Analysis of Online Questionnaires: A Survey Based on the Relationship Between Self-Efficacy and Social Avoidance Among College Students

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Abstract: Researchers have embraced the online research method as a new research approach that has emerged in recent years. Online research has its unique advantages, such as low research costs, fast data collection, and so on. The investigation of the relationship between self-efficacy and social avoidance among college students is taken as the research case in this study, while in the introduction of methods, the entire process of online questionnaire research is emphasized on, hoping to enlighten the readers.

Keywords: Online research methods; Self-efficacy; Social avoidance

1. Research background

With the popularity of the internet and the advancement of mobile phone functionalities in recent years, an increasing number of people are using smartphones and spending more time on them every day. These people are also known as bowers. Even when face-to-face conversation is mandated, such people continue to stare at their phones and even spend their leisure time in doing so. We have come across many people who are like this in our lives. According to the China Mobile Internet Report [1], the average internet use per capita is currently 5.72 hours a day. This shows that whether intentionally or not, mobile phones have taken up a significant amount of time in our everyday lives. However, we tend to see more of this "head-down" phenomenon among college students.

Using Habermas's theory of communication, the network platform appears as the communication between people from the original face-to-face contact to beyond the space-time limit of online communication. This type of communication paradigm transforms the previously vivid character image into an abstract role symbol, thus resulting in the alienation of roles. Such interactions may lead to confusion and a loss of self-awareness [2]. Hence, when returning to reality after a long time, one may not be adept to face-to-face communication with others, and thus develop a lonely character [3]. According to this study, there are many people who are hesitant to deal with reality, and avoiding social settings is a result of the rise in routine online contact.

However, social avoidance is not merely the result of greater online engagement. College students may avoid social issues due to personal psychological circumstances, personality traits, values, emotional dispositions, and other things. The role of self-efficacy is one of factors to consider. Self-efficacy refers to

an individual's capacity to carry out certain behaviors of speculation and judgment. It is the individual's own ability to form a motivation belief, and this belief will affect the individual's behavior and views to a certain extent, thus affecting the outcome of the behavior. The effect of self-efficacy on behavior is comparable to that of motivation, and it has an influence on people's successful implementation of the achievement behavior [4]. Therefore, this research will focus on the impact of self-efficacy on social avoidance and explore the specific role of college students' sense of self-efficacy in regard to social avoidance. The aim of the study is to better understand the causes behind the "head down" phenomenon and demonstrate the influence of social avoidance regulated by self-efficacy on the "head-down" phenomenon, which is beneficial to revealing the intrinsic relationship between social avoidance and the "head-down" phenomenon as well as enriching the research on self-efficacy.

2. Research design

The effect of self-efficacy on social avoidance was investigated in this study, and the subjects included L college students. This study holds that the "head down" phenomenon is a form of social avoidance, and there is a certain connection between the two. The study hypothesized that the lower the sense of self-efficacy, the more difficult it is to deal with negative emotions, the more likely one is to engage in social avoidance, and the more likely one is to exhibit the "head down" phenomenon, indicating that the sense of self-efficacy has a significant negative predictive effect on social avoidance.

The distribution of the "head down" phenomenon of L university students was presented by using demographic variables, such as gender, age, grade, nationality, household registration area, department, parents' educational level, and whether or not they are student cadres. The group of L university students was selected as the sample set by questionnaire; the state and distribution of their social avoidance were investigated, along with the present level and distribution of their sense of self-efficacy. Taking the group of L university students as an example, the influence of self-efficacy on social avoidance was studied. Overall, this study investigates the process of self-efficacy in influencing social avoidance among L university students and provides an explanation for its mechanism of action.

This project adopts a combination of quantitative research and case interview methods. Through quantitative research, the "head down" phenomenon, the degree of social avoidance, distribution, as well as the level and distribution of self-efficacy were discussed, and on this basis, the impact of self-efficacy on social avoidance was investigated; a more detailed exploration of social avoidance, the "head down" phenomenon performance mechanism, and the emotional adjustment of self-efficacy was conducted through interviews.

In quantitative studies, the subjects were sampled in a fixed number of 200 subjects from among L university undergraduates based on the sampling criteria of demographic variables, including gender, grade, and ethnicity.

