeithaml et al., 2020). Based on TIU's usefulness to co-construct theories together with consumers and its close conceptual proximity to phenomenological research design I decided to follow guidelines for both research designs (i.e., phenomenological research and TIU approaches). That is, phenomenological research, at heart, aims to understand a phenomenon or concept by using researcher conversations with individuals who have a shared understanding of this phenomenon or concept. TIU approaches then go a step further and are particularly interested in how these shared understandings, or mental models, are particular to specific contexts. Both research

methodologies can be used to construct grounded theory by using qualitative insights in active exchange between researcher and participants. This is appropriate, because FOMO is an experience which consumers likely have undergone before, and about which they hold a subjective understanding or mental model. Integrating both research designs is appropriate as a research methodology to describe a shared meaning of subjective experienced cognitive and affective processes that are forming FOMO across contexts.

Both phenomenological and TIU approaches have commonly been found to benefit from interview data (Creswell & Poth, 2018; Zeithaml et al., 2020). For both approaches the subjectively lived experience of the concept of interest is central. According to Kvale and Brinkmann (2009), semi-structured interviews provide several advantageous characteristics that contribute to its validity as a data collection approach from a phenomenological point of view: Interviews describe participants' life world, or their lived experience, and the underlying meaning of these life worlds. They are qualitative and thus provide rich and descriptive insights that are expressed in common language. Interviews elicit examples of specific situations and allow the interviewer to examine a phenomenon deliberately naiveté; that is, the interviewer allows for the emergence of novel and unexpected characteristics of the object of interest. They are focused on a pre-defined object of interest, are sometimes ambiguous in their interpretations, and subject to change throughout the progression of the interview. Interviews are sensitive to external and internal variables, such as the personalities of interviewee and interviewer or time and place they are conducted, and therefore provide a more detailed understanding of a subjectively experienced and described object of interest. They are conducted in interpersonal situations, and hence offer co-construction of findings between interviewer and interviewee, and last, they might be a positive experience and offer insightful introspection for the interviewee

and interviewer. I therefore determined that interviews would be the most useful methodological instrument to use in this phenomenological study. In that, semi-structured in-depth interviews allowed me to co-construct the conceptual definition and a sophisticated understanding of the FOMO experience of participants who had experienced FOMO.

Participants and sampling. I conducted 28 interviews. However, one interview was not recorded because of technical problems, and therefore was not used in the current analysis. Thus, I analyzed interview data from 27 participants (15 females, 12 males) between 18 and 70 years old. Participants were recruited using a community-based research participant pool of a large midwestern public university and were compensated with $10 for taking part in an interview study titled "When do you feel you miss out?". Interviewees were predominantly Caucasian, with an income of under $25,000 per year, who either held a bachelor's degree or had some college education but not yet a degree. Table 3 summarizes all available demographic information of interviewees who contributed to this research. All names were altered by using the most popular names for each gender between 1919-2018 (Social Security Administration, 2019) to maintain confidentiality and anonymity. Existing qualitative research (Guest, Bunce, & Johnson, 2006) has used the sampling concept of "saturation" to determine sufficient sample sizes. Saturation is defined as the point at which no new information emerges from conducting more interviews (Glaser & Strauss, 1999). However, in this current study the concept of saturation was problematic to apply based on our data structure. Instead, Malterud, Siersma, and Guassora (2015) proposed a more quantifiable approach to determine appropriate sample sizes: information power. Information power is a combination of narrow versus broad study aim, population specificity, whether the research was theory-driven, dialogue quality, and means of analysis. Here, I defined the study aim as specific, because I was interested in the FOMO

Table 3 Overview of available demographics of interviewees in this study

Name	Age	Gender	Ethnicity	Sexuality	Income	Education
James	21-25	Male	Caucasian or White	Heterosexual	Under $25,000	Some college, no degree
John	61-70	Male	Caucasian or White	Asexual	$30,000-$49,999	Bachelor's degree
Mary	18-20	Female	Caucasian or White	Heterosexual	Under $25,000	Some college, no degree
Margaret	21-25	Female	Hispanic or Latino	Heterosexual	Under $25,000	Some college, no degree
Betty	46-50	Female	Native Hawaiian	Bisexual	Under $25,000	Bachelor's degree
Patricia	26-30	Female	Caucasian or White	Heterosexual	Under $25,000	Master's degree
Robert	18-20	Male	Caucasian or White	Heterosexual	Under $25,000	Some college, no degree
Jennifer	31-35	Female	Caucasian or White	Lesbian	$30,000-$49,999	Master's degree
Thomas	26-30	Male	Mixed	Heterosexual	Under $25,000	Master's degree
Linda	21-25	Female	Caucasian or White	Heterosexual	Under $25,000	Some college, no degree
Elizabeth	21-25	Female	Caucasian or White	Heterosexual	Under $25,000	Bachelor's degree
Barbara	21-25	Female	Caucasian or White	Heterosexual	Under $25,000	Some college, no degree
Michael	71+	Male	Caucasian or White	Heterosexual	$75,000-$99,999	Doctoral degree
Daniel	31-35	Male	Hispanic or Latino	Heterosexual	$25,000-$29,999	Master's degree
William	21-25	Male	Caucasian or White	Heterosexual	Under $25,000	Bachelor's degree
Susan	21-25	Female	Caucasian or White	Heterosexual	NA	Some college, no degree
Jessica	18-20	Female	Caucasian or White	Heterosexual	Under $25,000	Some college, no degree
David	18-20	Male	Caucasian or White	Bisexual	Under $25,000	Some college, no degree
Matthew	21-25	Male	Black or African American	Heterosexual	under $25,000	Some college, no degree
Richard	21-25	Male	Mixed	Heterosexual	$25,000-$29,999	Bachelor's degree
Joseph	36-40	Male	Caucasian or White	Heterosexual	Under $25,000	Bachelor's degree
Sarah	18-20	Female	Caucasian or White	Heterosexual	Under $25,000	Some college, no degree
Lisa	26-30	Female	Black or African American	Heterosexual	$50,000-$74,999	Master's degree
Charles	46-50	Male	Caucasian or White	Heterosexual	$100,000-$149,999	Doctoral degree
Nancy	31-35	Female	Caucasian or White	Heterosexual	$30,000 - $49,999	Master's degree
Christopher	21-25	Male	Black or African American	Heterosexual	NA	Some college, no degree
Dorothy	21-25	Female	Mixed	Heterosexual	Under $25,000	Bachelor's degree

experience within specific contexts. I defined sample specificity as dense, because all participants were expected to have experienced FOMO prior to engaging in this study. I was conducting research in part based on established theory, but expected novel, theory-extending findings. The dialogue between interviewer and interviewees was considered strong, based on the interviewer's expertise with respect to the FOMO experience. Data were analyzed cross-case to gain a holistic understanding of the subjective FOMO experience. In other words, we compared findings across participants and context to find similarities in the FOMO experience. Thus, I expected medium information power, and concluded 27 participants are appropriate, based on existing recommendations for sampling within TIU approaches and phenomenological research (Creswell & Poth, 2018; Zeithaml et al., 2020), which suggest 25-30 participants. This study was approved by the university's Institutional Review Board.

Procedure. Semi-structured, in-depth interviews were conducted in individual sessions with the author. They were audio recorded and lasted between 12.2 - 68.4 minutes. Each interviewee was welcomed and informed about the study purpose: to understand FOMO across different situations and contexts. Interviewees were asked for informed consent and compensated. Interviews started by asking interviewee about themselves first, eliciting information such as favorite leisure time activities.

Interviewees were asked to define the term FOMO based on their understanding: "What does the phrase "Fear of Missing Out" or "FOMO" mean to you personally?" After interviewees responded, they were told that subsequent questions were about different contexts where they may or may not have experienced FOMO. These contexts were: (1) brands and products, (2) services, (3) advertisements, (4) financial investments, (5) social get-togethers or parties with friends, (6) trips or vacations with friends, (7) family-related events, (8) career opportunities, (9)

personal life choices, and (10) important breaking news events. They were asked the following questions for each context: “Given your concept of fear of missing out, please talk about some situations in which you experienced this in terms of [CONTEXT]? Please describe this situation in as much detail as possible”. Last, I asked interviewees to re-define FOMO. The full interview guide can be found in Appendix 1.

Preparation of qualitative interview data. Audio recordings of interview data were manually transcribed using an online transcription service (https://scribie.com). Transcriptions were cleaned by the author. That is, non-relevant parts of the conversation, personal information about the interviewee, and the audio line of the researcher were deleted. Thus, only information related to FOMO was maintained. The author broke down the resulting data per interviewee and per context, thus creating interview fragments, which served as the body of text for consequent coding procedures.

Codebook development and coding of interview data. Data were coded by two research assistants, who were blind to the study’s goals. The codebook used was developed in two steps. First, an initial codebook was developed by the author including the code descriptions for *social comparison* processes, *counterfactuals*, and *negative affect* as proposed in the literature review of this study. These three codes seemed to be central to the FOMO experience in the past and therefore were included a priori. I also included a code for *positive affect* in order to explore data for disconfirming evidence about the underlying affective nature of the FOMO experience (Creswell & Miller, 2000). I included a code for *social media involvement*, because of the overwhelming number of existing studies that tie the FOMO experience to social media (e.g., Abel et al., 2016). Additionally, a code for associations with *age* were included based on age-

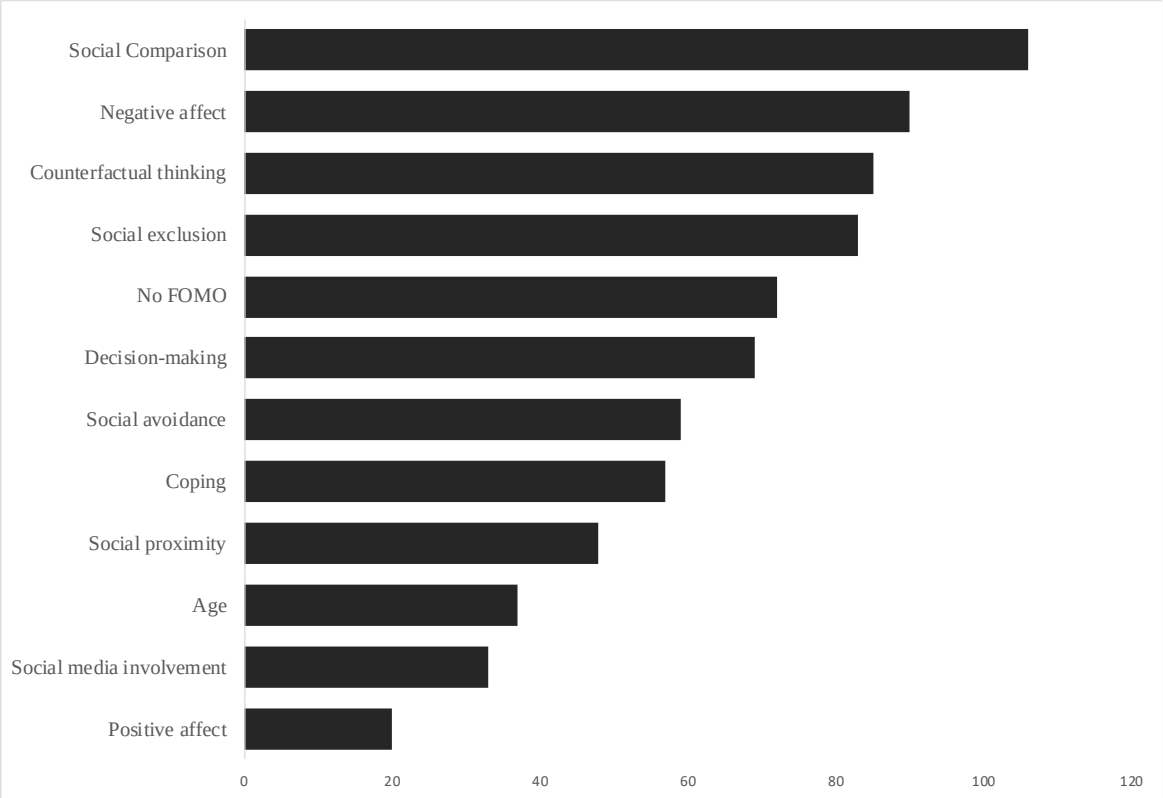
related effects on FOMO proposed in prior research (e.g., Przybylski et al., 2013). Last, I included a code for the explicitly stated *absence of FOMO*.

Next, both coders received the initial codebook and ambiguities were discussed with the author and revised when necessary. The coders then received the same ten interview fragments to code independently. Codes were compared and discussed between the author and coders, and five additional codes were added to the revised codebook: *social avoidance, social exclusion, decision-making, relational proximity*, and *coping* (see Appendix 2 for detailed definitions in the revised codebook). The coders then received another set of ten interview fragments to code independently; again, the codes were discussed between coders and authors and disagreements were resolved. By using this process, I allowed the coding procedure not just to be built on a theoretical foundation, but also to evolve throughout the process. That is, I allowed for additional themes to emerge and to be added to the codebook as they were identified by coders who were unfamiliar with the hypotheses (Gioia et al., 2012). The remaining interview fragments were divided between the two coders and coded according to the revised codebook to allow both coders to randomly code a subset of participants and contexts and therefore avoid systematic coder influence on a specific subset of qualitative data (Appendix 2).

Construct development

Codes were assigned by coders in a potentially overlapping fashion, that is, some statements has been assigned more than one code, when the statement was accounting for more than one process or characteristic (e.g., "I was sad because I thought about all the fun I could be missing" as negative affect and counterfactual thinking). Most codes were assigned to "social comparison" and "negative affect", and "positive affect" and "social media involvement" were mentioned least by participants. Number of assigned codes are summarized in Figure 1.

Figure 1 Counts of codes assigned in qualitative interview data



In this Chapter I aimed to provide researchers and practitioners with an understanding of how FOMO is experienced across different contexts. I did this by asking interviewees in semi-structured, in-depth interviews about their subjective understanding of experienced FOMO. Here, I was more focused on the similarities across context, and not on the differences. That is, I aimed to construct a conceptual understanding of what the FOMO experience entails in terms of cognitive and affective processes.

There were several interviewees who indicated that they did not think they have experienced FOMO in a majority of the contexts of interest (e.g., “No, I don't think I've really experienced that. Any news that's important to me, I guess I usually know relatively frequently;” (James on news events) or “I haven't really experienced fear of missing out from advertisements. I think that's mostly because of who I am,” (David on advertising). However, these comments

suggesting the absence of FOMO were considerably scarcer than responses indicating that FOMO was indeed an experience that is a part of nearly all life stages and circumstances of consumers. I identified multiple accounts of participants indicating the FOMO experience becomes scarcer and less dominant with increasing age in some domains, such as products and brands:

> I think […] there is a big pressure to wear the name brands […]. That was more of a high school and middle school thing, in college not so much anymore. […] I think partly because I got older and I realized that it should not a matter what you wear for people to like you [...] (Linda)

However, in other domains FOMO might actually increase with age, as suggested by one interviewee when reflecting on her financial decision-making with respect to investments: "Now I have a serious fear of, 'I might be behind.' so. Behind of everyone, in all honesty," (Lisa). This is partially in line with early research on FOMO (Przybylski et al., 2013), which posited that the FOMO experience generally declines with age. However, this also calls for a more diversified view on FOMO and its contexts.

The qualitative data further confirms prior research, which suggested that social media is not the root of the FOMO experience (Hayran et al., 2020a; Milyavskaya et al., 2018). Although social media involvement was mentioned several times predominantly by younger participants (e.g., "you're missing out on the experiences, the memories and the fun times [and] it's gonna be all over Facebook, all over Snapchat," Christopher on social get-togethers), others stated that social media actually eases their experienced FOMO on, for example, news events: "I don't really fear missing out because I feel like I'll find out eventually, either on my phone or on

Twitter," (Joseph). One older participant stated that "I can't imagine what a young teen goes through today. We always feared being left out, but we weren't really sure. [With] social media you know that you're left out," (John), which highlights that social media might be a facilitator of FOMO, but not the sole reason.

With respect to the actual FOMO experience, responses by the interviewees predominantly described FOMO as being closely related to feelings of social exclusion:

> A fear of isolation because any context where there is this fear of missing out, fear of missing out on the information, fear of missing out on social events, fear of missing out on opportunities, or new products, it all results in this idea of the contrary (David).

This description of the FOMO experience confirms prior research, in that it suggests close ties of the FOMO experience, and feelings of social exclusion (Adams et al., 2017). But I also found ample reports of interviewees stating that the FOMO experience is not dependent on being excluded by others. Rather, it constitutes a decision-making process about inclusion and exclusion and therefore, often times, is tied to social avoidance. That is, participants reported that they had agency over the exclusion situation (by being socially avoidant) and still experienced FOMO:

> I fear that I'm not social enough. I don't meet enough people. That goes all the way back to be an adolescent and stuff. I didn't […] I didn't go to my prom because I didn't really want to go, but when it happened it was like, I felt like I missed out on something (Joseph).

The notion that FOMO is not dependent on not having agency in an exclusion situation confirms prior theorizing (Hayran et al., 2020a), which suggested that the absence of agency about exclusion and inclusion decisions is not a necessary condition for FOMO to be experienced. In fact, reports by the interviewees suggest that the hallmark of FOMO is its underlying role in decision-making. That is, interviewees described FOMO as "a lifelong process of making decisions," (Charles) and as when "you have two options, and you choose to do the one, you might have FOMO about the other," (Barbara). This focus on the actual decision-making process is novel and particularly important for marketers and advertisers. That is, with respect to product and brands interviewees indicated, for example, "I know a few of my friends have [these products] and that's really nice, but I was like, 'Do I really want to spend my money on that?'" (Nancy).

This example of the FOMO experience highlights several major aspects that have emerged from the qualitative data: (1) FOMO involves cognitive processes of comparison with others, (2) the relational proximity, or how close are consumers to the people they compare themselves to, is a crucial factor, and (3) counterfactuals that are generated affect future wellbeing. In fact, one of the most referenced aspects of the FOMO experience was negative affect. That is, across all contexts and accounts, interviewees frequently referred to FOMO as when "you're missing out on the fun, bonding, pictures […]. It definitely sucks," (Jessica), "missing this fulfilment from achieving some great things, and […] people definitely do suffer from that," (Matthew), or "you are missing out on buying a product. I think it's kind of negative for me," (Jennifer).

So, although highly cognitive, I found vast evidence for an emotional or affective component within the FOMO experience. It therefore appears that the FOMO experience might be more

complex than existing research suggested by conceptualizing FOMO as a trait or state. This FOMO decision-making process, which is driven by cognitive and affective sub-mechanisms seems to be dynamic and multifaceted.

Proposition Development

The first mechanism: Cognition. In the beginning of the FOMO process consumers perceive an experiential discrepancy. That is, they perceive their current experience to be worse from a potential desired experience. This was reported by interviewees across contexts, for example: “They have the Apple watch […] and it makes me kind of want one even though I tried theirs […] and I know it's too bulky for my wrist” (Margaret) or “my wife has a bigger family, so she speaks with them almost daily, and that makes me kind of furious sometimes because I'm not able to do that,” (Daniel) or “a lot of my friends still went back for football games […] I couldn't make it back [because] I was too busy studying," (Elizabeth). Viewing others’ lives as more rewarding, especially when these others are close friends results in upward counterfactuals as commonly expressed by interviewees: “What would have happened had I been there?” (David), “you idealize in your head what it's going to be like,” (Elizabeth), and “wonder[ing] what could have happened if I would have changed something I did,’ (James). This process of socially comparing one’s current experiences with possible experiences is highly dependent on the relational proximity to the people involved:

> You have to have a connection for it to mean something […]. Like I don't pass a park and see people playing and like, ‘Man, I wish I was in it’ no. If it was my friends playing without me, then I'd be like, ‘Man, it sucks I'm not there’. So, I personally feel like you need to have some kind of personal connection to the product or the experience for you to feel like you're missing out (Margaret)

These imagined events are not just dependent on the current situation, but also on missed prior experiences. That is, consumers learn over their lifetime across domains and contexts. In other words, consumers have had negative experiences in the past because they did not realize an opportunity they could have taken and will therefore use these past missed opportunities when making new decisions. Thus, the summed negative emotional experiences of the past leads to predictions of how bad they will feel now. So, although it addresses the present context and current decisions, FOMO has a retrospective comparison to it: “It's gonna definitely be retrospective, no matter what, because […] you knew what your choices were at the time, and then you can evaluate, ‘I made this choice. What if I made that choice?’ I think people always look back a little bit,” (Charles). Another interviewee explained: “I'm really into the British royal family. When the first wedding happened, I definitely had a FOMO so when the next one happened, I was definitely there,” (Lisa).

The second mechanism: Negative affect. The constructed (upward) counterfactuals that are the result of the first mechanism then lead to a negative affective experience. This became evident at various occasions throughout the interviews. For example, one interviewee stated “I wasn't invited to this open house. Therefore, I fear missing out because something cool might happen, and I won't be able to talk about it or be there when it does happen. And therefore, I'll be excluded or made fun of because I wasn't there," (Charles). Another interviewee mentioned that “I think the way [marketing makes] you feel like you are missing out on some consumer advantage if you don't have the latest smartphone. [For me it’s a] fear of not being fully engaged with the world,” (Joseph). Thus, it appears that the construction of counterfactuals based on an initial perceived discrepancy between what is and what is desired leads to negative affect. This negative affect is comprised of “a little bit of sadness [and] maybe jealousy,” (Linda), “general

anxiety about [the] future," (Margaret), "a feeling of bothering," (John), and "regret [for] not knowing [and feeling] unintelligent and uninformed," (Margaret). Participants equated "fear of missing out with exclusion," (Susan).

The third mechanism: Paralyzing action. When individuals experience negative affect as a result of the two mechanisms that start the FOMO process, they have two ways of coping: by either motivating or paralyzing action. Coping with negative affect either by activating or inhibiting behavior has also been stated by the dual system operating proposed in existing theories of emotions (Thayer, 1989). Thayer's theory of emotions (Thayer, 1989) states that emotions can either result in action or in inaction. For example, one interviewee mentioned that sometimes when experiencing FOMO, he would not act on the FOMO experience and be "afraid that [he would be] missing out and that fear [is] proven true as you watch your friends have the fun," (Christopher). But other times "the fear is pushing you to do something that you don't really want to do," (Christopher). The third mechanism of the FOMO process, therefore, has been described by interviewees as paralyzing action. That is, consumers get caught in a spiral of rumination and dwelling, which leads to more counterfactuals, which in turn leads to more negative affect, and so on. One interviewee reported about a social get-together "I would have been checking my phone the whole time […]. Like it would be something that I couldn't get my mind off like what was going on or something," (James). Another mentioned "I think that's where I can get caught in a trap of dwelling on the past and what could have been," (Thomas). This unhealthy form of coping with negative affect stemming from the FOMO experience might be one possible explanation of various existing research findings, which connect FOMO to symptoms of depression, rumination, and social anxiety (e.g., Dempsey et al., 2019).

