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An Investigation of Disease Fear, Self-Disclosure, and Social Support Based on the SOR Model: An Analysis of the Negative Moderating Effects of Mindfulness Intervention Training

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Abstract:
In the context of social media increasingly emerging as a "new form of infrastructure," the interplay between social media and users' daily lives has become more pronounced. This study is grounded in the current prevalence of social media and employs empirical research methods to explore how individuals' fears related to disease during a pandemic are disclosed through social media platforms. Additionally, it examines the moderating effects of social support and mindfulness intervention training within this process. The research methodology encompasses surveys and data analysis, collecting extensive feedback from social media users. This approach validates the mediating role of self-disclosure between disease fear and social support, as well as the moderating influence of mindfulness intervention training. The findings indicate that during the pandemic, individuals' fear of disease intensifies, prompting them to disclose more on social media in search of social support. Furthermore, mindfulness intervention training effectively alleviates the tension between disease fear and self-disclosure, thereby promoting healthier social media usage behaviors. In conclusion, this study underscores the significance of social media as a channel for psychological support during disease outbreaks and highlights the efficacy of mindfulness intervention training.

Keywords: SOR model; disease fear; self-disclosure; social support.

INTRODUCTION

The development and popularization of social media have profoundly transformed how people access information and communicate. However, amid the global pandemic of infectious diseases, social media users are confronted with a new challenge: the "online contagion" of disease fear. Traditionally, concerns about infectious diseases were rooted in offline interactions, such as direct contact with patients or contaminated objects. Yet, with the widespread use of social media, disease-related information now proliferates through online channels, encompassing topics ranging from news reports and expert opinions to personal experiences. While such information can provide valuable insights into disease transmission, symptoms, prevention, and treatment, it is often marred by issues such as information overload, inaccuracy, and the amplification of panic.

Social media information contagion refers to the phenomenon where information obtained through social media platforms influences individuals' emotions, attitudes, and behaviors. Pennycook's (2020) research highlights that this contagion effect is particularly pronounced in the context of disease fear. On one hand, social media amplifies fear by disseminating disease-related anxieties. On the other hand, it can propagate misinformation, exacerbating unnecessary panic. For instance, during the COVID-19 pandemic, rumors such as "Shuanghuanglian can prevent COVID-19" and "pets can spread the virus" significantly heightened public anxiety.

To systematically examine this phenomenon, this study adopts the Stimulus-Organism-Response (SOR) model as its theoretical framework. Within this model, disease fear serves as the stimulus, prompting individuals to engage in self-disclosure as an organism (psychological) response, which in turn leads to the behavior of seeking social support. Furthermore, the study explores the moderating role of mindfulness intervention training in mitigating the relationship between disease fear and self-disclosure intentions. By integrating these elements, this research aims to provide a comprehensive understanding of how disease fear manifests and is managed in the context of social media, offering valuable insights for both public health strategies and platform interventions.

LITERATURE REVIEW AND RESEARCH HYPOTHESIS

Hypothesis of Social Connection Triggered by Fear

The Hypothesis of fee-eliciting Affiliation proposed by Luminet means that among a series of negative emotions related to self-disclosure, fear is the most prominent, that is, when people think that the consequences of risks are unclear or uncertain[1], fear is activated. Research by Janis (1967) states that too much fear leads people to make more social connections and make self-disclosure, but too little fear also means insufficient motivation for social connections. Kirkpatrick and Shaver (1988) pointed out that people tend to make social connections with others and obtain social support through self-disclosure to reduce fear when coping with stressful events (i.e. situations in which uncertain or unclear events arise).

Recent research also tends to support the hypothesis that fear triggers social connection. Studies have found that exposure to fear has a critical impact on individuals' motivation to seek the company of others (Dunlop, 2008) and their ability to process information (Dillard, 2020). Another type of research suggests that exposure to fear may have negative cognitive consequences, which Luminet (2000) points out will affect the user's interpersonal relationships, i.e. in a specific fear environment, the user self-discloses through social bonding in social platforms, revealing personal information to others. Jiang's (2011) study found that due to interpersonal attribution, people will feel more intimate with each other when self-disclosure is made online rather than offline. Therefore, the relationship between fear and user self-disclosure is consistent with the hypothesis that fear inspires social connection. These relationships are characterized by users using social media and engaging in self-disclosure. Especially during the pandemic, the associated fear will affect the multidimensional variable relationship of social media users' self-disclosure, that is, social media users in a fearful environment will pay less attention to personal privacy in order to get in touch with others and reduce uncertainty.

Research hypothesis

Fear of Illness Positively Affects Self-Disclosure

Fear refers to a strong physiological or psychological reaction caused by some uncertain or unpredictable factors that the body does not know what to do (Vickberg, 2003). And Fear of Disease refers to the disease-related fear of individuals, including the fear of recurrence, deterioration, metastasis or possible recurrence of the disease in the future (Hodge, 2009). Fear of disease is closely related to the patient's own disease and always exists along with the existence of the disease, with a certain stability and persistence (Song Yuping, 2018). Among a series of self-related fear emotions, fear of disease is the most prominent. When people are unclear or uncertain about the risks and consequences of the disease, fear of disease is the most prominent. Fear of disease will be activated (Lench and Levine, 2005). Janis (1967) pointed out that an individual's fear of illness can affect his or her motivation to make social connections. In addition, Fiorillo's study investigated the impact of COVID-19 on individuals' mental health, with a particular focus on people's fear of illness and infection[2]. The study noted that due to the visibility and widespread spread of COVID-19, especially when exposed to potential infection or contact with sick people, many people may experience anxiety and fear of illness, which can have a range of effects on individuals, including anxiety, depression, sleep problems and coping difficulties.

