# Gender Differences in Fear of Missing Out: A Meta-Analysis

**Authors:** Zhang Yali, Zhao Jinxia, Li Yi, maneuver, Shang Shijie, Shang Shijie

**Date:** 2024-01-15T00:00:00+00:00

## Abstract

Objective: To explore gender differences in fear of missing out and influencing factors. Methods: A literature search was conducted across 12 domestic and international databases, screened using EndNote X9, ultimately including 118 eligible studies (comprising 120 effect sizes) spanning 2013 to 2023. Statistical analysis was performed using CMA3.0 in conjunction with a random-effects model. Results: The main effect showed that gender differences in fear of missing out were not significant. Moderation effects revealed that during adolescence, females' fear of missing out was significantly higher than males', whereas the opposite was true in adulthood; domestic males' fear of missing out was significantly higher than females', whereas the opposite was true abroad; using the Song Xiaokang version scale, male fear of missing out scores were significantly higher than females', whereas other tools showed the opposite. The moderating effects of publication year and publication type were both non-significant. Conclusion: Gender differences in fear of missing out are influenced by age stage, sampling region, and measurement tools, necessitating case-by-case analysis in research and intervention.

## Full Text

### Gender Differences in Fear of Missing Out: A Meta-Analysis

**Yali Zhang[1], Jinxia Zhao[1], Yi Li[2], Xuan Zhou[3], Shijie Shang[1]***

[1]College of Education, Hebei Normal University, Shijiazhuang 050024, China
[2]School of Civil Engineering, Tangshan University, Tangshan 063000, China
[3]Zhengding Town Middle School, Zhengding County, Shijiazhuang 050800, China

**Abstract**

**Objective:** To investigate gender differences in Fear of Missing Out (FoMO) and their influencing factors. **Methods:** A systematic literature search was conducted across 12 domestic and international databases. EndNote X9 was used for screening, resulting in 118 eligible studies (comprising 120 effect sizes) published between 2013 and 2023. Statistical analyses were performed using Comprehensive Meta-Analysis Version 3.0 (CMA3.0) with a random-effects model. **Results:** The main effect analysis revealed no significant gender difference in FoMO overall. However, moderation analyses showed that during adolescence, females exhibited significantly higher FoMO than males, whereas the opposite pattern emerged in adulthood. Domestic studies found significantly higher FoMO in males than females, while international studies showed the reverse pattern. When using the Song Xiaokang version of the scale, males scored significantly higher than females, whereas other measurement tools yielded the opposite pattern. Neither publication year nor publication type significantly moderated the effect. **Conclusion:** Gender differences in FoMO are influenced by developmental stage, sampling region, and measurement instrument. Researchers and intervention practitioners should consider these contextual factors in their work.

**Keywords:** Fear of Missing Out; FoMO; gender difference; meta-analysis

**Funding:** This research was supported by the Scientific Research Project of Hebei Provincial Department of Education (SQ2024178).

**Corresponding Author:** Shijie Shang, Ph.D., Associate Professor, Master's Supervisor; Email: shangshijie@163.com

**Received:** September 26, 2022

---

Fear of Missing Out (FoMO), also translated as "fear of missing out," refers to a complex emotional experience dominated by anxiety, accompanied by fear, loss, worry, and depression, arising from concerns about missing potentially beneficial resources or experiences [1]. This phenomenon is particularly pronounced in today's digital media landscape. Research indicates that FoMO is most severe during later hours of the day and on weekends, and across the lifespan, 66% of individuals have experienced this fear, with the highest prevalence among 18- to 33-year-olds, peaking at age 24 [2-3]. Furthermore, FoMO is closely associated with a range of internalizing and externalizing problems, including increased stress, reduced well-being, depressive symptoms, poor sleep quality, and problematic behaviors such as digital media dependency, relational aggression, procrastination, and cognitive failures [2-6], all of which significantly impair psychological and physical health. Consequently, this phenomenon has attracted considerable research attention, with preliminary investigations into its risk factors and initial applications in intervention work. However, inconsistent findings regarding gender differences in FoMO have persistently troubled