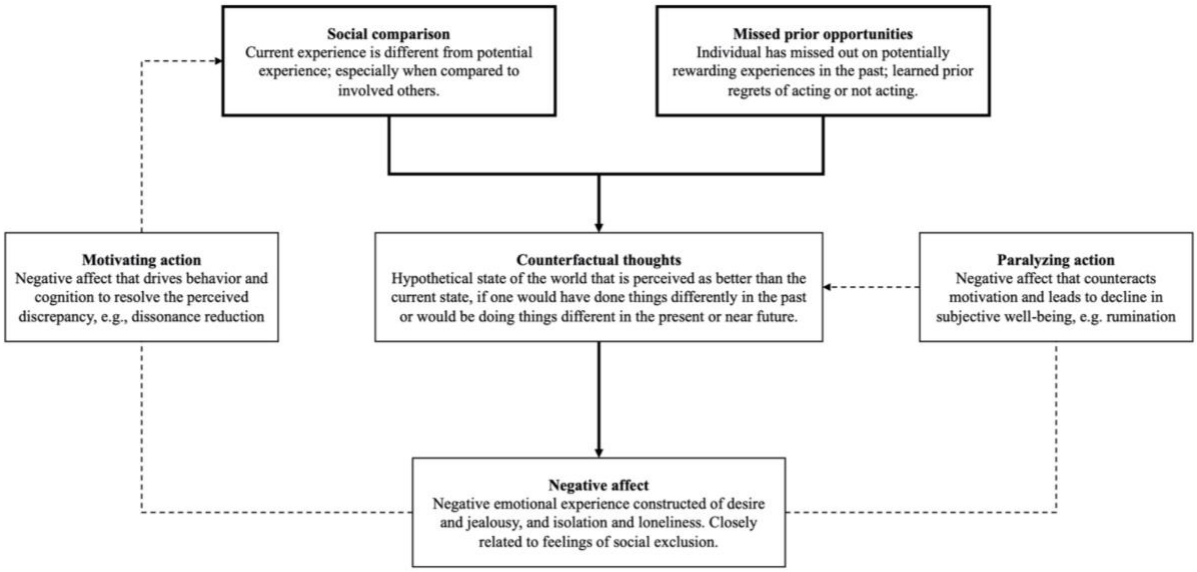
The fourth mechanism: Motivating action. The fourth mechanism is another form of coping. As described before, consumers might try to reduce the experienced negative affect by trying to reduce the perceived experiential discrepancy that initiated the FOMO process. These healthy coping mechanisms can be either behavioral by, for example, engaging in the behavior they fear to miss out on as some interviewees explained: "I finally decided to break down and get a new car, and I was feeling left out because the thing I was driving was not so wonderful," (Michael). Another way of healthy coping is rooted in dissonance reduction processes (McGrath, 2017), such as downplaying the experiential discrepancy by "kinda just get over the fact and live life," (William) or by rationalizing why they are in the situation they are in by "[realizing they] did good here [and] it won't matter," (Robert). Both, behavioral and cognitive healthy coping are considered motivating action within the FOMO process and demonstrate a healthy way of coping with the FOMO experience.

Fear of Missing Out as a Process

Based on the qualitative data I have analyzed in this chapter I offer a broad definition of the FOMO experience. These qualitative findings confirm my earlier proposition to define FOMO as affective *and* cognitive experience based on the perceived discrepancy between individual's current and possible experiences and the perceived discrepancy between their experiences and the ones their immediate and extended social environment is having. This definition covers several key findings from the qualitative data: (1) FOMO is about an experience that is perceived as better than the one currently engaged in. These experiences can be related to a variety of targets, such as social and family-related experiences, but also product and brand experiences. Perceptions of experiential discrepancies intensify when others are involved with whom the consumer shares a closer relationship with, and when the consumer has

been in the situation before. This perceived discrepancy further leads to the fabrication of possible better scenarios (i.e., counterfactuals), which are imaginations of "what could be, if" scenarios. (2) The result of these cognitive processes is a negative affective experience. (3) This negative affect can be persistent, resulting in dwelling on the missed events, rumination about them, and negative effects on mental health and wellbeing; and therefore, can be coped with in an unhealthy way. (4) But this negative affect can also be short and fleeting when consumers try to engage in healthy coping with this negative affect by, for example, deciding to change their current situation or cognitively reducing dissonance.

Figure 2 Conceptual model of the FOMO process



This series of mechanisms describe the *FOMO process* (Figure 2), which is different from most prior theoretical frameworks (i.e., FOMO within Construal Theory or Self-Determination Theory). Conceptualizing FOMO as a process allows an expansion of the construct to include both affective and cognitive components. The FOMO process is a dynamic decision-making framework that takes social belonging into account. The FOMO process is

comprised of sub-mechanisms, which provide a context independent understanding of FOMO and its effects on behavior in the marketplace and beyond.

Similarities and Differences of FOMO Across Context

I was further interested whether the FOMO experience is similar or different across context and if so, what aspects of the FOMO experience seem to vary. Consulting a detailed breakdown of code assignments by the two independent coders (Appendix 3), it appears that there is some variability across contexts. That is, assuming that number of counts of each code (social comparison, counterfactual thinking, positive and negative affect, social media involvement, age, no FOMO, social exclusion, social avoidance, decision-making, social proximity, and coping) are indicative of the code's role and importance within each context, the interview data suggests several important findings.

It appears that the importance of social comparison, counterfactual thoughts, and negative affect varies across context. That is, in the contexts of advertising, products and brands, investments, and career opportunities the components of counterfactual thoughts and social comparison (or the cognitive components of the FOMO process) seem to have more weight and are more prevalent than the negative affective components. However, with respect to social get-togethers, vacations, and family events there is more emphasize on the affective component. Further, relative to other codes the "no FOMO" code was more attributed to the context of breaking news events and services. One reason for the lack of the FOMO experience with respect to services might be that services, generally speaking, are non-conspicuous products.

Additionally, it appears that the FOMO experience, across contexts, is more associated with social exclusion than with social avoidance, with exception for the contexts vacations and personal life choices. Within these contexts, social avoidance was mentioned more often than

social exclusion. One reason might be higher controllability and personal responsibility for these contexts. That is, in terms of personal life choices participants recognized that they made decisions in the past that were predominantly affected by themselves, and instead of feeling socially excluded, they felt like they withdrew from the opportunities themselves.

Discussion

Theoretical implications. In this Chapter, reporting phenomenological study findings, I described the FOMO process. This cognitive and affective process is a novel way of conceptualizing people's fear of missing out. Although prior research conceptualized FOMO predominantly as a trait or state, qualitative findings indicate that *how* FOMO is experienced is more complex and comprised of six sub-components: (1) social comparison, (2) missed prior opportunities, (3) counterfactual thinking, (4) negative affect, (5) paralyzing action, and (6) motivating action. These sub-components form the four sub-mechanisms that together comprise the FOMO process. This perspective on the FOMO experience is novel and can help scholars in various fields to explain several prior findings by providing a sophisticated theoretical framework in which FOMO can be studied. For example, FOMO's connection to poor mental health and its negative relations to wellbeing (Reer et al., 2019) can be explained by the third mechanism (counterfactual thinking), which describes unhealthy coping by engaging in rumination and over-thinking. FOMO' s relation to purchase behavior when expecting elation and envy of others (Good & Hyman, 2020) can be explained by the fourth mechanism. That is, consumers initially feel bad (negative affect) but actively and healthily cope with these negative emotions by actually purchasing the product or service they have been missing out on. This purchase serves as a behavioral coping mechanism, which mends the initial perceived discrepancy between what is and what is desired.

Managerial Implications. This study has important implications for marketers and advertisers. That is, although I focused on other contexts besides advertising and product or brand communications, I provide practitioners with a sophisticated and detailed description of a FOMO process that is independent of the context it is experienced in. Advertising and consumer behavior in general are relevant to almost all stages and aspects of consumers' lives. For example, in this current study I show that the FOMO process is a highly cognitive process that potentially occupies vast amounts of consumers' cognitive resources (Hodkinson, 2019). I additionally show that the result of these cognitive process are negative affective experiences. This, too, might be an issue since prior research provided evidence that persuasive efforts that evoke negative emotions might be ineffective, because they are avoided by consumers (Rhodes, 2017). Luce, 1998, for example, found that when consumers experience negative emotions when making decisions, they have more difficulty processing available information, as shown by longer reaction times in decision-making tasks, and consequently avoided making a positive decision altogether. Or in other words, negative emotions led to choosing to stay with a current status quo in a purchase decision. However, I also show that the FOMO experience can be a motivating factor for consumers' purchasing behavior. Therefore, it is important that advertisers and marketers use FOMO appeals with caution to not cause more harm than good.

Limitations and Future Research. The study comes with several preliminary limitations. First, although participants represented individuals in various stages of life (20-year-old students, 34-year-old full-time employees, 70-year-old retirees) findings are not generalizable due to the fact that these 27 participants, who were part of this study, represented residents only from Michigan. In particular differences between participants in collectivistic versus individualistic cultures, and also socio-geographical differences between U.S. residents might have affected

findings in this qualitative research study. Future research should validate qualitative findings of this qualitative study. Further, it was not in the scope of this research to explore demographic differences in the FOMO experience or fine-grained contextual differences. Thus, future research might need to further scrutinize the FOMO process based on possible demographic moderators. Here, I aimed to provide an overview of the FOMO experience that is independent of context and as broad as possible.

Summary of Conceptual Development Results

In summary, I followed research recommendations of theory-in-use approaches and phenomenological research design to provide scholars and practitioners with a sophisticated and novel understanding of the FOMO experience. Breaking with existing proposals about the conceptualization of FOMO, I developed the conceptual definition of the FOMO process, which is described by four sub-mechanisms. These sub-mechanisms describe cognitive and affective processes that comprise the FOMO experience as well as coping processes. Consequently, I provide scholars in advertising, marketing, and other disciplines with the theoretical framework of the FOMO process.

Chapter 4: Operationalizing Fear of Missing Out

In Chapter 4 I report findings from the development of a measurement tool that helps to segment and understand consumers. Therefore, I provide a tool that can help examine how prone consumers are to engage in the FOMO process. This is important, because the proposed FOMO process explains various consumer behavior outcomes, especially the ones that are based on resulting motivating or paralyzing effects of negative affect (Hodkinson, 2019). For example, due to internal or external constraints consumers sometimes fail to redeem offers they were eager to procure (experiential discrepancy), which leads to overestimation of the value of these missed opportunities (counterfactuals), and consequently higher desirability of the missed opportunity or offer (motivating action following the negative affective experience) (Weiss & Kivetz, 2019). Therefore, I developed a trait-scale that helps to assess how prone consumers are to engage in the FOMO process. This trait scale will help future research to examine and predict the FOMO process and is therefore a necessary first step to understand the FOMO experience. In the following section I summarize each of the components that are important to the proneness to engage in the FOMO process and provide a detailed conceptual definition for each. Based on the goal to develop a theoretically and methodologically sound measurement scale it is important to have a clear conceptual understanding of each subcomponent.

Proneness to Engage in the FOMO Process

Tendency to socially compare. The tendency to socially compare embedded in the proneness to engage in the FOMO process trait is defined as "consumers' tendency to socially compare their situation, opportunities, lives, and possessions to others in order to find their place and create value for themselves within a given social group" (Festinger, 1954). That is, some consumers more than others tend to prefer to be in the in-group, build social status, and adhere to

group norms through their purchases (Moschis, 1976; Warren, Batra, Loureiro, & Bagozzi, 2019). This tendency to socially compare depends on 1) the increased awareness of how current situations could be better than they are, and 2) stronger appraisal of the individual's relational proximity to the people involved in these current situations. For example, some consumers are more aware of a new, innovative smartphone and might be more prone to perceive an experiential discrepancy between what could be (owning the new smartphone) and what is (keeping the current smartphone). When close friends purchase the new smartphone, this discrepancy will become more severe as opposed to distant acquaintances or strangers purchasing the smartphone.

Sensitivity to missed opportunities. Opportunities missed in the past are outcomes of prior decisions that potentially affect present decisions. These past decisions and missed opportunities have been found to affect attitudes and cognitions about future consequences and therefore affect present behavior (Albarracín & Wyer Jr, 2000). These outcomes of prior decisions can include, for example, not acting or acting wrongfully. For the FOMO process, the sensitivity to missed opportunities reflects consumers' anxiety about missing out on new trends and developments. Having missed out in the past, they may be hypersensitive to new opportunities and more likely to act in the present. For example, if a consumer did not upgrade the last time a new smartphone was released, they may feel like they are not part of the in-group of their friends who did. The consumer's perceived poor prior decision of not purchasing affects the perceived experiential discrepancy they experience in the current situation, in which a new smartphone is released. Consequently, some consumers will be more sensitive to the missed prior opportunities when making new decisions.

Dispositional counterfactual thinking. In prior research counterfactuals have been defined as imagined, hypothetical, alternative realities that exist vividly in consumers' minds about "what if" scenarios (Markman et al., 1993). That is, consumers tend to create mental simulations about what could have happened if they had acted differently in the past, or what could happen if they act in a specific way in the present (De Brigard, Addis, Ford, Schacter, & Giovanello, 2013; De Brigard et al., 2017). Counterfactual thinking is closely related to decision-making outcomes of both, acting and not acting (Weiss & Kivetz, 2019). Counterfactuals are different from expectations, because they can be retrospective whereas expectations are only about future outcomes, and they do not need to be realistic. These imagined, alternative realities might be overly positively or negatively appraised and are more likely to reflect the best and/or worst-case scenario as a possible outcome (Tsiros & Mittal, 2000). Within the FOMO process a consumer might decide to not purchase the new smartphone, although all their friends do. Some consumers are then more prone than others to imagine what it would be like having the smartphone, how they would be able to talk to their friends about specific features, and how owning the smartphone would integrate them better into their social group (Rye, Cahoon, Ali, & Daftary, 2008).

Negative trait affect. Negative trait affect is the proneness to experience negative affect as a result of the FOMO process (Milyavskaya et al., 2018; Reagle, 2015). Based on a constructionist point of view, negative affect, or emotions in general, are often comprised of a blend of multiple discrete emotions that may co-occur and therefore create unique emotional experiences (Izard, 1977). Based on appraisal theory (Frijda et al., 1989) and the dual system of Thayer's (1989) theory of emotions these blends of emotions might result in either behavioral activation or inhibition (Dillard & Peck, 2006). Consequently, negative trait affect captures

consumers' dispositional tendency to experience the emotions of jealousy and social exclusion in the proneness to engage dimension of the FOMO process trait-scale. With prior research having found that strong emotions not only affect message processing (Rhodes, 2017) and consumer satisfaction (Homburg, Koschate, & Hoyer, 2006), but also consumer choice (Coleman, Williams, Morales, & White, 2017; Luce, 1998), it becomes clear that the proneness to engage in the FOMO process is relevant for the field of marketing.

Existing Scales

Prior research studies have developed measurement scales that assess FOMO using a self-report scale (see Table 4). Przybylski et al. (2013) developed the widely used 10-item, unidimensional FOMO scale using Item Response Theory (IRT) methodology and a large international sample (N = 1,013). However, there is disagreement in the literature about whether this scale represents a state, trait, or individual difference. Subsequent work divided the scale into trait and state dimensions of social media specific FOMO (Wegmann et al., 2017). Another scale developed by Abel et al. (2016) represents a three-dimensional trait measure for FOMO. Scale items were developed based on prior research in related concepts such as inadequacy, irritability, and self-esteem, using a small sample of 202 participants. All three scales are inadequate, lacking either conceptual or methodological rigor in their development. These inadequacies include, but are not limited to, small sample sizes, theoretically unfounded item development procedures, and a lack of generalizability of the resulting scales. Further, all three scales (Abel et al., 2016; Przybylski et al., 2013; Wegmann et al., 2017) put heavy emphasis on the context of social media within the concept of FOMO. That is, all three measures include items specifically reflecting social media use. However, prior research as well as my own qualitative findings showed that consumers' FOMO might be exacerbated by social media, but

Table 4 Prior FOMO scales developed in scholarly research

Authors	Items
Przybylski et al. (2013)	**Unidimensional** • I fear others have more rewarding experiences than me. • I fear my friends have more rewarding experiences than me. • I get worried when I find out my friends are having fun without me. • I get anxious when I don't know what my friends are up to. • It is important that I understand my friends "in jokes". • Sometimes, I wonder if I spend too much time keeping up with what is going on. • It bothers me when I miss an opportunity to meet up with friends. • When I have a good *time*, it is important for me to share the details online (e.g. updating status). • When I miss out on a planned get-together it bothers me. • When I go on vacation, I continue to keep tabs on what my friends are doing.
Wegmann et al. *(*2017*)*	**Trait FOMO** • I fear others have more rewarding experiences than me • I fear my friends have more rewarding experiences than me • I get worried when I find out my friends are having fun without me • I get anxious when I don't know what my friends are up to **State FOMO** • When I miss out on a planned get-together it bothers me • I am continuously online in order not to miss out on anything • It is important that I have a say about the latest issues in my online social networks (videos, images, posts, etc.) • I fear not to be up to date in my social networking sites • I continuously consult my smartphone, in order not to miss out on anything • When I have a good time, it is important for me to share the details online (e.g. updating status) • It is important that I understand the Internet-slang my friends use • When I go on vacations, I continue to keep tabs on what my friends are doing
Abel et al. (2016*)*	**Sense of self/Self-esteem** • I take a positive attitude toward myself • On the whole, I am satisfied with myself • I feel that I have a number of good qualities • I am inclined to feel that I am a failure • I feel that I do not have much to be proud of **Social Interaction/Extroversion** • When in a group of people, do you have trouble thinking of the right things to talk about? • How frequently are you troubled by shyness? • Do you feel uncomfortable meeting new people? **Social Anxiety** • Assume you are unable to check social media when you want to: how frequently do you feel frightened? • Assume you are unable to check social media when you want to: how frequently do you feel nervous?

social media is not its sole cause (Milyavskaya et al., 2018; Reagle, 2015). Most importantly, none of these three scales are reflective of the FOMO process. That is, they do not capture the distinct components that were identified and developed using qualitative phenomenological research in the previous chapter, such as counterfactual thinking and social comparison. These scales are not able to capture the nature of FOMO accurately. Although these scales posit static personality dimensions, it has become evident (Milyavskaya et al., 2018) that a dynamic view is needed, which recognizes FOMO as a process and captures individuals' proneness to experience this FOMO process.

The Scale Development Process

Overview. This work followed prior scale development procedures (Brakus et al., 2009; Homburg et al., 2015) as well as best practices from the social sciences (Carpenter, 2018; Churchill, 1979; DeVellis, 2017; Worthington & Whittaker, 2006). Table 5 provides a summarized overview of the scale development process. First, I used the adult community pool of participants from Chapter 3. I generated a comprehensive list of items based on interviews (Step 1). Items were then evaluated for face validity using expert feedback and the initial list of items was reduced (Step 2). In a large national sample of U.S. respondents, I conducted exploratory factor analysis (EFA) for further item reduction, and exploration of dimensionality (Step 3). Using two U.S. national samples and one college student sample I validated the resulting 16-item, four-factor solution in independent samples (Step 4). Using longitudinal data (time between assessment was approximately two weeks) I established test-retest reliability for temporal stability (Step 5). Last, I established content and convergent validity of the scale by correlating each component with a prior FOMO measure, relevant character traits like affiliation motivation, social anxiety, and behavioral activation and inhibition (Step 6).

Table 5 Overview of scale development process

Process steps	Data and Methods	Results
1. Item generation	Twenty-seven qualitative semi-structured in-depth interviews; qualitative data	Initial set of 235 items for scale development
2. Face validity and initial item reduction	Three experts provided feedback on all items; items that were perceived as relevant to FOMO by two of three experts were retained	79 items for further analyses were identified
3. Further item reduction and scale dimensionality	Quantitative procedures with N = 727 U.S. participants (Bartlett's test, KMO, inter-item & item-total correlation, social desirability, EFA and CFA); Sample 1	16 items were retained; four factors were identified for good model fit; Table 7
4. Scale validation with independent samples	Additional data collection of N_2 = 408 undergraduate students' and N_3 = 421 U.S. participants' data and applying quantitative procedures similar to Step 3 (CFA); Sample 2 and 3	Goodness-of-fit indices for CFA in all samples were good; Table 8 and Figure 3
5. Temporal stability	Collecting longitudinal survey data from N = 390 U.S. participants over two timepoints; examining invariance/ equivalence over time; Sample 4	No difference between time 1 and 2 for each component; measure is reliable
6. Convergent and content validity	Checking convergent and content validity with measures related to FOMO; Pearson correlations with established scales; Sample 1, 3, and 4	Developed scale shows good convergent and content validity; Table 10

Note. KMO: Kaiser-Meyer-Olkin; EFA: exploratory factor analysis; CFA: confirmatory factor analysis

Table 6 Demographic composition of the quantitative samples across all studies

Variable	Sample 1 N=727	Sample 2 N=408	Sample 3 N=421	Sample 4 N=390
Age (Median)	39	20	39	34
Gender				
Male	332	171	213	194
Female	385	237	202	193
None of the above	3	0	3	1
Prefer not to say	0	0	2	2
Race				
White or Caucasian	551	286	307	290
Black or African American	63	29	41	30
Asian	44	61	32	29
Hispanic	44	14	16	23
Mixed	4	10	13	8
Other	6	2	6	6
Sexuality				
Heterosexual	651	362	367	346
Bisexual	26	21	23	20
Homosexual	27	13	25	20
None of the above	11	2	4	1
Prefer not to say	0	10	1	3
Education				
Less than a high school degree	14	-	15	3
High school graduate	168	-	95	59
Some college, but no degree	152	-	112	62
Associate degree	83	-	40	36
Bachelor's degree	189	-	96	145
Master's degree	85	-	41	65
Doctoral degree	12	-	0	0
Professional degree	23	-	16	11
Income				
Less than $10,000	67	21	43	14
$10,000 - $49,999	250	50	154	115
$50,000 - $99,999	234	106	132	139
$100,000 - $149,999	96	87	55	77
$150,000 or more	77	144	36	45

Note. Information about the qualitative sample and more details about data cleaning procedures can be found online https://bit.ly/3dAMf5L

Samples. An overview of participant characteristics for all four quantitative samples is summarized in Table 6. A detailed overview of participants in the qualitative interview study can be found in the prior Chapter (Table 3). All data were collected prior to February 6, 2020. Thus, I avoided possible confounds due to the COVID-19 crisis.

Item Generation (Step 1)

The first aim in this Chapter was to develop a comprehensive pool of items describing the FOMO process. Prior research in the assessment of FOMO has developed items predominantly based on existing literature and popular writing (e.g., Przybylski et al., 2013). However, based on the process model of FOMO I decided to take a phenomenological approach (Creswell & Poth, 2018) to the item development process as recommended in prior research (Carpenter, 2018; DeVellis, 2017; Simms, 2008; Watson et al., 1988; Worthington & Whittaker, 2006). This exploratory approach was chosen to generate a large initial pool of items describing the multidimensional character of the FOMO process. This phenomenological approach is preferable over prior item-development procedures in the FOMO literature, because it reflects a shared meaning of FOMO as described by consumers and is grounded in participants' individual perspectives (Creswell & Poth, 2018). To this end I conducted semi-structured interviews with twenty-seven participants, who were recruited from a community-based research participants pool of a large midwestern university in the United States (detailed description of the codebook development, recruiting and participants' demographics is described in the third Chapter).

I extracted statements that were in broad accordance with the four proposed components (tendency to socially compare, sensitivity to missed opportunities, dispositional counterfactual thinking, and negative trait affect) and formulated scale items to fit the following instructions: "Generally speaking, how often to you experience each of the following statements/emotions".

The resulting initial item pool included 235 items (see a detailed list on https://bit.ly/3dAMf5L).

Face Validity (Step 2)

Next, all initial items were included in an online survey. Three experts in the fields of media psychology, social norms, and communication independently reviewed the initial item pool in random order and indicated whether each item is relevant to FOMO (Carpenter, 2018). Before the coding procedure, the conceptual definition and prior research on the FOMO process were discussed in a face-to-face conversation between author and experts. Only items for which at least two of the experts agreed on relevance to FOMO were retained for further analyses. This step was to establish face and content validity of the items included (Churchill, 1979). Items were spell-checked and copy-edited, with one item eliminated due to very close similarity to another item. The final pool of items consisted of 79 statements.

Based on Psychometric Theory (Bergkvist & Rossiter, 2007; Böckenholt & Lehmann, 2015; Nunnally & Bernstein, 1994) I aimed to construct a lengthy measure of FOMO to reduce measurement error. I expected the proneness to engage in the FOMO process construct to be 1) multidimensional, 2) complex, and 3) a construct that affects various aspects of individuals' lives and perceptions, as shown in Chapter 3. DeVellis (2017) recommended including four times as many items in the initial item pool for EFA as desired in the final scale. Thus, I judged that 79 items were an appropriate number for the EFA (see https://bit.ly/3dAMf5L).

Item Reduction and Dimensionality (Step 3)

Sample and data preparation. After generating a pool of 79 items, I submitted them to EFA as recommended in prior research (Carpenter, 2018; Churchill, 1979). I recruited 1,161 participants from the United States using the sampling service Dynata (www.dynata.com). Dynata uses e-mail invitations, phone alerts, banners and messaging on panel community sites.

Participants were compensated based on the Dynata incentive structure (e.g. gift cards and charitable contributions). Participants answered all 79 items as well as other measures within an online survey (Appendix 4). After data cleaning measures (for more details see https://bit.ly/3dAMf5L) the final sample (Table 6, Sample 1) for this study consisted of N = 727 participants (RR = 63%). Within this sample, less than 1% of data were missing within each variable, so I did not consider missing data to be problematic.

