

A Study on the Universality and Differences of Privacy Paradox Behavior from a Gender Perspective

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Abstract: Users are extremely concerned about privacy disclosure issues in current social media. However, some users still disclose personal information on social media, and this paradoxical behavior has triggered reflection and exploration in the academic community. This study will explore the universality and differences of privacy paradox behavior between male and female gender groups from the perspectives of privacy concerns, privacy awareness, risk perception, benefit perception, and disclosure behavior. It will use literature review, questionnaire survey, and data analysis methods to further investigate the potential impact of gender on privacy paradox behavior in different aspects. Research findings indicate that, in terms of universality, both men and women are relatively concerned about personal privacy on social media, while also exhibiting paradoxical behavior in disclosing personal information. In terms of differences, the study shows that women are more willing to disclose personal information on social media than men. The research findings provide a theoretical basis for various social media platforms to improve their privacy protection policies to some extent and promote the development of more personalized privacy protection policies for different gender groups.

1 INTRODUCTION

With the continuous upgrade of the internet and the rapid development of smart devices, the data generated by people using various apps is showing a geometric increase in both quantity and variety, indicating that the era of big data has arrived (Zhang & Xie, 2022). According to the 53rd Statistical Report on China's Internet Development by the China Internet Network Information Center, as of June 2024, the number of internet users in China is nearly 1.1 billion (1.09967 billion), an increase of 7.42 million from December 2023, with an internet penetration rate of 78.0%. However, at the same time, with increasingly advanced technology, the efficiency of collecting, storing, and analyzing large amounts of user information has undoubtedly improved. Social media platforms are increasingly leveraging the ability to collect and analyze user information, leading to serious concerns about potential violations of personal privacy (Norberg et al., 2007). Research at home and abroad shows that most social media users are aware of the significant

risk of privacy breaches when using internet platforms, yet they still have the willingness to share personal privacy information on social media (Zhang & Li, 2023). This has led to the behavior of the 'privacy paradox', where social media users still disclose information despite being aware of the risks of leakage.

This study focuses on the privacy paradox behavior of social media users, which mainly refers to the constant risk of privacy leakage that everyone faces, and this has also raised concerns about privacy security. However, concerns and worries about privacy rarely affect people's actual behavior, and this contradictory phenomenon between privacy attitudes and privacy behaviors is called the 'privacy paradox' (Xiao, 2022). For example, people post a lot of personal information on social media, such as birthdays and addresses, even though they know that this increases the risk of personal information leakage; they still choose to do so due to the need for social interaction.

The lack of awareness regarding information protection in the process of online communication on

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the contemporary internet may lead to the indiscriminate disclosure of personal privacy, which, while highlighting individual characteristics, also triggers a more prominent risk of information leakage. Although the risk of privacy information leakage mentioned above has been given some attention by social media users, the conceptual awareness cannot truly be converted into actual action, thereby leading to the problem of the privacy paradox.

The privacy paradox behavior of social media users is often influenced by gender differences. This study focuses on the general and varied expressions between male and female groups from several perspectives, including privacy concern, privacy cognition, risk perception, benefit perception, and disclosure behavior, which can provide certain references for internet platforms to more effectively offer privacy protection services tailored to users of different genders.

2 LITERATURE REVIEW

As early as 2001, researchers like Spiekermann found that most users expressed that privacy was important to them; however, regardless of their specific privacy concerns, once people went online, they tended to overlook privacy issues (Spiekermann et al., 2001). Barner studied in 2006 how teenagers, driven by social needs, have privacy concerns about online platforms but still disclose information (Barnes, 2006). So far, a series of studies have confirmed that although social media users are genuinely concerned about the privacy and security issues brought by the platform, this concern has little impact on their own privacy disclosure behaviors. The phenomenon of this inconsistency between privacy attitudes and privacy behaviors is known as the privacy paradox (Liu, 2018). Zhang Dewen and others explain the causes of privacy paradox behavior by building a model in their article. The research shows that there are moderating effects between privacy concerns and privacy disclosure among social media users under different genders, sample groups, and cultural backgrounds (Zhang et al., 2024). This article will focus on the gender perspective, studying the commonalities between the two different gender groups, male and female, in terms of privacy attitudes and privacy behaviors. It will also investigate, through surveys and data analysis, the differences in how gender factors affect males and females, supplementing the existing academic gap.