For social avoidance, individual social avoidance levels were measures using the Social Avoidance and Distress Scale (SADS) as revised by Peng Chunzi, Fan Xiaoling, and Li Luochu [5]. On the other hand, the level of self-efficacy was measured using the General Self-Efficacy Scale (GSE), compiled in 1981 by Ralf Schwarzer, a clinical and health psychologist at the Free University of Berlin, and others.

In the case interview, 12 people were selected by grade and professional category. The snowball sampling method was used to select the interviewees, and the willingness of the interviewees was also taken into consideration.

The action plan was divided into four steps: pre-preparation stage, implementation stage, finishing analysis stage, and summary writing stage.

Following the aforementioned processes, we contacted the relevant personnel to send them the Wenjuanxing link to distribute the questionnaire; at the same time, case-by-case interviews were conducted

using the interview outline.

In the data analysis stage, through Wenjuanxing data, SPSS was used to analyze the "head down" phenomenon among college students, their degree of social avoidance, and their self-efficacy level, and on this basis, the impact of self-efficacy on social avoidance, its process, and its mechanism of action were also investigated. The analytical methods used in this study included descriptive statistics, alpha reliability statistics, KMO and Bartlett's tests, as well as Pearson's correlation analysis.

3. Methodology

In this section, we will focus on the online research methods. The steps are shown in **Table 1**. The final selection of the research method is the result of a continuous process of altering one's ideas and research approach. The subjects have subjective wills of sentiments, values, personality, and so on, which creates ambiguity. They might not collaborate with researchers in the future, or they might do strange things for personal reasons. Furthermore, there might be a number of interference variables in the study that will alter the outcomes. Social, psychological, historical, cultural, institutional, and other factors may influence the study on social phenomena. Furthermore, research might be subjected to some constraints, such as ethical and moral politics; thus, researchers may not be able to conduct subjective or arbitrary research. Finally, the study might be influenced by the subjective will of the researcher(s) [6]. This study took into account the negative impact of online research methods as much as possible, maximizing the avoidance of research errors, so that the results of the study are accurate and objective.

Table 1. Online research methods

Research process	Details	Time (days)
Design the questionnaire	-	10
Conduct an online pilot survey	Select 40 people for the pilot survey	5
Collect information about the respondents	Snowball sampling	12
Provide advance notice	-	3
Send the link for the questionnaire to the respondents	-	2
Send a reminder	Based on unresponsive questionnaire	4
Send a second reminder	Based on unresponsive questionnaire	7
Close the investigation	-	2

In the 1970s, the advances in computer technology have greatly improved computing power in the field of investigation, and the model dependency theory is on the rise.

Researchers can use more complex models based on the auxiliary framework of design patterns. The model dependency theory is applicable to small sample sizes and exploratory research. The researchers used various models to narrow down existing errors and come up with reliable estimates. Methods such as anovatic estimation and approximate repeats, are applied. Therefore, this article also draws on the methods applied by Shu Peng and Xu Yanfeng [7]. The research methods and error evaluation methods applied in the study on the correlation between loneliness and general self-efficacy as well as the social avoidance of college students included independent sample t-test [8], Pearson's correlation analysis, and regression

analysis [9]. All these will be explained in detail during the data collection and analysis phase. In the current stage, it is precisely because of the maturity of computer analysis and calculation methods that we can refer more about the analysis methods used by previous researchers for research. Through this, we save time, materials, and other costs.

In this paragraph, we will focus on the overall steps of the research. This study primarily employs and is based on the Wenjuanxing online questionnaire survey. Many researchers are still debating the content of the notion of "network inquiry" as a common investigation and research method in recent years; however, there is still no definite consensus to this issue. According to the findings from literature reviews, the most commonly used term by academics when discussing online surveys is "web survey." Web surveys, while initially included the use of various web production techniques (e.g., html, etc.) to convert questionnaires into web pages and post them on the internet for respondents to fill them, there are alternative approaches to investigate from a technological standpoint (e.g., e-mail survey, download survey, etc.). However, as web-based production is now widely acknowledged and used by researchers, the online research we are discussing here only covers web-based questionnaires [10]. Web surveys can be divided into pure hypertext form survey, fixed table format interactive web survey, and customized interactive web survey. Pure hypertext form survey is the current widely used web survey, which is supported by the CGI system. Interviewees can complete the questionnaire by clicking the button or the text box, and submit the questionnaire data by selecting the submit option. In recent years, some packages have been able to automatically recycle data when they are submitted. Graphics, sounds, and other multimedia components can be included into this kind of questionnaire to maximize its design. Fixed table format interactive web surveys are mostly developed by the CATI software. It appears on the questionnaire website, and users can design their own questionnaires online. It supports logical branches and other complex functions, but due to software limitations, only a certain questionnaire format can be selected, and the questionnaire can only be found on the website on the server. There is also a requirement to pay a certain fee. Customized interactive web surveys are rarely performed with the assistance of senior technicians due to special user requirements, which are powerful, but also costly in terms of time and capital. The surveyor's ability to control the questionnaire is also impaired. The Wenjuanxing technology, which is used in this study, uses the fixed table format interactive web survey.