Based on prior research recommendations (Carpenter, 2018) I inspected the correlation matrix (of pairwise complete observations) for all 79 initial items. I made sure that all correlations were greater than 0.30 and submitted the correlation matrix to Bartlett's Test of Sphericity ($p < 0.01$). I estimated the Kaiser-Meyer-Olkin value (0.99), which exceeded recommendations (0.60) of prior research (Carpenter, 2018). Thus, factor analysis was applied to the 79 items of the initial item pool. Before submitting data to EFA, I inspected all 79 items with respect to average inter-item and item-to-total correlation. Both, the average inter-item correlation ($r = 0.51$) as well as average item-total correlation ($r = 0.72$) were considered large correlations (Cohen, 1988; Hemphill, 2003), so no items were excluded. According to DeVellis (2017), items in an initial scale should follow a normal distribution with respect to their answers (low and high values occur less often than medium values) and fall in the middle of the answer options of the scale (2.5 for a five-point scale). The items showed an average mean of 2.56, skewness of 0.33, and kurtosis of -0.61, which I considered optimal. Last, I wanted to make sure items in the initial item pool were not highly correlated (either positively or negatively) with participants' social desirability bias (DeVellis, 2017). I included the 20-item short version of the Marlow-Crowne Social Desirability Scale (Crowne & Marlowe, 1960; Strahan & Gerbasi, 1972), which has been shown to outperform other scales for social desirability (Fischer & Fick, 1993).

Participants indicated whether each item would be true or false for them personally. Reliability of the Marlow-Crowne scale was good ($\alpha = 0.74$). I determined beforehand to exclude items with high correlations ($r > 0.50$) with participants' social desirability bias (Cohen, 1988; Hemphill, 2003). Results indicated acceptable average correlations of $s = -0.27$ (range = -0.41; -0.17); no items were excluded before the EFA.

Exploratory factor analysis. Based on recommendations of prior research I conducted parallel analysis (Horn, 1965) to identify the number of factors to extract. This method is more reliable than other methods, such as Eigenvalue greater than 1 (Carpenter, 2018; Watkins, 2006). Using common factor analysis with unrotated Eigenvalues and 5,000 bootstrapping intervals, I found that five factors were to be extracted. I submitted data to EFA and extracted factors using maximum likelihood estimation, because data were normally distributed (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Promax rotation was applied, because factors within the construct were assumed to be correlated; promax rotation has found to be the most robust rotation procedure within oblique rotation methods (Thompson, 2004). The EFA resulted in five factors to extract; 25 items did not load on any of the five factors and were excluded from further analyses.

After excluding items that did not load, I submitted data to another EFA using the same specifications as before. However, two items did not load on any factor, which also led to an empty fifth factor. This factor was excluded based on prior scale development recommendations for at least three items per factor (Carpenter, 2018). In a final step I submitted all remaining items to an EFA with four factors and promax rotation (Table 7). Uniquenesses were between 0.29-0.47, all factor loadings yielded $\lambda > 0.50$, and the factor structure accounted for 57% of cumulative variance. The test of the hypothesis that four factors were sufficient was statistically

Table 7 Exploratory factor analysis results (sample 1)

	Factor				
Item	**TSC**	**SMO**	**DCT**	**NTA**	**Uniquenesses**
TSC 1	**0.72**	–0.03	0.05	0.08	0.38
TSC 2	**0.68**	0.03	0.04	0.04	0.44
TSC 3	**0.79**	0.02	0.02	–0.08	0.42
TSC 4	**0.67**	0.04	0.04	0.00	0.47
SMO 1	0.16	**0.74**	–0.06	0.03	0.32
SMO 2	–0.02	**0.80**	0.00	0.05	0.34
SMO 3	–0.08	**0.78**	0.15	–0.01	0.31
SMO 4	0.02	**0.80**	–0.03	0.01	0.37
DCT 1	0.04	0.08	**0.73**	–0.04	0.37
DCT 2	0.04	0.09	**0.69**	–0.02	0.41
DCT 3	0.18	–0.10	**0.68**	0.02	0.40
DCT 4	0.04	0.01	**0.70**	0.11	0.35
NTA 1	0.04	–0.02	0.00	**0.79**	0.36
NTA 2	–0.10	0.05	0.09	**0.78**	0.33
NTA 3	0.00	0.10	0.00	**0.78**	0.29
NTA 4	0.10	–0.06	–0.04	**0.78**	0.38
Correlations[a]					
	TSC	**SMO**	**DCT**	**NTA**	
TSC	**0.75**				
SMO	0.57	**0.81**			
DCT	0.70	0.62	**0.78**		
NTA	0.59	0.62	0.60	**0.81**	

Note. TSC = "tendency to socially compare", DCT = "dispositional counterfactual thinking", NTA = "negative trait affect", SMO = "sensitivity to missed opportunities"; results of exploratory factor analysis with four factors and promax rotation; bold values indicate the factor on which each item predominantly loads; cumulative variance explained by four factors: 0.57; test that 4 factors are sufficient significant $\chi^2(62) = 179.68$; $p < 0.01$

[a] Pearson-correlations in the lower triangle and square root of average variance extracted on the diagonal

significant (χ_2 (321) = 668.83; $p < 0.01$). The four factors extracted confirmed the initial conceptual explications of the scale's components. However, although factors 3 (negative trait affect) and 4 (sensitivity to missed opportunities) included four items each, factor 1 (tendency to socially compare) included six items, and factor 2 (dispositional counterfactual thinking) included sixteen items. A large number of items in a single factor might yield alpha inflation and

redundancies (Carpenter, 2018; DeVellis, 2017). Thus, I eliminated items based on face and content validity criteria to achieve a parsimonious final scale of 16 items.

Further item reduction. To reduce the number of items I compared all factors with each other to identify unique contributions to the FOMO construct. I assessed internal consistency by inspecting average variance extracted (AVE), composite reliabilities (CR) as well as Cronbach's alpha (DeVellis, 2017; Hu & Bentler, 1995). With respect to Factor 1 (tendency to socially compare) I dropped items that were not consistent with the conceptual definition of the tendency to socially compare, which resulted in four remaining items. This factor showed good internal consistency ($\alpha = 0.84$, CR = 0.84, AVE = 0.57). For Factor 2 (dispositional counterfactual thinking), four items were consistent with the conceptual definition of counterfactuals. The other items described involvement of others. Because social comparison processes were already identified in Factor 1, I retained only the four items that did not mention others. Internal consistency of the resulting factor was good ($\alpha = 0.86$, CR = 0.86, AVE = 0.61). Factor 3 (negative trait affect) included four items and was largely consistent with negative affective experiences of individuals and showed good internal consistency ($\alpha = 0.88$, CR = 0.88, AVE = 0.66). Factor 4 (sensitivity to missed opportunities) included four items and described missed opportunities that may affect current and future decisions; this was consistent with my conceptual definition. Internal consistency was considered good ($\alpha = 0.88$, CR = 0.88, AVE = 0.66).

Dimensionality. To provide further evidence for the four-factor solution I examined whether the four factors extracted met Fornell & Larcker's (1981) criterion, which states that discriminant validity between factors exists when the square root of AVE for each factor exceeds the factor's correlation with each other factor. This requirement was met (Table 7). I further

submitted data to a confirmatory factor analysis (CFA) to test the four-factor structure. The four-factor model specification showed excellent model fit (χ_2 (98) = 259.97, p < 0.01, χ_2/df = 2.64, CFI = 0.98, TLI = 0.97, RMSEA = 0.05, SRMR = 0.03). Last, and in accordance with other scale development studies (Brakus et al., 2009; Homburg et al., 2015), I additionally tested the four-factor model structure against models with other specifications. That is, I specified a null model with no correlations between any of the included items and a unidimensional model in which all items loaded on one single factor. I also specified a two-factor solution, in which I grouped all

Table 8 Model fit tests of four-factor solution (samples 1, 2, and 3)

	Chi-Square	**d.f.**	**p-value[a]**	**CFI**	**TLI**	**RMSEA**	**SRMR**	**AIC[b]**
Sample 1								
Null	7061.68	120				0.28	0.46	-
Four factors	**258.97**	**98**	**< 0.01**	**0.98**	**0.97**	**0.05**	**0.05**	**0**
Unidimensional	1517.58	104	< 0.01	0.80	0.77	0.14	0.08	1,246
Two factors	1023.17	103	< 0.01	0.87	0.85	0.11	0.06	754
Three factors	438.16	101	< 0.01	0.95	0.95	0.07	0.04	173
Sample 2								
Null	3027.39	120				0.24	0.41	-
Four factors	**255.66**	**98**	**< 0.01**	**0.95**	**0.93**	**0.06**	**0.04**	**0**
Unidimensional	337.8	104	< 0.01	0.92	0.91	0.07	0.05	70
Two factors	317.02	103	< 0.01	0.93	0.91	0.07	0.05	51
Three factors	307.03	101	< 0.01	0.93	0.92	0.07	0.05	45
Sample 3								
Null	4128.31	120				0.28	0.48	-
Four factors	**332.85**	**98**	**< 0.01**	**0.94**	**0.93**	**0.08**	**0.05**	**0**
Unidimensional	435.78	104	< 0.01	0.92	0.90	0.09	0.04	91
Two factors	430.03	103	< 0.01	0.92	0.91	0.09	0.04	87
Three factors	377.79	101	< 0.01	0.93	0.92	0.08	0.05	39

Note. Two factor model defined as cognitive versus affective factors (social comparison, counterfactual thinking, and missed opportunities combined), three factor model defined as cognitive versus learning versus affective factors (social comparison and counterfactual thinking combined)

[a] p-value based on chi-square difference tests between each model and the four-factor model

[b] differences are calculated with four-factor model as reference model, because it showed the lowest AIC

Table 9 Items included in the final scale (sample 1)

Item No	Item	M	SD
TSC 1	You think your friends have more fun than you.	2.93	1.07
TSC 2	You think your friends have more positive experiences than you.	2.76	1.11
TSC 3	You feel like you are behind everybody else because you are lacking information.	2.99	1.09
TSC 4	You feel not included with your friends because your life circumstances are different.	2.81	1.10
SMO 1	You go back and think about what you could have had.	2.59	1.24
SMO 2	You are worried that some opportunities will not be available for you later.	2.40	1.27
SMO 3	You wonder if you maybe have missed the opportunity to be with your soul mate.	2.42	1.32
SMO 4	You wonder how your life could have been different if some circumstances would have been different.	2.49	1.29
DCT 1	You think an opportunity not taken could derail your life.	2.36	1.20
DCT 2	You compare your current situation to an alternative situation and think you are worse off.	2.19	1.13
DCT 3	You think you are missing out on all of those fun things you could have been doing.	2.45	1.17
DCT 4	You think of all the things you wish you would have done differently.	2.36	1.21
NTA 1	You feel jealous.	2.70	1.10
NTA 2	You feel like you want something.	2.48	1.31
NTA 3	You feel isolated.	2.67	1.24
NTA 4	You feel lonely.	2.85	1.14

Note. TSC = "tendency to socially compare", DCT = "dispositional counterfactual thinking", NTA = "negative trait affect", SMO = "sensitivity to missed opportunities"; all items assessed on a five-point Likert-type scale ("never" to "very often"); only items of the final scale are included; items were prefixed with "*Below is a collection of statements and emotional states about your everyday experience. Using the scale provided please indicate how often you experience each of the following statements or emotional states. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item*."

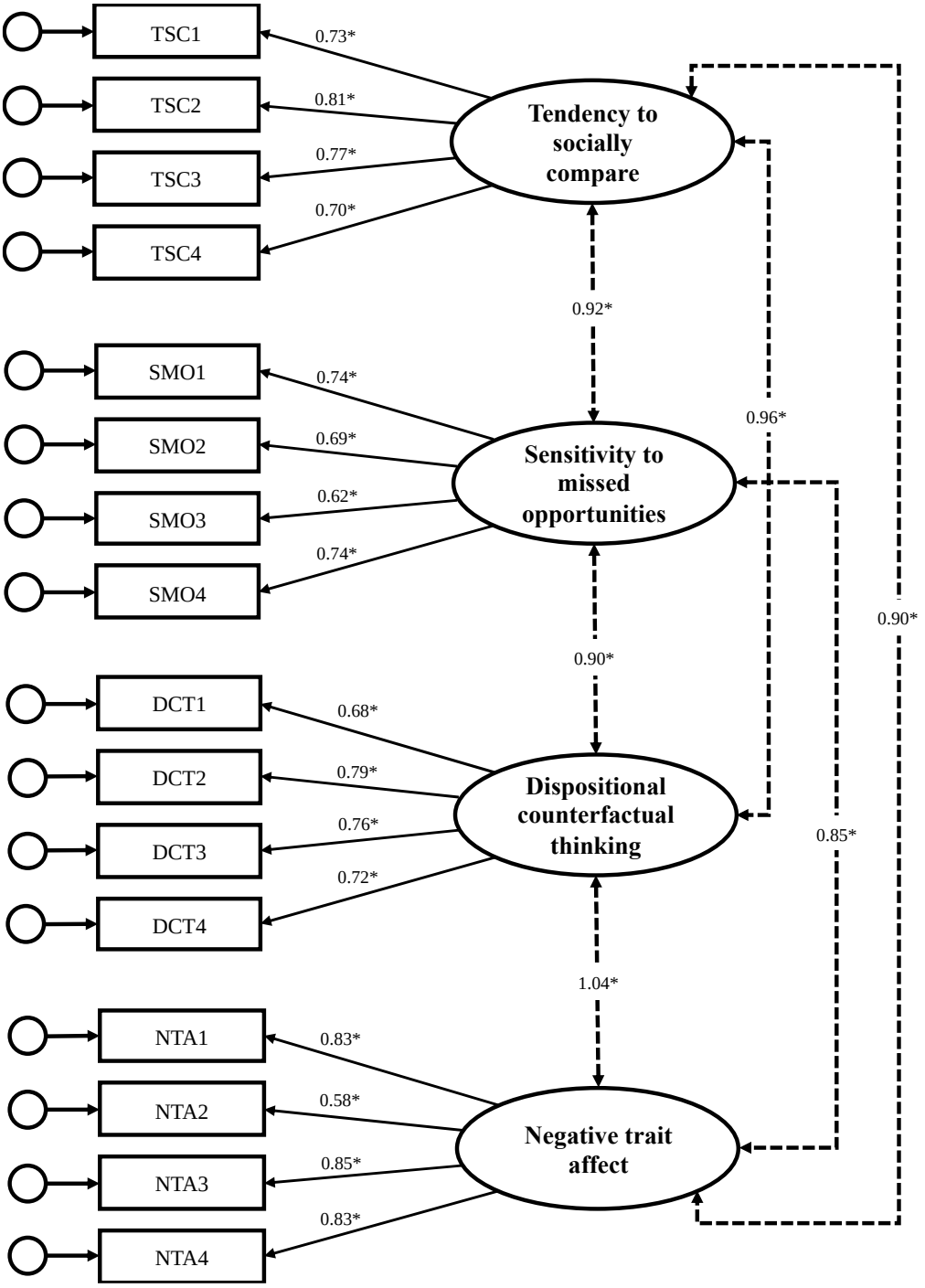
cognitive factors (tendency to socially compare, dispositional counterfactual thinking, and sensitivity to missed opportunities) and specified negative trait affect as a single factor. Last, I specified a three-factor solution, in which I grouped the social comparison–counterfactuals relationship (based on their large overlap in initial EFA results) and left sensitivity to missed opportunities and negative trait affect as single factors. As summarized in Table 8, the four-factor solution performs consistently better than either of the other model specifications. This is further confirmed by the fact that the four-factor solution had the lowest Akaike Information Criterion (AIC) value (Homburg, 1991). The final items for each factor as well as their means and standard deviations are summarized in Table 9.

Scale Validation (Step 4)

Sample and procedures. As shown in Step 3, an initial CFA showed excellent model fit with respect to the four-factor solution. To provide additional evidence for scale validity, in Step 4 I replicated this CFA with two additional datasets: One sample included 408 undergraduate students from a large midwestern university in the United States. Students received course credits for taking an online survey (Appendix 5). Participant characteristics are summarized in Table 6 (Sample 2). Further, 1,201 participants from a national U.S. panel were recruited using the Dynata service. Participants answered an online survey (Appendix 6). After data purification measures and excluding participants from the re-test section of the survey (for more details see https://bit.ly/3dAMf5L) the sample consisted of 421 participants, who are described in Table 6 (Sample 3). Similar to prior scale development research (Brakus et al., 2009) I aimed to cross-validate my findings with respect to the developed scale with other populations (student population) and with an independent validation sample among the general population (Churchill, 1979). I, therefore, submitted data from Samples 2 and 3 to the same CFA procedure as

described in Step 3. That is, I specified four models (null, unidimensional, two-factor, three-factor, and four-factor) and assessed goodness-of-fit indices across the four model specifications, as well as within each sample.

Figure 3 Confirmatory factor analysis results



Results. Model fit indices for Sample 2 (student sample) showed excellent fit for the four-factor solution (χ^2 (98) = 255.66, $p < 0.01$, $\chi^2/df = 2.61$; CFI = 0.95; TLI = 0.93; RMSEA = 0.06; SRMR = 0.04) with standardized factor loadings $\lambda > 0.49$. Further, the four-factor solution consistently showed better performance than the other three model specifications (Table 8). Similarly, model fit indices for Sample 3 (general population) showed very good model fit as well (χ^2 (98) = 33.85, $p < 0.01$, $\chi^2/df = 3.40$; CFI = 0.94; TLI = 0.93; RMSEA = 0.08; SRMR = 0.05) with standardized factor loadings $\lambda > 0.58$. Within this sample, too, the four-factor solution consistently outperformed the other three model specifications (Table 8). Results for CFA with Sample 3 are further summarized in Figure 3. I conclude that my model showed robust goodness-of-fit indices across multiple populations, which provides strong evidence for the scale's validity. In the next step, I aimed to establish scale reliability across time. This is important, because I aimed to develop a trait measure of consumers' proneness to engage in the FOMO process. The trait captured in this scale should be subject to little change over time (Bazana & Stelmack, 2004).

Temporal Stability (Step 5)

Sample and procedures. To establish temporal reliability of my scale (Step 5), all participants of Sample 3 (N = 1,201) were re-contacted and invited to respond to a second survey by the Dynata service. Participants received additional incentives to complete this second survey (Appendix 7). Overall, 390 participants responded to the second survey and were included in Sample 4. Participant characteristics are summarized in Table 6 (Sample 4). Participants in the second survey answered the 16-item, five-points Likert-type scale for proneness to engage in the FOMO process followed by additional scales that are not relevant here. Thus, I collected data with respect to the proneness to engage in the FOMO process at two timepoints (first and second

survey) that were approximately two weeks apart. I submitted participants' answers to all four sub-components at both timepoints (T1 and T2) to a two one-sided test (TOST) respectively. The TOST, a tool for equivalence or non-inferiority testing, has been developed to test whether two means are equivalent (Walker & Nowacki, 2011). I set the equivalence margin to 0.20, because all assessments were reported on five-point Likert-type scales and thus, I considered differences of 0.20 or smaller as being equivalent.

Results. Internal reliabilities were good for all four sub-components: tendency to socially compare ($\alpha_{T1} = 0.87$; $\alpha_{T2} = 0.86$), sensitivity to missed opportunities ($\alpha_{T1} = 0.85$; $\alpha_{T2} = 0.84$), dispositional counterfactual thinking ($\alpha_{T1} = 0.87$; $\alpha_{T2} = 0.87$), and negative trait affect ($\alpha_{T1} = 0.84$; $\alpha_{T2} = 0.83$). Results further indicated equivalence of the respective reported paired values for tendency to socially compare (mean $\Delta = 0.02$, CI [-0.04-0.09], $p < 0.01$), dispositional counterfactual thinking (mean $\Delta = 0.04$, CI [-0.02-0.10], $p < 0.01$), negative trait affect (mean $\Delta = 0.03$, CI [-0.03-0.09], $p < 0.01$), and sensitivity to missed opportunities (mean $\Delta = 0.03$, CI [-0.02-0.09], $p < 0.01$)**.** Thus, I established temporal stability of the proneness to engage in the FOMO process scale. I showed that my scale is a stable and reliable trait-measure.

Convergent, Content, and Discriminant Validity (Step 6)

In Step 6, I aimed to establish convergent, content, and discriminant validity of each component captured in the proneness to engage in the FOMO process scale. I, therefore, followed guidelines of examining correlations between the scale and other measures that should and should not correlate (Churchill, 1979). This approach is similar to the multitrait-multimethod procedure developed in early research on scale validation (Campbell & Fiske, 1959). I, however, used only one method of measurement (self-report on Likert-type scales). I considered this unproblematic, because early research suggested problems with the conceptualization of multi-

method assessments, such as avoiding high similarities between different methods of assessment (Peter, 1981). I included measures that should and should not be correlated with proneness to engage in the FOMO process in three of the described samples (Sample 1, 3, and 4). More specifically, I included a commonly used unidimensional FOMO scale (Przybylski et al., 2013), positive and negative trait affect (PANAS) (Watson et al., 1988), social comparison orientation (Gibbons & Buunk, 1999), counterfactual thinking for negative events (Rye et al., 2008), affiliation motivation (Hill, 1987), social anxiety (Nunes, Ayala-Nunes, Pechorro, & La Greca, 2018), behavioral inhibition system (BIS), and behavioral activation system (BAS) (Carver & White, 1994). A detailed description of each measure, including their sub-scales and their respective reliabilities ($\alpha = 0.72–0.94$) is summarized online: https://bit.ly/3dAMf5L.

Convergent and discriminant validity. The proneness to engage in the FOMO process measure shows a strong positive correlation with prior unidimensional measures of FOMO (Przybylski et al., 2013), which indicated convergent validity of the scale. To further show discriminant validity, I submitted data for both scales to CFA, similar to approaches in prior research (Homburg et al., 2015). I specified a unidimensional model, with all items for both scales loading on a single factor, and a two-dimensional model with each construct loading on a separate factor. Results indicate that the two-factor solution provides a better model fit (AIC Δ = -2,187). Additionally, the two-factor solution showed AVEs > 0.56 for each of the two components and the Fornell-Larcker Criterion (1981) was met for the pair of factors. This provides strong evidence for discriminant validity of the scale developed here with the unidimensional FOMO scale (Przybylski et al., 2013), which was designed to describe social media driven FOMO. The proneness to engage in the FOMO process scale was developed to provide a context independent perspective of the FOMO process.

