

# **The relationship between perceived social (dis)connectedness and fear of missing out (FoMO): a meta-analysis**

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## **Abstract**

Many theoretical explanations have been used to explain whether fear of missing out (FoMO) arises from a lack of social connections or from too many social connections. However, the correlation between (dis)connectedness and FoMO remains an unsettled question. To help fill this gap, we conducted a meta-analysis of 104 research findings from 99 independent studies ( $N = 56195$ ) to systematically examine the nature of the association between perceived disconnectedness (loneliness and social isolation), connectedness (belongingness and social support), and FoMO. The meta-analysis produced three main findings. First, the results show that loneliness and social isolation positively correlate with FoMO, while there is no significant relationship between belongingness, social support, and FoMO. Second, gender and social support type moderate the relationship between social support and FoMO. Third, the correlation between loneliness and FoMO can be explained by variations in cultural context, including uncertainty avoidance, intellectual autonomy, harmony, and geographical area. Based on the meta-analysis results theoretical implications for future research and practical suggestions for psychological intervention for FoMO are discussed.

**Note:** For the convenience of reading, this document is a **brief excerpt of the entire paper**. For the full content and detailed discussion, please refer to the original document.

Social media platforms are used daily by millions worldwide, offering a wealth of social information on both online and offline activities. However, it has been observed that these platforms can induce anxiety in certain individuals, characterized by feelings of discomfort arising from the perception of potentially missing out on the activities of others, leading to intensified usage of social media platforms (Przybylski et al., 2013; Oberst et al., 2017). This kind of anxiety may take the form of fear of missing out (FoMO) which is conceptualized as “a pervasive apprehension that others might be having rewarding experiences from which one is absent” (Przybylski et al., 2013). It embodies concerns, worries, and anxieties people experience when they fear missing out on satisfying events and experiences within their extended social circles (Holte & Ferraro, 2020). Despite the growing recognition of FoMO, the underlying social mechanisms—whether they stem from a sense of disconnectedness or an excessive drive for connectedness—remain inadequately explored.

In the past, a large body of evidence has been accumulated to put the claim that FoMO originates from the desire for connectedness (e.g. belonging and social support) and anxiety of disconnectedness (e.g. isolation and loneliness) to an empirical test. A hypothesis was established, from the perspective of self-determination theory (SDT; Deci & Ryan, 1985), that individuals experience FoMO when they fail to perceive the social connection with others and feel disconnected. Various studies have supported this relationship between perceived disconnection with FoMO (Holte et al., 2022; Alinejad et al., 2022; Fitzgerald et al., 2023). For instance, Bonfanti, Salerno, Ruggieri, and Coco (2023) proposed that FoMO is triggered by feelings of social isolation and lack of relationships, rather than the other way around through a longitudinal survey.

However, these findings have not gone unchallenged, as two main arguments emerge in contrast. Firstly, according to the multimotive theory, in the aftermath of social rejection experience, people nearly always experience three sets of motives including seeking acceptance, harming others, and withdrawal (Smart Richman & Leary, 2009). In this regard, the hypothesis under the SDT framework only focuses on one of these motives, namely FoMO as an effort by those experiencing social isolation to fulfill their need for belonging and integrate into social groups (Bonfanti et al., 2023), while overlooking the possibility of them engaging in social avoidance which is considered to be a distinct and parallel social reflection to FoMO (Dou et al., 2023). Social exclusion powerfully elicited the area that supports the sensory components of physical pain becoming active (secondary somatosensory cortex; dorsal posterior insula; Kross et al., 2011), subsequently generating social withdrawal (Bowker & Raja, 2011; Sang et al., 2018) rather than seeking to establish connection and perceived FoMO. Secondly, individuals need to have frequent and reasonably pleasant interactions with significant others, based on the belongingness hypothesis, and these interactions must occur in a stable and persistent framework of concern for each other (Baumeister & Leary, 1995). People attempt to maintain their belonging and connectedness to an acceptable level (Alutaybi et al., 2019), which means they might check social media frequently to stay in contact closely with important others (Oberst et al., 2017; Roberts & David, 2020). Consequently, FoMO arises when there is a discrepancy between expected and actual interactions within one’s social group (Alutaybi et al., 2019). In this regard, FoMO can be seen as a byproduct of excessive social belongingness and a representation of social

overload or the budget for maintaining too many social relationships. Thus Alabri (2022) suggested the perceived centrality (i.e. inclusion) generating FoMO via social media use, such that core members of the group are more likely to use social media and suffer FoMO than peripheral members.

