Research Article

Self-Presentation and Adolescent Altruistic Behaviors in Social Networks

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Social networks provide a convenient place for people to interact; members in social networks may create new connections or break existing connections, driving the evolution of complex network structure. Dynamics in social networks, such as opinion formation and spreading dynamics, may result in complex collective phenomena. This paper conducts a survey on 495 students from six schools in Shaanxi, Henan, and Zhejiang provinces and discusses the impact of self-presentation on adolescent network altruistic behaviors, the intermediary role of social ability cognition, and the moderating role of privacy awareness. The results show the following: (1) Self-presentation in social networks can positively predict adolescent network altruistic behaviors. The positive prediction effect of network sharing is the largest, and the positive prediction effect of network support is the least. (2) Social ability cognition plays an intermediary role between self-presentation and adolescent network altruistic behaviors. (3) The moderating effect of privacy awareness is not significant.

1. Introduction

According to the China Internet Development Statistical Report, the number of Internet users had reached 904 million by March 2020, with a penetration rate of 64.5%. The Internet has become an important part of modern people's daily life. With the rapid development and popularity of the Internet, negative behaviors such as Internet addiction, cyberbullying, cybercrime, and others have received extensive attention from researchers. However, in addition to these negative behaviors, there are also some positive behaviors such as network altruistic behaviors in network environment [1]. Network altruistic behaviors refer to the conscious and active behaviors of individuals who invade the network, benefiting others or society, and do not expect to be rewarded [2]. Some researchers pointed out that the network environment has the characteristics of anonymity, timeliness, and interactivity [3, 4], which makes altruistic behaviors more likely to occur. Adolescents are a critical stage of life development, and it is of great significance for researchers to study network altruistic behaviors at this stage.

Existing research has shown that altruistic behaviors had positive effects on the academic performance and subjective well-being of adolescent [5]. Considering the importance of network altruistic behaviors in establishing a harmonious network environment and playing active roles in the network [6], it is necessary to study the influencing factors and mechanism of adolescent network altruistic behaviors in order to cultivate adolescent's network altruistic behaviors and promote their positive development.

Self-presentation is a series of actions performed by an individual to present information to others, which will affect the individual's psychology and behavior [7]. From the perspective of objective self-awareness theory, self-presentation in social networks often contains a lot of personal information, which may increase user self-awareness [8]. When self-awareness increases, individuals will become more conscious of social standards and therefore form more pro-social behaviors [9, 10]. At the same time, self-presentation in social network can enable individuals to obtain social support and enhance interpersonal intimacy [11], as well as enhance the individual's sense of social connection

and happiness [12]. From the perspective of reciprocal altruism, the favourable experience brought by self-presentation may cause individuals to generate network altruistic behaviors out of the psychological repayment.

Social ability cognition is a general intermediary mechanism in social psychology changes and an important factor in predicting individual behavior [13]. Social ability cognition refers to an individual's evaluation of his ability to establish and maintain good social relationships [14]. Self-presentation in social networks brings opportunity to interact online with others and can provide individuals with more possibilities to establish and deepen interpersonal relationships. Bandura believed that there were four main sources of social ability cognition: successful experience, alternative experience, verbal persuasion, and emotional state [15]. The online interaction opportunities and positive online feedback that self-presentation brings to individuals can fall into the category of successful experience. Therefore, the self-presentation of social network may have a positive impact on individual's network social ability. At the same time, individuals with high social skills are more willing to connect themselves with others and are more confident in their ability to help others, so they may produce more altruistic behaviors [16]. Empirical studies have shown that online social ability cognition can positively predict network altruistic behaviors [14].

Privacy awareness refers to users' concerns about the collection, control, and excavation of their personal data. Privacy awareness has led users to be more cautious when disclosing personal data [17, 18]. In social network environment, various social activities begin with the provision of personal data, and the continued social activities are accompanied by the contribution of more personal data. Personal data contains private content, and the contribution of personal data leads to user privacy awareness. Obviously, privacy awareness has a negative impact on users' use of social networks. But at the same time, for the purpose of interpersonal relationship management [19], self-presentation [20], and subjective norms [21], despite the disclosure of privacy issues, users voluntarily provide personal data. Thus, it can be said that the user's privacy awareness would affect the user's behaviors in social networks. The moral concept of adolescents has not been finally constructed and has strong plasticity [22], but meanwhile the awareness of privacy protection is not strong. Some adolescents do not pay much attention to their privacy, so their self-presentation on network platforms is mainly true self-presentation, most adolescents hold privacy awareness, and their presence on the network usually hides some private information. It can be said that privacy awareness may affect adolescents' self-presentation in social networks, further changing the adolescents' altruistic behaviors.