Table 10 Intercorrelations of FOMO components and other constructs

	Tendency to socially compare			Dispositional counterfactual thinking			Negative trait affect			Sensitivity to missed opportunities		
	Sample 1	*Sample 3*	*Sample 4*	*Sample 1*	*Sample 3*	*Sample 4*	*Sample 1*	*Sample 3*	*Sample 4*	*Sample 1*	*Sample 3*	*Sample 4*
FOMO	0.60	0.63	0.62	0.74	0.60	0.57	0.51	0.53	0.52	0.56	0.58	0.53
PANAS												
Positive	0.06	–0.01	–0.05	0.00	0.03	–0.08	–0.22	0.02	–0.04	–0.05	–0.04	–0.14
Negative	0.49	0.62	0.60	0.59	0.62	0.63	0.71	0.58	0.60	0.53	0.68	0.67
Social comparison orientation												
Ability-related	0.60	0.48	0.53	0.60	0.49	0.45	0.42	0.42	0.41	0.47	0.44	0.46
Opinion-related	0.47	0.33	0.36	0.37	0.33	0.25	0.27	0.31	0.26	0.28	0.27	0.28
Counterfactual thinking												
Non-referent downward	0.62	0.55	0.57	0.63	0.63	0.61	0.63	0.63	0.62	0.61	0.57	0.59
Non-referent upward	0.62	0.52	0.59	0.60	0.59	0.58	0.54	0.57	0.59	0.53	0.49	0.55
Other-referent upward	0.60	0.53	0.58	0.58	0.62	0.62	0.55	0.62	0.63	0.54	0.54	0.57
Self-referent upward	0.58	0.55	0.60	0.61	0.64	0.67	0.56	0.63	0.64	0.59	0.56	0.59
Affiliation motivation												
Attention	-	0.43	0.42	-	0.44	0.41	-	0.39	0.38	-	0.42	0.34
Positive stimulation	-	0.37	0.36	-	0.38	0.33	-	0.33	0.30	-	0.32	0.27
Social comparison	-	0.47	0.49	-	0.46	0.45	-	0.39	0.42	-	0.41	0.41
Emotional support	-	0.38	0.38	-	0.36	0.32	-	0.28	0.30	-	0.33	0.28
Social anxiety												
Fear of negative evaluation	-	-	0.61	-	-	0.54	-	-	0.52	-	-	0.57
Distress meeting new people	-	-	0.50	-	-	0.46	-	-	0.45	-	-	0.52
General social distress	-	-	0.58	-	-	0.50	-	-	0.49	-	-	0.55
BIS/BAS												
Punishment sensitivity (BIS)	-	-	0.37	-	-	0.36	-	-	0.37	-	-	0.45
Reward responsive (BAS)	-	-	0.12	-	-	0.10	-	-	0.12	-	-	0.07
Drive (BAS)	-	-	0.07	-	-	0.05	-	-	0.04	-	-	0.01
Fun seeking (BAS)	-	-	0.25	-	-	0.25	-	-	0.21	-	-	0.21

Note. Intercorrelations using Pearson-method and pairwise deletion; grey correlations not statistically significant on the $p < 0.05$ level

Content validity. Based on my conceptual definitions for tendency to socially compare, dispositional counterfactual thinking, negative trait affect, and sensitivity to missed opportunities, I expected each component to be positively correlated with the unidimensional FOMO scale, negative trait affect, social comparison orientation, and counterfactual thinking for negative events. That is, I measured the same traits using different scales and show high correlations between them (Table 10). There were only a few significant correlations between each component of proneness to engage in the FOMO process and positive affect. Thus, I can reason that the sub-components do not reflect positive trait affect, which is in line with prior research (Milyavskaya et al., 2018). I further show (Table 10) that the components of proneness to engage in the FOMO process were consistent and, over independent samples, highly correlated with affiliation motivation, and social anxiety, in support of prior FOMO findings (Blackwell et al., 2017; Dogan, 2019; Milyavskaya et al., 2018; Rifkin et al., 2015). I show correlations with BIS, a motivational system that is sensitive to punishment cues and inhibits behavior (Carver & White, 1994). This relationship is consistent with findings in prior research that closely ties FOMO to negative affective experiences, symptoms of depression, choice-paralysis based on cognitive effort, and rumination (Hodkinson, 2019; Reer et al., 2019; Rifkin et al., 2015). This is in line with the third mechanism of the FOMO process (paralyzing action). However, proneness to engage in the FOMO process was also correlated with the fun seeking sub-scale of the BAS, a reward sensitive motivational system that reflects approach tendencies for positive events (Carver & White, 1994). This association confirms prior research, which suggests that individuals experience FOMO predominantly based on experiences that they do not want to miss out on (Milyavskaya et al., 2018; Rifkin et al., 2015). This is in line with the fourth mechanism of the FOMO process (motivating action).

Discussion of the Scale Development Results

So far, I have conceptually defined and explicated the components of the proneness to engage in the FOMO process construct. The multi-dimensional and complex construct that resulted from the scale development research is composed of the tendency to socially compare, dispositional counterfactual thinking, negative trait affect, and sensitivity to missed experiences. I applied a rigorous mixed methods approach using five independent samples (one qualitative and four quantitative samples) to develop a conceptually and methodologically sound measurement scale. In six steps I developed scale items, explored dimensionality, showed a robust and reliable four-dimensional solution, and established convergent, discriminant, and content validity as well as temporal stability.

However, to be able to show the relevance of the FOMO process not only to mental health and well-being (Milyavskaya et al., 2018; Reer et al., 2019), but also to the fields of marketing and advertising, additional research is needed. Thus, in the following chapter I used data of Sample 4 to examine how the FOMO process and its components predict risk-attitudes of consumers toward social, recreational, financial, health, and ethical risks. Consumers' risk-attitudes are highly relevant to marketing theory and practice, because according to Prospect Theory risk tolerance and loss aversion are fundamental components of decision-making in the marketplace (Kahneman & Tversky, 1979). Research studies have shown that FOMO is connected to health-risk perceptions and behaviors, such as increased risky drinking behaviors (Riordan et al., 2019) and texting and driving (Przybylski et al., 2013) as well as to investment decisions (Clor-Proell et al., 2019). Less is known about other risk-domains, such as risky recreational activities. I aimed to elucidate how the proneness to engage in it, is connected to consumers' risk perceptions.

Chapter 5: Fear of Missing Out and Consumers' Risk Perceptions

Few prior research studies have examined the FOMO experience in the context of marketing and consumer behavior. Some studies provided evidence for benefits of using FOMO appeals and externally initiating the FOMO experience, such as more positive brand perceptions (Kang et al., 2019) and higher likelihood to buy when elation and envy of others are anticipated as a consequence of the purchase (Good & Hyman, 2020). Other study findings indicated pitfalls of the FOMO experience, such as reluctance to repeat current experiences and therefore potential threats to loyalty (Hayran et al., 2020a). Hodkinson (2019) described a theoretical framework for consumers' responses to externally initiated FOMO appeals. He describes that how these FOMO appeals are affectively and cognitively processed, and how this processing affects consequent decision-making is dependent on individual and situational differences, including but not limited to consumers' typical decision style and risk aversion. In detail, Hodkinson (2019) describes the FOMO response model as a decision-making framework in which a FOMO appeal is initiated and affected by personal and situational variables and affective and cognitive responses and re-appraised after a decision has been reached, which ultimately leads to learning.

Early research on risk in consumer behavior states "the central problem of consumer behavior is choice. Since the outcome of a choice can only be known in the future, the consumer is forced to deal with uncertainty, or risk" (Taylor, 1974, p. 54). Therefore, by understanding how the FOMO experience affects consumers' risk perceptions, I am providing the groundwork for future scholarly research on FOMO in consumer behavior. FOMO might lead to opportunity cost over-estimations (Weiss & Kivetz, 2019) and generally affects the attractiveness of given alternatives when decisions are made. Qualitative research in this dissertation project showed that the FOMO experience is similar across various life contexts (e.g., financial and recreational

activities). That is, consumers prone to engage in the FOMO process might be generally prone to overestimate the attractiveness of a given alternative, and therefore overestimate possible gains from engaging in some alternative behavior (Rifkin et al., 2015). This overestimation leads to more favorable attitudes toward risky behaviors across contexts and is in line with research findings that stated that individuals who are more prone to experience FOMO construe themselves more interdependently (Dogan, 2019) and those with an activated interdependent self are more risk-seeking (Mandel, 2003). Consequently, consumers who are more prone to engage in the FOMO process might be more favorable to engaging in risky behaviors.

However, I acknowledge that risky behaviors resulting from consumers' FOMO are predominantly aimed to secure a consumer's place in the in-group, as shown in earlier qualitative findings. That is, negative affective feelings resulting from the FOMO process, such as feeling that one does not belong to a social group and jealousy of others who do, are not likely to lead to more favorable attitudes toward social risks (Reagle, 2015). This has also been shown in prior research, which found that the FOMO experience leads to activation of brain regions that are responsible for detecting social cues to secure one's inclusionary status when participants were included, but not when they were excluded (Lai et al., 2016). That is, individuals who are more prone to experience FOMO are more receptive to social cues and therefore less risk seeking with respect to their social behaviors.

Measures

I consulted data collected in Sample 4 (Table 6). I used the 16-item, five-point Likert-type scale for proneness to engage in the FOMO process. Internal reliabilities for all four components were good ($\alpha > 0.84$). I assessed *social, financial, recreational, and ethical risk attitudes* based on a scale developed in prior research (Weber, Blais, & Betz, 2002). The original

scale developed in the Weber et al. (2002) scale development study showed significant issues pertaining dimensionality and specifically discriminant validity within my sample. Therefore, I conducted EFA and CFA, leading to a four-factor solution. More details about EFA, CFA, and the final list of items can be found online: https://bit.ly/3dAMf5L. Participants were asked to indicate on a five-point Likert-type scale (1 = "extremely likely" to 5 = "extremely unlikely") the likelihood of engaging in a list of various risky activities, such as "defending an unpopular issue that you believe in at a social occasion" (social), "trying out bungee jumping at least once" (recreational), "investing 5% of your annual income in a very speculative stock" (financial), and "passing off somebody else's work as your own" (ethical). Because the scale response-options were reverse coded (smaller numbers indicate higher likelihood), I recoded the scale, so that higher values indicated more favorable attitudes toward the respective risk behavior.

Results and Discussion

I submitted data to a SEM using Maximum Likelihood estimation. The model reflected the FOMO process: tendency to socially compare and sensitivity to missed opportunities predicted dispositional counterfactual thinking, which in turn predicted negative trait affect. To test my hypotheses, I added the four respective domain-specific risk attitudes as dependent variables which were predicted by negative trait affect (Figure 4). All construct indicators were > 0.69, reliabilities exceeded 0.72, and AVEs of all constructs were > 0.56. Thus, the model specification met the Fornell-Larcker Criterion (Fornell & Larcker, 1981) for discriminant validity of the included constructs. Further, in accordance with established goodness-of-fit index thresholds (Bagozzi & Yi, 2012; Hu & Bentler, 1995), the estimated model showed excellent model fit (CFI = 0.96, RMSEA = 0.05, SRMR = 0.05).

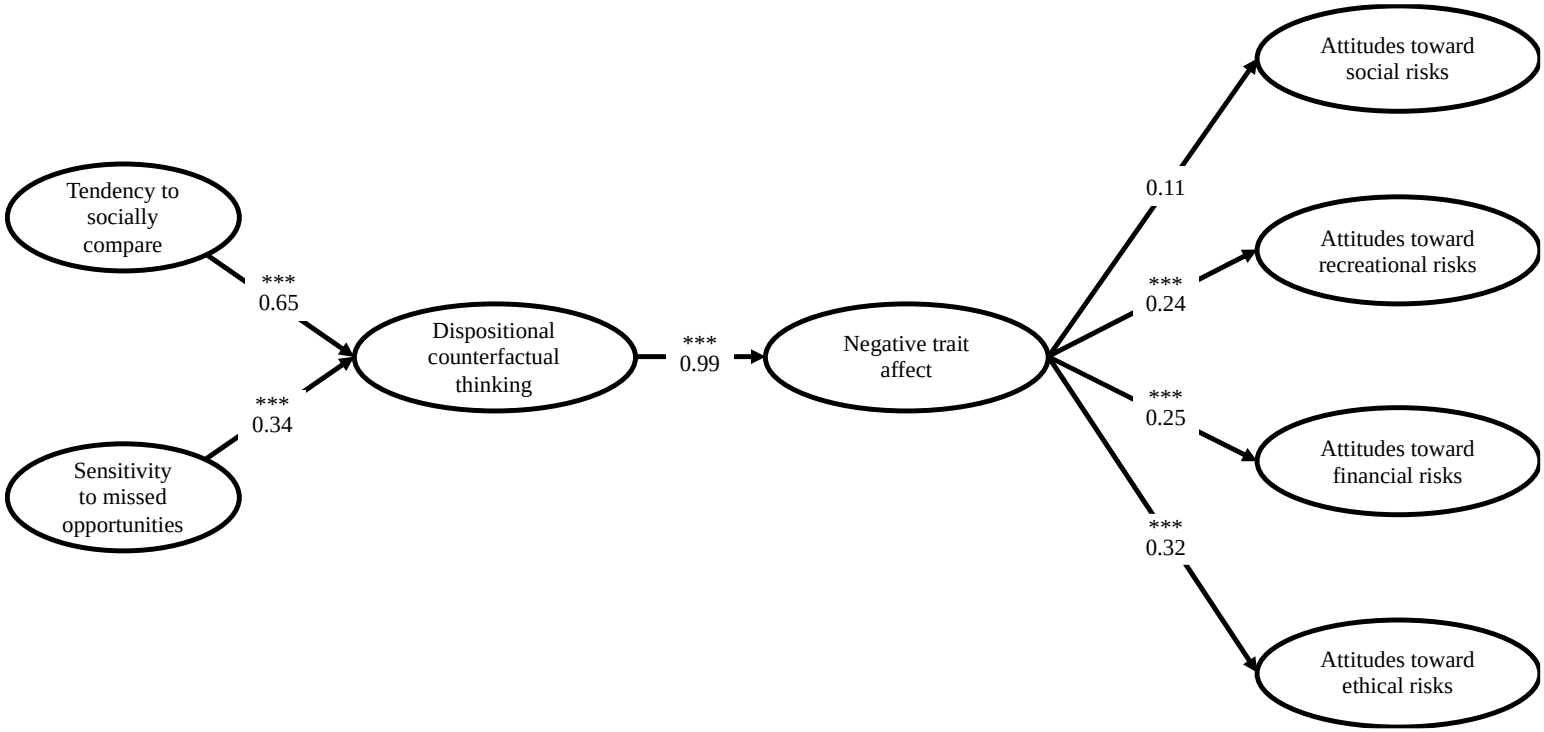
In line with the FOMO process model I found that tendency to socially compare ($\beta = 0.65$, $p < 0.01$) and sensitivity to missed opportunities ($\beta = 0.34$, $p < 0.01$) significantly predicted respondents' dispositional counterfactual thinking, which in turn strongly predicted negative trait affect ($\beta = 0.99$, $p < 0.01$). This provides further evidence of the validity and robustness of the developed measurement scale for proneness to engage in the FOMO process. That is, our scale seems to reflect the FOMO process within personality traits of consumers. Results indicate that within the proposed path model, attitudes toward recreational risks ($\beta = 0.24$, $p < 0.01$), financial risks ($\beta = 0.25$, $p < 0.01$), and ethical risks ($\beta = 0.32$, $p < 0.01$) were directly positively related to negative trait affect.

That is, the more prone participants were to feel jealousy, loneliness, and wanting, the more likely they were to engage in risky behaviors, such as risky financial investments, risky sports activities, and, for example, forgery. This supports prior consumer behavior research which showed negative relationships between perceived risks and consumers' self-esteem (Schaninger, 1976), which is closely related to feelings of jealousy and loneliness (Cacioppo & Hawkley, 2005). Other prior research additionally showed that feeling socially isolated led consumers to pursue riskier but potentially more profitable financial opportunities (Duclos, Wan, & Jiang, 2012).

Further, results of the proposed path model suggest that negative trait affect, which describes the affective outcomes of the FOMO process, did not predict consumers likelihood to engage in social risks. This is in line with my prior hypothesizing and with prior research that showed the FOMO experience is a highly social construct (Lai et al., 2016), which is related to consumers' neural responses to social inclusion; not exclusion. According to these findings (Lai et al., 2016), consumers who are more prone to engage in the FOMO process pay greater attention to positive

internal states of others in order to stay included. That is, when consumers are more prone to engage in the FOMO process, they are more likely to strive for socially inclusive behaviors. They might not be willing to take risks with respect to their social relationships. However, it appears that these consumers are also not more risk averse (which would have been indicated by a negative path). This demonstrates a neutral response of consumers toward socially risky behaviors (e.g. disagreeing on a topic in public). This might be because the two items in the scale predominantly represented reputational risks and not actual inclusivity with social experiences. That is, consumers seem to be neither risk-seeking nor risk-averse with respect to a potential loss of reputation. Further research should examine risk behaviors and perceptions with respect to different social risks in more detail.

Figure 4 Path model of the FOMO process predicting risk-attitudes



Note. '***' $p < 0.01$; all coefficients are standardized and appear on their associated path; standardized factor loadings ($\lambda > 0.69$) and error terms omitted form path diagram for better visualization; construct reliabilities exceeded 0.72 and AVEs of all constructs were > 0.56; model showed excellent model fit: CFI = 0.96, RMSEA = 0.05, SRMR = 0.05

Chapter 6: General Discussion

Theoretical Implications

Although widely used in contemporary advertising and marketing strategy, the Fear of Missing Out, to this point, is only beginning to attract scholarly research attention. Vast differences in conceptualization and operationalization of the construct might have led to mixed findings in prior FOMO literature, such as more favorable brand attitudes, but also threats to customer loyalty (Hayran, Anik, & Gürhan-Canli, 2020b; Kang et al., 2019). These mixed findings are indicative of issues with a general understanding of FOMO as a cognitive and affective experience that could affect consumers' perceptions and decision-making. This dissertation project furthered the theoretical grounding of the FOMO process by developing a conceptual framework and robust measurement tool, which can be used to conceptualize and operationalize the processes that define FOMO across contexts. This provides important theoretical contributions to the fields of social psychology, communication, and marketing.

First, I presented a conceptual framework that unifies prior theorizing and divided the FOMO construct into its underlying subprocesses: social comparison, missed prior opportunities, counterfactual thinking, and negative affect. By conceptually explicating the FOMO process and its four components, I provided scholars and practitioners with a theoretical foundation of the FOMO process, which allows for both cognitive and affective experiences to be captured in a dynamic way to explain outcomes of interest (here: domain-specific risk attitudes) when investigating the FOMO experience across contexts. Thus, I addressed a gap in conceptually understanding a process that describes FOMO.

Second, I provide a scale instrument that can be used in future research and for consumer segmentation to examine FOMO across contexts, such as product and brand-related FOMO or

social FOMO, and within the marketplace. This measurement scale is novel and unique in that it captures consumers' sensitivity to various external (e.g., targets of social comparison) and internal (e.g., learning effects from missed prior opportunities) stimuli that might make them more prone to engage in the FOMO process. This scale was subjected to rigorous scale development best practices as suggested by social psychology, communication, and marketing scholars, and therefore represents a theoretically and methodologically sound measurement tool. I demonstrated content, convergent and discriminant validity, reliability, and temporal stability by showing stability over time and populations, and meaningful correlations with personality traits like affiliation motivation, social anxiety, and behavioral activation/inhibition systems. I also showed that, although highly correlated, the scale demonstrated discriminant validity to a widely used unidimensional FOMO scale (Przybylski et al., 2013). This unidimensional scale focused primarily on a social media context. In this dissertation project, I provided a broad theoretical framework, the FOMO process, and a measurement tool that is context independent.

Third, I provide evidence for the relevance of the FOMO process with respect to important consumer behavior outcomes: risk-attitudes. That is, I show that consumers who are more prone to engage in the FOMO process are more likely to engage in financial, recreational, and ethical risks. That is, consumers who are more affected by prior missed opportunities and socially compare themselves more, are more likely to produce counterfactuals about possible alternative realities, which leads to these consumers exhibiting higher likelihood to experience negative affect and consequently more favorable attitudes toward said risks. However, social risk attitudes are unaffected by this FOMO proneness. This is novel, since this is the research endeavor examining FOMO across risk domains, but also in line with prior research that showed that the FOMO experience is closely related to risky behaviors (Riordan et al., 2019).

Fear of Missing Out and Embodied Cognition. The Limited Capacity Model of Motivated Mediated Message Processing (LC4MP) is a model of information processing, which rests on the assumption that humans are information processors with limited capacity to do so (Lang, 2000). That is, individuals are motivated to process information, which they are exposed to up to the point where their cognitive capacity to process any additional piece of information is reached; then, they have to let go of some previous thought in order to process a new one (Lang, 2000). Processing of information in this sense means perceiving some external stimuli in the world, making sense out of it by encoding it, and storing it to the brain from where it can be retrieved later. Thus, three important simultaneously occurring processes that are proposed by LC4MP are encoding, storage, and retrieval (Lang, 2000).

As I defined earlier, the FOMO experience is a process that is dependent on receiving and interpreting information (Alt, 2015; Hetz, Dawson, & Cullen, 2015); specifically, information about individuals' social environments and possible rewarding experiences. Thus, the FOMO process might draw automatic motivational attention based on social information received. That is, resources might be automatically allocated to a FOMO inducing message or situation. This seems to be in line with activation of the appetitive system, which draws attention to help the individual to capitalize on possible opportunities (Lang et al., 2013), which I also showed by demonstrating the FOMO process's correlations with the behavioral activation system (BAS). However, the simultaneously demonstrated correlations of the FOMO process with the behavioral inhibition system (BIS) are also in line with the quick automatic activation of the aversive system in response to negative stimuli (Cacioppo & Gardner, 1999; Lang et al., 2013). Thus, according to LC4MP, which acknowledges that when opportunities and threats are manifesting simultaneously both systems can be co-activated, individuals will allocate cognitive

resources to these threats and opportunities. Given that FOMO is a highly cognitive experience based on social comparison processes, the accounting of prior information, and the generation of counterfactual thoughts, more cognitive resources might be allocated towards these FOMO inducing stimuli. Therefore, it appears that FOMO appeals and messages, may cause individuals to allocate more cognitive resources to the appeal (Hodkinson, 2016).

With the increasing amount of (social) information individuals are consistently exposed to, it is crucial to understand FOMO also from an LC4MP perspective when designing messages that need to break through user and firm generated content. Understanding how FOMO affects attention and cognitive resource allocation when being exposed to a mixture of social information and persuasive messages might help to capitalize on the experience of FOMO not just for advertising reasons, but also when designing messages that promote healthy behaviors. That is, designing and testing FOMO messages and appeals that help draw attention to urgent matters without causing fatigue, cognitive overload, and consequently hinders message processing seems to be important (Bright & Logan, 2018; Hodkinson, 2016; Yegiyan & Lang, 2010). When the FOMO experience itself already imposes significant cognitive load on individuals who are exposed to a multitude of messages simultaneously, it is important to understand priority effects. That is, what kind of messages that may or may not capitalize on threats and opportunities receive preferred attention allocation when competing against each other.

Cognitive Dissonance Theory. Cognitive Dissonance Theory (CDT, Festinger, 1957) holds that when individuals experience two related but inconsistent cognitions, they will experience severe affective discomfort (dissonance). Individuals are motivated to reduce this dissonance (Festinger, 1957). Cognitions with respect to CDT are all attitudes, believes, goals,

and values an individual might hold toward objects and behaviors. Further, these cognitions need to be a) understood as right and wrong, in that individuals need to be able to make a clear judgement about the valence of these cognitions, and b) targeting the same object or behavior (Gawronski, 2012). Thus, individuals experience dissonance after there is an inconsistency between two related cognitions aiming at the same target. Following experienced dissonance, individuals become motivated to reduce this dissonance, and consequently engage in psychological and behavioral coping strategies that aim to restore cognitive consistency by altering either of the two cognitions in play (Hinojosa et al., 2016). These strategies involve for example, (1) attitude change, changing either for the two cognitions to close the gap between them, (2) distraction and forgetting, since dissonance declines over time while the individual moves on, (3) trivialization, when the individual downplays the impact the dissonant cognition has, (4) denial of responsibility and therefore not acknowledging one's role, and (5) adding cognitions that are in line with the referent cognition, or seeing the bright sight of the choice made (McGrath, 2017).

Based on the FOMO process mode, it appears that FOMO is a particular case of cognitive dissonance. CDT states that individuals hold two opposing cognitions, one dissonant and one consonant with a reference cognition about a specific object or behavior. With respect to the FOMO process, and particularly motivating and paralyzing action, this might mean that individuals experience cognitive dissonance when choosing one event over another (Milyavskaya et al., 2018). That is, although individuals might want to include themselves in a social event with others, they hold the perception that they cannot or should not. For example, when choosing to do a homework assignment over going to a friend's birthday party they might want to go and see their friend (consonant cognition "going to birthday party") but ultimately

stay at home and therefore engage in a counterattitudinal behavior (dissonant cognition "not going to birthday party"). These two cognitions are inconsistent and aimed at the same behavior, which is in line with CDT, and therefore might increase uneasiness, negative affect, anxiety, anticipated regret and similar affective reactions reported in FOMO literature (Browne et al., 2018; Milyavskaya et al., 2018; Przybylski et al., 2013; Wolniewicz et al., 2017).

Therefore, understanding the FOMO process might contribute to CDT by providing insights into possible negative copying strategies, which actually do not decrease dissonance. That is, according to paralyzing action mechanism, FOMO may lead to rumination and generation of more counterfactual thoughts and thus, individuals who experience FOMO as a particular form of cognitive dissonance might not be capable to reduce resulting dissonance and negative affect (Milyavskaya et al., 2018). Interview participants in this dissertation reported to not be able to keep their minds off what they are possibly missing, they report to dwell on the fact that they are absent from specific events, and actually increase experienced dissonance by generating upward-oriented counterfactuals. Therefore, even though individuals might try to reduce the negative affective state of dissonance, is appears that sometimes the FOMO experience is an overwhelming all-consuming feeling that hinders dissonance reduction strategies by creating counterfactuals and making individuals engage in negative social comparison.