Situational factors refer to the external environment that affects one's willingness to disclose privacy. Different countries have different national conditions and different cultures, which will affect the willingness to self-disclosure[3]. Fear situations arising from illness also affect self-disclosure intention. The hypothesis of fear-eliciting affiliation holds that exposure to fear environment, Can have a critical impact on an individual's motivation to seek the company of others and on their ability to process information systematically[4-5]; And may have negative cognitive consequences as exposure to fear deepens, such as a breakdown in emotional states and recurring negative thoughts or imaginings. Individuals may engage in emotional communication with others through social media in order to alleviate their fear of illness, thereby enhancing their willingness to self-disclose (Luminet, 2000). Jiang(2011) found that due to Situational Attribution, people feel more intimate when self-disclosure is made online rather than in real life. In this study, Sinclair designed the Brief Resilient Coping Scale to assess individuals' coping styles in fear situations and explore the relationship between disease fear and positive self-disclosure[6]. The results showed that fear of illness promotes positive self-disclosure, which in turn leads to more positive and flexible coping styles.

Therefore, hypothesis H1: During the pandemic period, there was a positive correlation between the fear of disease and the intention of self-disclosure.

Self-Disclosure Positively Affects Social Support

The first step to obtain social support is self-disclosure, that is, people often choose to disclose their personal difficulties and related needs to seek social support when facing problems (Chaudoir, 2010). Social penetration theory points out that the establishment of social relationships is a gradual process, which is achieved through self-disclosure, and the degree of intimacy that individuals choose to disclose information will have a positive impact on the establishment and maintenance of social relationships with others. With the deepening of intimacy of information disclosed by individuals, people's communication will also develop to a more intimate and deeper level (Altman and Taylor, 1973). These interpersonal relationships are important resources for individuals to obtain social support, so self-disclosure also has more instrumental attributes. However, individuals who are unwilling to disclose their difficulties to others may not be able to obtain this support (Derlega, 1984). Conversely, for individuals seeking social support, self-disclosure through an online environment is required in order to connect with others (Wang et al, 2015). Therefore, individuals in distress are more likely to get social support from others through self-disclosure. Heather (2015) pointed out that when individuals are in trouble, they are more inclined to express their inner feelings of helplessness or guilt through self-disclosure, so as to attract others' attention and support. Pennebaker's research found that[7] when individuals are experiencing difficulties or pain, they will obtain social support through self-disclosure, so as to reduce negative emotions and psychological pressure and achieve emotional and physical relief or recovery. Brandao (2017) found that breast cancer patients can obtain social support from family, friends or colleagues through self-disclosure, so as to reduce negative emotions and improve psychological adjustment ability. Reis's research explored the impact of self-disclosure on an individual's daily happiness[8]. Through self-disclosure, an individual can establish contact with others and obtain social support, which can satisfy their needs for autonomy, competitiveness and social relations, and thus improve their happiness.

Therefore, hypothesis H2: there is a positive correlation between users' self-disclosure and obtaining social support from others during the pandemic.

In addition, based on the above literature analysis, both fear of disease and self-disclosure and self-disclosure and social support are supported by relevant research. This study proposes that self-disclosure can be investigated as an intermediary variable between fear of disease and social support.

Therefore, hypothesis H3: During the pandemic, users' self-disclosure played a mediating effect between fear of disease and social support.

The Moderating Effect of Mindfulness Intervention Training

(I) Mindfulness intervention training and fear of illness

Kabat-Zinn(1992) first explored the specific application of mindfulness intervention training in the treatment of anxiety disorders. Studies have found that through mindfulness intervention training, patients can better recognize the symptoms and triggers of anxiety disorder, and learn to face anxiety disorder with an accepting and non-judgmental attitude. Such psychological training conducted by external intervention can reduce anxiety symptoms and fear of disease, and improve the quality of life. Rosenzweig(2010) mainly focused on the effect of mindfulness intervention training on patients with chronic pain; Keng, Smoski and Robins' study (2011) focused on the effects of mindfulness intervention training on mental health; Fjorback(2013) focused on the effects of mindfulness intervention training in alleviating somatization disorders and functional body symptom syndroms in patients with depression. The results of the above studies indicate that through mindfulness intervention training, patients can learn to pay attention to the specific sensations of the current body, accept the existence of pain, and reduce the negative evaluation of pain. This mental shift can help patients reduce their anxiety and fear of pain, which can improve their mental health. In addition, Hofmann(2010) conducted a Meta-Analytic study of mindfulness intervention training for anxiety disorders and depression. The results of this study found that patients with anxiety or depression who received mindfulness intervention training showed significant improvement in anxiety and depression symptoms compared with patients who did not receive mindfulness intervention training. This suggests that mindfulness training can be used as an effective psychotherapy to relieve symptoms such as anxiety and

depression, thereby reducing patients' fear of the disease. Through the literature review, this study found that mindfulness intervention training can effectively reduce or alleviate the low psychosocial safety atmosphere perceived by users during the epidemic of infectious diseases, and then prevent these negative social emotions from transforming into disease fear.