3 RESEARCH METHODS

A questionnaire survey will be set up based on privacy concerns, awareness, risk perception, benefit perception, disclosure behavior, etc. The questionnaire will cover a large sample range to ensure that the final research results are universal. At the same time, based on the research question, namely the prevalence and differences of privacy paradox behaviors from a gender perspective, the expected results need to be presented in quantitative form. Furthermore, descriptive statistical analysis is needed, so the questionnaire method is judged to be feasible.

3.1 Questionnaire Design

The data for this study comes from a questionnaire survey using a questionnaire tool called "Wenjuanxing". After distributing questionnaires to 217 respondents from different regions and excluding invalid data, the specific distribution of the respondents is as follows: There are 217 people in total, including 108 males, accounting for 49.8%, and 109 females, accounting for 50.2%.

The specific underlying logic of the questionnaire is to quantify the user's awareness of privacy protection and the user's actual level of privacy protection by assigning score values 1-5 to options. The higher the value, the stronger the awareness of privacy protection and the more rigorous the privacy protection measures. The questions mainly involve two aspects. For different genders, on the one hand, the questions focus on the awareness of privacy protection, such as the fifth question "Will you click on links in social media including but not limited to comment areas and advertisements?", the seventh question "What is your attitude towards interacting with strangers on social media?" and the twelfth question "When social media asks you to provide your personal information, what is your choice?". These three questions approach the issue from three angles: unknown links such as advertisements, other users in the media, and the social media platforms themselves. Based on the respondents' attitudes, the options are converted into corresponding values, so that the respondents' attitudes towards their own privacy protection can be quantified. These three questions reflect, to a certain extent, the extent to which social media users' awareness of protecting their own information is transformed into actual actions. The fourth question, "How often do you share personal information on social media?" will continue to explore in depth the differences between men and

women and the reasons for leaking information based on the first two aspects.

3.2 Data Analysis Methods

Mean analysis and variance analysis in descriptive statistical analysis can present basic information of the questionnaire, such as gender ratio, age ratio, and the proportion of people choosing the options for the questions, including the central trend of the data, data distribution, etc., and display the data intuitively. Mean analysis can help you quickly understand the overall level of the data, and can also make preliminary predictions for unobserved data based on the mean. The p-value difference test can determine whether there is a statistically significant difference

between two data sets, providing a basis for understanding the practical significance of the difference.

4 RESEARCH RESULTS

The information obtained from the questionnaire was organized into the following table, and corresponding values were assigned to the options. Based on SPSS, the maximum value, minimum value, mean value, standard deviation, and median of the sample are calculated, and the following table is obtained.

Table 1: Basic indicators of the sample.

fundamental indicators						
name	ample size	minimum	maximum	average	standard deviation	median
gender	217	1.000	2.000	1.502	0.501	2.000
2*2. What is your age range?	217	1.000	4.000	1.802	0.904	2.000
3*3. Approximately how much time do you spend on social media each day?	217	1.000	5.000	3.074	0.935	3.000
4*4. How often do you share personal information on social media?	217	1.000	5.000	3.539	1.110	4.000
5*5. Will you click on links in social media that include, but are not limited to, comment sections, advertisements?	217	1.000	5.000	3.848	1.221	4.000
6*6. Have you ever been troubled by the risk of privacy leaks on a social media platform?	217	1.000	5.000	2.138	1.367	2.000
7*7. What is your attitude towards interacting with strangers on social media?	217	1.000	5.000	3.401	1.427	4.000
8*8. Do you post information with geolocation on social media?	217	1.000	5.000	1.751	1.064	1.000
9*9. Do you really feel that the privacy policy is protecting your rights and interests?	217	1.000	5.000	2.843	1.056	2.000
10*10. Have you carefully read the terms of the platform's privacy protection policy when using a new social media software?	217	1.000	5.000	1.991	1.159	2.000

fundamental indicators						
name	sample size	minimum	maximum	average	standard deviation	median
11*11. Have you ever chosen to hide or change your gender settings on social media platforms due to privacy concerns?	217	1.000	5.000	1.959	1.055	2.000
12*12. When social media asks for your personal information, your choice is?	217	1.000	5.000	3.562	1.318	4.000

Table 2: Results of sample analysis.