Limitations & Future Research Directions

I provide a novel and unique perspective on FOMO as a construct that has gained attention in recent years in a variety of scholarly domains. Although I followed best practices in the scale development process and was led by successful scale validity-testing approaches from past scale development projects, there are limitations to my findings.

First, when validating the proposed scale showing meaningful relationships with consumers' risk perceptions, I used a domain-specific risk-attitudes scale developed in prior research. This scale showed issues pertaining to its general performance within my sample of participants. That is, I was not able to replicate the initially proposed factor structure. Although I tried to remedy these issues by performing EFA and CFA and by generating a more reliable scale, these initial issues might have led to biases in my findings. That is, by utilizing a potentially faulty scale to begin with, I cannot be certain that, for example, convergent validity for these risk-attitudes is still given. My findings are in line with prior research and a priori hypothesizing, and I employed rigorous measures to resolve potential issues with the risk-attitudes scales used (i.e., by showing discriminant validity and a robust factor structure). However, future research should replicate demonstrated findings with respect to risk perceptions using more reliable scales in order to confirm these findings.

Second, attitudes toward specific risky behavior do not constitute actual risky behavior. Prior research found that the attitude-behavior relationship is unstable, because more favorable attitudes do not always lead to consequent behavior (Wicker, 1969). Therefore, although I provide evidence that consumers who are more prone to engage in the FOMO process evaluate specific risky behaviors more favorably, the reported results cannot speak for actual behavior. It is important for future research to conduct experimental studies that test the FOMO process and the proneness scale with respect to actual decision-making and risky behavior. Future research should employ experimental designs using actual, behavioral consumer decisions and manipulate the level of perceived and actual risk of consumers. According to my findings, participants who are more prone to engage in the FOMO process would be more likely to engage in more risky

decisions. This research will help establish a more robust fundament of FOMO within the decision-making literature.

Third, although risk perceptions are important within consumer decision-making, future research should use these findings as a foundation to design and conduct research that contributes to the understanding of FOMO in consumer behavior more broadly. For example, what role do different advertising claims (such as time limited offers) play when using FOMO appeals? What are effects of the FOMO process on brand perceptions and message processing? Is there a meaningful difference between fear appeals and FOMO appeals; if so, what is the nature of this difference, and if not, do FOMO appeals, similar to fear appeals, follow an inverted U-shaped curve in how they affect consumer perceptions and persuasive intents (Rhodes, 2017)?

Managerial Implications

Consumers' Fear of Missing Out has been operationalized in marketing strategy and advertising from early on. Exclusive brands, such as "Supreme" use exclusivity claims and strategies to drive their sales, and by doing so, leverage the FOMO of their consumers. This dissertation research affords several important insights for practitioners. First, by providing a clear and concise conceptual and theoretical understanding of the cognitive and affective processes at play I help marketing and advertising specialists to better understand FOMO. This will consequently help to employ strategies that leverage the FOMO of consumers in a way beneficial to the firm, such as exclusivity claims, time limitations, and generally the introduction of risk in consumer behavior decisions (i.e., not being in the in-group).

By explicating the components of the FOMO process in a detailed and fine-grained fashion, I show that the FOMO experience, in fact, is not a positive one. On the contrary, by showing that the negative affective experience stemming from the FOMO process is dominated

by feelings of loneliness, jealousy, and wanting, I recommend that practitioners exercise caution when using FOMO appeals. As prior research (Rhodes, 2017) showed, appeals that too aggressively engage consumers' fears might backfire. Thus, this current research leads to the insight that because FOMO appeals operate through negative affect, they should be designed and used with caution in order to not cause adverse effects. That is, based on the FOMO process model marketers need to keep in mind that when consumers experience FOMO they become aware of an experience or opportunity that they perceive to be more rewarding as their current situation; specifically when others are involved who are these consumers have a social relationship with (social comparison). They will further be influenced by their own personal experiences in the past, for example, their experiences with similar products, experiences, or brands (missed opportunities). Consumers then construct counterfactual thoughts about how their current situation would change if they would actually act on this experiential discrepancy; they imagine a world in which they, for example, own this product they wanted and that everyone else has. However, realizing they do not actually own the product, but merely realizing that they are worse off by not having it, consumers feel bad and experience negative emotions.

For marketers, what follows is crucial: if a consumer then, after feeling bad, is not able to resolve these negative emotions by addressing the experiential discrepancy which led to these negative feelings in the first place, they might be forced into the third mechanism of the FOMO process: paralyzing action. Reasons for not being able to resolve negative emotions might be include, but are not limited to, financial limitations, group membership, or geographical hindrances. In that, consumers ruminate, overthink, generate more counterfactuals, and feel worse. These negative emotions, which become more severe over time, might become associated with the brand and additionally cause harm to the individual consumer. Thus, inducing FOMO

by using corresponding appeals would have been a bad strategic choice, because it led to adverse effects. However, if a consumer is actually able resolve the initial experiential discrepancy, for example by purchasing the product, the experienced negative affect results in the fourth mechanism of the FOMO process: motivating action. Thus, consumers become motivated to act and FOMO appeals were strategically speaking a good choice.

Last, this research closely connects FOMO to several dimensions of perceived risks. Being able to segment consumers groups based on their potential risk aversion and tolerance and through their proneness to engage in the FOMO process might assist practitioners in creating marketing strategies that are tailored to these sub-groups of customers. This will likely have beneficial effects on the effectiveness of marketing and advertising strategies.

Conclusion

FOMO appeals have commonly been used in commercial contexts to persuade consumers to buy, thus increasing demand, and consequently drive profits. Although there has been research describing consumers' responses to these FOMO appeals, little is known about the FOMO experience itself with respect to its cognitive and affective processes. Prior literature is discordant with respect to the role of FOMO and its theoretical groundings. Here, I conceptually explicate the FOMO experience as a process, which opposes previous conceptualizations of FOMO as a trait or state. Using qualitative and quantitative methods, I develop a methodologically sound measurement scale to assess consumers' proneness to engage in the FOMO process. In this dissertation project I address the following gaps in the literature: (1) I present a conceptual framework that unifies prior theories and differentiates the underlying subprocesses of the FOMO experience. (2) I provide a scale that can be used in future research and consumer segmentation to examine consumers' FOMO across contexts and within the

marketplace. (3) I provide evidence for the relevance of FOMO to marketing research and practice by demonstrating its positive relationship to risk perceptions among consumers. I offer a tool for market researchers to assess the proneness to engage in the FOMO process, which can be used for market segmentation and strategic planning with respect to advertising and communication design and targeting. Reported results indicate that consumers who are likely to engage in the FOMO process are more prone to engage in risky behaviors, such as financial risks, which poses as a novel and important finding. However, I also show that FOMO might be a negative affective experience, based on its negative emotional make-up. I, therefore, show that FOMO appeals should be used with caution.

APPENDIX

Appendix 1: Interview Guide

Hello, my name is Dominik Neumann. I am a doctoral student from the Department of Advertising and Public Relations at Michigan State University, and I am working on a research project about Fear of Missing Out, or FOMO. Today's interview will last approximately 30 minutes, and then you are free to go knowing that you helped me quite a lot with my work.

First of all, I would like you to read and sign a consent form. This consent form will make sure that you have all information you need about your rights as a participant. It is very important to me that you know that you have the right to quit the interview at any time and not to answer any question if you do not want to or if you feel uncomfortable sharing.

However, I want to emphasize that this is supposed to be a safe environment for you and that all discussions from today's sitting are not leaving this room. We will make sure that your personal information will be held confidential. Even though your responses will be audio recorded, we will strip it later from any information that would make you identifiable.

Additionally, I want to emphasize that there are no right or wrong answers here and that your personal opinion is what is important for us to understand. I want to make sure that you feel comfortable sharing and expressing their opinion.

Hand out consent form and turn on audio-recording device after all participant signed the consent form.

Opening

Question 1: What is your name and what you like to do in your free time?

Question 2: What is your current occupation, or in other word, what do you work right now?

Question 3: Tell me more about your family situation: Are you married, dating, or single? Do you have kids or other dependents living with you?

Introduction

Question 1: What does the phrase **"Fear of Missing Out"** or **"FOMO"** mean to you personally? There are no right or wrong answers, it is important to us to understand your personal conception of the phrase.

Key Questions

Question 1: Given your concept of fear of missing out, please talk about some situations in which **you experienced this in terms of a product or brand** you may or may not have bought? Please describe this situation **in as much detail as possible.**

Question 1a: Think back to the **last month**, how often do you think you experienced fear of missing out **related to products or brands** according to your understanding of the term? Please give us your **best guess**.

Question 2: Given your concept of fear of missing out, please talk about some situations in which **you experienced this in terms of a service** you may or may not have acquired? A service in this sense is when someone is doing work for you. Please describe this situation in **as much detail as possible.**

Question 2a: Think back to the **last month**, how often do you think you experienced fear of missing out **related to a service** according to your understanding of the term? Please give us your **best guess**.

Question 3: Given your concept of fear of missing out, please talk about some situations in which you experienced this in terms of an advertisement you may have seen? Please describe this situation **in as much detail as possible.**

Question 3a: Think back to the **last month**, how often do you think you experienced **FOMO related to advertisements** according to your understanding of the term? Please give us your **best guess**.

Question 4: Given your concept of fear of missing out, please talk about some situations in which you experienced this in terms of a financial investment you may or may not have made? Please describe this situation **in as much detail as possible.**

Question 4a: Think back to the **last month**, how often do you think you experienced **FOMO related to financial investments** according to your understanding of the term? Please give us your **best guess**.

Question 5: Given your concept of fear of missing out, please talk about some situations in which **you experienced this in terms of a social get-together or party with friends** you may or may not have attended? Please describe this situation in **as much detail as possible.**

Question 5a: Think back to the **last month**, how often do you think you experienced fear missing out **related to social get-togethers or party with friends** according to your understanding of the term? Please give us your **best guess**.

Question 6: Given your concept of fear of missing out, please talk about some situations in which **you experienced this in terms of a trip or vacation with friends** you may or may not went on? Please describe this situation in **as much detail as possible.**

Question 6a: Think back to the **last month**, how often do you think you experienced fear of missing out **related to** a trip or vacation with friends according to your understanding of the term? Please give us your **best guess**.

Question 7: Given your concept of fear of missing out, please talk about some situations in which **you experienced this in terms of a family-related event** you may or may not have participated in? Please describe this situation in **as much detail as possible.**

> *Question 7a:* Think back to the **last month**, how often do you think you experienced fear of missing out **in terms of family-related events** according to your understanding of the term? Please give us your **best guess**.

Question 8: Given your concept of fear of missing out, please talk about some situations in which **you experienced this in terms of a career opportunity** you may or may not have had? Please describe this situation in **as much detail as possible.**

> *Question 8a:* Think back to the **last month**, how often do you think you experienced fear of missing out **related to** a career opportunity according to your understanding of the term? Please give us your **best guess**.

Question 9: Given your concept of fear of missing out, please talk about some situations in which **you experienced this in terms of a personal life choices** you made? Please describe this situation **in as much detail as possible.**

> *Question 9a:* Think back to the **last month**, how often do you think you experienced fear of missing out **related to** your personal life choices according to your understanding of the term? Please give us your **best guess**.

Question 10: Given your concept of fear of missing out, please talk about some situations in which **you experienced this when not knowing about important breaking news events**? Please describe this situation in **as much detail as possible.**

> *Question 10a:* Think back to the **last month**, how often do you think you experienced fear of missing out **related** not knowing about important breaking news events according to your understanding of the term? Please give us your **best guess**.

Ending

Question 11: After you thought more in detail about the term FOMO and based on **your answers to the last questions**, has your understanding of "**Fear of Missing Out**" or "**FOMO**" changed? Please define the term FOMO for us again. What is your understanding of Fear of Missing Out?

Appendix 2: Codebook

Please read through **every single** text file. Read them all **carefully**. Identify **all statements** in **each file** that describe **each of the following codes**. Please include **all relevant information** for a statement, that is, some statements might be just one sentence, others a full paragraph. Keep statements **concise** but include **all important parts**.

- Some statements might describe more than one code, if that is the case copy the whole statement in all relevant code files (e.g., a case of social comparison and a case of negative affect appears in full in both of the code files)

- Some statements might include the same coding category multiple times, please just copy that statement once into the respective code file (e.g., two cases of social comparison within the same statement only appear once in the code file)

Be sure to include the **context and the name of the participant** for **each statement** in Excel tab for each respective code.

Table 11 Final codebook for qualitative coding

Code name	**Definition**	**Examples**	**Words**
Social comparison	The act of people comparing themselves to others, or their situations to situations of others, or their lives to the lives of others in order to evaluate themselves relative to an individual, group, or society.	"My friends had so much more fun than I did" "I think they were more successful than I was" "I think I am more successful than my friends from high school"	Similar Than Compared to Like As

Table 11 (cont'd)

Code name	Definition	Examples	Words
Counterfactuals	Mental simulation of alternative realities that are based on individuals' mental simulation of outcomes that could have occurred if the they had acted differently in the past. OR mental simulations of possible outcomes when they act a specific way in the future. Interviewee should clearly make up a scenario that is imagined. Interviewee talks about a fictional cause-effect that would happen.	"If I would have gone to that party, I would have had so much fun!" "I will feel so bad if I do not make this investment" "But what, if she was the love of my life?!" "If I don't get this phone I will not have a job in the future"	Would/wouldn't Should/shouldn't Could/couldn't If
Negative affect	Having a bad feeling, experiencing negative emotions or expressing negative feelings; the object of negative affect needs to be the interviewee (e.g., "news are all bad" is not negative affect), interviewee conveys some sort of implicit distress that is reflected in their narrative,	"I was feeling, depressed and just down and sad" "It was very unpleasant; I don't know" "I felt like I was excluded, but I actually had a choice, I decided to not be part of this"	Negative emotion words, such as sad, angry, depressed, lonely, guilty, etc. Feel(ing) Emotions

Table 11 (cont'd)

Code name	Definition	Examples	Words
Positive affect	Having a good feeling, experiencing positive emotions or expressing positive, joyful, happy feelings; the object of positive affect needs to be the interviewee	"I was feeling so good; just delighted" "I was kind of glad, to be honest" "I think it was better; I was feeling happy with it"	Positive emotion words, such as happy, joyful, (feeling) good, etc Feel(ing) Emotions
Social media involvement	Mentioning the effects of involvement or of social media consumption. Social media are Internet-based channels that allow users to interact and self-present with audiences who derive value from user-generated content and interaction with others.	"Oh, social media makes this way worse!" "Honestly, Instagram helps with the feeling. It is like you are still a part" "If it weren't for Snapchat there would not be any FOMO"	Social media platform names, like Twitter Instagram, Snapchat, or Facebook Social media Following Posting
Age	Mentioning the effects of age or differences of the experience based on age	"It gets better the older you get" "We always had FOMO" "It's the same for kids and us"	"Now that I am older" Kids Children Back then When we were younger

Table 11 (cont'd)

Code name	Definition	Examples	Words
No FOMO	Participant states explicitly that there was no FOMO, it is not like FOMO, or they don't think FOMO is relevant to the question at hand.	"I think FOMO might not be relevant here" "I do not think this (FOMO) is the same" "No there is no FOMO here"	No FOMO!!!
Social exclusion	Being or feelings actively excluded, ostracized, or rejected by others;	"I just felt, you know, left behind" "All of my friends did these fun things, but I was not invited" "I was just not a part of it, as if they didn't want me there" "I felt like I was excluded, but I actually had a choice, I decided to not be part of this"	Not invited Excluded Ostracized Alone Lonely

Table 11 (cont'd)

Code name	Definition	Examples	Words
Social avoidance	Avoiding being with, talking to, or escaping from other people or social events for any reason, such as work, personal preferences, feeling uncomfortable, other obligations and caring for someone else.	"I didn't feel like going, because I didn't want to" "I might could have done this, but I decided to not to go" "I felt like I was excluded, but I actually had a choice, I decided to not be part of this"	Decided not to join Did not want to
Decision-making	Process resulting in the selection of a belief or a course of action among several alternative possibilities. Decision-making is the process of identifying and choosing alternatives based on the values, preferences and beliefs of the decision-maker	"I felt like I was excluded, but I actually had a choice, I decided to not be part of this" "It's like having multiple options and when you do one, you cannot do the other"	Options Alternatives Choice Decided

Table 11 (cont'd)

Code name	Definition	Examples	Words
Relational proximity	Participant compares the FOMO experience across different friend groups that are more close or distant to them. Participant says something about closeness of relationship with the people involved.	"This is different because they are closer friends to me" "I don't care too much about celebrities, but I do care about my friends" "It's tougher when you know them better:	Relationship Friends Peers Group Best friends Family
Coping	Action or thought process that results of or caused by the feeling of FOMO and that dictates how the individual behaved or felt as a consequence of FOMO. Coping can be positive (healthy) or negative (unhealthy and pathological)	"I felt super depressed and kept on scrolling through my phone" "I could not get it out of my mind" "Afterall, I think it wasn't too bad not to be there; it was probably not fun anyway" "I just reached out to my friends and tried to see them another time"	