Through the above analysis, this paper mainly investigates the influence of adolescent self-presentation on their network altruistic behaviors, the intermediary role of adolescents' social ability cognition, and the moderating role of privacy awareness and attempts to construct the mechanism of adolescent social network self-presentation on their network behaviors. Through the analysis of adolescent self-

presentation, social ability cognition, and privacy awareness, it provides theoretical basis and practical guidance for promoting adolescent's network altruistic behaviors, cultivating their positive psychological quality and forming abundant social networks.

2. Theoretical Analysis and Hypothesis

2.1. Adolescent Self-Presentation and Network Altruistic Behavior. Social networks provide several platforms for self-presentation. Adolescents have their own personal home-pages on social networking sites, which can be self-presented by posting text, pictures, and videos. Self-presentation has become a major activity in social networks. Since social networks are mainly based on the characteristics of acquaintances [23], individuals will try to present real information [24]. Social network self-presentation, as a special way for individuals to truly reveal themselves to their friends, can enhance interpersonal trust and relationship intimacy, help individuals accumulate social capital, maintain and deepen interpersonal relationships, and obtain social support [19]. Research shows that adolescents who present more personal information on the Internet tend to have more trust in the online environment and are more willing to integrate into the interaction on online platform, which makes it easier for them to identify with the online community and thus more likely to help others online [25]. From the perspective of reciprocal altruism [26], the good experience that self-presentation brings to an individual may cause the individual to generate network altruistic behaviors out of the psychology of repayment. Therefore, we propose Hypothesis 1.

Hypothesis 1. Self-presentation in social networks can positively promote adolescent network altruistic behaviors.

According to the form of network altruistic behavior, we draw on the meaning of network altruistic behaviors by scholars such as Wright Li [6] and divide adolescent network altruistic behaviors into network support, network guidance, network sharing, and network warning.

Network support refers to the behaviors such as sharing personal life experiences and perceptions in social networks. It not only contains the behaviors that individuals use their own experience to support others to overcome difficulties, but also includes behaviors that provide network technical support, and these behaviors are often achieved through self-presentation in networks. Adolescents present their experiences and offer support in networks; others can obtain these pieces of information by downloading or contacting adolescents; therefore, adolescents' network support behaviors are strengthened. Thus, we propose H2.

Hypothesis 2. Self-presentation in social networks can positively promote adolescents' network support behaviors.

Network guidance is behaviors such as providing guidelines for building groups or running computers. It focuses more on programs. Adolescents' self-presentation includes their experiences, ability, and professional knowledge; these knowledge presentations offer opportunity

for network members to get guidelines of running computer or building group, thus promoting network guidance behavior. Therefore, we propose H3.

Hypothesis 3. Self-presentation in social networks can positively promote adolescents' network guidance behaviors.

Researchers have found that the degree of self-presentation in the online social Q&A community can positively predict their online knowledge sharing behavior. Jin et al. pointed out online knowledge sharing behavior was a form of online altruistic behavior and self-presentation was a way of sharing; this meant the contents of self-presentation helped individuals to share their experiences and further facilitated altruistic behavior. But they only targeted specific online communities and did not delve into the internal mechanisms of the impact of self-presentation on other online altruistic behaviors [25]. Based on previous research, we propose H4.

Hypothesis 4. Self-presentation in social networks can positively promote adolescents' network sharing behaviors.

Network warning, such as exposing some adverse events in social networks to remind others to pay attention, is attracting adolescents' attention. Due to system vulnerabilities, corruption, and other reasons, some people could not get fairness and they chose silence for fear of retaliation. With the popularity of Internet, networks became a way to unleash emotions and unfairness. This is also a way of self-presentation. Networks provide platforms for self-presentation; people who did not get fairness can warn others in networks. Therefore, we propose H5.

Hypothesis 5. Self-presentation in social networks can positively promote adolescents' network warning behaviors.

2.2. Intermediary Role of Social Ability Cognition. There are many factors influencing network altruistic behaviors. Previous studies mainly analyzed the generation of network altruistic behaviors from three aspects: altruists, network environment, and recipients [21]. Researchers have found that the occurrence of adolescent network altruistic behaviors was highly correlated with altruistic factors, such as gender, altruism, and other factors [6], but few focused on the cognitive factors of altruistic behaviors. The researchers pointed out that the cognitive factors of altruists had a great influence on the implementation of altruistic behaviors [27]. Therefore, we mainly explore the influence mechanism of self-presentation in social networks on adolescent network altruistic behaviors from the perspective of altruists' cognitive factors. Social ability cognition refers to an individual's evaluation of his ability to establish and maintain social relationships [14]. Adolescents' positive cognition and thinking of self-ability may enhance their confidence in helping others online, thereby promoting the generation of network altruistic behaviors. Adolescents are eager to communicate more with their peers and friends [28], and their evaluation of social networking ability, which we also call social ability perception, can affect their network behaviors. At the same time, self-presentation in social networks can stimulate

adolescents' self-awareness, and self-awareness can promote adolescents' self-exploration, further generating new evaluations and thinking strategies of their abilities [29]. Network social capabilities may enable adolescents to have a more positive view of their social capabilities and interpersonal relationships and then generate more network altruistic behaviors [5, 13]. Therefore, we propose Hypothesis 6.