t-test the results of the analysis				
	Gender (mean \pm standard deviation)	t ·	p ·	
	1.0(n=108)	2.0(n=109)		
2*2. What is your age range?	1.83 \pm 0.90	1.77 \pm 0.91	0.510	0.611
3*3. Approximately how much time do you spend on social media each day?	3.16 \pm 0.97	2.99 \pm 0.90	1.314	0.190
4*4. How often do you share personal information on social media?	3.19 \pm 1.20	3.89 \pm 0.89	-4.917	0.000* *
5*5. Will you click on links in social media that include, but are not limited to, comment sections, advertisements?	3.93 \pm 1.17	3.77 \pm 1.27	0.937	0.350
6*6. Have you ever been troubled by the risk of privacy leaks on a social media platform?	2.09 \pm 1.32	2.18 \pm 1.42	-0.489	0.626
7*7. What is your attitude towards interacting with strangers on social media?	3.52 \pm 1.40	3.28 \pm 1.45	1.209	0.228
8*8. Do you post information with geolocation on social media?	1.82 \pm 1.12	1.68 \pm 1.01	1.005	0.316
9*9. Do you really feel that the privacy policy is protecting your rights and interests?	2.81 \pm 1.04	2.88 \pm 1.08	-0.524	0.601
10*10. Have you carefully read the terms of the platform's privacy protection	2.06 \pm 1.16	1.93 \pm 1.16	0.819	0.414

policy when using a new social media software?				
11*11. Have you ever chosen to hide or change your gender settings on social media platforms due to privacy concerns?	2.09 ± 1.12	1.83 ± 0.97	1.873	0.062
12*12. When social media asks for your personal information, your choice is?	3.66 ± 1.25	3.47 ± 1.38	1.059	0.291

From the table above, we can see that using the t-test (full name: independent sample t-test) to study gender, for questions 2*2 to 12*12 in Table 2. It can be seen that the above 10 items of samples of different genders do not show significance ($p > 0.05$), which means that samples of different genders show consistency in all the above questions and there is no difference. In addition, gender samples showed significant results for 4*4. How often do you share personal information on social media? ($p < 0.05$), which means that different gender samples have differences in 4*4. How often do you share personal information on social media? Specific analysis shows that gender shows significant results at the 0.01 level for 4*4. How often do you share personal information on social media? ($t = -4.917$, $p = 0.000$), and the specific comparison shows that the average value of 1.0 (3.19) is significantly lower than the average value of 2.0 (3.89). In summary, samples of different genders do not show significant differences for 10 items in Table 2, including 2*2, 3*3, 5*5, 6*6, 7*7, 8*8, 9*9, 10*10, 11*11, and 12*12. In addition, samples of different genders show significant differences for 1 item, 4*4.

4.1 Research Analysis

Regarding the topic of studying the universality and differences of privacy paradox behaviors from a gender perspective, the results show two aspects:

From the fifth question: 5*5. Will you click on links in social media, including but not limited to comments and advertisements? 3.93 ± 1.17 | 3.77 ± 1.27 , the seventh question: 7*7. What is your attitude towards interacting with strangers on social media? 3.52 ± 1.40 | 3.28 ± 1.45 , the twelfth question: 12*12. When social media asks for your personal information, what is your choice? 3.66 ± 1.25 | 3.47 ± 1.38 average index, we can see that both men and women have a high level of awareness of the possible exposure of their own privacy information and the degree of risk perception. The calculated average values of 3.93, 3.77, 3.52, 3.28, 3.66, and

3.47 are all greater than the median value of 3. Therefore, it can be determined that the two groups generally pay more attention to their privacy security. But according to the sixth question, 6*6. Have you ever been troubled by the risk of privacy leakage on a social media platform? 2.09 ± 1.32 | 2.18 ± 1.42 Question 8, 8*8. Will you post information with geographic location on social media? 1.82 ± 1.12 | 1.68 ± 1.01 Question 10, 10*10. When you use a new social media software, have you carefully read the platform's privacy protection policy terms? 2.06 ± 1.16 | 1.93 ± 1.16 We know that the average choices of the respondents for the three questions are 2.09, 2.18, 1.82, 1.68, 2.06, and 1.93, which are all less than the median value of 3. Therefore, it can be concluded that when it comes to the actual protection of privacy and other information, whether male or female, subjective concerns cannot be fully converted into actual protection behaviors of users in social media. Therefore, the privacy paradox behavior of the two groups in social media behavior is still relatively common.