Appendix 3: Distribution of Codes Across Contexts

Figure 5 Distributions of Counts of Social Get-together Codes

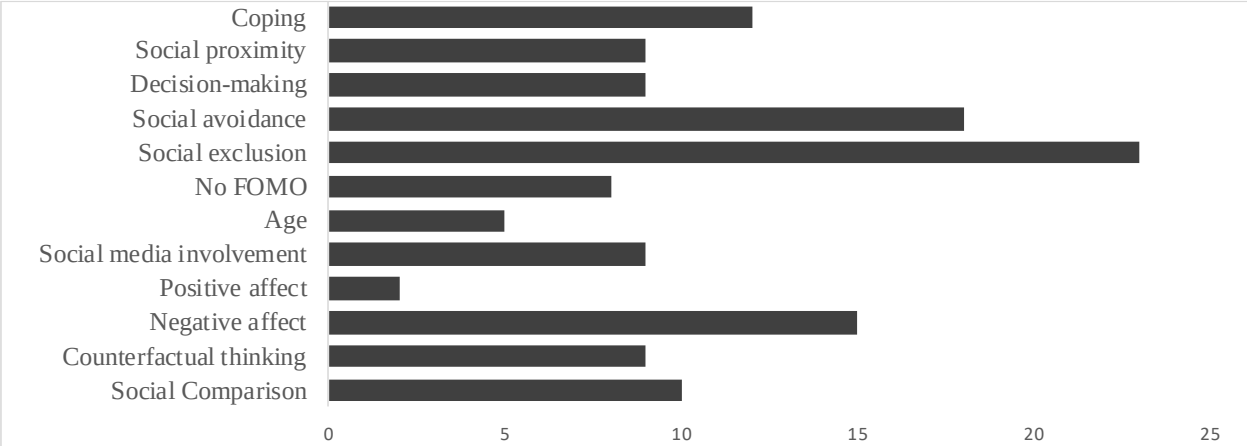


Figure 6 Distributions of Counts of Vacations with Friends Codes

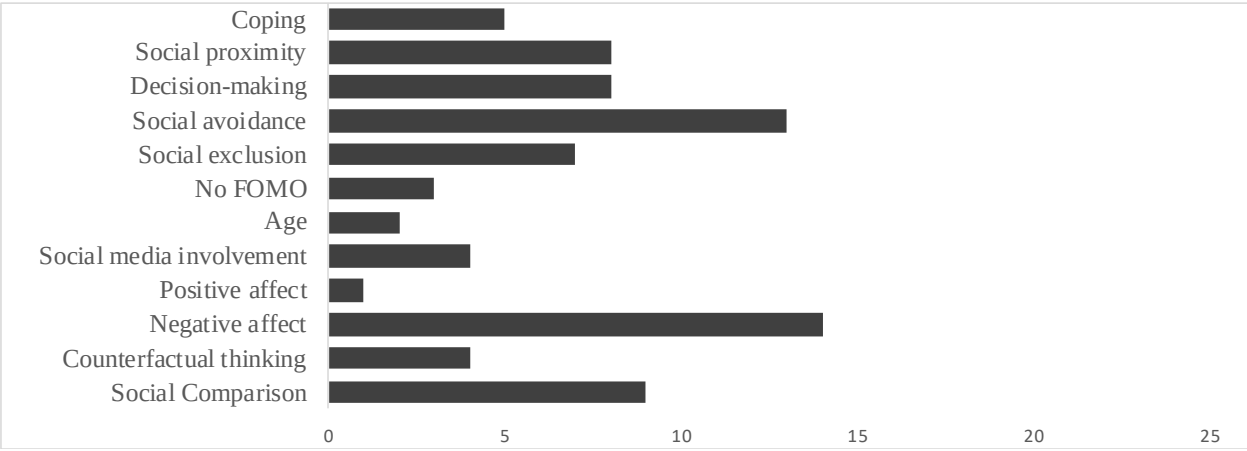


Figure 7 Distributions of Counts of Family Events Codes

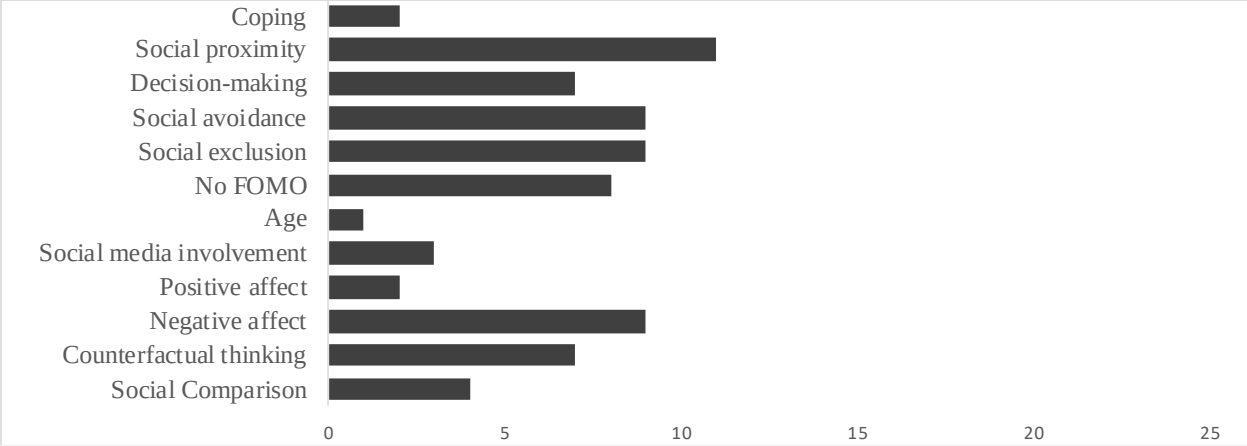


Figure 8 Distributions of Counts of Personal Life Choices Codes

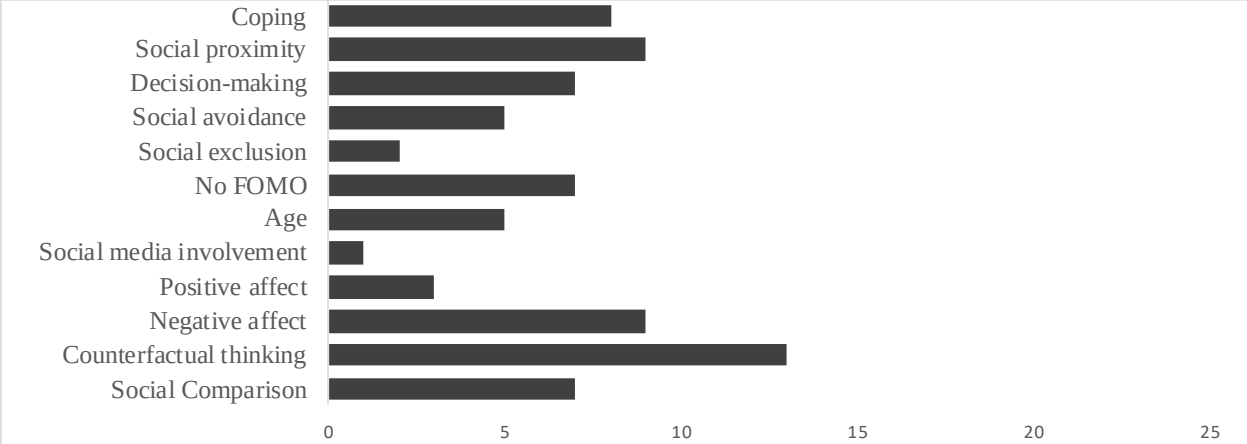


Figure 9 Distributions of Counts of Career Opportunities Codes

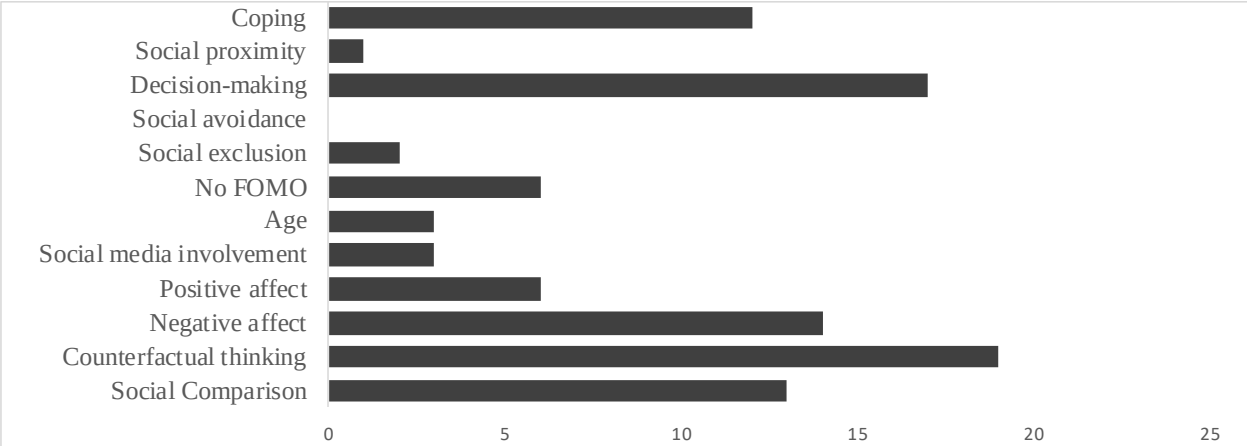


Figure 10 Distributions of Counts of Advertising Codes

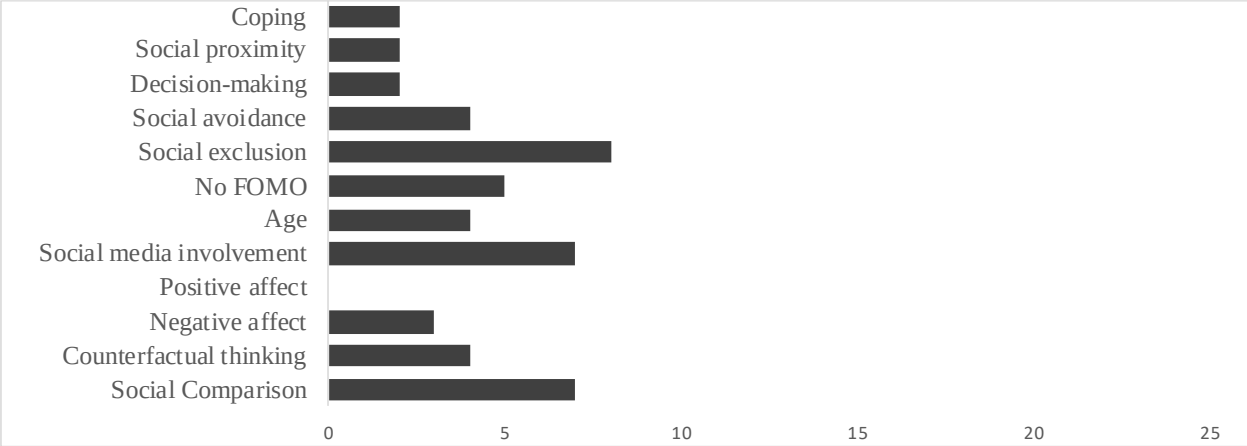


Figure 11 Distributions of Counts of Products and Brands Codes

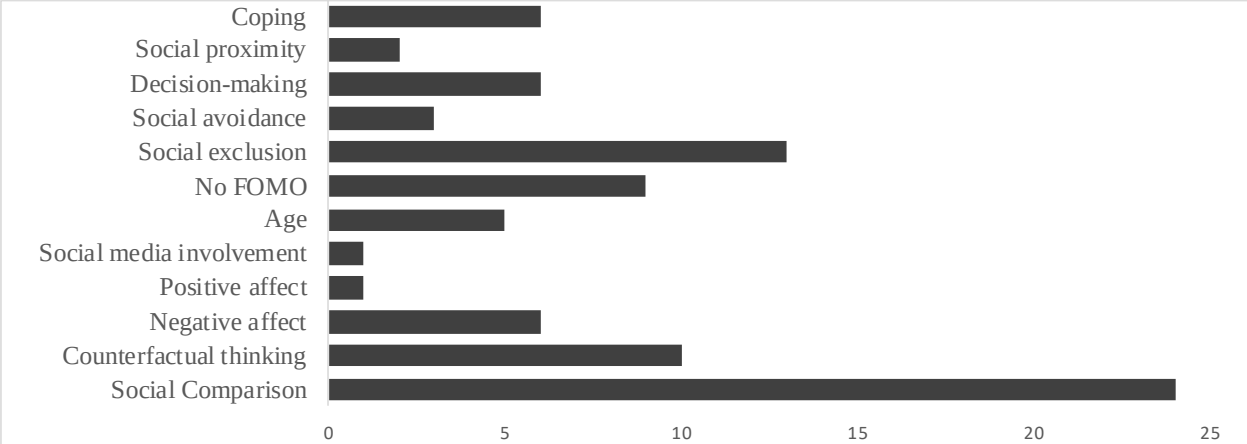


Figure 12 Distributions of Counts of Services Codes

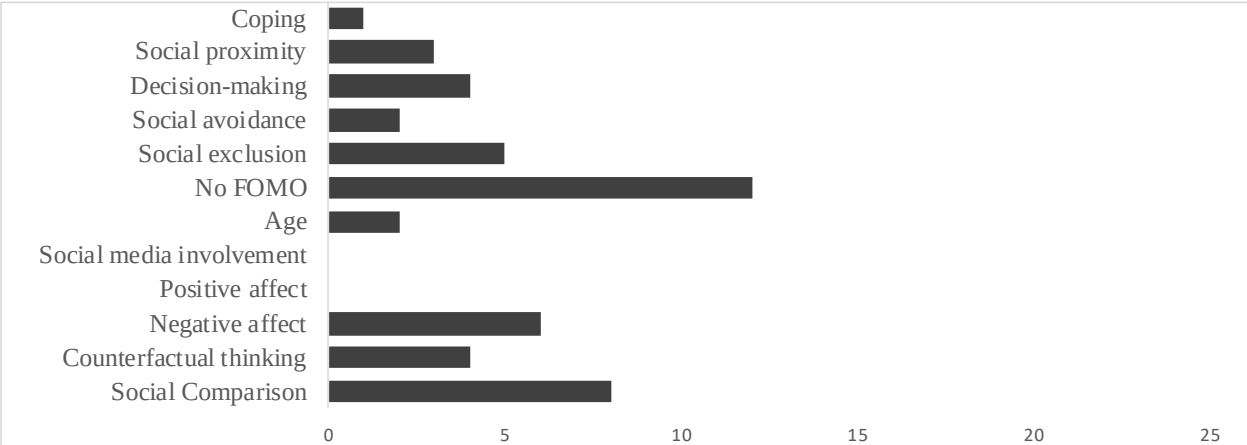


Figure 13 Distributions of Counts of Financial Investments Codes

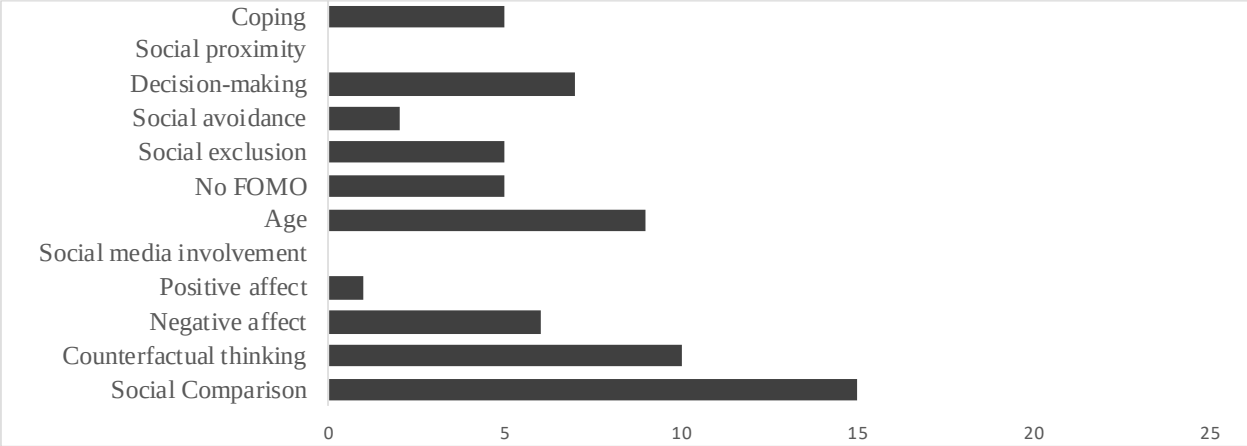
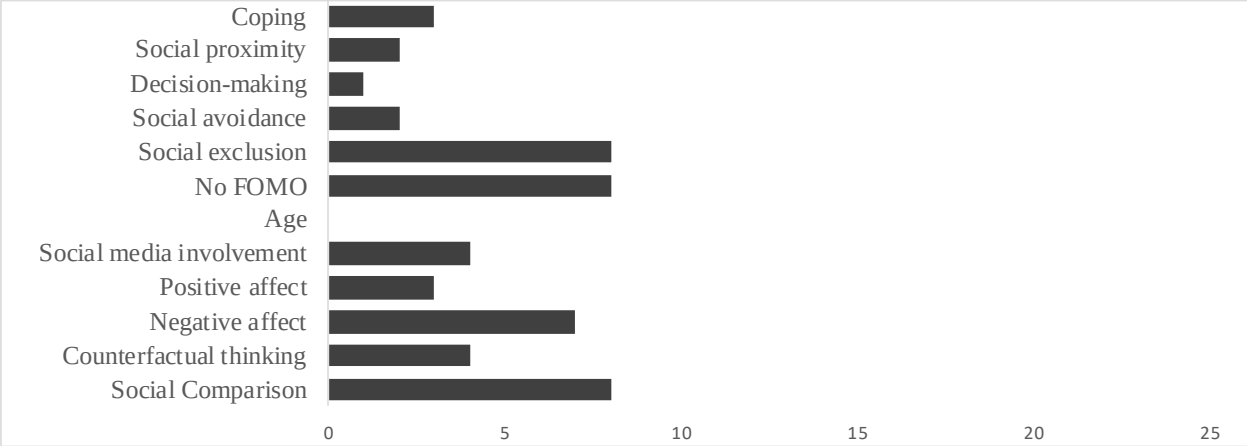


Figure 14 Distributions of Counts of Breaking News Events Codes



Appendix 4: Survey – Exploratory analysis (Sample 1)

Quality

We care about the quality of our data. In order for us to get the most accurate measures of your knowledge and opinions, it is important that you thoughtfully provide your best answers to each question in this survey. Do you commit to thoughtfully provide your best answers to each question in this survey?

- I will provide my best answers
- I will not provide my best answers
- I can't promise either way

Consent

The purpose of the study is to understand human social and risk-taking behavior. You will be asked to answer questions about yourself, and your everyday emotions and experiences. Then we would like to know more about how you perceive specific risks. Your participation is voluntary. You can withdraw at any time. You must be 18 or older to participate. If you have any questions please contact Dr Nancy Rhodes, at rhodesn3@msu.edu in the Department of Advertising and Public Relations at Michigan State University, East Lansing, MI.

- Yes, by selecting this option I hereby give my voluntary consent to participate in this study
- I do not wish to participate in this study

Thank you

Thank you for your willingness to participate in this study. In the following pages, we will ask you some questions about your prior everyday experiences and feelings. Please be assured that your responses are kept completely confidential. No identifying information will be collected about you in this study, and there will be no way to connect your responses back to you.

Therefore, please be as honest as possible.

Social desirability scale

Listed below are a number of statements concerning personal attitudes and characteristics. Please, read each item and decide whether the statement is true or false for you personally ("True" versus "False")

- I'm always willing to admit it when I make a mistake.
- I always try to practice what I preach.
- I never resent being asked to return a favor.
- I have never been irked when people expressed ideas very different from my own.
- I have never deliberately said something that hurt someone's feelings.
- I like to gossip at times.
- There have been occasions when I took advantage of someone.

- I sometimes try to get even rather than forgive and forget.
- At times I have really insisted on having things my own way.
- There have been occasions when I felt like smashing things.
- I never hesitate to go out of my way to help someone in trouble.
- I have never intensely disliked someone.
- When I don't know something, I don't at all mind admitting it.
- I am always courteous, even to people who are disagreeable.
- I would never think of letting someone else be punished for my wrong doings.
- I sometimes feel resentful when I don't get my way.
- There have been times when I felt like rebelling against people in authority even though I knew they were right.
- I can remember "playing sick" to get out of something.
- There have been times when I was quite jealous of the good fortune of others.
- I am sometimes irritated by people who ask favors of me.

Proneness to engage in the FOMO process scale

Below is a collection of statements and emotional states about your everyday experience. Using the scale provided please indicate how often you experience each of the following statements or emotional states. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Never" to 5 = "Very often").

- You see others doing something and ask yourself why you are not doing that.
- You think you are not being present for something exciting.
- You are unsure about missing something potentially exciting.
- You think you missed your "one opportunity.
- You think an opportunity not taken could derail your life.
- You think you will get pushed away for possibly being absent from something.
- You think "What would have happened had I been there?"
- You think you are doing something inferior to a possible alternative.
- You compare your current situation to an alternative situation and think you are worse off.
- You think something cool might happen in your absence, and you are afraid you won't be able to talk about it.
- You go back and think about what you could have had.
- You think about who you could have been with.
- You go back and reevaluate the choices you made.
- You think about potential failure in what you are doing.
- You think you miss a good time after deciding not to be a part of something.
- You observe something that you wish to be a part of.
- You wish you would have attended an event, but you did not.
- You wish you could have been with your friends when they were having fun.
- You think there might be negative effects on your social relationships when you are not part of a shared activity.

- You think you are missing out on something that could have happened if you would have made a different decision in the past.
- You think you are missing out on all of the fun things you could have been doing.
- You are afraid of not building friendships with some people when you are not joining them in social events.
- You are worried that some opportunities will not be available for you later.
- You wonder, if you maybe have missed the opportunity to be with your soul mate.
- You wonder, if you are missing the chance to meet someone who is a better match for you.
- You wonder how your life could have been different, if some circumstances would have been different.
- You think about “the one that got away”.
- You wish you would be with all of your friends, even though you are doing something enjoyable.
- You are susceptible to advertisements that emphasize how your life could be better.
- You tell yourself something you were not a part of could have been an enriching experience for you, if you would have been part of it.
- The thought of a potentially positive experience makes you change your mind about your plans.
- You think of all the things you wish you would have done differently.
- You worry that friends will not invite you in the future.
- You think you are missing something much more enjoyable than the situation you are in.
- You are worrying about "what could have been.”
- You have the thought that “the grass is always greener on the other side of the fence”.
- You compare your activities with activities you see others doing.
- You think others have more positive experiences than you.
- You think your friends have more fun than you.
- You see others doing something that you want to do.
- You feel stuck when seeing friends going out together.
- You think you are missing out on fun activities because you are not part of the in-group.
- You think people in an in-group are happier than you.
- You think people in an in-group have more friends than you.
- You think you are less knowledgeable than people in the in-group.
- You are afraid you will not be able to talk about events you have not been invited to.
- You think others have more positive experiences than you.
- You think your friends have more positive experiences than you.
- You think “I want to be doing that” when observing other peoples’ lives.
- You just want be a part of something because everyone else is a part of it.
- You feel excluded from conversations because others had common experiences you were absent from.
- You think you are missing out on bonding with friends by not owning the same things they do.
- You are irritated when others have shared experiences without you.
- You want to connect with people who are connecting with others instead.

- You compare how much fun you have and how much fun others are having together.
- You feel not to be a part of something when others show you what they experience.
- You do not want to miss out on things others are doing, even you are not really interested in it.
- You regret not buying time limited products, because you are afraid your friends will.
- You think your friends like each other better than they like you, because you are not spending time with them.
- You see someone else's life and think that could be your life.
- You want to understand your friends' inside jokes.
- You want to be "cool."
- You think you are not able to do an activity that other people you care about are doing.
- You think you should get something just because others have it.
- You feel like you are behind everybody else because you are uninformed.
- You want to have the same fun other people are having.
- You think other people live a more modern life.
- You feel not included with your friends because your life circumstances are different.
- You think other people are doing really cool things.
- When everyone is doing something, you do not want to be the one who is not.
- You think you do not want to be the only person who does not know about something.
- You are trying to fill a void in your life.
- You want to have access to opportunities others are having.
- Jealousy.
- Feeling bad.
- Wanting something.
- Isolation.
- Loneliness.
- Uncertainty.

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally feel this way, that is, how you feel on the average). Use the following scale to record your answers. (1 = "Very slightly or not at all" to 7 = "Extremely")

- Interested
- Excited
- Strong
- Enthusiastic
- Proud
- Inspired
- Determined
- Attentive
- Active
- Afraid

- Distressed
- Upset
- Guilty
- Scared
- Hostile
- Irritable
- Ashamed
- Nervous
- Jittery

Social comparison orientation

Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly 'good' or 'bad' about this type of comparison, and some people do it more than others. We would like to find out how often you compare yourself with other people. To do that we would like to ask you to indicate how much you agree with each statement below, by using the following scale (1 = “Strongly disagree” to 5 = “Strongly agree”).

- I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing
- I always pay a lot of attention to how I do things compared with how others do things
- If I want to find out how well I have done something, I compare what I have done with how others have done
- I often compare how I am doing socially (e.g., social skills, popularity) with other people
- I am not the type of person who compares often with others
- I often compare myself with others with respect to what I have accomplished in life
- I often like to talk with others about mutual opinions and experiences
- I often try to find out what others think who face similar problems as I face
- I always like to know what others in a similar situation would do
- If I want to learn more about something, I try to find out what others think about it
- I never consider my situation in life relative to that of other people

Attention check

It is very important to us that you are paying attention to our survey and read all questions carefully. Please answer the following question with "Somewhat agree" (1 = “Strongly disagree” to 7 = “Strongly agree)

Counterfactual thinking for negative events

Please think of an event that occurred somewhat recently that had a negative impact on you. Take a few moments to vividly recall that experience and what it was like for you. Now, think about the types of thoughts you experienced following that undesirable event. Using the following scale, rate the frequency with which you experienced the thoughts described below (1 = “Never” to 5 = “Very often”).

- I think about how much worse things could have been.
- If only another person (or other people) had not been so selfish, this whole mess could have been avoided.
- I think about how much better things would have been if I had acted differently.
- I feel sad when I think about how much better things could have been.
- I feel relieved when I think about how much worse things could have been.
- If another person (or other people) had not been so inconsiderate, things would have been better.
- I wish I had a time machine so I could just take back something I said or did.
- I think about how much better things could have been.
- I count my blessings when I think about how much worse things could have been.
- If only another person (or other people) would have acted differently, this situation would have never happened.
- If only I had listened to my friends and/or family, things would have turned out better.
- I cannot stop thinking about how I wish things would have turned out.
- Although what happened was negative, it clearly could have been a lot worse.
- If only another person (or other people) had spoken up at the time, the situation would have turned out better.
- I think about how much better things could have been if I had not failed to take action.
- Although the bad situation was nobody's fault, I think about how things could have turned out better.

FOMO Przybylski et al. (2013)

Below is a collection of statements about your everyday experience. Using the scale provided please indicate how true each statement is for you. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Not true at all for me" to 5 = "Extremely true for me")

- I fear others have more rewarding experiences than me
- I fear my friends have more rewarding experiences than me
- I get worried when I find out my friends are having fun without me
- I get anxious when I don't know what my friends are up to
- It is important that I understand my friends "inside jokes"
- Sometimes, I wonder if I spend too much time keeping up with what is going on
- It bothers me when I miss an opportunity to meet up with friends
- When I have a good time, it is important for me to share the details online
- When I miss out on a planned get-together it bothers me
- When I go on vacation, I continue to keep tabs on what my friends

FOMO Abel, Buff and Burr (2016)

Please indicate how often you feel the following about yourself (1 = "Never" to 7 = "Always")

- I take a positive attitude toward myself
- On the whole, I am satisfied with myself

- I feel I have a number of good qualities
- All in all, I am inclined to feel that I am a failure
- I feel I do not have much to be proud of
- I feel uncomfortable meeting new people
- I am troubled by shyness
- When in a group of people, I have trouble thinking of the right things to talk about
- I feel frightened
- I feel nervous

Thank you

Thank you for hanging in there! Just a few more questions, and you will be done.

Demographics

What gender do you most identify with?
- Male
- Female
- None of the above
- Prefer not to say

What is your age in years (e.g. 21)?
_____

Do you consider yourself to be:
- Heterosexual or straight
- Homosexual
- Bisexual
- None of the above
- Prefer not to say

Please, choose one race that you identify with the most:
- White or Caucasian
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Hispanic, Spanish, or Latino
- Mixed
- Prefer not to say
- Other _____

What is your ethnicity? One or more categories may be selected. Mark all that apply.
- Mexican, Mexican American, Chicano/a
- Puerto Rican

- Cuba
- Another Hispanic, Latino/a, or Spanish origin
- None of the above

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Doctoral degree
- Professional degree (JD, MD)

Information about income is very important. Would you please give your best guess? Please indicate the answer that includes your entire family's household income before taxes (previous year).

- Less than $10,000
- $10,000 to $49,999
- $50,000 to $99,999
- $100,000 to $149,999
- $150,000 or more

Appendix 5: Survey – Confirmatory analysis (Sample 2)

Social media

On which of the following social media platforms do you have an active account? Please check all that apply, (Only participants who at least used Instagram users were retained):

- Facebook
- Instagram
- Twitter
- Snapchat
- Pinterest
- Tumblr
- LinkedIn
- Other: _____

Quality

We care about the quality of our data. In order for us to get the most accurate measures of your knowledge and opinions, it is important that you thoughtfully provide your best answers to each question in this survey. Do you commit to thoughtfully provide your best answers to each question in this survey?

- I will provide my best answers.
- I will not provide my best answers.
- I can't promise either way.

Consent

You are being asked to participate in a research study. The purpose of the study is to examine your perceptions of various products in online shops. You will evaluate pictures that will be shown to you. Your participation is voluntary. You can skip any question you do not wish to answer or withdraw at any time. You must be 18 or older to participate. If you have any questions please contact Dr. Patricia Huddleston, at huddles2@msu.edu. You indicate that you voluntarily agree to participate in this research study by submitting the survey. THERE WILL BE SEVERAL ATTENTION CHECKS. YOU WILL NOT RECEIVE SONA CREDITS IF YOU FAIL TO ANSWER THESE CORRECTLY.

- Yes, by selecting this option I hereby give my voluntary consent to participate in this study.
- I do not wish to participate in this study.

FOMO Przybylski et al. (2013)

Below is a collection of statements about your everyday experience. Using the scale provided please indicate how true each statement is for you. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Not true at all for me" to 5 = "Extremely true for me")

- I fear others have more rewarding experiences than me
- I fear my friends have more rewarding experiences than me
- I get worried when I find out my friends are having fun without me
- I get anxious when I don't know what my friends are up to
- It is important that I understand my friends "inside jokes"
- Sometimes, I wonder if I spend too much time keeping up with what is going on
- It bothers me when I miss an opportunity to meet up with friends
- When I have a good time, it is important for me to share the details online
- When I miss out on a planned get-together it bothers me
- When I go on vacation, I continue to keep tabs on what my friends

Social media engagement

Please indicate which of the two oppositional adjectives better describes your average Instagram usage (6-point semantic differential)
Consumer – Contributor
Reader – Writer
Observer – Content creator
Passive – Active
Taker – Giver
Lurker – Poster

Proneness to engage in the FOMO process scale

Below is a collection of statements and emotional states about your everyday experience. Using the scale provided please indicate how often you experience each of the following statements or emotional states. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Never" to 5 = "Very often").