Hypothesis 6. Social ability cognition plays a positive intermediary role between adolescents' self-presentation and altruistic behaviors in social networks.

2.3. Moderating Role of Privacy Awareness. Privacy awareness has led users to be more cautious when disclosing data. In social networks, especially online network environment, users are usually reluctant to fill in personal information or present their true situation out of fear that their information will be leaked or abused. In social networks of adolescents, since the moral concept of adolescents has not been finally constructed, their attention to private information is not strong. When self-presenting, they usually perform real self-presentation based on the characteristics of acquaintance socialization. The previous research pointed out that self-presentation may have a positive effect on adolescents' altruistic behaviors. However, under the privacy awareness, due to competition, information protection, and other reasons, adolescents may reduce their behaviors in social networks, such as filling out a questionnaire. If personal information needs to be authorized, many users will refuse to fill out the questionnaire, indicating that the strengthening of privacy awareness may reduce adolescents' altruistic behaviors. In addition, in the process of self-presentation, due to information protection considerations, adolescents will also hide personal information in self-presentation. For example, users in WeChat usually use mosaic to hide core information when they share experience; when speaking on social platforms such as Weibo, users prefer to use nicknames instead of real names. These behaviors will reduce interests for other users [6]; as a result, other users are also reluctant to share experience in network sites. It can be said that, under the effect of privacy awareness, the effect of self-presentation on adolescent network altruistic behaviors may be affected. Through the above analysis, we propose Hypothesis 7.

Hypothesis 7. Privacy awareness plays a negative moderating role between adolescents' self-presentation and altruistic behaviors in social networks.

The theoretical framework and hypothesis of adolescents' self-presentation and social network altruistic behaviors is summarized in Figure 1.

3. Materials and Methods

3.1. Subject. The participants of this study were 575 students from three junior high schools and three senior high schools in Shaanxi, Henan, and Zhejiang provinces. A total of 575 questionnaires were issued and 495 valid questionnaires

FIGURE 1: Theoretical framework of adolescents' self-presentation and social network altruistic behaviors.

were recovered with an effective recovery rate of 85.91%. Among them, there are 260 boys (52.63%) and 235 girls (47.36%). The average age of the subjects was 14.53 years (SD = 1.68, age range is from 12 to 18).

3.2. Variable Selection and Measurement. The network altruistic behaviors were measured by a scale compiled by Wright and Li [6]. A total of 26 projects were divided into four dimensions, which are network support (9 projects, such as sharing with others the experiences and perceptions of their lives in social networks), network guidance (6 projects, such as creating a platform for a person to communicate), network sharing (6 items, such as sharing your successful learning experience with others in social networks), and network warning (5 items, such as exposing some illegal events on the Internet to remind others to pay attention). The scale was scored at 4 points (1 “never” to 4 “always”). The scale has been used to measure the level of network altruistic behaviors among adolescents with good reliability and validity. In this study, the questionnaire's confirmatory factor analysis fit the indicators well: $\chi^2/df = 6.34$, RMSEA = 0.06, NFI = 0.90, GFI = 0.90, CFI = 0.92, the internal consistency coefficient α of the scale was 0.971, and coefficient α of each dimension was 0.909 (network support), 0.922 (network guidance), 0.872 (network sharing), and 0.940 (network warning).

Social network self-presentation was measured by a self-presentation questionnaire prepared by Kim and Lee [27]. The self-presentation questionnaire included 4 items to measure the degree to which individuals present their true emotions and thoughts in social networks (e.g., I will post pictures showing my true idea; I don't mind sharing some of bad feelings in social networks, etc.). The questionnaire used 5 points (1 “completely inconsistent” to 5 “completely consistent”). The scale has been applied to measure the individual's social network self-presentation strategy with good reliability and validity. In this study, the questionnaire's confirmatory factor analysis fit well: $\chi^2/df = 4.36$, RMSEA = 0.08, NFI = 0.995, GFI = 0.998, CFI = 0.997. The internal consistency coefficient α of the questionnaire was 0.798.

Social ability cognition was measured by a network social ability questionnaire compiled by Jeong and Kim [14]. The questionnaire in this study had 4 items (for example, in online communication, I easily make friends with others; I often participate in online activity groups, etc.), using 5 points (1 “completely inconsistent” to 5 “completely

consistent”). In this study, the confirmatory factor analysis of the questionnaire fit well: $\chi^2/df = 2.47$, RMSEA = 0.04, NFI = 0.998, GFI = 0.999, CFI = 0.999, and the internal consistency coefficient α was 0.934.