Therefore, hypothesis H4: During the infectious disease pandemic, there was a significant negative correlation between users' mindfulness intervention training and fear of disease.

H4a: Users who received mindfulness intervention training had lower disease fear during the infectious disease pandemic.

H4b: Users who did not receive mindfulness intervention training had higher disease fear during an infectious disease pandemic.

(II) Mindfulness intervention training and self-disclosure

In addition, studies have shown that the improvement of mindfulness intervention training level can also reduce or alleviate social media users' willingness to self-disclose and reduce a series of negative emotions caused by self-disclosure overload. Vanessa's (2019) study explored the relationship between mindfulness intervention training and social media self-disclosure intention, and found that mindfulness training can help individuals better deal with stress and miss anxiety, so as to regulate social media users' self-disclosure intention, that is, by improving the level of mindfulness training, Individuals can better recognize their own behavior of using social media and enhance their awareness of internal experience and external stimuli, thus helping them to make more reasonable self-disclosure. Galante's research explored the effects of mindfulness intervention training on self-disclosure intentions[9]. It has been found that mindfulness intervention training can improve individuals' self-awareness and self-identity, thereby increasing their tendency to self-disclose. This suggests that through mindfulness intervention training, individuals' positive changes in self-identity may prompt them to make more reasonable self-disclosure. Elhai's (2016) research focused on the relationship between smartphone use and the pathology of psychological disorders such as anxiety and depression. The results show that mindfulness intervention training can not only help reduce anxiety and depression, but also reduce the continuous use of social media, so as to encourage users to make healthier self-disclosure on social media. Li's study examined the characteristics of Internet addiction and pathological self-disclosure among American college students[10]. The results confirmed that improving self-regulation ability through mindfulness intervention training focusing on introspection, attention and self-regulation can help alleviate users' willingness to make pathological self-disclosure on social media. In addition, Weinstein's (2009) study explored the effects of mindfulness intervention training on individuals' coping with stress and emotional regulation. The results show that mindfulness intervention training can change the way individuals attribute stressors, reduce the occurrence of negative emotions, improve mental health and coping ability, and enhance emotional stability and positive emotion experience, thus reducing unhealthy self-disclosure.

Therefore, hypothesis H5: There is a negative correlation between users' mindfulness intervention training and their willingness to self-disclose during an infectious disease pandemic.

(III) The moderating effect of mindfulness intervention training

Mindfulness intervention training is a state of attention and awareness that focuses on the present moment. By cultivating mindfulness, people can improve their awareness of inner thoughts, emotions and external environments, and better deal with various challenges and stresses. Mindfulness intervention training, initially applied mainly to the traditional areas of meditation and physical and mental health, can either play a mediating role (Xiujuan Yang, 2021) or become a moderating variable[11]. In recent years, more and more studies have explored the moderating effect of mindfulness intervention training on social media users' willingness to self-disclose. After mindfulness intervention training, individuals will better deal with the negative factors brought by their own social environment, so that the effect of mindfulness intervention training on the self-disclosure willingness of social media platform users will be significantly reduced. Kuss (2017) proposed that mindfulness intervention training can enhance individuals' awareness of their inner experience and external environment, and help them better deal with the challenges and pressures brought by the external environment. The results of Bluth's (2017) study showed that emotionally disturbed adolescents who underwent mindfulness intervention training

achieved positive changes in mindfulness, self-care and emotional regulation. This suggests that mindfulness-based intervention training can help adolescents with mood disorders overcome such mental illness and cultivate positive self-disclosure willingness and improve emotional well-being. Lindsay's (2019) study pointed out that mindfulness intervention training had a significant impact on reducing patients' feelings of loneliness, namely, by modulating the fear of loneliness and social disconnection, and encouraging healthy self-disclosure with others in daily life.

According to the above research, it can be inferred that through mindfulness training, users can improve their awareness, better deal with the pressure and difficulties they face during the pandemic period, and play the regulatory role of mindfulness training to alleviate the overload of self-disclosure willingness caused by the fear of infectious diseases.

Therefore, hypothesis H6: During the pandemic period, users' mindfulness intervention training had a negative moderating effect on the relationship between fear of disease and willingness to self-disclose.

Hypothesis H6a: During the pandemic period, the negative moderating effect between the fear of disease and the intention of self-disclosure was stronger for users who underwent mindfulness intervention training.

Hypothesis H6b: During the pandemic period, the negative moderating effect between fear of disease and intention of self-disclosure was weaker for users who had not been trained in mindfulness intervention.