- You think an opportunity not taken could derail your life.
- You compare your current situation to an alternative situation and think you are worse off.
- You think you are missing out on all of those fun things you could have been doing.
- You think of all the things you wish you would have done differently.
- You think your friends have more fun than you.
- You think your friends have more positive experiences than you.
- You feel like you are behind everybody else because you are lacking information.
- You feel not included with your friends because your life circumstances are different.

- You go back and think about what you could have had.
- You are worried that some opportunities will not be available for you later.
- You wonder if you maybe have missed the opportunity to be with your soul mate.
- You wonder how your life could have been different if some circumstances would have been different.
- You feel jealous.
- You feel like you want something.
- You feel isolated.
- You feel lonely.

[Further variables collected not relevant to the current work]

Demographics

What gender do you most identify with?

- Male
- Female
- None of the above
- Prefer not to say

What is your age in years (e.g. 21)?

_____

How far along are you in your college education:

- Freshman
- Sophomore
- Junior
- Senior

Do you consider yourself to be:

- Heterosexual or straight
- Homosexual
- Bisexual
- None of the above
- Prefer not to say

Please, choose one race that you mainly identify with the most:

- White or Caucasian
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Hispanic, Spanish, or Latino
- Mixed
- Prefer not to say
- Other _____

Information about income is very important. Would you please give your best guess? Please indicate the answer that includes your entire family's household income before taxes (previous year).

- Less than $10,000
- $10,000 to $49,999
- $50,000 to $99,999
- $100,000 to $149,999
- $150,000 or more

Appendix 6: Survey – Confirmatory analysis (Sample 3)

Quality

We care about the quality of our data. In order for us to get the most accurate measures of your knowledge and opinions, it is important that you thoughtfully provide your best answers to each question in this survey. Do you commit to thoughtfully provide your best answers to each question in this survey?

- I will provide my best answers
- I will not provide my best answers
- I can't promise either way

Consent

The purpose of the study is to understand human social and risk-taking behavior. You will be asked to answer questions about yourself, and your everyday emotions and experiences. Then we would like to know more about how you perceive specific risks. Your participation is voluntary. You can withdraw at any time. You must be 18 or older to participate. If you have any questions please contact Dr Nancy Rhodes, at rhodesn3@msu.edu in the Department of Advertising and Public Relations at Michigan State University, East Lansing, MI.

- Yes, by selecting this option I hereby give my voluntary consent to participate in this study
- I do not wish to participate in this study

Thank you

Thank you for your willingness to participate in this study. In the following pages, we will ask you some questions about your prior everyday experiences and feelings. Please be assured that your responses are kept completely confidential. No identifying information will be collected about you in this study, and there will be no way to connect your responses back to you.

Therefore, please be as honest as possible.

Proneness to engage in the FOMO process scale

Below is a collection of statements and emotional states about your everyday experience. Using the scale provided please indicate how often you experience each of the following statements or emotional states. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Never" to 5 = "Very often").

- You think an opportunity not taken could derail your life.
- You compare your current situation to an alternative situation and think you are worse off.
- You think you are missing out on all of those fun things you could have been doing.
- You think of all the things you wish you would have done differently.
- You think your friends have more fun than you.

- You think your friends have more positive experiences than you.
- You feel like you are behind everybody else because you are lacking information.
- You feel not included with your friends because your life circumstances are different.
- You go back and think about what you could have had.
- You are worried that some opportunities will not be available for you later.
- You wonder if you maybe have missed the opportunity to be with your soul mate.
- You wonder how your life could have been different if some circumstances would have been different.
- You feel jealous.
- You feel like you want something.
- You feel isolated.
- You feel lonely.

Affiliation motivation

Below is a collection of statements about your everyday experience. Using the scale provided please indicate how true each statement is of your general experiences. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Not at all true" to 5 = "Completely true").

- If I feel unhappy or kind of depressed, I usually try to be around other people to make me feel better.
- I usually have the greatest need to have other people around me when I feel upset about something.
- One of my greatest sources of comfort when things get rough is being with other people.
- When I have not done very well on something that is very important to me, I can get to feeling better simply by being around other people.
- During times when I have to go through something painful, I usually and that having someone with me makes it less painful.
- It seems like whenever something bad or disturbing happens to me I often just want to be with a close, reliable friend.
- I often have a strong need to be around people who are impressed with what I am like and what I do.
- I mainly like to be around others who think I am an important, exciting person.
- I often have a strong desire to get people I am around to notice me and appreciate what I am like
- I mainly like people who seem strongly drawn to me and who seem infatuated with me
- I like to be around people when I can be the center of attention.
- I don't like being with people who may give me less than positive feedback about myself.
- I think being close to others, listening to them, and relating to them on a one-to-one level is one of my favorite and most satisfying pastimes.
- Just being around others and finding out about them is one of the most interesting things I can think of doing.
- I feel like I have really accomplished something valuable when l am able to get close to someone.

- One of the most enjoyable things I can think of that I like to do is just watching people and seeing what they are like.
- I would find it very satisfying to be able to form new friendships with whomever I liked.
- I seem to get satisfaction from being with others more than a lot of other people do.
- I think it would be satisfying if I could have very close friendships with quite a few people.
- The main thing I like about being around other people is the warm glow I get from contact with them.
- I think I get satisfaction out of contact with others more than most people realize.
- When I am not certain about how well I am doing at something, I usually like to be around others so I can compare myself to them.
- I find that I often look to certain other people to see how I compare to others.
- If I am uncertain about what is expected of me, such as on a task or in a social situation, I usually like to be able to look to certain others for cues.
- I prefer to participate in activities alongside other people rather than by myself because I like to see how I am doing on the activity.
- I find that I often have the desire to be around other people who are experiencing the same thing I am when I am unsure of what is going on.

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally feel this way, that is, how you feel on the average). Use the following scale to record your answers. (1 = "Very slightly or not at all" to 7 = "Extremely")

- Interested
- Excited
- Strong
- Enthusiastic
- Proud
- Inspired
- Determined
- Attentive
- Active
- Afraid
- Distressed
- Upset
- Guilty
- Scared
- Hostile
- Irritable
- Ashamed
- Nervous
- Jittery

Social comparison orientation

Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly 'good' or 'bad' about this type of comparison, and some people do it more than others. We would like to find out how often you compare yourself with other people. To do that we would like to ask you to indicate how much you agree with each statement below, by using the following scale (1 = “Strongly disagree” to 5 = “Strongly agree”).

- I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing
- I always pay a lot of attention to how I do things compared with how others do things
- If I want to find out how well I have done something, I compare what I have done with how others have done
- I often compare how I am doing socially (e.g., social skills, popularity) with other people
- I am not the type of person who compares often with others
- I often compare myself with others with respect to what I have accomplished in life
- I often like to talk with others about mutual opinions and experiences
- I often try to find out what others think who face similar problems as I face
- I always like to know what others in a similar situation would do
- If I want to learn more about something, I try to find out what others think about it
- I never consider my situation in life relative to that of other people

Attention check

It is very important to us that you are paying attention to our survey and read all questions carefully. Please answer the following question with "Somewhat agree" (1 = “Strongly disagree” to 7 = “Strongly agree)

Counterfactual thinking for negative events

Please think of an event that occurred somewhat recently that had a negative impact on you. Take a few moments to vividly recall that experience and what it was like for you. Now, think about the types of thoughts you experienced following that undesirable event. Using the following scale, rate the frequency with which you experienced the thoughts described below (1 = “Never” to 5 = “Very often”).

- I think about how much worse things could have been.
- If only another person (or other people) had not been so selfish, this whole mess could have been avoided.
- I think about how much better things would have been if I had acted differently.
- I feel sad when I think about how much better things could have been.
- I feel relieved when I think about how much worse things could have been.
- If another person (or other people) had not been so inconsiderate, things would have been better.
- I wish I had a time machine so I could just take back something I said or did.
- I think about how much better things could have been.

- I count my blessings when I think about how much worse things could have been.
- If only another person (or other people) would have acted differently, this situation would have never happened.
- If only I had listened to my friends and/or family, things would have turned out better.
- I cannot stop thinking about how I wish things would have turned out.
- Although what happened was negative, it clearly could have been a lot worse.
- If only another person (or other people) had spoken up at the time, the situation would have turned out better.
- I think about how much better things could have been if I had not failed to take action.
- Although the bad situation was nobody's fault, I think about how things could have turned out better.

FOMO Przybylski et al. (2013)

Below is a collection of statements about your everyday experience. Using the scale provided please indicate how true each statement is for you. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Not true at all for me" to 5 = "Extremely true for me")

- I fear others have more rewarding experiences than me
- I fear my friends have more rewarding experiences than me
- I get worried when I find out my friends are having fun without me
- I get anxious when I don't know what my friends are up to
- It is important that I understand my friends "inside jokes"
- Sometimes, I wonder if I spend too much time keeping up with what is going on
- It bothers me when I miss an opportunity to meet up with friends
- When I have a good time, it is important for me to share the details online
- When I miss out on a planned get-together it bothers me
- When I go on vacation, I continue to keep tabs on what my friends

FOMO Abel, Buff and Burr (2016)

Please indicate how often you feel the following about yourself (1 = "Never" to 7 = "Always")

- I take a positive attitude toward myself
- On the whole, I am satisfied with myself
- I feel I have a number of good qualities
- All in all, I am inclined to feel that I am a failure
- I feel I do not have much to be proud of
- I feel uncomfortable meeting new people
- I am troubled by shyness
- When in a group of people, I have trouble thinking of the right things to talk about
- I feel frightened
- I feel nervous

Domain-specific risk attitudes

For each of the following statements, please indicate the likelihood of engaging in each activity. Provide a rating from 1 to 5, using the following scale (1 = "Extremely likely" to 5 = "Extremely unlikely")

- Admitting that your tastes are different from those of your friends
- Disagreeing with your father on a major issue.
- Arguing with a friend about an issue on which he or she has a very different opinion.
- Approaching your boss to ask for a raise.
- Telling a friend if his or her significant other has made a pass at you.
- Wearing provocative or unconventional clothes on occasion.
- Taking a job that you enjoy over one that is prestigious but less enjoyable.
- Defending an unpopular issue that you believe in at a social occasion.
- Going camping in the wilderness, beyond the civilization of a campground.
- Chasing a tornado or hurricane by car to take dramatic photos.
- Going on a vacation in a third-world country without prearranged travel and hotel accommodations.
- Going down a ski run that is beyond your ability or closed.
- Going whitewater rafting during rapid water flows in the spring.
- Periodically engaging in a dangerous sport (e.g. mountain climbing or sky diving).
- Trying out bungee jumping at least once.
- Piloting your own small plane, if you could.
- Betting a day's income at the horse races.
- Betting a day's income at a high-stake poker game.
- Betting a day's income on the outcome of a sporting event (e.g. baseball, soccer, or football).
- Gambling a week's income at a casino.
- Buying an illegal drug for your own use.
- Consuming five or more servings of alcohol in a single evening.
- Engaging in unprotected sex.
- Exposing yourself to the sun without using sunscreen.
- Regularly eating high cholesterol foods.
- Not wearing a seatbelt when being a passenger in the front seat.
- Not wearing a helmet when riding a motorcycle.
- Walking home alone at night in a somewhat unsafe area of town.
- Cheating on an exam.
- Cheating by a significant amount on your income tax return.
- Having an affair with a married man or woman.
- Forging somebody's signature.
- Passing off somebody else's work as your own.
- Illegally copying a piece of software.
- Shoplifting a small item (e.g. a lipstick or a pen).
- Stealing an additional TV cable connection off the one you pay for.
- Investing 10% of your annual income in a moderate growth mutual fund.

- Investing 5% of your annual income in a very speculative stock.
- Investing 5% of your annual income in a conservative stock.
- Investing 10% of your annual income in government bonds (treasury bills).

Thank you

Thank you for hanging in there! Just a few more questions, and you will be done.

Demographics

What gender do you most identify with?
- Male
- Female
- None of the above
- Prefer not to say

What is your age in years (e.g. 21)?
_____

Do you consider yourself to be:
- Heterosexual or straight
- Homosexual
- Bisexual
- None of the above
- Prefer not to say

Please, choose one race that you identify with the most:
- White or Caucasian
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Hispanic, Spanish, or Latino
- Mixed
- Prefer not to say
- Other _____

What is your ethnicity? One or more categories may be selected. Mark all that apply.
- Mexican, Mexican American, Chicano/a
- Puerto Rican
- Cuba
- Another Hispanic, Latino/a, or Spanish origin
- None of the above

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Doctoral degree
- Professional degree (JD, MD)

Information about income is very important. Would you please give your best guess? Please indicate the answer that includes your entire family's household income before taxes (previous year).

- Less than $10,000
- $10,000 to $49,999
- $50,000 to $99,999
- $100,000 to $149,999
- $150,000 or more

Appendix 7: Survey – Retest reliability analysis (Sample 4)

Quality

We care about the quality of our data. In order for us to get the most accurate measures of your knowledge and opinions, it is important that you thoughtfully provide your best answers to each question in this survey. Do you commit to thoughtfully provide your best answers to each question in this survey?

- I will provide my best answers
- I will not provide my best answers
- I can't promise either way

Consent

The purpose of the study is to understand human social and risk-taking behavior. You will be asked to answer questions about yourself, and your everyday emotions and experiences. Then we would like to know more about how you perceive specific risks. Your participation is voluntary. You can withdraw at any time. You must be 18 or older to participate. If you have any questions please contact Dr Nancy Rhodes, at rhodesn3@msu.edu in the Department of Advertising and Public Relations at Michigan State University, East Lansing, MI.

- Yes, by selecting this option I hereby give my voluntary consent to participate in this study
- I do not wish to participate in this study

Thank you

Thank you for your willingness to participate in this study. In the following pages, we will ask you some questions about your prior everyday experiences and feelings. Please be assured that your responses are kept completely confidential. No identifying information will be collected about you in this study, and there will be no way to connect your responses back to you. Therefore, please be as honest as possible.

Proneness to engage in the FOMO process scale

Below is a collection of statements and emotional states about your everyday experience. Using the scale provided please indicate how often you experience each of the following statements or emotional states. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = "Never" to 5 = "Very often").

- You think an opportunity not taken could derail your life.
- You compare your current situation to an alternative situation and think you are worse off.
- You think you are missing out on all of those fun things you could have been doing.
- You think of all the things you wish you would have done differently.
- You think your friends have more fun than you.
- You think your friends have more positive experiences than you.

- You feel like you are behind everybody else because you are lacking information.
- You feel not included with your friends because your life circumstances are different.
- You go back and think about what you could have had.
- You are worried that some opportunities will not be available for you later.
- You wonder if you maybe have missed the opportunity to be with your soul mate.
- You wonder how your life could have been different if some circumstances would have been different.
- You feel jealous.
- You feel like you want something.
- You feel isolated.
- You feel lonely.

Conformity

Please use the following scale to indicate the degree of your agreement or disagreement with each of the statements below. Try to describe yourself accurately and generally (that is, the way you are actually in most situations -- not the way you would hope to be), (1 = "Strongly disagree" to 7 = "Strongly agree")

- I often rely on, and act upon, the advice of others.
- I would be the last one to change mu opinion in a heated argument on a controversial topic.
- Generally, I'd rather give in and go along for the sake of peace than struggle to have my way.
- I tend to follow family tradition in making political decisions.
- Basically, my friends are the ones who decide what we do together.
- A charismatic and eloquent speaker can easily influence and change my ideas.
- I am more independent than conforming in my ways.
- If someone is very persuasive, I tend to change my opinion and go along with them.
- I don't give in to others easily.
- I tend to rely on others when I have to make an important decision quickly.
- I prefer to make my own way in life rather than find a group I can follow.

Social anxiety

Please use the following scale to indicate how you feel about each of the statements below. Try to describe yourself accurately and generally (that is, the way you are actually in most situations -- not the way you would hope to be), (1 = "Not at all" to 5 = "All the time")

- I worry about what others say about me.
- I worry that others don't like me.
- I'm afraid that others will not like me.
- I worry about what others think of me.
- I feel that others make fun of me.
- I worry about being teased.
- I feel that peers talk about me behind my back.
- If I get into an argument, I worry that the other person will not like me.

- I get nervous when I meet new people.
- I feel shy around people I don't know.
- I get nervous when I talk to peers I don't know very well.
- I feel nervous when I'm around certain people.
- I only talk to people I known really well.
- I worry about doing something new in front of others.
- It's hard for me to ask others to do things with me.
- I'm afraid to invite others to do things with me because they might say no.
- I am quiet when I'm with a group of people.
- I feel shy even with peers I know very well.

Open ended question: Exclusion versus avoidance versus inclusion (between participants)

Exclusion: Please briefly describe the emotions that the thought of being socially excluded by your closest friends arouses in you and jot down, as specifically as you can, what you think will happen to you during this experience (min. 100 characters).

Avoidance: Please briefly describe the emotions that the thought of choosing to actively avoid spending time with your closest friends arouses in you and jot down, as specifically as you can, what you think will happen to you during this experience (min. 100 characters).

Inclusion: Please briefly describe the emotions that the thought of a social event or get-together with your closest friends arouses in you and jot down, as specifically as you can, what you think will happen to you during this experience (min. 100 characters).

Discrete emotions

Please indicate your response using the scale provided. While remembering the situation you described earlier to what extent did you experience the following emotions? (1 = "Not at all" to 7 = "An extreme amount")

- Anger
- Wanting
- Dread
- Sad
- Happy
- Grief
- Rage
- Anxiety
- Desire
- Nervous
- Lonely
- Mad
- Satisfaction
- Empty
- Craving

- Longing
- Worry
- Enjoyment
- Pissed off
- Liking
- Scared
- Terror
- Panic
- Fear

Need-threats

Thinking back to the situation you described earlier, please indicate your agreement or disagreement with each of the following statements with respect to the thoughts and emotions you expressed (1 = “Strongly disagree” to 7 = “Strongly agree”).

- I feel “disconnected”.
- I feel rejected.
- I feel like an outsider.
- I feel like I belonged.
- I feel good about myself.
- My self-esteem is high.
- I feel liked.
- I feel insecure.
- I feel satisfied.
- I feel invisible.
- I feel meaningless.
- I feel nonexistent.
- I feel important.
- I feel useful.
- I feel powerful.
- I feel like I have control.
- I feel like I have the ability to significantly alter events.
- I feel like I am unable to influence the action of others.
- I feel like others decided everything.

Proneness to engage in the FOMO process scale

Below is a collection of statements and emotional states about your everyday experience. Using the scale provided please indicate how often you experience each of the following statements or emotional states. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item (1 = “Never” to 5 = “Very often”).

- You think an opportunity not taken could derail your life.
- You compare your current situation to an alternative situation and think you are worse off.

- You think you are missing out on all of those fun things you could have been doing.
- You think of all the things you wish you would have done differently.
- You think your friends have more fun than you.
- You think your friends have more positive experiences than you.
- You feel like you are behind everybody else because you are lacking information.
- You feel not included with your friends because your life circumstances are different.
- You go back and think about what you could have had.
- You are worried that some opportunities will not be available for you later.
- You wonder if you maybe have missed the opportunity to be with your soul mate.
- You wonder how your life could have been different if some circumstances would have been different.
- You feel jealous.
- You feel like you want something.
- You feel isolated.
- You feel lonely.

BIS/BAS

Please indicate your level of agreement or disagreement with each of the following statements (1 = “Strongly disagree” to 4 = “Strongly agree”)

- If I think something unpleasant is going to happen, I usually get pretty “worked up”.
- I worry about making mistakes.
- Criticism or scolding hurts me quite a bit.
- I feel pretty worried or upset when I think or know somebody is angry at me.
- Even if something bad is about to happen to me, I rarely experience fear or nervousness.
- I feel worried when I think I have done poorly at something.
- I have very few fears compared to my friends.
- When I get something I want, I feel excited and energized.
- When I'm doing well at something, I love to keep at it.
- When good things happen to me, it affects me strongly.
- It would excite me to win a contest.
- When I see an opportunity for something I like, I get excited right away.
- When I want something, I usually go all-out to get it.
- I go out of my way to get things I want.
- If I see a chance to get something I want, I move on it right away.
- When I go after something, I use a "no holds barred" approach.
- 1 will often do things for no other reason than that they might be fun.
- I crave excitement and new sensations.
- I'm always willing to try something new if I think it will be fun.
- I often act on the spur of the moment.

Demographics

What gender do you most identify with?

- Male
- Female
- None of the above
- Prefer not to say

What is your age in years (e.g. 21)?

_____

Do you consider yourself to be:

- Heterosexual or straight
- Homosexual
- Bisexual
- None of the above
- Prefer not to say

Please, choose one race that you identify with the most:

- White or Caucasian
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Hispanic, Spanish, or Latino
- Mixed
- Prefer not to say
- Other _____

What is your ethnicity? One or more categories may be selected. Mark all that apply.

- Mexican, Mexican American, Chicano/a
- Puerto Rican
- Cuba
- Another Hispanic, Latino/a, or Spanish origin
- None of the above

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Doctoral degree
- Professional degree (JD, MD)

Information about income is very important. Would you please give your best guess? Please indicate the answer that includes your entire family's household income before taxes (previous year).

- Less than $10,000
- $10,000 to $49,999
- $50,000 to $99,999
- $100,000 to $149,999
- $150,000 or more

REFERENCES

REFERENCES

Abel, J. P., Buff, C. L., & Burr, S. A. (2016). Social Media and the Fear of Missing Out: Scale Development and Assessment. *Journal of Business & Economics Research, 14*(1), 33-44. doi:https://dx.doi.org/10.19030/jber.v14i1.9554

Adams, S. K., Williford, D. N., Vaccaro, A., Kisler, T. S., Francis, A., & Newman, B. (2017). The young and the restless: Socializing trumps sleep, fear of missing out, and technological distractions in first-year college students. *International Journal of Adolescence and Youth, 22*(3), 337-348. doi:https://doi.org/10.1080/02673843.2016.1181557

Albarracín, D., & Wyer Jr, R. S. (2000). The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology, 79*(1), 5-22. doi:https://doi.org/10.1037/0022-3514.79.1.5

Alt, D. (2015). College Students' Academic Motivation, Media Engagement and Fear of Missing Out. *Computers in Human Behavior, 49*, 111-119. doi:https://doi.org/10.1016/j.chb.2015.02.057

Alt, D., & Boniel-Nissim, M. (2018). Links between Adolescents' Deep and Surface Learning Approaches, Problematic Internet Use, and Fear of Missing Out (FoMO). *Internet Interventions, 13*, 30-39. doi:https://doi.org/10.1016/j.invent.2018.05.002

Argyris, C., & Schon, D. (1974). *Theory in Practice: Increasing Professional Effectivenss*. Oxford, UK: Jossey-Bass.

Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science, 40*(1), 8-34. doi:https://doi.org10.1007/s11747-011-0278-x

Bazana, P. G., & Stelmack, R. M. (2004). Stability of Personality Across the Life Span: A Meta-Analysis. In *On the psychobiology of personality: Essays in honor of Marvin Zuckerman.* (pp. 113-144). New York, NY, US: Elsevier Science.