Privacy awareness was measured by a privacy awareness questionnaire prepared by Kishalay et al (2018) [28], including 4 items (for example, I am concerned that the information submitted on the social platform will be misused; I am unwilling to fill in personal information on the social platform because they may be used in an unpredictable way, etc.), using 5 points (1 “completely inconsistent” to 5 “completely consistent”). In this study, the questionnaire's confirmatory factor analysis fit well: $\chi^2/df = 2.24$, RMSEA = 0.02, NFI = 0.998, GFI = 0.999, CFI = 0.999, and the internal consistency coefficient α was 0.910.

3.3. Procedures and Data Processing. In this study, after obtaining the consent of the school leaders, teachers, and students themselves, the rigorously trained investigators explained the questionnaire practices in accordance with standardized guidelines, using a unified questionnaire to conduct group testing in units of classes, and all questionnaires were recovered on the spot. In this study, SPSS22.0 software was used to analyze the data, principal component analysis was used for project packaging and dimensionality reduction, and deviation-corrected percentile Bootstrap method was used to test the intermediary role of social ability cognition.

First, we needed to reduce the dimensionality of the variables. Using the principal component analysis method, we first standardized the original data. In n objects, apply $x_1, x_2, \dots, x_m$ to represent the m variables of the principal component analysis index, and a_{ij} represents the value of the i -th evaluation object corresponding to the j -th index. Convert each index value a_{ij} into a standardized index a_{ij}^* , which is

$$a_{ij}^* = \frac{a_{ij} - \mu_j}{s_j}, \quad i = 1, 2, \dots, n; \quad j = 1, 2, \dots, m. \quad (1)$$

Among it,

$$\mu_j = \frac{1}{n} \sum_{i=1}^n a_{ij},$$

$$s_j = \frac{1}{n-1} \sum_{i=1}^n (a_{ij} - \mu_j)^2. \quad (2)$$

Accordingly, the standardized indicator variable is

$$x_{ij}^* = \frac{x_j - \mu_j}{s_j}, \quad j = 1, 2, \dots, m. \quad (3)$$

Second, calculate the correlation matrix R , $R = (r_{ij})_{m \times m}$ where

$$r_{ij} = \frac{\sum_{k=1}^n a_{kj}^* a_{ki}^*}{n-1}, \quad i, j = 1, 2, \dots, m. \quad (4)$$

Furthermore, the eigenvalues and eigenvectors of the correlation coefficient matrix were calculated. Solving the characteristic equation $|\lambda I - R| = 0$, we got the eigenvalue λ_i , $\lambda_1 \geq \lambda_2 \geq \dots \geq \lambda_m \geq 0$ and calculated the corresponding eigenvector u_i . The m new indexes composed of the eigenvectors are

$$\begin{cases} y_1 = u_{11}x_1^* + u_{21}x_2^* + \dots + u_{m1}x_m^*, \\ y_2 = u_{12}x_1^* + u_{22}x_2^* + \dots + u_{m2}x_m^*, \\ \dots \\ y_m = u_{1m}x_1^* + u_{2m}x_2^* + \dots + u_{mm}x_m^*. \end{cases} \quad (5)$$

Among them, y_1 is the first principal component, y_2 is the second principal component, and y_m is the m -th principal component.

Finally, p ($p \leq m$) principal components were selected according to the information contribution rate and the cumulative contribution rate, and the comprehensive evaluation value was calculated.

The information contribution rate b_j and the cumulative contribution rate a_p are

$$\begin{aligned} b_j &= \frac{\lambda_j}{\sum_{k=1}^m \lambda_k}, \\ a_p &= \frac{\sum_{k=1}^p \lambda_k}{\sum_{k=1}^m \lambda_k}. \end{aligned} \quad (6)$$

If a_p is close to 1 (generally 85%–95%), the first p index variables are used as p principal components, and b_j is used as the weight to calculate the comprehensive score value; that is,

$$Z = \sum_{j=1}^p b_j y_j. \quad (7)$$

SPSS software was used to package adolescent self-presentation, network altruistic behaviors, social ability cognition, and privacy awareness scale items. The scree plots of four major variables are shown in Figure 2. Social network altruistic behaviors were packaged as four indicators, and self-presentation, social ability cognition, and privacy awareness were all packaged into one indicator.

4. Results and Discussion

4.1. Common Method Biases and Descriptive Analysis. After data collection, this study used Harman single factor analysis to statistically test the deviation of the common

method. The results showed that there were 8 factors with eigenvalues greater than 1 without rotation, explaining 56.53% of the variation, and the first factor explained 29.84% of the variation, which is less than the 40% judgment standard recommended by the predecessors, so this study did not have serious common method biases. The statistical description of the variables is shown in Table 1.