3.1. Reasons for using Wenjuanxing as the platform for the questionnaire

Wenjuanxing was developed by Ranxing Group in Changsha, China. It mainly focuses on internet business. Wenjuanxing is China's leading online survey software, providing enterprises, universities, and individuals with a wide range of applications, including questionnaire survey, online examination, 360-degree feedback, registration form, online evaluation, and online voting. Depending on consumers' needs, the service can be adapted. The questionnaire page is simple and straightforward, making it suitable for the majority of online questionnaire requirements.

3.2. Questionnaire design

The Social Avoidance and Distress Scale (SADS) and the General Self-Efficacy Scale were used in this study. The original questionnaires in word format were directly imported into Wenjuanxing.

In recent years, a good cover letter has become especially important in situations when various types of surveys have elicited sentiments of revulsion and rejection. After designing the initial questionnaire, we inserted a cover letter under the title of the questionnaire explaining the background of the researchers, the content of the study, the method of selecting the subjects, and the confidentiality of the results, in which the questionnaire is anonymous in nature. Expressing sincere gratitude to the respondents for their cooperation will have an effect on their subjective mood and willingness to cooperate.

The survey also included personal information, such as gender, grade, major, ethnicity, student cadres, and parental qualifications, before formally introducing questions pertaining to self-efficacy and social avoidance. It is necessary to include all these factors as they can affect social avoidance and self-efficacy. More information can be obtained from the respondents to conduct other research and analysis.

We had complete control over the quantity of questions for each page on the site. Respondents will continue to utilize the scroll bar if there are too few questions per page, but there will be a psychological strain on them if there are too many, which will have a negative influence on the responses. Therefore, a reasonable number of questions must be structured within the screen to avoid, as far as possible, the respondents from leaving the questionnaire midway for this reason. We structured the questionnaire such that each page, in the case of a regular web page size, has three to four questions on both, the computer and mobile device. The respondents can finish within two to four minutes, whether on a computer or on a mobile device.

In general, the synthesum is the ideal questionnaire font for Chinese surveys, but since there are variations in the respondents' systems, of which some do not support a certain type of font [10], the questions were set to Arson, bolded, with a font size of 14 px, and the options were unmodifiable. In this way, the questionnaire was fairly readable and easily accessible with different browsers and displays.

As most of the questions are single-choice questions, the respondents are familiar with this format. They were required to select only one of them. However, because there are generally four scale options, which occupies a large layout area, resulting in visual interference to reading, colored borders were added around the options to improve the efficiency of the answers.

3.3. Sampling

Based on the collection of questionnaires distributed online, and in view of the nature of the research (small-scale exploratory research), quota sampling is used, with a ratio of 1:1 for gender, and 9:1 for Han and ethnic minorities. The grades were based on the ratio of freshman: sophomore: junior: senior – 1:3:3:3.
A total of 200 subjects were selected from among L university undergraduates according to the sampling criteria, including gender, grade, and ethnicity.

In order to gauge the overall situation, information about the number of undergraduates in each of L University's four grades (the first to the fourth grade) as well as the distribution of research variables were gathered. Based on the preset judgment, the draw list is as shown in **Table 2**.

Table 2. Draw list

Gender	Boys 100		Girls 100	
Nationality	Han nationality 90	Ethnic minorities 10	Han nationality 90	Ethnic minorities 10
Grade	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Number	9 27 27 27	1 3 3 3	9 27 27 27	1 3 3 3

3.4. Contact in advance

To connect with a limited number of known respondents, we used their contact information. It took a month and included using the snowball sampling method to collect a sample of surveys that fulfilled the sampling criteria, assigning 200 respondents into parts to the working group members, and eventually acquiring the contact information of other respondents who fit the criteria. It also ensures the accuracy of the subjects of investigation.