Model construction

Based on SOR model, this study regards fear of disease as a stimulus factor, self-disclosure as an individual psychological factor, and social support as a behavioral factor, and mindfulness intervention training has a negative regulating effect on the relationship between fear of disease and self-disclosure intention. The specific model is shown in FIG. 1:

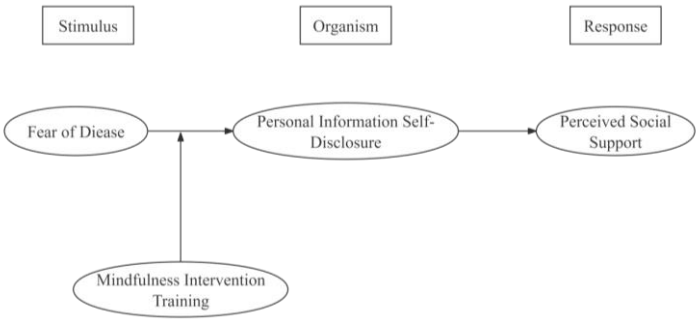

Figure 1 Mechanism model of social support of social media users during the pandemic

RESEARCH DESIGN

Research Object

This study selects subjects according to the homogenous sampling principle commonly used in controlled experimental research. According to the calculation results of the statistical Power (sample size) calculation software G*Power 3.1, 128 subjects were predicted to reach the 80% statistical power level when significance level α=0.05 and effect size f=0.25[12]. The author published volunteer recruitment information in chat groups and general courses of a university in Jiangxi Province. A total of 130 volunteers were recruited who were willing to participate in the group assistance, and then randomly assigned 65 volunteers to the intervention group and the waiting control group.

Variable Measurement and Model Evaluation

To evaluate the effect of mindfulness intervention training, participants' fear of illness, willingness to self-disclose and seeking social support were measured. The following tools were selected for this experiment:

The disease fear scale adopts the research results of Wu Qiyun[13], and the variable contains 12 items. The self-disclosure intention scale[14] adopted the research results of Pal et al., and the variable contained 6 items. The

social support seeking scale adopted the research results of Jiang Qianjin et al., and the variable contained 12 items [15]. The mindfulness intervention training scale adopted the research results of Brown, and the variable contained 10 items[16]. For the items from English literature, this study adopts the back-translation method to translate them, so as to ensure that the original meaning of the items can be accurately expressed[17]. The independent variables, moderating variables and dependent variables in this study were evaluated using a rating summation scale (Likert-5 scale) .The increase in the scale from 1 to 5 indicates the increasing degree of agreement.

In addition, in order to further understand the basic information of the subjects in this experiment, the first part of the questionnaire is related to demography, involving the gender, age, education background and other basic information of the subjects. The second part is about the social media use of the subjects, including the years of use of social media, the number of users, the average daily use time and the frequency of use.

Data Collection

SPSS 27.0 was used for statistical analysis of the experimental data. Data processing methods such as reliability, validity analysis, descriptive statistics, multi-layer linear regression, independent sample T-test and correlation analysis were used to analyze the changes of disease fear, self-disclosure intention and social support of subjects after receiving mindfulness intervention training. Smart PLS3.0 was used to conduct path analysis, mediation effect and regulatory effect test. The analysis method was Bootstrap method, and the test level α=0.05 (two-tailed)

Data Analysis

Reliability and validity test

In this study, SPSS 27.0 and Smart PLS 3.0 were used to test the reliability of the collected data. As shown in Table 1, the Cronbach's α coefficient of each variable ranges from 0.807 to 0.909, all higher than the recommended value 0.7, indicating that the scales used in this study have good internal consistency. The CR values of the items in each scale ranged from 0.862 to 0.923, all higher than the recommended value 0.7, indicating that the items in each scale had good reliability. The AVE value of each scale item was between 0.503-0.676, all higher than the recommended value 0.5, indicating that the scales had good convergence validity.

Table 1 Analysis results of reliability and convergent validity of measurement scales

Variables	Number of terms	Cronbach's α coefficient	CR value	AVE value
Fear of Disease	12	0.867	0.892	0.615
Personal Information Self-Disclosure	6	0.807	0.862	0.511
Perceived Social Support	12	0.909	0.923	0.503
Mindfulness Intervention Training	10	0.877	0.900	0.676

Validity test is to analyze the validity of the scale. As can be seen from Table 2, the total KMO value of this scale is 0.770, and the KMO value of each scale ranges from 0.812 to 0.880, all of which are higher than the recommended value 0.7. It can be inferred that the scale of each variable in this controlled experiment has good validity.

Based on the above test results, the reliability and validity tests of the scale used in this study have all passed. Therefore, the research data obtained by the above measurement tools in this controlled experiment can be considered to have certain reliability, and lay a foundation for subsequent data analysis.

Table 2 Results of validity analysis of the measurement scale

Variables	Total table KMO value	KMO value of each scale	Sig
Fear of Disease	0.770	0.822	0.000 < 0.001
Personal Information Self-Disclosure		0.812	0.000 < 0.001
Perceived Social Support		0.863	0.000 < 0.001
Mindfulness Intervention Training		0.880	0.000 < 0.001

Independent sample t-test

Independent sample t-test was conducted for the scores of each scale of the experimental group and the control group after the mindfulness intervention training. The results showed (see Table 3) that there were differences in

other variables or dimensions between the two groups, and both reached statistical significance. This indicates that the training levels of mindfulness intervention in the experimental group and the control group are significantly different, and the experiment was successfully manipulated.

According to the data in Table 3, after mindfulness intervention training, there were significant differences in fear of disease between the experimental group and the control group (M experimental group =44.78, M control group=50.86, t (128) =-6.487, p=0.000<0.001). Self-disclosure showed significant difference between the experimental group and the control group (M experimental group=22.52, M control group=26.03, t (128) =-6.809, p=0.000<0.001); Perceptive social support was significantly different between experimental group and control group (M experimental group=44.32,M control group=50.71, t (128) =-7.107, p=0.000<0.001); The level of mindfulness intervention training was significantly different between the experimental group and the control group (M experimental group=42.25,M control group=37.12, t (128) =6.906, p=0.000<0.001).