The results show that self-presentation is positively correlated with adolescent network altruistic behaviors; the correlation coefficient is 0.808. Moreover, self-presentation is positively correlated with each dimension of network altruistic behaviors; the correlation coefficients are 0.686, 0.760, 0.959, and 0.713. Social ability cognition and privacy awareness are significantly positively correlated with self-presentation and network altruistic behaviors. Age is significantly negatively correlated with adolescent network sharing and gender is significantly negatively correlated with adolescent altruistic behaviors, network support, network guidance, and network sharing, as well as self-presentation. Weekly online time is positively correlated with network support. Therefore, in the follow-up study, age, gender, and weekly online time were used as control variables.

Furthermore, use P-P plot to observe the data distribution of the main explanatory variables, which are self-presentation and adolescent network altruistic behaviors (Figure 3). The P-P plot shows that the data of self-presentation and adolescent network altruism are approximately concentrated in direct vicinity, indicating that the data follow a normal distribution and satisfy the basic assumption of linear regression.

4.2. Econometric Model. The explained variable in this paper is adolescent altruistic behaviors in social networks. This variable belongs to discrete and ordered variables, so the Ordered-Probit model was selected for analysis. The effect of self-presentation on network altruistic behaviors is expressed as follows:

$$Y_i^* = x_i' \beta_i + \varepsilon_i, \quad i = 1, 2, \dots, n. \quad (8)$$

Among them, Y_i^* represents altruistic behaviors, x_i' represents factors that affect altruistic behaviors, including explanatory variables and control variables, β_i is the coefficient, and ε_i is the random error term and follows a standard normal distribution. The set values of Y_i^* are 1, 2, 3, and 4, and the specific meanings are as follows: if $Y_i^* < \xi_1$, $Y_i = 1$ means that the individual never performs altruistic behaviors; if $\xi_1 < Y_i^* < \xi_2$, $Y_i = 2$ means that the individual occasionally engages in altruistic behaviors; if $\xi_2 < Y_i^* < \xi_3$, $Y_i = 3$ means that the altruistic behaviors are usually performed; if $Y_i^* > \xi_3$, $Y_i = 4$ means that the individual always engages in altruistic behaviors. Among them, $\xi_1 < \xi_2 < \xi_3 < \xi_4$ is the parameter to be estimated, which becomes the “cutting point.”

Use φ to represent the cumulative density function of the standard normal distribution, and then the probability of Y_i at each value is

FIGURE 2: Scree plots of adolescent altruistic behavior (a), self-presentation (b), social ability cognition (c), and privacy awareness (d).

TABLE 1: Mean, standard deviation, and correlation coefficient of variables.

	M	SD	1	2	3	4	5	6	7	8	9	10	11
(1) Age	14.53	1.68	1										
(2) Gender	0.53	0.5	-0.018	1									
(3) Weekly online time	1.91	0.91	-0.060	0.078	1								
(4) Altruistic behaviors	2.68	0.85	-0.008	-0.110*	0.047	1							
(5) Network support	2.76	0.67	-0.016	-0.116**	0.033*	0.958**	1						
(6) Network guidance	2.52	0.65	-0.018	-0.115*	0.051	0.976**	0.909**	1					
(7) Network sharing	2.42	0.66	-0.016*	-0.103*	0.082	0.878**	0.764**	0.845**	1				
(8) Network warning	2.51	0.65	0.018	-0.083	0.020	0.959**	0.913**	0.925**	0.764**	1			
(9) Self-presentation	2.33	0.67	0.006	-0.116**	0.076	0.808**	0.686**	0.760**	0.959**	0.713**	1		
(10) Social ability cognition	2.41	0.71	-0.058	-0.078	0.084	0.850**	0.773**	0.840**	0.917**	0.715**	0.780**	1	
(11) Privacy awareness	2.53	0.69	-0.042	-0.072	0.076	0.864**	0.762**	0.867**	0.935**	0.736**	0.809**	0.980**	1

Note: $N = 495$, gender is a dummy variable, girls = 0, boys = 1. * $p < 0.05$; ** $p < 0.01$.

$$\begin{aligned}
 P(Y_{i=1} | x'_i) &= P(PY_i^* < \xi_1 | x'_i) = \varphi(\xi_1 - x'_i \beta_i), \\
 P(Y_{i=2} | x'_i) &= P(\xi_1 < Y_i^* < \xi_2 | x'_i) = \varphi(\xi_2 - x'_i \beta_i) - \varphi(\xi_1 - x'_i \beta_i), \\
 P(Y_{i=3} | x'_i) &= P(\xi_2 < Y_i^* < \xi_3 | x'_i) = \varphi(\xi_3 - x'_i \beta_i) - \varphi(\xi_2 - x'_i \beta_i), \\
 P(Y_{i=4} | x'_i) &= P(Y_i > \xi_3 | x'_i) = 1 - \varphi(\xi_3 - x'_i \beta_i).
 \end{aligned}
 \tag{9}$$

Furthermore, the likelihood function of the whole sample, the estimated value of the coefficient, and the

Ordered-Probit model could be obtained. The specific form of the benchmark model in this paper is

$$AB_i = \alpha \cdot SP_i + \mathbf{PQ} + \mu_i, \tag{10}$$

where AB_i represents the altruistic behaviors of the i -th sample, SP_i is the self-presentation of the i -th sample, $\mathbf{Q}$ is the control variable matrix, and μ_i is the random error term (subject to normal distribution, $i = 1, 2, \dots, n$), α, β is the parameter to be estimated.

