

## The Use of Microblog, Social Support, and Depression: A Study of Chinese College Students

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### Abstract

**Background:** The Chinese microblog, such as Tencent Weibo and WeChat, as a tool of communication with smart phones like twitter, is getting popular in China. Majority of Chinese college students are now using the microblog for daily communications and web surfing. The smart phone, with its communication and socialization functions, should help increase the level of social support among its users.

**Aims:** It is to study the relationships among the use of microblog, social support, and depression in Chinese college student populations. It is hypothesized that more frequent users of the microblog are less likely to have depression and have more social support than those who do not use the microblog that often.

**Methods:** We systematically collected and analysed data of 1,298 Chinese college students on a university campus in Beijing, China. The questionnaire included the measure of depression (CES-D) and social support (MSPSS) as well as a number of demographic variables. We measured the Microblog using with two dimensions: frequency and purposes.

**Results:** The higher the frequency of the microblog use, the lower the depression level. "Joining discussions and "caring about society" among the purposes of logins were negatively related to depression. The options "airing personal views" and "caring about society" were positively related to the students' social support level.

**Conclusions:** The use of microblog has an impact on psychopathology among Chinese college students. It helps reduce depressive symptoms and improve the level of social support through the networking provided by the microblog. Future studies need to be designed to explore the causal relations between the use of microblog and psychopathology.

**Keywords** Microblog; Depression; Suicide; College students; China

### Introduction

The internet market in China has been recognized as a rapidly expanding industry for more than a decade. By the end of June, 2012, total Internet users in China have reached 538 million [1]. Today, College students between the ages of 18 and 22 are educated in a computer-technology-based environment. However, the emergence of microblog becomes a significant shift. In 2012, one of every two Chinese netizens used it, and in colleges almost all students are using smartphones and microblogs. Microblog is a Web 2.0 technology that provides an online social networking platform for communicating and sharing information among web users. Different from traditional social media, a microblog has smaller amount of space for writing content: 140 characters or less per post, similar to a mobile text message. Users can join the service free of charge and send and receive short messages via the web, SMS, instant messaging clients and by third party applications using mobile technologies or computers [2]. In the USA, the most popular microblog platform is known as Twitter and in China it is called "Weibo." Currently, not only the number of online people is increasing, Chinese people also are spending longer hours online than

before. Studies have shown that Web 2.0 applications (e.g. blogs, Microblog, video and photo sharing, social media and social bookmarking) allow students to express their ideas for others to read, encourage an open dialogue and increase interaction among users [1]. Thus, we should pay more attention on the use of microblog, especially its impact on the students in the college.

Many scholars studied the psychological motives behind microblog and focused on its effects on mental and physical health [3,4]. Qiu and Leung [4] found that those participants who did not use microblog to satisfy their needs for social connection and affiliation highly extraverted participants did use it to relieve their existential anxiety. Microblog has the potential to encourage student participation, engagement, reflective thinking and collaborative learning. Internet and social media use was closely related with quality of life, depression, cognitive function and education in HD patients [5]. Internet communications have increased social support satisfaction and lowered depression scores [6,7]. However, there has been no study that has attempted to survey the Chinese microbloggers using a systematic approach and the probability sampling technique [1,2].

Internet communications have magnified the scope of person to person socialization through its spatial and temporal advantages, and

consequently increased human interactions that cannot be realized otherwise. People in good relations with others through positive communications and interactions are better integrated to society. A higher level of social integration is a buffer of suicide as well as depression in the general populations [8]. As loneliness and hopelessness are positively related to depression and suicide, social support and self-esteem are protecting factors against depression and suicide [9,10].

The present study tested the relations among the use of microblog, depression and social support in a sample of Chinese college students. We put forward a simple research hypothesis like this: The more frequent a college student uses the microblog, the lower scores the student will have on depression but higher scores on social support.

## Method

### The sample

The sample for this study consists of the undergraduate students aged 18-22 years from a four-year university in Beijing, China, in fall semester of 2012. A total of 1,298 students evenly from all the four years of standing participated in the questionnaire survey. They consisted of 499 males (38.4%) and 799 females (61.6%).

### Administration of the survey

This survey was strictly executed by random sampling. First, the student roster was obtained from the university administration and exported into the SPSS data program. Then by using the SPSS program to do a systematic random sampling a list of the randomly selected students was created. With the help of the University Student personnel department, we were able to call up all the students on the random sampling list for the questionnaire survey. The questionnaire surveys were conducted in classrooms. The trained staff members were there to ensure the procedure going on well. Informed consent was obtained from each student participant. They had the rights to refuse the survey or quit whenever they want.