Where possible, a notification letter was sent to each respondent prior to the issuance of the questionnaire to inform the respondents that a questionnaire has been sent recently [10]. The members of the

working group were informed in advance before the questionnaire link was officially issued. This was to establish effective contact with the interviewees in advance, build trust in the surveyor, and inform them of the survey's content, the institutions, and the information necessary for the research, in order to effectively improve the response rate of the online survey [11].

3.5. Pilot survey

Before the official survey, 40 people were included in a pilot survey. The pilot survey found that the questions had low response rates.

Changes were made to the questionnaire. In the initial design stage, the progress component was included in the questionnaire, but due to network and system problems, the questionnaire cannot be displayed on the screen in a timely manner, thus affecting the speed of the display. Therefore, in the formal investigation, the progress component was removed.

Furthermore, some respondents will think that they have not submitted the questionnaire after completing the response and will consequently re-submit it. As the number of times answered is not limited, there will be repeated submissions. Therefore, the permission settings of the questionnaire were set in such a way to specify the IP address, so the same computer or mobile device, having the same WeChat user account can only fill out the questionnaire once. This effectively improved the overall quality of the questionnaire.

One of the issues considered is when a person exits halfway through the questionnaire for some reason or accidentally quits. In that case, the respondent will have to answer the question again from scratch. Hence, we selected in the option to allow "intermittent answer." In that case, when cookies are not cleared, the person can continue to answer the questions using the same browser where he or she last exited, as the previous answers have been saved.

3.6. Questionnaire distribution

After completing the pilot survey, the questionnaire was sent to the intended subjects via QQ or e-mail. As sufficient contact was made in the early stage, the respondents' trust in the questionnaire substantially improved, and the content of the questionnaire also reflected certain understandings, making it easier to collect the data. Therefore, there was a high response rate from most of the questionnaires sent out.

In order to maximize the quality of the questionnaire data, we distributed 210 questionnaires in total, recycled 202 questionnaires, and recovered 96% of them [12].

3.7. Reminder for unanswered questionnaires

On the Wenjuanxing platform, it is possible to see detailed information about the respondents' answer progress, answer time, answer order, and so on, which plays a crucial role in collecting the questionnaire data and in the overall process of the research. In addition, as it was difficult obtaining these system data using past conventional survey methods, the data analysis in the later stage carries a critical reference value. The flaws in the questionnaire can be identified, and the research process can be supplemented and improved subsequently.

On the system platform, it is also possible to see whether the respondent has opened the questionnaire link, whether the questionnaire has been submitted, and so on. With this information, we can track the progress of the respondents, especially for those who have not opened the link or filled out the questionnaire within three days. In that case, we can urge them to fill out the questionnaire as soon as possible by contacting them through QQ, e-mail, and telephone. The non-response follow-up method is the most effective technique to increase feedback rates.

In regard to conventional methods, although the method of urging increases the response rate, it will undoubtedly increase the cost of the survey, which is relatively inexpensive and may be extensively employed in online surveys. This is, without a doubt, one of the advantages of online surveys.

3.8. Other factors that may affect the quality of the answers

In order to reduce the number of respondents, the questionnaire was designed with the "passive navigation" questionnaire filling method, in which the respondents can freely choose the order of answering the questions (active navigation means that the respondents can only answer the questionnaire in the sequence designed by the researchers). In that case, there is a high level of autonomy and initiative among the respondents, with more flexible answers, and a better grasp of the overall research situation. On the other hand, as the respondents can view all the questions at once, there may be too many too cumbersome ideas; the possibility of exiting the questionnaire greatly increases with this. Regardless of the method, it is impossible to only bring convenience to the respondents without leaving any negative impact. Therefore, it is necessary to consider this when selecting the method.

According to the results of the survey, to reduce the impact on the speed of the display, we did not use other graphics or texts to show the progress of the questionnaire while filling in. The answers can only be obtained using the scroll bar on the right side of the screen, or browsing to the final question to determine the end of the questionnaire; this method requires more initiative from the respondents.

Furthermore, the respondents might have missed some questions. In that case, when the questionnaire is submitted, the system will display errors, indicating that there are questions that have not been answered; the corresponding questions will then be displayed in red fonts. This is also an advantage not found in regular surveys. This greatly improves the response rate and validity of the questionnaire.