researchers in this field. Some studies have found that males exhibit significantly higher FoMO than females, while others report the opposite pattern, and still others find no significant gender difference [6-8]. These contradictory results have created uncertainty about whether gender should be controlled for in statistical analyses, particularly for mental health educators who need to determine which gender experiences higher FoMO to guide intervention policy development and effectiveness evaluation. Such questions are difficult to resolve through individual primary studies and cannot provide a comprehensive macro-level perspective. Therefore, this study employs meta-analysis to examine this issue and explore potential influencing factors.

Current perspectives on whether gender differences exist in FoMO can be broadly categorized into two major theoretical frameworks with three specific viewpoints. The first is the gender difference hypothesis, which posits that gender differences in FoMO do exist. According to social role theory, external environments impose different role expectations and demands on different genders during socialization, leading to gender differences in various psychological and behavioral indicators [9]. However, the specific pattern of these differences may vary across cultures and age groups, giving rise to two sub-viewpoints. One sub-viewpoint argues that males experience higher FoMO than females. For instance, influenced by traditional Chinese culture, males bear greater social responsibilities and face more intense social survival and competitive pressures, making them more attentive to external developments to avoid missing important experiences, thereby experiencing higher FoMO [10-11]. Some empirical studies support this claim [7,11]. The alternative sub-viewpoint contends that females experience higher FoMO than males, drawing from traditional psychopathology research suggesting that females are more susceptible to internalizing problems due to physiological and innate factors. Their relatively lower levels of positive psychological resources such as psychological resilience make them more vulnerable to FoMO and less able to cope with it [8], a notion also supported by some studies [8]. Generally, researchers holding these viewpoints advocate controlling for gender as a covariate to reduce statistical interference.

In stark contrast to the gender difference hypothesis is the gender similarities hypothesis [12], which argues that males and females are similar on most psychological variables. Even when differences exist, they are not stable and change with social context and developmental age. Therefore, FoMO levels may not differ significantly overall. In today's internet culture, individuals of different ages and genders are similarly affected, potentially experiencing comparable levels of FoMO [6,13]. As these debates remain unresolved and research findings show substantial variation, meta-analysis is necessary to estimate the overall gender difference in FoMO and clarify these controversies from a macro perspective.

Moreover, variations across studies may be influenced by factors such as age, geographical region, and publication year. Regarding age, adolescence represents a critical period of physical and psychological development where various psy-

chological functions and qualities are not yet mature, and gender differences in developmental pace may lead to pronounced gender differences in FoMO, with females' earlier psychological maturation potentially resulting in lower FoMO [14]. In adulthood, as psychological functions mature in both genders and they face similar social adaptation contexts, gender differences may become less pronounced [15]. Concerning cultural differences, domestic and international contexts exhibit different cultural styles and traditions. Chinese traditional culture includes the notion of "raising sons in poverty and daughters in wealth," which may provide more care and fulfillment of psychological needs for females while leaving males with less support. Consequently, gender differences in FoMO may be more pronounced in China, with males experiencing higher FoMO [1]. Western countries may have stronger capitalist-oriented cultures of equality, freedom, and democracy, with more similar social roles and experiences across genders, potentially resulting in less pronounced gender differences [16]. Regarding measurement instruments, some studies use the most common general FoMO scale, while others employ state FoMO scales or state-trait FoMO scales. Different instruments emphasize different construct facets and contain varying numbers of items, which may lead to different patterns of gender differences [7,17-18]. Finally, concerning publication year, the proliferation of internet culture, global cultural integration, universal education, and convergence of gender role performance may render gender differences in FoMO less pronounced in similar social contexts [1]. Thus, temporal development may narrow gender differences in FoMO.