Beike, D. R., Markman, K. D., & Karadogan, F. (2008). What We Regret Most Are Lost Opportunities: A Theory of Regret Intensity. *Personality and Social Psychology Bulletin, 35*(3), 385-397. doi:https://doi.org/10.1177/0146167208328329

Bergkvist, L., & Rossiter, J. R. (2007). The Predictive Validity of Multiple-Item versus Single-Item Measures of the Same Constructs. *Journal of Marketing Research, 44*(2), 175-184. doi:https://doi.org/10.1509/jmkr.44.2.175

Beyens, I., Frison, E., & Eggermont, S. (2016). "I don't want to miss a thing": Adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook related stress. *Computers in Human Behavior, 64*, 1-8. doi:https://doi.org/10.1016/j.chb.2016.05.083

Blackwell, D., Leaman, C., Tramposch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences, 116*, 69-72. doi:https://doi.org/10.1016/j.paid.2017.04.039

Böckenholt, U., & Lehmann, D. R. (2015). On the limits of research rigidity: the number of items in a scale. *Marketing Letters, 26*(3), 257-260. doi:10.1007/s11002-015-9373-y

Brakus, J. J. k., Schmitt, B. H., & Zarantonello, L. (2009). Brand Experience: What Is It? How Is It Measured? Does It Affect Loyalty? *Journal of Marketing, 73*(3), 52-68. Retrieved from https://www.jstor.org/stable/20619022

Bright, L. F., & Logan, K. (2018). Is my fear of missing out (FOMO) causing fatigue? Advertising, social media fatigue, and the implications for consumers and brands. *Internet Research, 28*(5), 1213-1227. doi:https://doi.org/10.1108/IntR-03-2017-0112

Browne, B. L., Aruguete, M. S., McCutcheon, L. E., & Medina, A. M. (2018). Social and Emotional Correlates of the Fear of Missing Out. *North American Journal of Psychology, 20*(2), 341-353. Retrieved from https://www.researchgate.net/profile/Lynn_Mccutcheon2/publication/325347912_Social_and_emotional_correlates_of_the_fear_of_missing_out/links/5b0d6f4fa6fdcc8c25396188/Social-and-emotional-correlates-of-the-fear-of-missing-out.pdf

Brunet, E., Sarfati, Y., Hardy-Baylé, M.-C., & Decety, J. (2000). A PET Investigation of the Attribution of Intentions with a Nonverbal Task. *NeuroImage, 11*(2), 157-166. doi: https://doi.org/10.1006/nimg.1999.0525

Buglass, S. L., Binder, J. F., Betts, L. R., & Underwood, J. D. M. (2017). Motivators of online vulnerability: The impact of social network site use and FOMO. *Computers in Human Behavior, 66*, 248-255. doi:https://doi.org/10.1016/j.chb.2016.09.055

Cacioppo, J. T., & Gardner, W. L. (1999). Emotion. *Annual Review of Psychology, 50*(1), 191-214. doi:https://doi.org/10.1146/annurev.psych.50.1.191

Cacioppo, J. T., & Hawkley, L. C. (2005). People Thinking About People: The Vicious Cycle of Being a Social Outcast in One's Own Mind. In *The social outcast: Ostracism, social exclusion, rejection, and bullying.* (pp. 91-108). New York, NY, US: Psychology Press.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*(2), 81-105. doi:https://dx.doi.org/10.1037/h0046016

Carpenter, S. (2018). Ten Steps in Scale Development and Reporting: A Guide for Researchers. *Communication Methods and Measures, 12*(1), 25-44. doi:https://doi.org/10.1080/19312458.2017.1396583

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS Scales. *Journal of Personality and Social Psychology, 67*(2), 319-333. doi:https://dx.doi.org/10.1037/0022-3514.67.2.319

Chai, H.-Y., Niu, G.-F., Lian, S.-L., Chu, X.-W., Liu, S., & Sun, X.-J. (2019). Why social network site use fails to promote well-being? The roles of social overload and fear of missing out. *Computers in Human Behavior, 100*, 85-92. doi:https://doi.org/10.1016/j.chb.2019.05.005

Churchill, G. A., Jr. (1979). A paradigm for developing better measures of marketing constructs. *JMR, Journal of Marketing Research (pre-1986), 16*(000001), 64.

Clor-Proell, S., Guggenmos, R. D., & Rennekamp, K. M. (2019). Mobile Devices and Investment News Apps: The Effects of Information Release, Push Notification, and the Fear of Missing Out. *The Accounting Review*, 0000-0000. doi:https://doi.org/10.2308/accr-52625

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second ed.). Hillsdale, NJ: Erlbaum.

Coleman, N. V., Williams, P., Morales, A. C., & White, A. E. (2017). Attention, Attitudes, and Action: When and Why Incidental Fear Increases Consumer Choice. *Journal of Consumer Research, 44*(2), 283-312. doi:https://doi.org/10.1093/jcr/ucx036

Creswell, J. W., & Miller, D. L. (2000). Determining Validity in Qualitative Inquiry. *Theory Into Practice, 39*(3), 124-130. Retrieved from www.jstor.org/stable/1477543

Creswell, J. W., & Poth, C. N. (2018). *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (4 ed.). Thousand Oaks, CA: SAGE Publications.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*(4), 349-354. doi:https://doi.org/10.1037/h0047358

De Brigard, F., Addis, D. R., Ford, J. H., Schacter, D. L., & Giovanello, K. S. (2013). Remembering what could have happened: Neural correlates of episodic counterfactual thinking. *Neuropsychologia, 51*(12), 2401-2414. doi:https://doi.org/10.1016/j.neuropsychologia.2013.01.015

De Brigard, F., Rodriguez, D. C., & Montañés, P. (2017). Exploring the experience of episodic past, future, and counterfactual thinking in younger and older adults: A study of a Colombian sample. *Consciousness and Cognition, 51*, 258-267. doi:https://doi.org/10.1016/j.concog.2017.04.007

Dempsey, A. E., O'Brien, K. D., Tiamiyu, M. F., & Elhai, J. D. (2019). Fear of missing out (FoMO) and rumination mediate relations between social anxiety and problematic Facebook use. *Addictive Behaviors Reports, 9*, 100150. doi:https://doi.org/10.1016/j.abrep.2018.100150

DeVellis, R. F. (2017). *Scale Development - Theory and Application*. Thousand Oaks, CA: SAGE Publications Inc.

Dillard, J. P., & Peck, E. (2006). Persuasion and the Structure of Affect: Dual Systems and Discrete Emotions as Complementary Models. *Human Communication Research, 27*(1), 38-68. doi:https://doi.org/10.1111/j.1468-2958.2001.tb00775.x

Dogan, V. (2019). Why Do People Experience the Fear of Missing Out (FoMO)? Exposing the Link Between the Self and the FoMO Through Self-Construal. *Journal of Cross-Cultural Psychology, 50*(4), 524-538. doi:https://doi.org/10.1177/0022022119839145

Duclos, R., Wan, E. W., & Jiang, Y. (2012). Show Me the Honey! Effects of Social Exclusion on Financial Risk-Taking. *Journal of Consumer Research, 40*(1), 122-135. doi:https://doi.org/10.1086/668900

Elhai, J. D., Gallinari, E. F., Rozgonjuk, D., & Yang, H. (2020). Depression, anxiety and fear of missing out as correlates of social, non-social and problematic smartphone use. *Addictive Behaviors, 105,* 106335. doi:https://doi.org/10.1016/j.addbeh.2020.106335

Elhai, J. D., Rozgonjuk, D., Liu, T., & Yang, H. (2020). Fear of missing out predicts repeated measurements of greater negative affect using experience sampling methodology. *Journal of Affective Disorders*, *262*(1), 298-303. doi:https://doi.org/10.1016/j.jad.2019.11.026

Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2016). Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use. *Computers in Human Behavior, 63,* 509-516. doi:https://doi.org/10.1016/j.chb.2016.05.079

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272-299. doi:https://dx.doi.org/10.1037/1082-989X.4.3.272

Festinger, L. (1954). A Theory of Social Comparison Processes. *Human Relations, 7*(2), 117-140. doi:https://doi.org/10.1177/001872675400700202

Fischer, D. G., & Fick, C. (1993). Measuring Social Desirability: Short Forms of the Marlowe-Crowne Social Desirability Scale. *Educational and Psychological Measurement, 53*(2), 417-424. doi:https://doi.org/10.1177/0013164493053002011

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18*(1), 39-50. doi:https://doi.org/10.2307/3151312

Frijda, N. H., Kuipers, P., & ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, *57*(2), 212-228. doi:https://dx.doi.org/10.1037/0022-3514.57.2.212

Gawronski, B. (2012). Back to the Future of Dissonance Theory: Cognitive Consistency as a Core Motive. *Social Cognition, 30*(6), 652-668. https://doi.org/10.1521/soco.2012.30.6.652

Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology, 76*(1), 129-142. doi:https://doi.org/10.1037/0022-3514.76.1.129

Gilovich, T., & Medvec, V. H. (1995). The experience of regret: What, when, and why. *Psychological Review, 102*(2), 379-395. doi:https://doi.org/10.1037/0033-295X.102.2.379

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods, 16*(1), 15-31. doi:https://doi.org/10.1177/1094428112452151

Glaser, B., & Strauss, A. (1999). *The discovery of grounded theory: Strategies for qualitative research*. New York, NY: Aldine de Gruyter.

Good, M. C. (2019). *Fear of missing out appeals: You can't always get what you want*. New Mexico State University. Unpublished doctoral dissertation

Good, M. C., & Hyman, M. R. (2020). 'Fear of missing out': antecedents and influence on purchase likelihood. *Journal of Marketing Theory and Practice*, 1-12. doi:https://doi.org/10.1080/10696679.2020.1766359

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods, 18*(1), 59-82. doi:https://doi.org/10.1177/1525822X05279903

Hanlon, S. M. (2016). Managing my fear of missing out. *Science, 353*(6306), 1458. doi:https://doi.org/10.1126/science.353.6306.1458

Hayran, C., Anik, L., & Gürhan-Canli, Z. (2020a). A threat to loyalty: Fear of missing out (FOMO) leads to reluctance to repeat current experiences. *PLoS ONE, 15*(4), e0232318. doi:https://doi.org/10.1371/journal.pone.0232318

Hayran, C., Anik, L., & Gürhan-Canli, Z. (2020b). Feeling of Missing Out (FOMO) and its marketing implications. *Marketing Science Institute Working Paper Series 2016*. Working paper. Retrieved from https://www.msi.org/working-papers/feeling-of-missing-out-fomo-and-its-marketing-implications/

Hetz, P. R., Dawson, C. L., & Cullen, T. A. (2015). Social Media Use and the Fear of Missing Out (FoMO) While Studying Abroad. *Journal of Research on Technology in Education, 47*(4), 259-272. https://doi.org/10.1080/15391523.2015.1080585

Hemphill, J. F. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist, 58*(1), 78-79. doi:https://dx.doi.org/10.1037/0003-066X.58.1.78

Hill, C. A. (1987). Affiliation motivation: People who need people… but in different ways. *Journal of Personality and Social Psychology, 52*(5), 1008-1018. doi:https://dx.doi.org/10.1037/0022-3514.52.5.1008

Hinojosa, A. S., Gardner, W. L., Walker, H. J., Cogliser, C., & Gullifor, D. (2016). A Review of Cognitive Dissonance Theory in Management Research: Opportunities for Further Development. *Journal of Management, 43*(1), 170-199. doi:https://doi.org/10.1177/0149206316668236

Hodkinson, C. (2019). 'Fear of Missing Out' (FOMO) marketing appeals: A conceptual model. *Journal of Marketing Communications, 25*(1), 65-88. doi:https://doi.org/10.1080/13527266.2016.1234504

Holbrook, M. B., & Batra, R. (1987). Assessing the Role of Emotions as Mediators of Consumer Responses to Advertising. *Journal of Consumer Research, 14*(3), 404-420. Retrieved from www.jstor.org/stable/2489501

Homburg, C. (1991). Cross-Validation and Information Criteria in Causal Modeling. *Journal of Marketing Research, 28*(2), 137-144. doi:https://doi.org/10.2307/3172803

Homburg, C., Koschate, N., & Hoyer, W. D. (2006). The Role of Cognition and Affect in the Formation of Customer Satisfaction: A Dynamic Perspective. *Journal of Marketing, 70*(3), 21-31. Retrieved from www.jstor.org/stable/30162098

Homburg, C., Schwemmle, M., & Kuehnl, C. (2015). New Product Design: Concept, Measurement, and Consequences. *Journal of Marketing, 79*(3), 41-56. Retrieved from www.jstor.org/stable/43784405

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30*(2), 179-185. doi:https://doi.org10.1007/BF02289447

Hu, L.-t., & Bentler, P. M. (1995). Evaluating Model Fit. In R. H. Hoyle (Ed.), *Structural Equation Modeling: Concepts, Issues, and Application*. Thousand Oaks, CA: Sage Publications.

Izard, C. E. (1977). *Human Emotions*. New York, NY: Plenum Press.

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica, 47*(2), 263-291. doi:https://doi.org/10.2307/1914185

Kang, I., Son, J., & Koo, J. (2019). Evaluation of Culturally Symbolic Brand: The Role of "Fear of Missing Out" Phenomenon. *Journal of International Consumer Marketing, 31*(3), 270-286. doi:https://doi.org/10.1080/08961530.2018.1520670

Kohli, A. K., & Jaworski, B. J. (1990). Market Orientation: The Construct, Research Propositions, and Managerial Implications. *Journal of Marketing, 54*(2), 1-18. doi:https://doi.org/10.2307/1251866

Kross E., Berman M.G., Mischel W., Smith E.E., & Wager T.D. (2011). Social rejection shares somatosensory representations with physical pain. *Proceedings of the National Academy of Sciences of the United States of America*, *108*(15), 6270-6275. doi: https://doi.org/10.1073/pnas.1102693108

Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the Craft of Qualitative Research Interviewing*. Thousand Oaks, CA: Sage Publications.

Lai, C., Altavilla, D., Ronconi, A., & Aceto, P. (2016). Fear of missing out (FOMO) is associated with activation of the right middle temporal gyrus during inclusion social cue. *Computers in Human Behavior, 61*, 516-521. doi:https://doi.org/10.1016/j.chb.2016.03.072

Lang, A. (2000). The Limited Capacity Model of Motivated Mediated Message Processing. *Journal of Communication*, *50*(1), 46-70. doi:https://doi.org/10.1111/j.1460-2466.2000.tb02833.x

Lang, A., Sanders-Jackson, A., Wang, Z., & Rubenking, B. (2013). Motivated Message Processing: How Motivational Activation Influences Resource Allocation, Encoding, and Storage of TV Messages. *Motivation and Emotion*, *37*, 508-517. doi:https://doi.org/10.1007/s11031-012-9329-y

Larkin, B. A., & Fink, J. S. (2016). Fantasy Sport, FoMO, and Traditional Fandom: How Second-Screen Use of Social Media Allows Fans to Accommodate Multiple Identities. *Journal of Sport Management, 30*(6), 643-655. doi: https://doi.org/10.1123/jsm.2015-0344

Luce, M. F. (1998). Choosing to avoid: Coping with negatively emotion-laden consumer decisions. *Journal of Consumer Research, 24*(4), 409-433. doi:https://doi.org/10.1086/209518

Malterud, K., Siersma, V. D., & Guassora, A. D. (2015). Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qualitative Health Research, 26*(13), 1753-1760. doi:https://doi.org/10.1177/1049732315617444

Mandel, N. (2003). Shifting Selves and Decision Making: The Effects of Self-Construal Priming on Consumer Risk-Taking. *Journal of Consumer Research, 30*(1), 30-40. doi:https://doi.org/10.1086/374700

Markman, K. D., Gavanski, I., Sherman, S. J., & McMullen, M. N. (1993). The Mental Simulation of Better and Worse Possible Worlds. *Journal of Experimental Social Psychology, 29*(1), 87-109. doi:https://doi.org/10.1006/jesp.1993.1005

McConnell, A. R., Niedermeier, K. E., Leibold, J. M., El-Alayli, A. G., Chin, P. P., & Kuiper, N. M. (2000). What if I find it cheaper someplace else?: Role of prefactual thinking and anticipated regret in consumer behavior. *Psychology & Marketing, 17*(4), 281-298. doi:https://doi.org/10.1002/(SICI)1520-6793(200004)17:4<281::AID-MAR2>3.0.CO;2-5

McGrath, A. (2017). Dealing with dissonance: A review of cognitive dissonance reduction. *Social and Personality Psychology Compass, 11*(12), e12362. doi:https://doi.org/10.1111/spc3.12362

Milyavskaya, M., Saffran, M., Hope, N., & Koestner, R. (2018). Fear of missing out: prevalence, dynamics, and consequences of experiencing FOMO. *Motivation and Emotion, 42*(5), 725-737. doi:https://dx.doi.org/10.1007/s11031-018-9683-5

Moschis, G. P. (1976). Social Comparison and Informal Group Influence. *Journal of Marketing Research, 13*(3), 237-244. doi:https://doi.org/10.2307/3150733

Nunes, C., Ayala-Nunes, L., Pechorro, P., & La Greca, A. M. (2018). Short Form of the Social Anxiety Scale for Adolescents among community and institutionalized Portuguese youths. *International journal of clinical and health psychology : IJCHP, 18*(3), 273-282. doi:https://doi.org/10.1016/j.ijchp.2018.06.001

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (Third ed.). New Yor, NY: McGraw-Hill.

Parasuraman, A. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing (pre-1986), 49*(000004), 41. doi:https://doi.org/10.2307/1251430

Peter, J. P. (1981). Construct Validity: A Review of Basic Issues and Marketing Practices. *Journal of Marketing Research, 18*(2), 133-145. doi:https://doi.org/10.1177/002224378101800201

Plutchik, R. (2001). The Nature of Emotions: Human emotions have deep evolutionary roots, a fact that may explain their complexity and provide tools for clinical practice. *American Scientist, 89*(4), 344-350. Retrieved from www.jstor.org/stable/27857503

Poulsen, V. (2019). Pics or it didn't happen: FOMO culture and Fyre Festival. Retrieved from https://www.adolescent.net/a/pics-or-it-didnt-happen-fomo-culture-and-fyre-festival

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior, 29*(4), 1841-1848. doi:https://doi.org/10.1016/j.chb.2013.02.014

Reagle, J. (2015). Following the Joneses: FOMO and conspicuous sociality. *First Monday, 20*(10). doi:https://dx.doi.org/10.5210/fm.v20i10.6064

Reer, F., Tang, W. Y., & Quandt, T. (2019). Psychosocial well-being and social media engagement: The mediating roles of social comparison orientation and fear of missing out. *New Media & Society, 21*(7), 1486-1505. doi:https://doi.org/10.1177/1461444818823719

Rhodes, N. (2017). Fear-Appeal Messages: Message Processing and Affective Attitudes. *Communication Research, 44*(7), 952-975. doi:https://doi.org/10.1177/0093650214565916

Rifkin, J., Chan, C., & Kahn, B. (2015). Fomo: How the Fear of Missing Out Leads to Missing Out. In K. Diel & C. Yoon (Eds.), *NA - Advances in Consumer Research* (Vol. 43, pp. 244-248). Duluth, MNPages: Association for Consumer Research.

Riordan, B. C., Flett, J. A. M., Cody, L. M., Conner, T. S., & Scarf, D. (2019). The Fear of Missing Out (FoMO) and event-specific drinking: The relationship between FoMO and alcohol use, harm, and breath alcohol concentration during orientation week. *Current Psychology*. doi:https://doi.org/10.1007/s12144-019-00318-6

Roese, N. J., & Summerville, A. (2005). What We Regret Most... and Why. *Personality and Social Psychology Bulletin, 31*(9), 1273-1285. doi:https://doi.org/10.1177/0146167205274693

Rye, M. S., Cahoon, M. B., Ali, R. S., & Daftary, T. (2008). Development and Validation of the Counterfactual Thinking for Negative Events Scale. *Journal of Personality Assessment, 90*(3), 261-269. doi:https://doi.org/10.1080/00223890701884996

Schaninger, C. M. (1976). Perceived Risk and Personality. *Journal of Consumer Research, 3*(2), 95-100. doi:https://doi.org/10.1086/208656

Simms, L. J. (2008). Classical and Modern Methods of Psychological Scale Construction. *Social and Personality Psychology Compass, 2*(1), 414-433. doi:https://doi.org/10.1111/j.1751-9004.2007.00044.x

Social Security Administration. (2019). Top Names Over the Last 100 Years. Retrieved from https://www.ssa.gov/oact/babynames/decades/century.html

Strahan, R., & Gerbasi, K. C. (1972). Short, homogeneous versions of the Marlow-Crowne Social Desirability Scale. *Journal of Clinical Psychology, 28*(2), 191-193. doi:https://doi.org/10.1002/1097-4679(197204)28:2<191::AID-JCLP2270280220>3.0.CO;2-G

Su, L., Jiang, Y., Chen, Z., & DeWall, C. N. (2016). Social Exclusion and Consumer Switching Behavior: A Control Restoration Mechanism. *Journal of Consumer Research, 44*(1), 99-117. doi:https://doi.org/10.1093/jcr/ucw075

Talbot, K. (2019). What the Fyre Festival Documentaries Reveal About Millennials. Retrieved from https://www.forbes.com/sites/katetalbot/2019/01/21/what-the-fyre-festival-documentaries-revealed-about-millennials/

Talwar, S., Dhir, A., Kaur, P., Zafar, N., & Alrasheedy, M. (2019). Why do people share fake news? Associations between the dark side of social media use and fake news sharing behavior. *Journal of Retailing and Consumer Services, 51*, 72-82. doi:https://doi.org/10.1016/j.jretconser.2019.05.026

Taylor, J. W. (1974). The Role of Risk in Consumer Behavior: A comprehensive and operational theory of risk taking in consumer behavior. *Journal of Marketing, 38*(2), 54-60. doi:https://doi.org/10.1177/002224297403800211

Tefertiller, A. C., Maxwell, L. C., & Morris, D. L. (2020). Social Media Goes to the Movies: Fear of Missing Out, Social Capital, and Social Motivations of Cinema Attendance. *Mass Communication and Society, 23*(3), 378-399. doi:https://doi.org/10.1080/15205436.2019.1653468

Thayer, R. E. (1989). *The biopsychology of mood and arousal*. New York, NY: Oxford University Press.

Thompson, B. (2004). *Exploratory and confirmatory analysis: Understanding concepts and applications.* Washington, DC: American Psychological Association.

Tsiros, M., & Mittal, V. (2000). Regret: A Model of Its Antecedents and Consequences in Consumer Decision Making. *Journal of Consumer Research, 26*(4), 401-417. doi:https://doi.org/10.1086/209571

Walker, E., & Nowacki, A. S. (2011). Understanding equivalence and noninferiority testing. *Journal of general internal medicine, 26*(2), 192-196. doi:https://doi.org/10.1007/s11606-010-1513-8

Warren, C., Batra, R., Loureiro, S. M. C., & Bagozzi, R. P. (2019). Brand Coolness. *Journal of Marketing, 83*(5), 36-56. doi:https://doi.org/10.1177/0022242919857698

Watkins, M. W. (2006). Determining Parallel Analysis Criteria. *Journal of Modern Applied Statistical Methods, 5*(2), 344-346. doi:https://doi.org/10.22237/jmasm/1162354020

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070. doi:https://doi.org/10.1037/0022-3514.54.6.1063

Weber, E. U., Blais, A.-R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making, 15*(4), 263-290. doi:https://doi.org/10.1002/bdm.414

Wegmann, E., Oberst, U., Stodt, B., & Brand, M. (2017). Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet-communication disorder. *Addictive Behaviors Reports, 5*, 33-42. doi:https://doi.org/10.1016/j.abrep.2017.04.001

Weiss, L., & Kivetz, R. (2019). Opportunity Cost Overestimation. *Journal of Marketing Research, 56*(3), 518-533. doi:https://doi.org/10.1177/0022243718819474

Wicker, A. W. (1969). Attitudes versus Actions: The Relationship of Verbal and Overt Behavioral Responses to Attitude Objects. *Journal of Social Issues*, *25*(4), 41-78. doi:https://doi.org/10.1111/j.1540-4560.1969.tb00619.x

Wolniewicz, C. A., Tiamiyu, M. F., Weeks, J. W., & Elhai, J. D. (2017). Problematic Smartphone Use and Relations With Negative Affect, Fear of Missing Out, and Fear of Negative and Positive Evaluation. *Psychiatry Research*, *262*(September 2017), 618-623. doi:https://doi.org/10.1016/j.psychres.2017.09.058

Worthington, R. L., & Whittaker, T. A. (2006). Scale Development Research: A Content Analysis and Recommendations for Best Practices. *The Counseling Psychologist*, *34*(6), 806-838. doi:https://doi.org/10.1177/0011000006288127

Xie, X., Wang, Y., Wang, P., Zhao, F., & Lei, L. (2018). Basic psychological needs satisfaction and fear of missing out: Friend support moderated the mediating effect of individual relative deprivation. *Psychiatry Research*, *268*, 223-228. doi:https://doi.org/10.1016/j.psychres.2018.07.025

Yegiyan, N. S., & Lang, A. (2010). Processing Central and Peripheral Detail: How Content Arousal and Emotional Tone Influence Encoding. *Media Psychology*, *13*(1), 77-99. doi:https://doi.org/10.1080/15213260903563014

Zeithaml, V. A., Jaworski, B. J., Kohli, A. K., Tuli, K. R., Ulaga, W., & Zaltman, G. (2020). A Theories-in-Use Approach to Building Marketing Theory. *Journal of Marketing*, *84*(1), 32-51. doi:https://doi.org/10.1177/0022242919888477