In order to improve the enthusiasm of the respondents and to ensure the completion of questionnaires, the WeChat Red Pack raffle interface will automatically pop up upon clicking the submission option, thus giving each response a chance to participate in the draw. The respondents were also informed of this fact in the early stage to encourage them to fill in the questionnaire as soon as possible. Such means will also improve the quality of the questionnaire data and the enthusiasm of the respondents.

4. Data analysis

According Cronbach's alpha, the score on social avoidance was between 0.7 and 0.8, indicating a high level of confidence. However, the score on self-efficacy was slightly lower, but still in the acceptable range. However, the score on self-efficacy was slightly lower, but still in the acceptable range, as shown in **Table 3**.

Table 3. Reliability statistics

Cronbach's alpha	Cronbach's alpha based on standardized items	Number of items
.707	.675	24

Based on KMO and Bartlett's test, its significance was less than 0.05, indicating that the questionnaire data is suitable for factor analysis, and its KMO measurement was 0.887, indicating that the questionnaire data have good validity (**Table 4**).

Table 4. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		.887
Bartlett's test of sphericity	Approx. chi-square	1.909E3
	df	276
	Sig.	.000

4.1. Social avoidance

Among the 202 valid questionnaires, 72 had social avoidance behavior, accounting for 35.64%, while 130 respondents were found to be socially normal, accounting for 64.36% (**Figure 1**).
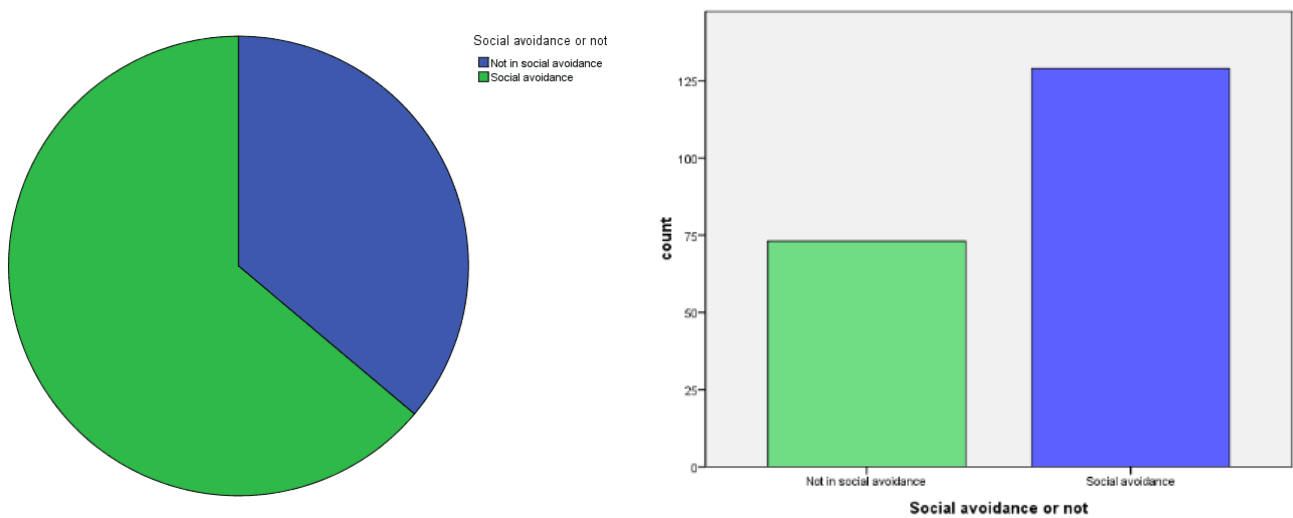