Given the mixed-theoretical explanations and ambiguous results from existing literature, the goal of the current study is threefold. Initially, the study empirically tests the associations between the multiple dimensions of perceived social disconnectedness and connectedness and FoMO. Subsequently, we seek to answer the question: is FoMO driven by perceived social disconnectedness (e.g. loneliness and social isolation) or social connectedness (e.g. social support and belongingness)? To do so, we estimate how large each average effect is. Lastly, several theory-driven moderators in these relationships are examined, which illuminates critical areas for future research.

Although no single study can address these questions, a meta-analysis, the ideal method for synthesizing data across studies, offers a pathway toward a more definitive understanding. Our results, based on 104 independent studies conducted among 56195 participants, show that perceived loneliness and isolation, the two dimensions of perceived social disconnectedness, positively correlate with FoMO, though there is no significant association found between belongingness, social support, and FoMO. Additionally, these results remain robust even after verification through Bayesian meta-analysis, confirming the stability of the findings across different analytical approaches. Thus, the theoretical explanation of SDT was supported, which assumes FoMO is driven by feelings of disconnection. This conclusion remains robust through a series of publication bias and sensitivity analyses, including the fail-safe  $N$  method, leave-one-out analyses, and influence diagnostics. Additionally, The moderator analysis revealed that uncertainty avoidance, intellectual autonomy, harmony, and geographic area significantly moderated the relationship between loneliness and FoMO. Meanwhile, the association between social support and FoMO was moderated by participant gender and social support type.

## **1 Literature Review**

### **1.1 Perceived Social Disconnectedness and FoMO**

Following the definition of Cornwell and Waite (2009), social disconnectedness can be distinguished into two forms: objective and subjective social disconnectedness. The former can be characterized by a lack of contact with others, like a small social network and infrequent social interaction (Cornwell & Waite, 2009). The latter, by contrast, refers to the subjective experience of a shortfall in one's social resources such as companionship and support. This perception could involve feelings of loneliness, isolation, perceived absence of support, or inadequacy of intimacy in one's interpersonal relationships (van Baarsen et al., 2001; Santini et al., 2020). We focus on the relationship between the latter, perceived social connectedness, and FoMO, because FoMO is generally considered to be a subjective experience in the field of psychology, which describes people's fear of detachment and desire to stay continually connected (Kang et al., 2019; Nadkarni & Hofmann, 2012), especially Stavrova & Ren (2023) suggested that simply keeping connection

with others (e.g. spending time with others) can not reduce loneliness and may backfire. Consequently, we operationalize perceived social disconnection as feelings of loneliness and social isolation. Loneliness refers to a situation experienced by the individual as one where there is an unpleasant or inadmissible lack of (quality of) certain relationships (de Jong-Gierveld, 1987). It is different from social isolation, because socially isolated persons are not necessarily lonely, and lonely persons are not necessarily socially isolated in an objective sense (de Jong-Gierveld et al., 2006). Accordingly, although social isolation, like loneliness, is a deprivation of social connectedness (Zavaleta et al., 2014; Victor et al., 2000), it also refers to being ignored or excluded with or without explicit declarations (Williams, 2007). Ostracism, social exclusion, and rejection are often used interchangeably with social isolation (Ahn & Shin, 2013).