Table 3 Manipulative test of experimental stimulus materials

Variables	Experimental Group (N=65)		Control group (N=65)		t	p
	M	SD	M	SD		
Fear of Disease	44.78	6.663	50.86	3.557	-6.487	0.000 < 0.001
Personal Information Self-Disclosure	22.52	3.771	26.03	1.741	-6.809	0.000 < 0.001
Perceived Social Support	44.32	6.479	50.71	3.239	-7.107	0.000 < 0.001
Mindfulness Intervention Training	42.25	2.622	37.12	5.375	6.906	0.000 < 0.001

Correlation analysis

This control experiment adopted Smart PLS 3.0 self-help method (Bootstrapping, random sampling times set to 5000 times) to test multiple research hypotheses proposed in this experiment. Specific data are shown in Table 4.

According to the data in Table 4, it can be seen that fear of disease has a significant positive impact on the self-disclosure intention of social media users (β=0.991, P=0.000 < 0.001). In addition, there was a significant positive correlation between self-disclosure intention and perceptive social support of social media users (β=0.980, P=0.000 < 0.001). Meanwhile, mindfulness intervention training was significantly negatively correlated with fear of disease (β=-0.670, P=0.001 < 0.01) and self-disclosure intention (β=-0.033, P=0.018 < 0.05).

Table 4 Standardized path coefficients among variables

Influence path way	Correlation Coefficient	T statistic	P-value	Direct Effect
FoD→PISD	0.991	63.185	0.000 < 0.001	Established
PISD→PSS	0.980	239.898	0.000 < 0.001	Established
MIT→FoD	-0.670	32.370	0.001 < 0.01	Established
MIT→PISD	-0.033	1.340	0.018 < 0.05	Established

Note: Fear of Illness (FoD), Willingness to Self-Disclose (PISD), Perceptive Social Support (PSS), Mindfulness Intervention Training (MIT).

Examination of the mediating effects of self-disclosure

In order to verify the mediating effect of self-disclosure between fear of disease and social support, the bootstrapping method was adopted in this study (Bootstrapping repeated sampling times were set at 5000 times) to test the hypothesis proposed in this study. The specific values are shown in Table 5.

Table 5 Analysis of the mediating effect of self-disclosure

Mediating Pathway	T statistic	P-value	Mediating effect
1.FoD→PISD→PSS (Experimental group)	4.561	0.000 < 0.001	Established
2.FoD→PISD→PSS (Control group)	2.577	0.01 < 0.05	Established

Note: Fear of disease (FoD), Willingness to Self-disclose (PISD), Perceptive Social Support (PSS)

In the mediation model effect test, the mediating pathway 1 (experimental group) : fear of disease → self-disclosure → social support (H3: β=0.433, P=0.000 < 0.0001), indicating that the self-disclosure of the experimental group played a mediating role in the fear of disease and social support; Mediated pathway 2 (control group) : fear of disease → self-disclosure → social support (H3: β=0.366, P=0.01 < 0.05), indicating that self-disclosure in the control group played an intermediary role in the fear of disease and social support.

Test of the moderating effect of mindfulness intervention training

In order to further verify the negative regulatory effect of mindfulness intervention training on college students' fear of disease and willingness to self-disclose, this study adopted bootstrapping method (Bootstrapping repeated sampling times were set at 5000 times) to test the hypothesis proposed in this study. The specific values are shown in Table 6.

In the regulation model effect test, regulation pathway 1 (experimental group) was: fear of disease → mindfulness intervention training → self-disclosure intention (H6a: β=-0.253, P=0.001 < 0.01); Pathway 2 (control group) : fear of disease → mindfulness intervention training → intention of self-disclosure (H6b: β=-0.140, P=0.004 < 0.01), indicating that mindfulness intervention training can exert a stronger negative regulatory effect on the relationship between fear of disease and intention of self-disclosure of social media users. In addition, according to the comparison of the correlation values in Table 6, during the pandemic period, users who underwent mindfulness intervention training had a stronger negative regulatory effect between fear of disease and intention of self-disclosure compared with users who did not undergo mindfulness intervention training.

Table 6 Analysis of the moderating effect of mindfulness intervention training

Regulatory Pathways	Phase relation value	T statistic	P-value	Conditioning effect
1.FoD→MIT→PISD (Experimental group)	-0.253	1.543	0.001 < 0.01	Established
2.FoD→MIT→PISD (control group)	-0.140	0.772	0.004 < 0.01	Established

Note: Fear of Illness (FoD), Willingness to Self-Disclose (PISD), Mindfulness Intervention Training (MIT).

Research smmary

Through descriptive statistical analysis, reliability and validity check, multiple linear regression analysis, independent sample t test, correlation analysis, mediating effect test and moderating effect test, this study explored the possible influencing mechanism between disease fear, self-disclosure and social support of social media users. At the same time, mindfulness intervention training was added as a moderating variable between fear of disease and self-disclosure. The findings are shown in Table 7.