### Measures

**Instruments:** We used a full-length questionnaire that includes the measure of the CES-D and MSPSS as well as a number of demographic variables. Other measures in the instrument we used for this study cover students' life and mental health on campus, such as their genders, the activities they have participated in, family economic conditions academic record and sleep time.

Linear regression uses the linear regression equation of the least square function for the relationship between the dependent and one or more independent variables to modelling. Due to the dependent variable in this paper is continuous variables, we choose linear regression model.

**Microblog behaviour:** Microblog behavior was measured in the survey instrument with related questions perceived by the respondents. We measured it use with two dimensions: frequency and purpose. Frequency was measured that, the question "How often do you log in Microblog this past year?" was asked to be answered with choices ranged from 1-6, where 1 is "every day," 2 "weekly," 3 "monthly," 4 "once a year," 5 "more than once a year," and 6 "never." Purpose of using the microblog was measured by the question "What is the purpose of your logging in microblog?" There were eight choices for

the answer: (1) sharing your things, (2) sharing what happened around, (3) airing personal points, (4) venting feelings, (5) caring about society, (6) participating in discussions, (7) making interesting friends, and (8) others.

**Socio-demographic variables:** Socio-demographic factors included the following: Gender ("0=female" and "1=male"); School activity participation ("every time," "often," "occasionally," and "rarely"); Family economic status ("very high," "high," "average," "low," and "very low"); Academic performance ("excellent," "good," "above average," "average," "bad," and "very bad"). The average number of hours sleeping every day was answered by the estimated number of hours by each respondent. All of them were collected by close-ended categorical items at the beginning of the questionnaire and regarded as controlled variables.

**Dependent variables:** Depression was measured by the Center for Epidemiological Studies Depression Scale CES-D [11], which is a 20-item self-report scale developed to assess current levels of depressive symptoms in the general population. A sample item is "I feel depressed." Item 4, 8, 15, and 20 are reversed questions: 0, none of the time; 1, 1day; 2, 2 days; 3, 3days; 4, 4 days; 5, 5days; 6, 6 days and 7, 7 days. Total scores can range from 0 to 140. Generally speaking, the higher the score, the greater the depressive symptoms the reporters have [7].

Social support was measured by the multidimensional scale of perceived social support (MSPSS) [12]. The MSPSS was developed in the USA to assess subjective social support [12]. The scale is comprised of 12 items addressing support received from family, friends, or significant other. Social support was measured by the 12 items of the MSPSS, with seven choices for each item ranging from 1 (very strongly disagree) to 7 (very strongly agree). Higher scores indicate stronger perceived social support.

Data were compared by the score of CES-D and MSPSS reported by participants. Descriptive analyses and regressions were used to compare with in variables. All statistical analyses were carried out using SPSS15.0 in the level of two-tailed, and the significance level was set at .05.

## Results

### Descriptive presentation of the sample

Table 1 illustrates the demographic distribution of the sample. In the table, "Frequency of login Microblog" refers to how often a respondent login Microblog in the past year. "Purpose of login microblog" refers to what to do for the login.

### The regression models

With depression and social support as the dependent variables in different path models. The Model 1 and the Model 3 in Table 2 present the relationship between depression and login purposes and the relationship between social support and login purposes.

Model 2 and Model 4 in Table 2 are examining the relations in Model 1 and Model 3 with some selected control variables. Model 2 indicates that, login frequency does not affect depression. The logins with the purposes of "caring about society" and "joining discussion" help respondents reduce their depression. On the other hand, however, "venting feelings" is positively related to depression. Further, school activity participation helps reduce depression, too. Model 2 with more

variables in the path explains more variance than Model 1, as the R2 of Model 1 is 0.034 and the R2 of Model 2 is 0.062.

Model 4 in Table 2 indicates that, login frequency dose not influence social support. "Airing personal views" and "caring about society" as purposes of the login has a significant positive relation on social support. As to gender, males score higher on social support than

females. Both family economic status and school activity participation help improve the students' social support levels. Again, with more variables involved, Model 4 explains higher variance than Model 3 on social support with the R2 of Model 3 being 0.029 while the R2 of Model 4 being 0.077.