Perceptions of social isolation, or loneliness, enhance vigilance for potential threats and amplify feelings of vulnerability, simultaneously fostering the desire to reconnect (Hawkley & Cacioppo, 2010). This point resonates with two psychological motivations underlying FoMO (Kang et al., 2019). The first is the desire for belonging from the perspective of self-determination theory (Deci & Ryan, 1985), which can be seen as the need for social connectedness (Nadkarni & Hofmann, 2012) and “refers to the person experiencing FoMO as having a strong need for interpersonal attachments” (Kang et al., 2019). This explanation is in keeping with Przybylski, Murayama, DeHaan, and Gladwell (2013) that the individuals experiencing FoMO used social media as the ideal tool for fulfilling the “desire to stay continually connected with what others are doing”. The second is the anxiety of isolation, explained as the feeling of apprehension concerning being disconnected from their social group, which increases the risk of FoMO (Marengo et al., 2021). Both explanations collectively underscore that FoMO arises from a fear of disconnection and a strong desire to establish (re)connections, thus individuals with feelings of loneliness or social isolation may experience FoMO (Holte et al., 2022; Alinejad et al., 2022; Fitzgerald et al., 2023). However, in addition to social reconnection, self-protection also emerges as a response to loneliness, stemming from cognitive biases resulting from unconscious surveillance for social threats (Cacioppo & Hawkley, 2009; Hawkley & Cacioppo, 2010). This bias leads lonely individuals to perceive the world as more threatening, thereby decreasing the number and quality of social interactions (Cacioppo & Hawkley, 2009; Hawkley & Cacioppo, 2010). This response may not necessarily lead to a heightened FoMO, which gives a controversial explanation for the relationship between perceived social disconnectedness and FoMO. Kross et al., (2019) supported this point by suggesting that sensory components of physical pain (Secondary somatosensory cortex & Dorsal posterior insula) were elicited by social isolation, which subsequently makes individuals withdraw from social activities (Bowker & Raja, 2011) rather than seeking to establish (re)connection and to enhance FoMO as SDT hypothesized. Thus, we posed the following research question to tackle the complex relationship between perceived social disconnectedness and FoMO.

**RQ1:** What is the relationship between two dimensions of perceived social disconnectedness (i.e., perceived loneliness and isolation) and FoMO?

## 1.2 Perceived Social Connectedness and FoMO

Social connectedness is defined as the sense of belonging and subjective psychological bond that people feel in relation to individuals and groups of others (Haslam et al., 2015). It allows people to maintain feelings of being “human among humans” (Lee & Robbins, 1995). It generally denotes a combination of interrelated constructs spanning belonging to a social relationship or network (Lee & Robbins, 1995), social support, and the absence of perceived social isolation (Lamblin et al., 2017; Wickramaratne et al., 2022). Based on the definition, we operationalized perceived social connectedness in two dimensions: perceived belongingness and social support. Perceived belongingness refers to the subjective feeling of value and respect derived from a reciprocal relationship with an external referent that is built on a foundation of shared experiences, beliefs, or personal characteristics (Mahar et al., 2013). Social support, on the other hand, much like belongingness, reflects an interaction between the self and social environment, but it focuses more on the lack of an appropriate social environment, whereas belongingness focuses more on the deficiencies within the self (Lee & Robbins, 1995). As Newcomb (1990) proposed that perhaps “loneliness and social support reflect opposite poles of a psychosocial construct of personal attachment or human connectedness” (p. 482), Perceived social support involves the extent to which individuals believe they have social support and the perception of whether their social group supports them (Barrera, 1986; Kuru & Piyal, 2018), including family (Pierce et al., 2024), friends (Mahon & Yarcheski, 2017), peers (Van Beest & Baerveldt, 1999), school (Danielsen et al., 2009), and organizations (Budnick et al., 2020), among others.