In summary, primary studies cannot adequately examine these issues from a macro perspective. Therefore, this study employs meta-analysis to clarify gender differences in FoMO and analyze potential influencing factors, aiming to derive more general and accurate conclusions from a macro-level perspective to better serve researchers and mental health educators.

### 1.1 Literature Search and Coding

First, Chinese databases (CNKI journals and dissertations, Wanfang journals and dissertations, and VIP journals) were searched for literature with "fear of missing out," "FoMO," or "omission anxiety" in titles or abstracts. Second, English databases (Web of Science Core Collection, ElsevierSD, Springer Online Journals, Medline, EBSCO-ERIC, SAGE Online Journals, Scopus, PsycINFO, PsycArticles, and ProQuest Dissertations and Theses) were searched for literature with "Fear of Missing Out" or "FoMO" in titles or abstracts. The search deadline was November 30, 2022. Additionally, citation tracking was used to supplement the literature search, yielding a total of 2,477 records.

EndNote X9 was then used to import and screen literature according to the following criteria: (1) studies reporting relevant data on gender differences in FoMO (e.g., means, standard deviations, sample sizes) without obvious errors, excluding data obtained from multiple regression analyses; (2) studies with clear descriptions of measurement instruments; (3) duplicate publications were in-

cluded only once; (4) studies with special populations (e.g., AIDS patients) were excluded. Ultimately, 118 studies (comprising 120 effect sizes) were included, spanning 2013 to 2023. The detailed screening process is shown in [Figure 1: see original paper].

Finally, studies were coded for the following characteristics: author, publication year, effect size, sampling country, and participant age group. Coding was performed independently by two raters, achieving 98% agreement. Discrepancies were resolved by reviewing original literature and discussion. Detailed coding data are available at: https://osf.io/n9fj3/?view_{only}=0e47698f60e4414fa307902543b44797

### 1.2 Data Processing

Cohen's $d$ was used as the effect size index. Comprehensive Meta-Analysis Version 3.0 (CMA3.0) was employed to conduct main effect and moderation effect tests using random-effects models, as well as publication bias tests. To ensure rigorous results, moderation effect tests were conducted using multiple meta-regression to examine the unique contribution of individual factors while controlling for inter-factor influences.

### 2.1 Publication Bias Test

Egger's linear regression test revealed an intercept of 0.44, 95% CI [-1.00, 1.89], $p = 0.55$, which was non-significant. Visual inspection of the funnel plot also showed that effect sizes were primarily concentrated in the upper portion and evenly distributed on both sides of the overall effect ([Figure 2: see original paper]). The trim-and-fill method indicated that after adding 8 studies to the right side, the main effect estimate remained non-significant. These results suggest that publication bias is absent and the meta-analytic estimates are reliable.

### 2.2 Main Effect Test

Given that studies used different instruments, involved different age stages, and varied in cultural background, a random-effects model was employed. Results showed that the overall effect size for gender differences in FoMO was 0.009, 95% CI [-0.030, 0.049], which includes zero, indicating no significant gender difference. Sensitivity analysis revealed that effect sizes ranged from 0.003 to 0.015 after excluding any single study, demonstrating high stability of the estimates.

### 2.3 Moderation Effect Test

Heterogeneity analysis indicated significant heterogeneity across studies ($Qb = 876.04$, $p < 0.001$), suggesting that study characteristics may moderate effect sizes. To ensure rigorous results, multiple meta-regression was used to examine moderating variables affecting effect size magnitude. Results showed that publication year did not significantly moderate the effect ($b = -0.009$, $p = 0.42$).