Figure 1. Proportion of social avoidance

4.2. Self-efficacy

Out of the 202 valid questionnaires, three showed low self-confidence, accounting for 1.49%, 68 respondents showed a little low self-confidence, accounting for 33.66%, 113 had more self-confidence, and 18 had high self-confidence, accounting for 8.91% (**Figure 2**).
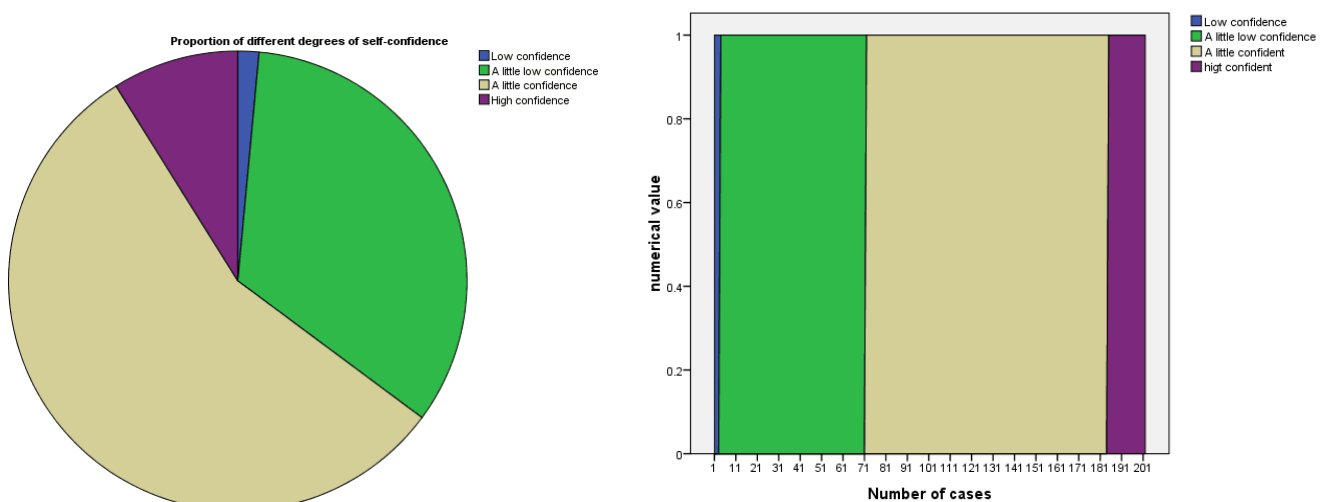

Figure 2. Proportion of self-confidence

4.3. Relationship between social avoidance and sense of self-efficacy

In the sample of social avoidance, one person had very low self-confidence level, accounting for 1.39%, 38 people had low self-confidence, accounting for 52.78%, 29 people had higher self-confidence level, accounting for 40.28%, and two people had very high self-confidence level, accounting for 2.78%.

In the sample of non-social avoidance, two people had very low self-confidence level, accounting for 1.54%, 29 people had low self-confidence, accounting for 22.31%, 84 people had high high self-confidence, accounting for 64.62%, and 15 people had very high self-confidence level, accounting for 11.54% (**Figure 3** and **Figure 4**).
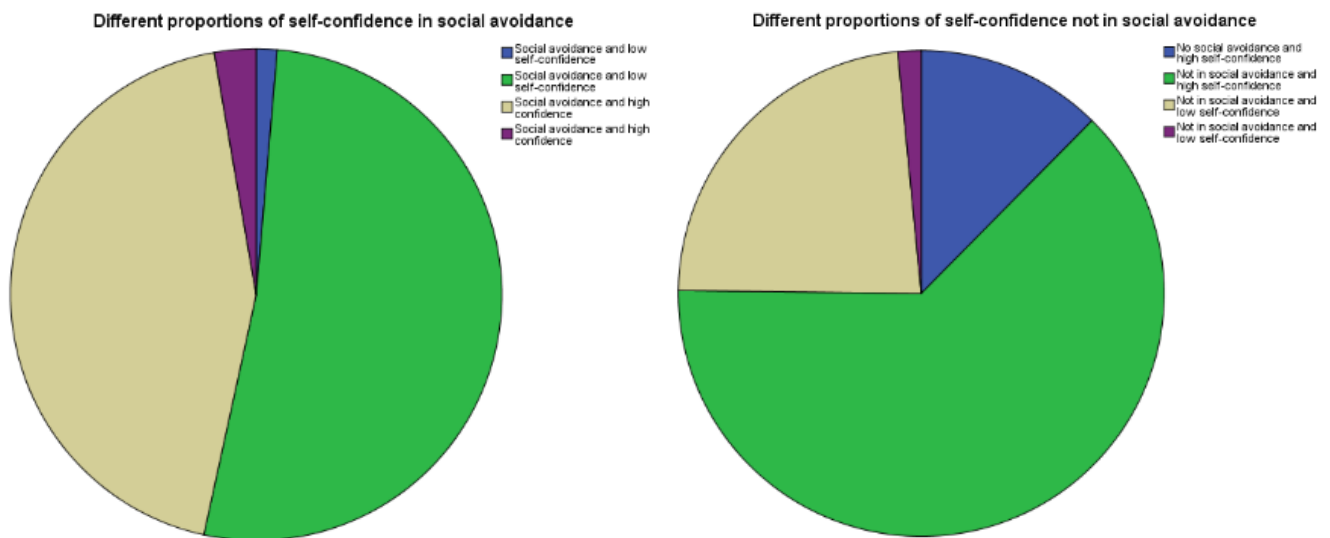