The connection between perceived social connectedness and FoMO is marked by a multifaceted and intricate dynamic. For instance, Dong et al. (2024) observed a negative correlation ( $r = -.26$ ) between perceived social support and FoMO, whereas Fang et al. (2020) found a strong positive association ( $r = .55$ ) and Xie et al. (2018) reported an insignificantly weak correlation ( $r = .05, p > .05$ ). These mixed findings can be explained by several theories. Primarily, the buffering hypothesis of social support (Cohen and Wills, 1985) suggests that social support can reduce the negative effects of negative life events on mental health. So, perceived social support, regarded as individuals’ impression of whether they are supported by the social network (Barrera, 1986), can effectively alleviate one’s FoMO ( $r = -.31$ , Dou et al., 2023). Research on the relationship between belongingness and FoMO also exhibits consistency with this buffering effect, demonstrating that a sense of belonging is negatively associated with FoMO (Roberts & David, 2020), thereby suggesting that feeling of connectedness in a social relationship or network can mitigate the FoMO. However, according to the belongingness hypothesis, the inherent desire to be an integral part of a group and to maintain relationships drives individuals to seek continuous and positive interactions with others (Baumeister & Leary, 1995). Therefore, individuals with a high sense of belonging strive to keep frequent interactions with significant others to maintain their relationship at an acceptable level (Alutaybi et al., 2019). They may experience FoMO when they are unable to engage in sufficient social interactions with their highly valued groups (Alutaybi et al., 2019). Therefore, given the contradictory conclusions and theoretical explanations mentioned above, a second research question is proposed here.

**RQ2:** What is the relationship between two dimensions of perceived social connectedness (i.e., perceived social support and belongingness) and FoMO?

### 1.3 Moderating effect of culture

Volkan Dogan (2019) pointed out that the cross-cultural nature of FoMO has not been examined sufficiently in previous research and suggested that people from collectivistic cultures are more vulnerable to the FoMO experience compared with those from individualistic cultures. However, culture is a complex, multidimensional structure rather than a simple categorical variable (Clark, 1987). Therefore, although individualism-collectivism has received considerable support in culture-level analyses, reducing culture to it is far from adequate (Schwartz, 1994). In response to this, seven potential variables (individualism, uncertainty avoidance, indulgence, affective autonomy, intellectual autonomy, embeddedness, and harmony), grounded theoretical foundations, were selected from Hofstede's cultural values (Hofstede et al., 2010) and Schwartz's cultural orientations (Schwartz, 2008) for further moderation analysis in our study.

**Hofstede's Cultural Values.** We focused on three variables — individualism, uncertainty avoidance, and indulgence from Hofstede's cultural values. Individualism, as defined by Hofstede (1983), denotes a societal preference for a loosely knit social framework. This contrasts with collectivism, where tight social networks prevail (Hofstede, 1983). Previous studies (Dogan, 2019; Karimkhan & Chapa, 2021) suggested collectivist cultures may experience FoMO more acutely. Uncertainty avoidance is indicative of the extent to which individuals in a society experience discomfort with uncertainty and ambiguity (Hofstede, 1983). Yitshak Alfasi (2021) suggested individuals who experience FoMO are responding to an ambiguous situation. Thus, improving the tolerance of uncertainty could be potentially helpful in mitigating FoMO (Sun et al., 2022). Indulgence stands for a society that allows relatively free gratification of basic and natural human desires related to enjoying life and having fun as opposed to being restrained (Hofstede, 2011). Social monitoring theory suggests that people use their social monitoring abilities to gauge potential social exclusion. Within this context, FoMO is a response to this evaluation, characterized by an individual's need to be aware of others' actions and their implications for their social bonds (Chai et al., 2018). In this social monitoring system, perceived social norms regarding mobile phone use in social contexts lead individuals to fear missing out on crucial social media updates (Li et al., 2023). Thus, compared with the societies with higher indulgence, the others with lower indulgence, regulated by strict social norms (Hofstede, 2011), may experience more FoMO.

