

# Analysis on the Characteristics of Callers of Psychological Aid Hotline in Suzhou City

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**Abstract: Objective:** To study the relationship between caller characteristics and counseling content of Suzhou psychological aid hotline through the analysis of caller data and content during the ten years.

**Methods:** 13685 incoming calls with complete information in Suzhou psychological assistance hotline from January 2010 to November 2020 were selected as the research objects. After basic information screening and data analysis, chi-square test and Phi related data analysis were performed. **Results:** 1. Psychological hotline calls mainly focus on marriage and family (30%), love emotion (28%), mental psychology (22%), while work and interpersonal relationship (10%) and study and education (10%) call less. There is a significant correlation between call types and gender, educational background and marital status ( $P < 0.001$ ). In contrast, women are more inclined to consult marriage and family problems and love and emotional problems, while men are more inclined to consult work and interpersonal problems; 2. The improvement of academic qualifications and the number of marriage and family consultations show a negative growth trend; At the junior college and undergraduate levels, the number of consultations on love and emotional issues is the highest (35%), and at the master's and doctoral levels, the number of consultations on learning and education is the highest (28%); 3. There are seasonal fluctuations in the incoming telegram of the hotline, with higher incoming telegram in the first and fourth quarters (32%, 29%) and lower incoming telegram in the second and third quarters (18%, 21%). **Conclusion:** 1. The seasonal changes in the number of incoming calls are consistent with the theory of seasonal emotional disorder. 2. In comparison, men are more inclined to call at night, and tend to consult work and interpersonal problems; Women, on the other hand, tend to call during the day and consult more about marriage, family and love, which is consistent with the gender theory; 3. With the improvement of educational level, the amount of consultation on marriage and family issues decreases, while the amount of consultation on learning and education issues increases. This means that highly educated people may have fewer problems in family relations, while problems in educational pressure may be more and more difficult to solve.

**Keywords:** psychological assistance, Psychological hotline, Psychological counseling

## 1. Introduction

With the rapid development of social economy in China, the increasingly fierce social competition has become the main reason for people's increasing psychological pressure, this has also become one of the major issues which been paid much attention in contemporary society. The emergency psychological crisis problem, including emotional loss of control, acute stress, post-traumatic stress, etc., has always been one of the important causes of impulsive suicide, NSSI or injurious events. The psychological hotline has the characteristics of timeliness, focus and no regional barrier, which is of great significance and value in solving many psychological crisis problems and preventing psychological behavior problems. [1] For the past few years, under a broad push of the National Health Commission of the PRC, regional mental health centres, the psychological hotline has become a widespread method to prevent suicide, relieve common mental problems such as depression and anxiety, it's also an important way to promote the mental health of residents everywhere. [2]

In May 2007, the public welfare psychological counseling hotline of Suzhou Guangji Hospital opened, in Oct. 2008, Jiangsu Provincial Department of Health confirmed that Suzhou City as a psychological

assistance hotline into the '12320' construction pilot, in May 2009, as required by superior, the psychological counseling hotline of Suzhou Guangji Hospital has been officially incorporated into the Suzhou Municipal Public Health Hotline '12320', which is called 'Suzhou Psychological Assistance Hotline'. By 2020, the psychological assistance hotline in Suzhou has been open for more than 10 years, receiving tens of thousands of calls on psychological crisis. Over the years, it has tried various ways to provide hotline services and achieved excellent results. However, there is still room for more development and the possibility of progress in the future, which is also the direction that is expected to be found in this study. This paper summarized and analyzed the call data and content of psychological assistance hotline in Suzhou from January 2010 to November 2020, and discussed gender, marital status, occupation, educational level and various types of calls (including five categories: marriage and family, love emotion, mental psychology, work and interpersonal relationship, learning and education), trying to develop a better psychological intervention for the caller.