Table 7 Verification table of research hypothesis results

Research Hypothesis	Test the results
Hypothesis H1: During an infectious disease pandemic, the positive correlation between the fear of disease and the willingness to self-disclose is established.	Established
Hypothesis H2: A positive correlation between self-disclosure by users and social support from others during an infectious disease pandemic is established.	Established
Hypothesis H3: During the pandemic of infectious disease, the mediating effect of users' self-disclosure between fear of disease and social support is established.	Established
Hypothesis H4: During the infectious disease pandemic, the significant negative correlation between the user's mindfulness intervention training and the fear of disease is established.	Established
Hypothesis H4a: Users trained in mindfulness interventions have lower fear of disease during infectious disease pandemics.	Established
Hypothesis H4b: The fear of disease during an infectious disease pandemic is more valid for users who are not trained in mindfulness interventions.	Established
Hypothesis H5: A negative correlation between users' mindfulness intervention training and their willingness to self-disclose during an infectious disease pandemic is established.	Established
Hypothesis H6: During the infectious disease pandemic, the negative moderating effect of the user's mindfulness intervention training on the relationship between fear of disease and self-disclosure intention is established.	Established
Hypothesis H6a: During an infectious disease pandemic, the stronger the negative moderating effect between fear of disease and willingness to self-disclose among users trained in mindfulness intervention is established.	Established
Hypothesis H6b: During the pandemic of infectious diseases, the weaker the negative moderating effect between the fear of disease and the willingness to self-disclose among users who have not been trained in mindfulness intervention is established.	Established

RESEARCH FINDINGS

Research Conclusions

The mediating role of self-disclosure

This study found that there was a positive correlation between the fear of disease and the willingness to self-disclose. Specifically, the fear of disease perceived by social media users increases their willingness to self-disclose on social media.

In this study, fear of illness is a special research perspective to study the self-disclosure willingness of social media users. Based on the hypothesis that fear stimulates social connection, fear is the most prominent among a series of negative emotions related to self-disclosure, that is, fear will be activated when people think that the consequences of risk are unclear or uncertain (Lench and Levine, 2005). Too much fear leads people to make more social connections and self-disclosure (Janis, 1967). At the same time, in order to cope with stressful events (i.e. situations in which uncertain or unclear events occur), people tend to make social connections with others and obtain social support through self-disclosure to reduce fear (Kirkpatrick and Shaver, 1988). This study also confirmed that the increasing fear of pandemic was accompanied by an increase in the willingness of social media users to self-disclose.

In the process of seeking information and social support related to infectious diseases, users will inevitably ignore or reduce their concerns about excessive privacy collection or abuse (Azizbek, 2017), or reduce their perception of privacy risks (Pal, 2020) and sensitivity to private information (Saira, 2021). The results of this study also suggest a positive correlation between pandemic fear and self-disclosure intentions, which is realized through self-disclosure on social media, often in order to seek information or social support.

Hypothesis 2 proposed in this study is valid, that there is a positive correlation between self-disclosure and receiving social support from others during a pandemic. The simultaneous development of social media "empowers" the way people obtain social support. The topological structure of social media can realize the dual functions of social interaction and seeking help, and also alleviate the social problem of unequal distribution of medical and health resources during the pandemic to a certain extent (Xu Shuying et al., 2018).

In addition, social media is also widely used as a platform for mutually beneficial cooperation involving "patient-patient" as the main body. Patients suffering from a certain type of disease or their families can disclose personal information at a superficial or deep level on such online platforms, and use it as a public space to connect with each other, in order to obtain social support from others. Especially during COVID-19, as an uncontrollable, rare and far-reaching source of social stressors, which can have a profound impact on people's health and daily life, social media may become an important channel for people to cope with stress or self-disclosure.

Hypothesis 3 proposed in this study is valid, that is, during the pandemic, users' self-disclosure plays a mediating effect between fear of illness and social support. Specifically, social media users are more likely to seek social support through self-disclosure when faced with fear of disease.

First, social media users generally faced fear of illness during the pandemic. This fear may stem from factors such as uncertainty about the spread of the disease, potential health risks, and social tensions. Against this backdrop, social media has become an important platform for users to express their emotions and seek support.

Secondly, social media users tend to deal with illness fears through self-disclosure. In the face of illness fear, social media users may take the initiative to share their worries, anxieties and experiences in order to reduce psychological stress and get emotional support.

This study found that social media users' self-disclosure played a mediating effect between fear of illness and social support. Specifically, social media users communicate their fear of disease through self-disclosure, thereby arousing others' attention and support. This attention and support can be in the form of emotional comfort, advice, or substantial help, such as providing information, resources, or practical assistance. These social support resources can be important in alleviating fear of illness, improving mental health, and coping with challenges.

Mindfulness intervention training negatively affects fear of illness and self-disclosure

This study found that there was a significant negative correlation between mindfulness intervention training and users' fear of disease during disease outbreaks. Specifically, the improvement of the level of mindfulness intervention training can alleviate or reduce the individual's fear of disease.

With the epidemic of infectious diseases, the fear of disease is a normal psychological phenomenon for patients who may be facing or experiencing infectious diseases. Moderate fear can make patients pay more attention to their own health status, and discover the potential signs of infectious diseases in time, so as to avoid or alleviate the effect of infectious diseases. However, excessive fear will further aggravate the psychological burden of patients and lead to mental illness[18]. In this controlled experiment, mindfulness intervention training was used for the experimental detection of individuals who were afraid of infectious diseases. The results showed that after the training, the experimental group had a higher level of mindfulness intervention training than the control group (M experimental group=42.25, M control group=37.12, t (128) =6.906, p=0.000<0.001); The fear level of infectious disease in the experimental group was lower than that in the control group (M experimental group=44.78, M control group=50.86, t (128) =-6.487, p=0.000<0.001), indicating that mindfulness intervention training can effectively reduce or alleviate the individual's fear of disease, and compared with the conventional nursing mode, its impact is more significant.