Figure 3. Pie charts showing different proportions of self-confidence in social avoidance and non-social avoidance
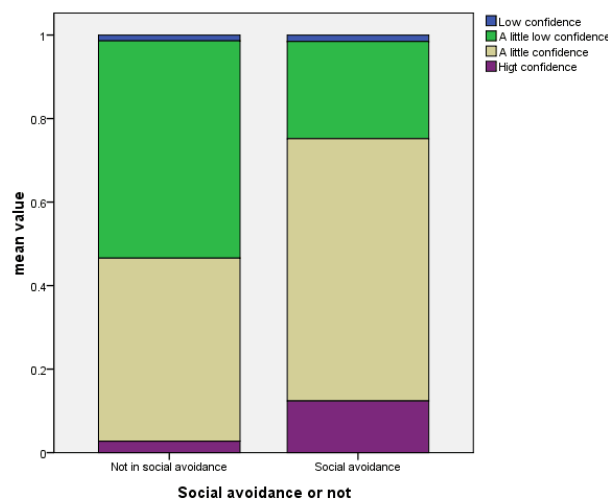

Figure 4. Bar chart showing the proportions of self-confidence in social avoidance and non-social avoidance

Pearson's correlation was used to analyze the relationship between the sense of self-efficacy and social avoidance among college students. The results revealed a significant correlation between college students' sense of self-efficacy and social avoidance. There was a significant negative correlation between self-efficacy and social avoidance ($r = 0.42$, $p < 0.01$), indicating that the lower the sense of self-efficacy, the greater the likelihood of social avoidance (**Table 5**).

Table 5. Pearson's correlation

		The sum of social avoidance	The sum of self-efficacy
The sum of social avoidance	Pearson relevance		-.421**
	Significance (double tail)		.000
	Number of cases	202	202
The sum of self-efficacy	Pearson relevance	-.421**	
	Significance (double tail)	.000	
	Number of cases	202	202

Note: ** The correlation is significant at the 0.01 level (double tail)

5. Conclusion and review

5.1. Conclusion

The correlation analysis found a significant negative correlation between self-efficacy and social avoidance. This suggests that the higher the sense of self-efficacy, the lesser the likelihood of social avoidance, whereas the lower the sense of self-efficacy, the greater the likelihood of social avoidance. The methodology of the study has been discussed, so the conclusion of this study will not be repeated in this section [13].

5.2. Shortcomings and prospects

This study focused on the relationship between self-efficacy and social avoidance among college students. There are several shortcomings in this study. First, the sample size is small, with only 202 effective questionnaires. The limited sample size suggests that the results of the study cannot be expanded on a large scale. Second, this study only investigated the relationship between self-efficacy and social avoidance, while other demographic data remained as preliminary descriptions without further analysis; thus, a systematic research analysis cannot be carried out.

5.3. Review on the discussion

The online questionnaire method is a relatively new form of technique in recent years, and despite several objections, its widespread use has become an irreversible trend. With its unique and powerful network platform, online questionnaires offer advantages that traditional questionnaires do not have in the past. The advantages of online questionnaires include speed and low cost, as well as the elimination of late data submission and other issues. The development of internet technology provides a solid foundation for the implementation of online questionnaires.

It is precisely because of the emerging nature of the online questionnaire that the implementation of surveys is in an immature stage. Most of the online questionnaires use convenient sampling, as it is difficult to achieve probability sampling under strict standards. The standard extraction of some subjects is extremely difficult, and the reliability and validity of the data gathered are debatable. There are many survey errors worthy of attention, including the use of online questionnaires. In the methodology, this paper focused on the steps of online research methods in the research process, in hope to provide some assistance to researchers by detailing the specifics.

Disclosure statement

The authors declare no conflict of interest.

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