FIGURE 3: P-P plots of adolescent altruistic behaviors (a) and self-presentation (b).

According to the research of Wu et al. [29], testing the intermediary effect is required to test the parameters of the following three regression equations:

$$AB_i = cSP_i + \mathbf{PQ} + e_1, \quad (11)$$

$$SE_i = aSP_i + \mathbf{PQ} + e_2, \quad (12)$$

$$AB_i = c'SP_i + bSE_i + \mathbf{PQ} + e_3. \quad (13)$$

Among them, SE is social ability cognition, Q is the control variable matrix, and $e_1 \sim e_3$ are regression residuals. c is the total effect of independent variable (self-presentation, SP) on dependent variable (adolescent network altruistic behaviors, AB); a is the effect of independent variable (self-presentation, SP) on intermediary variable (social ability cognition, SE); b is the effect of intermediary variable on the dependent variable after controlling the independent variable; c' is the direct effect of the independent variable on dependent variables after controlling the intermediary variable. If a , b , and c are all significant, the mediation effect is significant; otherwise, there are other effects. For example, if c is not significant, there is a masking effect; if c' is significant, there also exist direct effects. Besides, the non-parametric percentile Bootstrap method with bias correction was used to test the mediation effect; if the 95% confidence interval does not contain zero, the mediation effect is significant [29].

For the moderating role of privacy awareness, the following econometric model is constructed:

$$AB_i = \alpha SP_i + \beta PR_i + \gamma SP_i * PR_i + \mathbf{PQ} + e_4. \quad (14)$$

Among them, PR is privacy awareness. In order to explore the independent effects among core variables, gender and age were controlled during regression.

4.3. Result

4.3.1. Main Result. First, we examined the effects of self-presentation on adolescent network altruistic behaviors. The results are shown in Table 2. Adjusted R^2 shows that except for the fit of self-presentation to the network support, which is slightly lower than 0.5, other regressions have reached the ideal standard, indicating that regression can better reflect the relationship between variables.

From the results in Table 2, self-presentation has a significant positive effect on adolescent network altruistic behaviors ($\beta = 0.808$, $p < 0.001$), and Hypothesis 1 is verified. For specific network altruistic behaviors, self-presentation has a significant positive effect on adolescents' network support, network guidance, network sharing, and network warning, with coefficients of 0.684, 0.757, 0.959, and 0.716, all significant at 1% level; Hypotheses 2–5 are supported.

4.3.2. Results of Intermediary Effect and Moderating Effect

(1) Result of Intermediary Effect. In order to test the mediating effect of social ability cognition on self-presentation and adolescent network altruistic behaviors, three models were constructed and equations (11)–(13) were regressed (Table 3). The Adjusted R^2 shows that the model has a good fit. In equation (11), self-presentation has a significant effect on adolescent network altruistic behaviors, $c = 0.808$, $p < 0.001$. In equation (12), self-presentation has a significant influence on social ability cognition, $a = 0.780$, $p < 0.001$. In equation (13), independent variable (self-presentation) and intermediary variable (social ability cognition) have significant effects on network altruistic behavior, $c' = 0.369$, $b = 0.565$, $p < 0.001$. According to the intermediary effect test

TABLE 2: Regression results of self-presentation and adolescent network altruistic behaviors.

Variables	Altruistic behaviors	Network support	Network guidance	Network sharing	Network warning
Constant	0.169 (0.698)	0.266 (0.892)	0.243 (0.911)	0.162 (1.387)	-0.026 (-0.090)
Age	-0.008 (-0.533)	-0.013 (-0.675)	-0.014 (-0.802)	-0.013* (-1.668)	0.007 (0.347)
Gender	-0.031 (-0.571)	-0.071 (-1.071)	-0.054 (-0.915)	0.015 (0.597)	0.008 (0.119)
Weekly online time	-0.016 (-0.547)	-0.020 (-0.550)	-0.006 (-0.194)	0.007 (0.528)	-0.038 (-1.087)
Self-presentation	0.808*** (30.089)	0.684*** (20.629)	0.757*** (25.560)	0.959*** (74.140)	0.716*** (22.394)
Adj-R ²	0.651	0.469	0.575	0.919	0.506

t value is in parentheses. Symbols *, **, and *** indicate that the coefficient is significant at 10%, 5%, and 1% levels.