Specifically, during the outbreak of the disease, individuals are in a low level of social and psychological safety atmosphere, which leads to negative emotions or psychological reactions such as interpersonal communication barriers and lack of physical self-perception, and individuals' fear of disease is further aggravated[19]. In addition, the pathogenicity and rarity of infectious diseases make the individual's sense of uncertainty about the disease strengthen and enhance the fear psychology. In this process, through mindfulness intervention training, individuals can adjust negative emotions by changing their thinking and behavior patterns and reduce their fear of further development of the disease (Qiuxiang et al, 2008). Although the fear of disease cannot be completely eliminated, continuous mindfulness intervention training can enable individuals to maintain positive emotions and regulate the cognition of disease, thus reducing the fear of disease and improving the quality of life (Gao, 2018; Lengacher, 2014).

This study found a negative correlation between users' mindfulness intervention training and their willingness to self-disclose. Specifically, an increase in the level of mindfulness intervention training can alleviate or reduce an individual's willingness to self-disclose. However, the alleviation or reduction of self-disclosure willingness is not a single, linear effect produced by mindfulness intervention training, but based on the fact that individuals improve their cognition of their own social environment and disease fear through mindfulness intervention training, so as to affect self-disclosure.

In this study, self-disclosure refers to the willingness or behavior of individuals to share personal information such as their thoughts, feelings, experiences and opinions with others, while mindfulness intervention training is an attention training method that cultivates awareness and acceptance of the present moment. Studies have found that mindfulness intervention training can have a positive impact on individuals' willingness to self-disclose, that is, individuals trained in mindfulness intervention are more inclined to share less of their inner experiences and personal information. Shrout (2002) discussed the relationship between mindfulness intervention training and self-disclosure intention, and used mindfulness intervention training to explain the mechanism of its influence on self-disclosure intention. David's (2018) study examined whether mindfulness intervention training can change individuals' self-disclosure intention. This study found that individuals who received mindfulness intervention training showed significant improvement in their willingness to self-disclose, rather than a negative, listless self-disclosure. Garland's (2010) study also confirmed the above views, which explored the effects of mindfulness intervention training on individuals' emotional regulation ability and mental health, and mentioned the positive effects of mindfulness intervention training on individuals' willingness to self-disclosure. The study pointed out that by training individuals to pay attention to and accept their inner experiences, mindfulness intervention training helps individuals to share their inner world in a thoughtful or positive mood.

The moderating effect of mindfulness intervention training

This study found that during the pandemic period, users' mindfulness intervention training had a negative moderating effect between fear of disease and willingness to self-disclose. Specifically, a higher level of mindfulness intervention training could negatively regulate the fear of disease and the willingness to self-disclose. This means that by receiving mindfulness intervention training, individuals can reduce the level of disease fear and reduce the tendency to self-disclose.

The existence of this regulatory effect depends on multiple buffering mechanisms. First, mindfulness intervention training can help individuals develop mindfulness competence, i.e. acute awareness and non-judgmental acceptance of current experiences (Yang Xiujuan, 2021). By learning how to observe their own inner experiences, individuals can reduce their concern and overreaction to the fear of illness, thereby reducing the overall level of fear. Secondly, mindfulness intervention training can also improve an individual's ability to regulate emotions. In the face of disease fear, individuals can better regulate negative emotions and reduce the emotional responses of anxiety and panic through the practice of mindfulness, thus reducing the tendency of self-disclosure. Finally, mindfulness intervention training can also help individuals cultivate an inner sense of security and self-acceptance, thereby reducing the need for external evaluation and social support, and thus reducing the willingness to self-disclose. This conclusion provides important implications and guidance for further understanding of user behavior, mental health management of illness and intervention measures.

Recommendations and Implications

Take more measures to alleviate the fear of disease and establish an emotional buffer zone

Social media platforms become the main channels for information exchange and dissemination, and during a pandemic, a large amount of information about a disease will be widely circulated on the platforms. However, it is difficult to guarantee the authenticity and accuracy of such information, which can easily cause panic and anxiety among users. The commenting and sharing function of social media also makes disease information spread in a fragmented manner. In addition, social media platforms, usually aiming to win users' clicks and stickiness, will push content related to users' interests, including information related to diseases, thus increasing users' chances of exposure to disease information. The anonymity and virtuality of social media make it easier for users to express and spread their fears and anxieties, thus forming the "emotional resonance" effect of fear of disease. These social backgrounds make users more susceptible to the influence of fear of disease when using social media platforms, and then change from the traditional "offline transmission" of disease to the "online transmission" in the information age, which has become a real problem in the new media era.

First of all, users should improve the level of scientific and health knowledge to alleviate the fear of disease. Users should have an in-depth understanding of the transmission routes, prevention methods and treatment progress of specific diseases, and obtain accurate and scientific medical information. Do not believe and do not spread rumors and false news. In addition, by controlling the time and frequency of social media use, avoid excessive attention to disease-related content.