	Fr Frequency	Valid Percent	Mean	S.D
Frequency of logins			3.779	1.441
Purpose of logins				
Sharing your things	235	26.2		
Sharing what happened around	257	28.6		
Airing personal points	312	34.7		
Venting emotions	171	19.0		
Caring about society	332	37.0		
Participating in discussion	201	22.4		
Making interesting friends	51	5.7		
Others	17	1.9		
Gender				
Male	499	38.4		
Female	799	61.6		
Family economic conditions			2.992	0.838
Class activities participation			1.892	0.722
Academic record			2.849	1.111
Number of hours for sleep			7.283	3.873

**Table 1:** The description of variables in the regression model of college students' microblog behavior (N=1,298).

## Discussion

The frequency of microblog logins does not directly affect either depression or social support scores of the college students sampled in Beijing China. However, the effect of logins on depression and social support is login purpose specific. College students who login for "caring about society" and "joining discussions" are less likely to be depressed, and more likely to score high on social support, while students who login for "venting feelings" are more likely to have a high score on depression. Further, logins for "airing persona views" is positively related to social support. All those correlations for depression and social support are in the conditions with gender, family economic status, school activity participation, academic performance, and sleep hours being controlled for. For example, male students have high level of social support than female students, family economic status is positively related to social support, and school activity participation increases social support but a buffer of depression.

The use of microblog can not only help improve psychological feeling, but also help vent depressive symptoms. These findings with college students further confirm the previous observations with other student samples [3-5].

Our results indicated that social support negatively correlated with depression, such as "caring about society" decreases depression but increase social support of college students at the same time. These results were also consistent with previous studies. For instance, previous studies have demonstrated that there is the influence of the social networking site Facebook on depression among college students. A study also found that Internet and social media use was closely related with quality of life, depression, cognitive function and education in HD patients [5,10].

This study examines the relations between the use of microblog, depression and social support through testing the influence of microblog on the Chinese student populations. We used only the variable of frequency and purpose of using microblog, to assess the relations among them. The findings not only supported the relationship as hypothesized, but also have significant meanings on college student mental health research during the time when social media develops rapidly. After knowing more about the effect of login microblog on students' mental health, we can make more use of microblog in changing students' mental conditions and develop a healthier use method of microblog.

However, neither the correlate studies nor the path analysis is able to tell the causal relations between microblog use and psychopathology. We are not sure if depressed students are more like to vent their feelings online, or interacting with others online helps reducing depression symptoms. Only future studies with the time sequence and extraneous variables controlled for can answer the questions. This study can only be a preliminary observation on the relations.

One limitation of the study is the sample which was limited in college students in China, and the sample tended to be more educated. To generalize the result to general populations, the range of the samples should be more diverse in future studies.

	Depression				Social support			
	Model 1		Model 2		Model 3		Model 4	
	B	t	B	t	B	t	B	t
Frequency of logins	0.343	0.696	-0.491	-0.873	0.007	0.022	0.064	0.166
Purpose of logins								
Sharing self-things	-1.59	-0.93	-2.351	-1.221	0.668	0.59	1.122	0.848
Sharing happening	-2.73	-1.7	-1.189	-0.634	1.423	1.343	-0.26	-0.2
Airing personal views	0.962	0.63	0.149	0.087	1.412	1.399	2.302*	1.964
Venting feelings	5.367**	2.985	4.077*	2.023	-1.79	-1.5	-0.79	-0.57
Caring about society	-2.77**	-2.87	-2.805**	-2.594	2.07***	3.231	1.832*	2.464
Joining discussions	-3.63*	-2.27	-3.529*	-1.99	1.704	1.613	1.104	0.911
Making friends	-1.67	-0.58	-1.697	-0.531	-0.01	-0.01	1.33	0.607
Others	7.956	1.631	7.748	1.313	-2.99	-0.93	-1.91	-0.47
Gender			-1.926	-1.22			4.011***	3.702
Male (1)								
Female (0)								
Family economic status			0.088	0.101			1.39*	2.35
School activities participate			-3.795***	3.674			3.00***	-4.24
Academic performance			1.077	1.610			0.251	0.547
Sleep hours			0.230	1.177			0.142	1.061
R2	0.034		0.062		0.029		0.077	

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

**Table 2:** The regression models of microblog behavior and depression and microblog behavior and social support of college students (n=1,298).

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