**Schwartz's Cultural Orientations.** We examined four variables, affective autonomy, intellectual autonomy, embeddedness, and harmony in Schwartz's cultural orientations. Intellectual autonomy cultures motivate individuals to follow their ideas and paths through values like broadmindedness, creativity, and curiosity (Schwartz, 2006). Meanwhile, affective autonomy cultures encourage individuals to pursue effectively positive experiences for themselves (Schwartz, 2006). These two cultural dimensions are regarding autonomy where people are viewed as autonomous, bounded entities. Przybylski et al. (2013), drawing on SDT, found a result that individuals who have a low level of satisfaction with autonomy can have a high FoMO on the use

of social media. In contrast to the autonomy value dimension, embeddedness cultures prefer a tightly knit social framework in which individuals are seen as fundamentally connected and related through relationships and group memberships (Schwartz, 2006). Finally, harmony cultures emphasize fitting harmoniously into the social environment and avoiding self-assertion aimed at exploiting or changing the environment (Schwartz, 2006), and so promoting acceptance and appreciation of the world, social justice, and conflict avoidance (Rahman, 2013). As research on problematic internet use highlighted that fostering social harmony can reduce the intensity of using the internet (Khazaei et al., 2017), it may be a potential moderator on the correlation between (dis)connectedness and FoMO.

**RQ3:** Will cultural factors (i.e., individualism, uncertainty avoidance, indulgence, affective autonomy, intellectual autonomy, embeddedness, and harmony) moderate the relationship between (dis)connectedness and FoMO?

#### **1.4 Moderating effect of sample and study characteristics**

The association between (dis)connectedness and FoMO seems to vary depending on the characteristics of recipients and studies. Consequently, several potential moderators were taken into consideration, informed by past research, including gender, geographical area, sample group, sampling method, publication status, COVID-19 context, and social support type.

**Sample Characteristics.** Regarding participant characteristics (gender, geographical area), previous studies have reported that FoMO has gender differences with women scoring higher (Elhai et al., 2018). However, Brailovskaia et al. (2023) suggested that FoMO is more prevalent among males, and the study by Rozgonjuk et al. (2021) showed no gender difference in experiencing FoMO. Moreover, while Volkan Dogan (2019) found the cross-cultural nature of FoMO, no studies have examined the possible effect of geographical location on the association between (dis)connectedness and FoMO. In fact, geographical location reflects complex entanglement between different media or platform regulatory policies (Puppis & d’Haenens, 2013), sociocultural and digital environments (Fioravanti et al., 2021), which may provide a better understanding of FoMO.

**Study Characteristics.** Findings may not be uniform across designs and publication status. Study design, sampling method (e.g. probability versus non-probability sampling, student versus non-student samples), and publication status are typically accounted for in a meta-analysis. Additionally, we have also taken into consideration two potential moderating variables: the COVID-19 context and social support type, for the following reasons. Firstly, in the context of the COVID-19 outbreak, with concerns regarding the “loneliness pandemic” (Ernst et al., 2022), individuals experienced higher unmet needs of social relatedness, which may have triggered higher levels of FoMO as a strategy to connect to others (Bonfanti et al., 2023). Secondly, social support remains a “multi-faceted and complex topic”, which can be obtained from online or offline context (Trepte et al., 2015). Individuals in fact perceive more emotional and instrumental support and higher life satisfaction in offline contexts than in the SNS context (Trepte et al., 2015). In this study, we categorize types of social support by considering their sources of acquisition. Online social

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support refers to the support individuals receive from online communities, while offline social support indicates the support individuals obtain from offline social relationships, such as parents, friends, classmates, etc. Current findings may not be uniform because of the internal differences in social support. For instance, Zhang et al. (2023) reported a positive correlation between online social support and FoMO ( $r = .48$ ), whereas a negative association ( $r = -.25$ ) between offline social support has been found (Kim, 2022). Therefore, considering the internal differences in social support, we aim to explore how these disparities influence the relationship between (dis)connectedness and FoMO and propose following question:

**RQ4:** Will Sample and Study Characteristics (i.e., gender, geographical area, sample group, sampling method, publication status, COVID-19 context, and social support type) moderate the relationship between (dis)connectedness and FoMO?