TABLE 3: Regression results of intermediary effects of social ability cognition.

Variables	Equation (11), altruistic behaviors	Equation (12), social ability cognition	Equation (13), altruistic behaviors
Constant	0.169 (0.698)	0.475* (1.858)	-0.100 (-0.513)
Age	-0.008 (-0.533)	-0.036** (-2.179)	0.012 (0.956)
Gender	-0.031 (-0.571)	0.020 (0.354)	-0.042 (-0.975)
Weekly online time	-0.016 (-0.547)	0.022 (0.703)	-0.029 (-1.204)
Self-presentation	0.808- (30.089)	0.780** (27.472)	0.369*** (10.682)
Social ability cognition			0.565*** (16.50)
Adj-R ²	0.651	0.613	0.778

t value is in parentheses. Symbols ***, **, and * indicate that the coefficient is significant at 10%, 5%, and 1% levels.

procedure of Wu et al. [29], it can be concluded that the intermediary effect of social ability cognition is significant.

Furthermore, use bias-corrected Bootstrap method to test the intermediary effect of social ability cognition. 5000 Bootstrap samples were randomly selected from the original samples for direct and indirect effect estimation. Table 4 shows the direct effect of self-presentation on network altruistic behaviors and the indirect effect of social ability cognition. Meanwhile, Table 4 shows the 95% confidence interval. If the 95% confidence interval does not contain zero, the intermediary effect is significant. It can be seen from Table 4 that the coefficient of indirect effect caused by social ability cognition is 0.4411, and the 95% confidence interval is [0.3825, 0.4995], excluding zero, so the intermediary effect of social ability cognition is significant; Hypothesis 2 is supported.

(2) *Moderating Effect.* A stepwise regression method was used to further examine the moderating role of privacy awareness in the relationship between self-presentation and adolescent network altruistic behaviors. The regression results are shown in Table 5, which shows that although both self-presentation and privacy awareness have a significant positive effect on adolescent network altruistic behaviors, the interaction of self-presentation and privacy awareness has no significant effect, indicating that the moderating effect of privacy awareness is not significant.

In addition, this study also found that age had a negative predictive effect on adolescent network sharing; that is, the older the age, the lower the possibility of adolescent network sharing. Sex and weekly online time had no significant effect on the prediction of adolescent network altruistic behaviors.

4.4. Discussion

4.4.1. Influence of Self-Presentation in Social Networks on Adolescent Altruistic Behaviors. This study shows that self-presentation in social networks can significantly predict adolescent network altruistic behaviors. Adolescents often have a strong desire to show themselves, and the popularity of social networking sites provides them with space to express and explore themselves [18]. Adolescents can present themselves in social networks by sharing photos and updating their dynamics. They can also display positive personal information and shape ideal self-images through active self-presentation, or they can show their true life status and ideas to others and conduct in-depth self-disclosure through real self-presentation. Adolescents with high levels of self-presentation in social networks may be more willing to participate in online socialization and treat themselves as a member of the network community [3], and this sense of belonging to the social network environment can promote altruistic behaviors. At the same time, self-presentation in social networks can enable adolescents to experience social support and intimate network interpersonal relationships in interactions with others [19], which may inspire adolescents to repay and make them willing to use the altruistic behaviors to reward the perceived positive network atmosphere. From the perspective of self-awareness theory, self-presentation in social networks can improve adolescents' self-awareness and make adolescents more sensitive to social norms and more inclined to do something helpful to society and others [8]; this can also promote the generation of network altruism.

Based on coefficients, adolescent self-presentation has the largest positive prediction effect on network sharing, and the least positive prediction effect on network support,

TABLE 4: Bootstrap significance test of social ability cognition.

Direct effect of self-presentation on altruistic behavior					
	Effect	se	t (p)	LLCI	ULCI
	0.3668	0.0343	10.6832 (0.0000)	0.2993	0.4343
Indirect effect of self-presentation on altruistic behavior					
	Effect	Boot standard error		Boot LLCI	Boot ULCI
Social ability cognition	0.4411	0.0298		0.3825	0.4995

TABLE 5: Regression results of moderating effect of privacy awareness.

Variables	Equation (14), altruistic behavior		
Constant	−0.150 (−0.726)	−0.047 (−0.242)	−0.035 (−0.183)
Age	0.016 (1.165)	0.008 (0.655)	0.008 (0.644)
Gender	−0.094 (−2.053)	−0.056 (−1.318)	−0.054 (−1.248)
Weekly online time	−0.015 (−0.595)	−0.023 (−0.965)	−0.024 (−1.003)
Self-presentation		0.312*** (8.631)	0.314*** (8.651)
Privacy awareness	0.862*** (37.858)	0.611*** (16.961)	0.614*** (16.899)
Self-presentation * Privacy awareness			−0.011 (−0.666)
Adj- R^2	0.747	0.780	0.780

t value is in parentheses. Symbols *, **, and *** indicate that the coefficient is significant at 10%, 5%, and 1% levels.