## 2. Object & method

### 2.1 Object

A total of 13,685 calls with complete information were selected after screening out incomplete information, frequent repeated calls, harassing calls and other irrelevant calls through the analysis of 25,356 calls from Suzhou psychological assistance hotline from 2010 to 2020. There were 5612 calls from men (41%) and 8073 calls from women (59%). The average age was (31±8) years from 13 to 78 years old. 6364 (47%) were married, 6326 (46%) were unmarried, and 995 (7%) were divorced or widowed. 5,503 (40%) were employed, 5,399 (40%) were unemployed or retired, and 2,783(20%) were students. There were 3,289 cases (24%) with junior high school education or below, 3,887 cases (28%) with senior high school education or technical secondary school education, 4993 cases (37%) with junior college education. Or undergraduate education, and 1,516 cases (11%) with master or doctor education.

### 2.2 Method

We use SPSS25.0 statistical software analysis, descriptive analysis of the basic situation information, according to the long-term psychological assistance hotline work experience and reference the who is built appoint issued relevant documents, will call in the study of this type is divided into: mental, emotional love, marriage, family, work and interpersonal relationships, learning education; Call time is divided into day shift: 8:00-17:00, evening shift: 17:00-8:00 the next day. Chi-square test was carried out for different dimensions such as gender, occupation content, age and consultation content, and PHI correlation analysis was carried out for classified data of gender and shift in each quarter.

## 3. Result

### 3.1 The calling distribution characteristics & analysis

#### 3.1.1 Each quarter connection volume data with each passing year

Table 1: Data chart of the total amount of hotline connections over the years

Year	Quarter(PCS)				Total(PCS)	Annual rate of increase	Percentage	
	1st	2nd	3rd	4th			% of total	Cumulative percentage
2010	128	139	126	110	503	-	1.98%	1.98%
2011	219	119	192	216	746	48.31%	2.94%	4.92%
2012	260	136	185	226	807	8.18%	3.18%	8.10%
2013	219	195	197	221	832	3.10%	3.28%	11.38%
2014	241	212	188	293	934	12.26%	3.68%	15.06%
2015	284	214	216	290	1004	7.50%	3.96%	19.02%
2016	393	310	232	399	1334	32.87%	5.26%	24.28%
2017	791	728	682	793	2994	124.44%	11.81%	36.09%
2018	839	731	754	1010	3334	11.36%	13.15%	49.24%
2019	1662	1216	1356	1702	5936	78.04%	23.42%	72.66%
2020	2083	1604	1512	1733	6932	16.78%	27.34%	100.00%
<b>Total</b>	<b>7119</b>	<b>5604</b>	<b>5640</b>	<b>6993</b>	<b>25356</b>	<b>1278.13%</b>	<b>100%</b>	

From 2010 to 2020, a total of 25,356 calls have been made to the psychological assistance hotline in

Suzhou, showing a significant increasing trend year by year. It is also obvious that the data of receiving calls from 2017 to 2019 show a rising trend year by year. According to the number of each year and quarter, the specific data are shown in Table 1:

From the data, between 2010 and 2020, the electric quantity received by the hotline has increased to different degrees in each year, showing a trend of increasing year by year. After the 24-hour hotline was opened in 2017, the number of incoming telegram grew at a high rate (124.44%), and the rest maintained an average annual growth.

**3.1.2 The calling distribution characteristics**

After screening out incomplete information, frequent repeated calls, harassing calls and other irrelevant calls, a total of 13,685 calls with complete information were selected. There were 7,615 calls (55.6%) during day shift and 6,070 calls (44.4%) during night shift. 4,379 calls (32%) in the first quarter, 2,463 calss (18%) in the second quarter, 2,874 calls (21%) in the third quarter, and 3,969 calls (29%) in the forth quarter; the most frequent calls were from marriage and family, 4,064 (30%), followed by 3,791 (28%) calls from love, 3,024 (22%) calls from psychology, 1,396 (10%) calls from work and interpersonal relationships, and 1,410 (10%) calls from syudy and education.