Age stage significantly moderated the effect ($b$ = -0.16, $p < 0.001$), with males showing significantly higher FoMO than females in adulthood, while the opposite pattern emerged in adolescence. Sampling region significantly moderated the effect ($b$ = 0.09, $p$ = 0.04), with domestic studies showing higher FoMO in males than females and international studies showing the reverse pattern. Publication type ($b$ = -0.02, $p$ = 0.58) and measurement instrument ($Q$ = 11.57, $df$ = 5, $p$ = 0.04) significantly moderated gender differences in FoMO. Specifically, males scored higher than females when using the Song Xiaokang FoMO scale, while other instruments showed the opposite pattern ().

** Effect Size Estimates for Different Subgroups of Categorical Variables**

| Category | $k$ | Estimate | Lower Limit | Upper Limit | $z$ |
|---|---|---|---|---|---|
| **Region** | | | | | |
| International | 52 | -0.037 | | | |
| Domestic | 68 | 0.041 | | | |
| **Publication Type** | | | | | |
| Unpublished | 44 | 0.038 | | | |
| Published | 76 | -0.008 | | | |
| **Measurement Instrument** | | | | | |
| FoMO-P | 75 | 0.009 | | | |
| FoMO-L | 19 | 0.013 | | | |
| FoMO-W | 7 | | | | |
| Other | 12 | -0.013 | | | |
| FoMO-S | 3 | | | | |
| FoMO-WS | 4 | | | | |

*Note: FoMO-P = FoMO Scale developed by Przybylski et al. [19]; FoMO-L = Chinese version revised by Li Qi et al. [20]; FoMO-W = State-Trait FoMO Scale developed by Wegmann et al. [21]; FoMO-WS = State FoMO subscale; FoMO-S = Mobile Social Media FoMO Scale developed by Song Xiaokang et al. [22]; Other = mixed group of measurement tools used fewer than 3 times.*

## 3 Discussion and Analysis

Previous research on gender differences in FoMO has yielded inconsistent findings and created confusion for researchers and mental health educators, yet no study has integrated and clarified these contradictions. This study is the first to estimate gender differences in FoMO from a macro-level perspective using meta-analysis, finding no significant overall gender difference. This result clarifies current debates in the literature and generally supports the gender similarities hypothesis.

Previous meta-analyses have found that both generalized anxiety and specific anxiety types (e.g., math anxiety) show significantly higher scores in females

than males overall [12]. Our divergent findings suggest that FoMO, as a subtype of generalized anxiety, may have unique characteristics and represents a relatively common phenomenon across genders in contemporary society. This result may also relate to current cultural trends in social media usage, as research has shown that social media use, particularly passive social networking site use, can trigger FoMO [1,5]. With the global proliferation of mobile internet devices, social media has become an integral part of daily life, deeply embedded across age groups and recently extending to children and older adults [1,23]. This explosion of information presentation has fostered FoMO across genders, as people increasingly worry about missing important resources or experiences, making FoMO quite universal [15]. Additionally, moderation by age group and cultural region may contribute to the overall non-significant gender difference, indicating that this pattern is context-dependent.

Our findings reveal that gender differences in FoMO are dynamic across development, with females showing significantly higher FoMO than males during adolescence, while males exhibit higher FoMO than females in adulthood. This opposing pattern across developmental stages (with opposite effect directions in adolescence and adulthood) contributes to the non-significant overall effect, necessitating age-specific interpretations. This pattern relates to differential psychological development rates, as females mature psychologically earlier during adolescence, with more pronounced self-awareness development and greater attention to peer evaluation and social comparison, fearing the loss of important information or experiences that could result in personal costs, thereby experiencing higher FoMO [24]. In adulthood, males' psychological development approaches maturity, with enhanced self-awareness making them more conscious of increasingly competitive social demands and greater survival pressures and social responsibilities. From an evolutionary psychology perspective, to ensure better survival, males need to maintain attention to important resources or experiences to remain competitive, resulting in higher FoMO than females [25].