which may be related to the adolescents' knowledge reserve and network motivation in reality. Since most adolescents are in junior high school or senior high school stage, under the practical pressure of China's high school entrance examination and college entrance examination, the knowledge in this stage is mainly based on mathematical, physical, and chemical knowledge and is not much connected with the computer network and other aspects of knowledge. Thus, there are not many support behaviors in social networks [30]. For example, adolescents rarely upload useful programs. But this does not mean that adolescents are unwilling to provide online support; some research results pointed out that as long as adolescents have sufficient knowledge reserves, they are extremely willing to provide network support in the process of self-presentation. In addition, judging from the motivation of adolescents, Chinese adolescents mainly share on social network platforms, such as personal experience sharing on WeChat and Weibo. Because the motivation of adolescents to go online is mainly sharing activities, self-presentation has the greatest effect on the positive prediction of network sharing.

4.4.2. Intermediary Role of Social Ability Cognition and the Moderating Role of Privacy Awareness. The results of this study show that social ability cognition plays an intermediary role between self-presentation and network altruistic behaviors. This intermediary role may be explained from the following aspects. First, self-presentation in social networks can bring adolescents a successful experience of network socialization to a certain extent, because self-presentation can not only provide adolescents with the opportunity to exercise social skills, but also bring positive network feedback and social support [11, 24]. Successful experience is one of the most important factors for an individual to gain a sense of efficacy [15], so self-presentation in social networks

has an important positive predictive effect on adolescents' social ability cognition. Secondly, adolescents with a higher level of social ability cognition are usually more confident in their social ability; they believe that they can help others and may show more altruistic behaviors in the network environment. Finally, the behaviors of self-presentation in social networks can affect adolescents' cognitive factor of social ability evaluation, which in turn affects their network altruistic behaviors. Specifically, active self-presentation can shape a positive self-image and help adolescents focus on their positive aspects, so they have a more positive evaluation and understanding of themselves [31], which may make adolescents more positive about their social ability cognition. When adolescents have positively evaluated their abilities, they may be more willing to use their abilities to implement altruistic behaviors. At the same time, according to the expansion-construction theory of positive emotions, self-presentation in social networks brings positive emotional experiences that can make adolescents more positively evaluate their abilities and thinking, which may promote the generation of online altruistic behaviors [32].

The moderating role of privacy awareness between self-presentation and adolescent network altruistic behaviors is not significant. This may be related to the generally low privacy awareness of adolescents. In the process of using social networks, adolescents, despite perceiving the risks of privacy, still disclose a lot of their personal privacy when meeting the needs of communication, self-expression, and the possible rewards of revealing personal information, and rarely consciously protecting personal privacy information [33]. Although the strengthening of privacy awareness strengthens adolescents' confidence in social networks and may promote network altruistic behaviors, the overall low privacy awareness will not significantly change the self-presentation of adolescent in networks and thus will not

significantly regulate the impact of self-presentation on network altruistic behaviors.

5. Conclusions

This study examined the impact of adolescents' self-presentation on social network altruistic behaviors and explored its internal mechanisms to enrich previous research. Furthermore, this study explored the intermediary role of social ability cognition and moderating role of privacy awareness in the relationship between self-presentation and adolescent network altruistic behaviors. The research results support the self-awareness theory: self-presentation in social networks not only directly affects adolescent altruistic behaviors, but also promotes the generation of altruistic behaviors by influencing adolescents' social ability cognition. The moderating effect of privacy awareness during the relationship between self-presentation and altruistic behavior is not significant, but privacy awareness significantly affects adolescent altruistic behaviors. The results further indicate the importance of altruistic cognitive factors in network altruistic behaviors. From a practical point, in order to promote adolescent network altruistic behaviors and cultivate their positive psychological qualities, adolescents should be encouraged to properly present themselves in social networks and actively integrate into the network environment. At the same time, related mental health counselling courses can also be set up to guide adolescents to establish positive self-awareness and strengthen privacy awareness.

Though we have analyzed and tested the adolescent altruistic behaviors in social networks, this study also has some shortcomings. First of all, the research mainly used cross-sectional sample data and analyzed from the perspective of individuals; it is hard to obtain the dynamic process of variables in the process of individual development. Secondly, this study found that the privacy awareness did not have a moderating role in the relationship between self-presentation and network altruistic behaviors, which may be affected by the sample data or other factors. Future research can expand the sample for empirical study or explore other roles of privacy awareness. Finally, the data in this study came from the self-reporting of adolescents; future research can analyze the real data in the network environment, for example, based on the big data of online social media, through text analysis and other methods to determine the type of individual self-presentation on the social networking site and collect information about the individual's network altruistic behaviors, thereby obtaining more reliable results.

Data Availability

The survey data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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