The type of telephone call was significantly correlated with gender, occupation, educational background and marital status (P<0.001), women are more likely to seek advice on marital and family issues and love emotion issues (62%); Unemployed people have the highest proportion of marriage, family and mental problems (64%), students were more likely to consult about love issues (46%); with the improvement of educational level, the proportion of counseling for marriage and family problems showed a negative growth trend. Those with college and bachelor degrees were more concerned withlove and emotion problems (35%), while those with master and doctor degrees were more concerned with learning and education problems (28%). the specific distribution and data are shown in Table 2.

Gender: 8,073 female calls (59%) were higher than 5,612 male calls (41%), and study problems (8%); Men are more likely than women to ask about work and relationships, school and education (14%); Occupation: the main type of counseling for unemployed callers is marriage and family problems (38%), followed by learning and education (21%). Educational background, the number of marriage and family counseling continues to decline (39%/29%/26%/24%), while the number of learning and education counseling at the master’s and doctoral level is the unmarried callers (47%), divorced or widowed caller (37%) had a higher number of counseling about love, while married callers had the most counseling about marriage and family (45%).

Table 2: Chi-square test of call distribution characteristics [PCS (%)]

Variable		The incomeing telegram type [PCS (%)]					$\chi^2$	
		Marriage and family	Love emotin	mental problems	Work and relationship	education	X2	P
Gender	Male	1367(24)	1426(25)	1035(19)	1013(18)	771(14)	850.41	<0.00***
	Famele	2697(33)	2365(29)	1989(25)	383(5)	639(8)		
Occupation	Unemployed	2077(38)	1005(19)	1407(26)	406(8)	504(9)	1619.88	<0.00***
	Employed	1693(31)	1496(27)	1228(22)	754(14)	332(6)		
	Student	294(11)	1290(46)	389(14)	236(8)	574(21)		
Educational background	Junior high school degree or below	1286(39)	808(25)	680(21)	201(6)	314(9)	1003.26	<0.00***
	High school and secondary school education	1135(29)	914(24)	926(24)	483(12)	429(11)		
	Underegraduate dgree or college degree	1278(26)	1742(35)	1154(23)	575(11)	244(5)		
	Master’s degree and PhD degree	365(24)	327(22)	264(17)	137(9)	423(28)		
Marital status	Single	945(15)	2975(47)	1490(24)	347(5)	569(9)	3143.06	<0.00***
	married	2839(45)	453(7)	1354(21)	976(15)	742(12)		
	Divorced or widowed	280(28)	363(37)	180(18)	73(7)	99(10)		

Note: Outside the brackets is the number of cases, inside the brackets is the percentage of the total value of the variable; \*P<0.05, \*\*P<0.01, \*\*\*P<0.001; The same below.

**3.2 Overall gender, quarterly and shift data analysis**

The overall data over the years are divided into four quarters and shifts within the quarter, and the seasonal variation trend of the number of calls and white night shift of men and women is compared. The

specific data is shown in Table 3.

Table 3: Gender comparison data of each quarterly shift call

Variable	1 <sup>ST</sup> quarter		2 <sup>ND</sup> quarter		3 <sup>RD</sup> quarter		4 <sup>TH</sup> quarter	
	Day	Night	Day	Night	Day	Night	Day	Night
Male	671(12)	814(15)	584(10)	463(8)	637(11)	664(12)	816(15)	963(17)
Female	1741(22)	1153(14)	894(11)	522(6)	786(10)	787(10)	1486(18)	704(9)
Shifts	2412(18)	1967(14)	1478(11)	985(7)	1423(10)	1451(11)	2302(17)	1667(12)
Quarter	4379(32)		2463(18)		2874(21)		3969(29)	

The quantity of incoming telegram was higher in the first and fourth quarters (32%, 29%), while the quantity of incoming telegram was lower in the second and third quarters (18%, 21%). There were 8,073 female calls (59%) compared with 5,612 male calls (41%). In the number of calls during the same period, the proportion of daytime shift calls (Q1, Q2 and Q4); Women had a slightly higher proportion of calls than men on full day shifts and a slightly lower proportion of calls than men on night shifts (Q1, Q2 and Q4).