The study also found that gender differences in FoMO may be influenced by sampling region, with domestic studies showing significantly higher FoMO in males than females, while international studies show the opposite pattern. Different regions may be influenced by different cultural values. Chinese culture, shaped by "men work outside, women work inside" traditions, places greater survival pressure on males, making them more concerned about gaining competitive advantages and more worried about missing important information or activities, resulting in higher FoMO than females. In contrast, Western cultures may be less influenced by such traditions, with more deeply ingrained gender equality concepts, and females may fear missing out on exciting activities and information to maintain their importance in family decision-making, resulting in higher FoMO [10,26]. Additionally, gender differences in FoMO were found to be influenced by measurement instruments, with males scoring higher than females when using the Song Xiaokang FoMO scale, while other scales showed the opposite pattern. This relates to males' higher socialization demands, as they play important roles in social and family survival and need relative ad-

vantages to adapt and survive. The Song Xiaokang scale focuses on FoMO experienced in online environments where males encounter more information, particularly idealized content, which can evoke survival-related fears and trigger higher FoMO [18]. Other instruments also measure FoMO related to social relationships, novel information, and shopping—domains that may be more salient for females, resulting in higher FoMO scores for women [27].

Furthermore, gender differences in FoMO were not influenced by publication year or type. Regarding publication year, although increasing education levels and cultural innovation may narrow gender differences, particularly with the advancement of lifelong learning concepts that instill historical responsibility and mission across individuals, compelling everyone to keep pace with developments and improve themselves, gender differences in FoMO may gradually diminish over time [28-29]. In conclusion, these findings provide empirical support for researchers to control for the additional influence of gender differences in FoMO during data analysis. They also offer practical insights for mental health educators, suggesting that prevention and intervention efforts for FoMO should pay special attention to females among Chinese adolescents and to males among Chinese adults.

**References**

[1] Zhang YL, Li S, Yu GL. The relationship between social media use and fear of missing out: A meta-analysis [J]. *Acta Psychologica Sinica*, 2021, 53(3): 273-290.
[2] Huguenel BM. Fear of missing out: A moderated mediation approach to social media use [D]. Loyola University Chicago, 2017.
[3] Milyavskaya M, Saffran M, Hope N, et al. Fear of missing out: prevalence, dynamics, and consequences of experiencing FoMO [J]. *Motivation and Emotion*, 2018, 42(5): 725-737.
[4] Zhang YL, Li S, Yu GL. The relationship between college students' fear of missing out and cognitive failures: The mediating role of mobile social media dependence [J]. *Chinese Journal of Clinical Psychology*, 2020, 28(1): 67-70+81.
[5] Zhang YL, Chen YM, Jin JJ, et al. The relationship between fear of missing out and social media addiction: A cross-lagged analysis [J]. *Chinese Journal of Clinical Psychology*, 2021, 29(5): 1082-1085.
[6] Servidio R, Sinatra M, Griffiths MD, et al. Social comparison orientation and fear of missing out as mediators between self-concept clarity and problematic smartphone use [J]. *Addictive Behaviors*, 2021: 107014.
[7] Sindermann C, Yang H, Liu T, et al. WeChat—Its problematic use and relations with the big five personality traits and fear of missing out [J]. *Journal of Technology in Behavioral Science*, 2021, 6(2): 397-405.
[8] Brunborg GS, Skogen JC, Burdzovic Andreas J. Fear of missing out and binge-drinking among adolescents [J]. *Drug and Alcohol Review*, 2022, 41(1): 230-237.
[9] Archer J. Sex differences in social behavior: Are the social role and evolutionary explanations compatible? [J]. *American Psychologist*, 1996, 51(9): 909-917.