The second aspect is to study the relationship between the two gender groups. Although both groups have common privacy paradox behaviors due to the lack of security awareness, But in contrast, for 4*4. How often do you share personal information on social media? 1 item showed significance ($p < 0.05$), which means that different gender samples have differences in 4*4. How often do you share personal information on social media? and showed 0.01 level significance ($t = -4.917$, $p = 0.000$). As can be seen from the specific comparison, the average value of 1.0 (3.19) is significantly lower than the average value of 2.0 (3.89). Therefore, we can get the gender sample for 4*4. How often do you share personal information on social media? A total of 1 item showed significant differences, which shows that women share personal information more frequently on social media. It can be concluded that women may disclose more personal information on social media, which may lead to more privacy paradox behaviors among women than men.

5 DISCUSSION

5.1 The Gap Between Privacy Concerns and Actual Behavior

In the gap analysis between social media users' privacy protection awareness and actual privacy protection behaviors, users may overestimate their ability to control privacy risks or underestimate the risk of personal information leakage on social media platforms. This psychological bias may cause users to pay attention to privacy, but not have good control when it comes to actual information leakage. At the same time, users may feel confused or overwhelmed when faced with complex privacy settings and a large number of personal information management options, and thus choose to simplify the process without conducting in-depth settings or management, which ultimately leads to insufficient preventive measures. Social media platforms, educational institutions, non-profit organizations, etc. should promptly popularize privacy protection knowledge, strive to simplify the privacy setting process, make it more intuitive and easy to use, reduce the difficulty for users to understand and operate, thereby improving users' understanding and ability to use privacy settings.

5.2 Consequences and Countermeasures of Privacy Paradox Behavior

For individuals, privacy paradox behavior may lead to the leakage of personal privacy and other information, which in turn may cause identity theft, fraud, online harassment, and other problems, causing damage to personal property security, reputation and mental health. For society, large-scale privacy leaks may undermine social trust and affect social stability and harmony.

Personal information control plays an important role in privacy protection, and everyone should always be vigilant (King, 2008). The government should formulate and improve privacy protection laws and regulations, clarify the responsibilities and obligations of social media platforms and users, and increase penalties for illegal acts. At the same time, platforms should promptly update technical means, enhancing the usability of social media privacy settings, strengthen functions such as data encryption, access control, and audit tracking, and ensure the security of user information (Liu & Lei, 2024).

5.3 Future Research Directions

In-depth research on the gender-based study of privacy paradox behavior can also focus on studying the differences in privacy protection performance of different platforms and the impact of these differences on users' privacy paradox behavior. There are also differences in the cognition and behavior of privacy protection among users of different genders in different cultural backgrounds, and how these differences affect the prevalence of privacy paradox behavior.

In addition, we can also analyze the changes in privacy paradox behavior over different time periods, as well as the relationship between such changes and factors such as mobile commerce, the development of social media, and the improvement of users' privacy awareness (Liu et al., 2018).

Research on different aspects of privacy paradoxical behavior of social media users will help to gain a deeper understanding of the nature and influencing factors of privacy paradoxical behavior and provide a scientific basis for formulating more effective privacy protection strategies.

6 CONCLUSION

The results of this study show that both men and women are more concerned about their privacy security. However, when it comes to the implementation of privacy and other information protection behaviors, their subjective concerns cannot be fully converted into protection measures in social media, resulting in a gap between social media users' privacy security awareness and security measures. As a result, privacy paradox behaviors in social media behavior of both groups are still relatively common. Women should pay more attention to protecting their privacy as they engage in more frequent social media activities. This study provides many valuable references for future research in this direction, mainly affecting the research on the universality and differences of the subject of privacy paradox behavior in terms of gender. Future research should focus more on the differences in the performance of different platforms in terms of privacy protection, the differences in cognition and behavior of privacy protection among users of different genders in different cultural backgrounds, and the changes in privacy paradox behavior in different time periods. In-depth exploration will provide scientific basis for a deeper understanding of the nature of privacy

paradox behavior and more effective privacy protection strategies.

AUTHORS CONTRIBUTION

All the authors contributed equally and their names were listed in alphabetical order.

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