Second, platform operators should step up screening and auditing of health information to ensure that users receive accurate and trustworthy health knowledge. The platform can cooperate with professional medical institutions and experts to provide professional health guidance and suggestions. Or by setting up a special disease information board, it can provide scientific and authoritative medical knowledge, research progress and prevention methods. On the one hand, this can meet users' needs for disease information, on the other hand, it can also reduce users' exposure to inaccurate information and reduce the phenomenon of "online infection".

Win social support in multiple ways and optimize platform support functions

As a "new infrastructure", social media provides conditions for users to seek social support through the social network relationship structure built by the Internet, that is, users establish contact with external social resources in interaction and communication, which is conducive to promoting users to seek social support[20].

First of all, users can seek social support through reasonable self-disclosure. Specifically, users can actively participate in discussions or groups on social media related to fear of illness, such as online communities, forums or support groups of professional bodies, to share concerns and experiences, and to listen to others' stories and

advice. Through communication and interaction with others, users can receive emotional support and reduce anxiety, thereby improving their coping skills.

Second, the platform should provide help for users to seek social support. Specifically, the platform can partner with mental health institutions or professional counselors to provide online social support resources. These resources could include mental health guidance, self-help courses or psychological tests. Users can get effective guidance by understanding and alleviating illness fears through these resources. Alternatively, a dedicated support section can be set up to gather relevant information and discussion about diseases, thereby reducing the fragmentation and confusion of information and improving the credibility and authority of information. This section can set up sub-sections such as expert question answering, user sharing and psychological support. In addition, the platform can use intelligent algorithms and recommendation systems to provide users with personalized recommendation content and social interaction, including recommending disease-related support groups, expert questions and answers or online activities according to users' interests and needs, so that users can directly contact professionals and other users; Or the platform can provide online activities, live education, remote consultation, etc., to promote interaction and connection among users. At the same time, the platform should strengthen the management and review of user content, prevent false information, and create a safe and orderly information environment with experts and medical departments.

Through users can get support by active social interaction, creating a support network and seeking professional consultation. The platform can provide professional resources and guidance, set up dedicated support sections, strengthen user interaction and connectivity, optimize system functions, and provide users with better support and help to mitigate the impact of disease fears.

Attach importance to the role of mindfulness training to promote reasonable self-disclosure

This study found that when people suffer from uncertainty, especially during a pandemic, in order to obtain information to relieve anxiety and seek social support, users often use social media to self-disclose personal information, and even generate improper disclosure or addiction.

Bishop (2004) points out that mindfulness pays attention to current experiences and treats these experiences with curiosity, openness and acceptance. Tomlinson's (2018) research suggests that mindfulness can have significant positive effects on an individual's physical health, cognitive, emotional and behavioral problems, and interpersonal adaptation, and may also have a positive protective effect on an individual's social media use, reducing irrational disclosure caused by fear.

First of all, users should reasonably plan their social media use time to avoid prolonged immersion. Set a schedule to control the total amount of time spent on social media each day and keep it in balance with real life. Also increase your self-regulation skills and adjust your attention to social media through mindfulness exercises. Mindfulness intervention training can help users better observe their inner experiences, emotional changes, and needs so that they can better adjust their social media use behavior.

Secondly, social media platforms can introduce mindfulness functions. Through technology, the platforms introduce tools such as meditation, breathing exercises and attention regulation to help users relax. Such features help relieve fear and stress. Or it could be optimizing user interface design to reduce irritants and distractions. A simple, clear user interface can help improve user efficiency and experience. Or encourage digital disconnection, a conscious effort to reduce unwanted social media followings and connections. By cleaning up and organizing social media relationships, it helps users reduce information distractions and improve usage efficiency.

CONCLUSION

Starting from the phenomenon that individuals under fear stress obtain social support through self-disclosure, this study combined with the fear-inspired social connection hypothesis and SOR model to explore the process mechanism. Through controlled experiments, this study found that fear of disease is the main factor that promotes self-disclosure of social media users; The degree of self-disclosure is also conducive to obtaining social support from others. Through the analysis of experimental data, this study explored the relationship among social media users' fear of disease, willingness to self-disclose and social support. Finally, the moderating effect of disease fear

and self-disclosure was tested through the auxiliary method of mindfulness intervention training, which provided a basis for how to channel the groups in fear of disease in the future and provide better social support.

However, there are some shortcomings in this study. First of all, due to the limitation of personal resources and objective conditions, only college students were selected as the experimental objects in this study, and the convenient sampling method was mainly used in the control experiment during the research process. The number and diversity of experimental subjects are lacking, which affects the universality of the research results to a certain extent. Therefore, in the next research, the sample of research objects can be expanded, so as to improve the validity of the research results.

Secondly, in the model of this study, only fear of disease was selected as the independent variable of the self-disclosure willingness of social media users, and variables such as cultural background, income level and occupation were not introduced.

Third, as the mindfulness intervention training of this experiment was conducted near the end of the term, it was difficult to recruit subjects and the sample size of the experiment was small, which also affected the experimental results to some extent. In addition, this experiment only investigated the immediate effects of mindfulness intervention training on college students' level of mindfulness, fear of disease and self-disclosure, and failed to conduct follow-up investigation on the experimental subjects to test its long-term effects. This point could be further optimized in future studies.

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