[10] Zhang YL, Lu GZ, Jin TL, et al. The influence of college students' mobile phone addiction tendency on interpersonal adaptability: The mediating role of alexithymia [J]. *Chinese Journal of Special Education*, 2018(02): 83-88.
[11] Kargın M, Türkben Polat H, Coşkun Şimşek D. Evaluation of internet addiction and fear of missing out among nursing students [J]. *Perspectives in Psychiatric Care*, 2020, 56(3):
[12] Hyde JS. The gender similarities hypothesis [J]. *American Psychologist*, 2005, 60(6):
[13] Leung ANM, Law W, Liang YY, et al. What explains the association between usage of social networking sites (SNS) and depression symptoms? The mediating roles of self-esteem and fear of missing out [J]. *International Journal of Environmental Research and Public Health*, 2021, 18(8): 3916.
[14] Chai HY, Niu GF, Lian SL, et al. Why social network site use fails to promote well-being? The roles of social overload and fear of missing out [J]. *Computers in Human Behavior*, 2019, 100: 85-92.
[15] Sha P, Sariyska R, Riedl R, et al. Linking internet communication and smartphone use disorder by taking a closer look at the Facebook and WhatsApp applications [J]. *Addictive Behaviors Reports*, 2019, 9: 100148.
[16] Hadlington L, Binder J, Stanulewicz N. Fear of missing out predicts employee information security awareness above personality traits, age, and gender [J]. *Cyberpsychology, Behavior, and Social Networking*, 2020, 23(7): 459-464.
[17] Zhu LJ, Yan TH, Zhang SC, et al. The relationship between childhood psychological neglect and smartphone addiction among college students: The mediating role of fear of missing out [J]. *Chinese Journal of Clinical Psychology*, 2021, 29(2): 357-360.
[18] Ma L. A cross-lagged analysis of college students' passive social networking site use and fear of missing out [J]. *Chinese Journal of School Health*, 2020, 41(1): 70-72.
[19] Przybylski AK, Murayama K, DeHaan CR, et al. Motivational, emotional, and behavioral correlates of fear of missing out [J]. *Computers in Human Behavior*, 2013, 29(4): 1841-1848.
[20] Li Q, Wang JN, Zhao SQ, et al. Validity and reliability of the Fear of Missing Out Scale for college students [J]. *Chinese Mental Health Journal*, 2019, 33(04): 312-317.
[21] Wegmann E, Oberst U, Stodt B, et al. Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet-communication disorder [J]. *Addictive Behaviors Reports*, 2017, 5: 33-42.
[22] Song XK, Zhao YX, Zhang XH. Research on the construction of the Fear of Missing Out (FoMO) scale for users in mobile social media environments [J]. *Library and Information Service*, 2017, 61(11): 96-105.
[23] Twenge J, Cooper A, Joiner T, et al. Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017 [J]. *Journal of Abnormal Psychology*, 2019, 128(3): 185-199.
[24] Fabris MA, Marengo D, Longobardi C, et al. Investigating the links between fear of missing out, social media addiction, and emotional symptoms in

adolescence: The role of stress associated with neglect and negative reactions on social media [J]. *Addictive Behaviors*, 2020, 106: 106364.
[25] Gullu BF, Serin H. The relationship between Fear of Missing Out (FoMO) levels and cyberloafing behaviour of teachers [J]. *Journal of Education and Learning*, 2020, 9(5):
[26] Aktura SÇ, Özden G, Sarıtaş SÇ. Undergraduate nursing students' stress and fear of missing out [J]. *Journal of Nursing Education*, 2021, 60(10): 559-565.
[27] Geng J, Bao L, Wang H, et al. The relationship between childhood maltreatment and adolescents' cyberbullying victimization: The new phenomenon of "cycle of victimization" [J]. *Child Abuse & Neglect*, 2022, 134: 105888.
[28] Yang H, Liu B, Fang J. Stress and Problematic Smartphone Use Severity: Smartphone Use Frequency and Fear of Missing Out as Mediators [J]. *Frontiers in Psychiatry*, 2021, 12: 594.
[29] Phillips WJ, Wisniewski AT. Self-compassion moderates the predictive effects of social media use profiles on depression and anxiety [J]. *Computers in Human Behavior Reports*, 2021, 4:

*Note: Figure translations are in progress. See original paper for figures.*