Chi-square test was conducted for the data of gender and shift in each quarter, and the quarterly changes were significantly correlated with significantly correlated with the relationship between gender and shift ( $P < 0.001$ ), as shown in Table 4.

Table 4: Chi-square test for the difference of sex and shift calls in each quarter

Variable	Quarter				$\chi^2$	
	1 <sup>ST</sup> quarter	2 <sup>ND</sup> quarter	3 <sup>RD</sup> quarter	4 <sup>TH</sup> quarter	X <sup>2</sup>	P
Male	1485	1047	1301	1779	138.874	<0.00***
Female	2894	1416	1573	2190		
Day	2412	1478	1423	2302	72.263	<0.00***
Night	1967	985	1451	1667		

According to the data, there is a correlation between sex difference and call time and quarterly change. In order to further understand the correlation between gender and shift in each quarter, PHI correlation analysis was conducted on the call data of each quarter separately, as shown in Table 5.

Table 5: Phi Correlation Analysis of Gender and Frequency Differences in Quarterly Calls

Gender*Shift	1 <sup>ST</sup> quarter(n=4379)	2 <sup>ND</sup> quarter(n=2363)	3 <sup>RD</sup> quarter(n=2874)	4 <sup>TH</sup> quarter(n=3969)
Phi	-0.143	-0.066	0.012	-0.222
Cramer's V	0.143	0.066	0.012	0.222
P <sub>(persuade)</sub>	<0.00***	0.001**	0.068	<0.00***

Note: n is the number of valid cases.

As can be seen from the results of stepwise Phi correlation analysis: in Q1 ( $P < 0.001$ ), Q2 ( $P = 0.001 < 0.1$ ) and Q4 ( $P < 0.001$ ), there was a significant negative correlation between gender and call time (shift) ( $\text{PHI}_{(Q1, Q2, Q4)} < 0$ ). Men tended to call in the evening, and women tended to call in the day; In Q3 ( $P = 0.648 > 0.05$ ), gender and call time period were not statistically significant.

## 4. Conclusion

### 4.1 An analysis of the seasonal variation of incoming telegram

According to the relevant data and the way of quarterly division, during the first and fourth quarters, namely from November of the same year to March of the following year, the incoming telegram of the hotline generally increased (the first and fourth quarters accounted for 61% of the incoming telegram), and the incoming telegram reached a low point (18%) in the second quarter, namely from April to June, and then the incoming telegram gradually increased. The main reason for this seasonal change is seasonal affective disorder (SAD), which often causes depression, anxiety and other psychological problems, including emotions, will be affected by seasonal changes and temperature changes, which has been considered as a common psychological problem in previous related studies. In the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), SAD is described as 'having seasonal characteristics.'

#### **4.2 Gender differences in the time and problems of hotline help**

According to the relevant data in Table 5, at least in the first, second and fourth quarters, men tend to call in the evening and women tend to call in the day. In general, people tend to call psychological hotlines when they are alone. Once the solitude is broken, the hotline will also stop working. The difference in the number of calls made by men and women during night and day shifts may be related to difference in the time they were alone. Differences in the amount of time spent alone by men and women also reflect differences in gender roles. According to the gender theory, most of the differences between male and female gender roles are not due to innate social factors, but the product of social cultivation and construction in the later period.

More women (33%) than men (24%) call the hotline on marriage and family topics. It with the traditional culture of male conforms to the concept of family roles has, in time, women more emphasis on marriage leave family relations, while men are more needs to get a higher social status in the social and interpersonal relationships, it may also be one reason why male (18%) are more likely than women (5%) to draw more attention to the types of work and relationships they have.

#### **4.3 The influence of educational background on marriage and family counselling**

According to the data in Table 1, the improvement of educational background is accompanied by the decline of marriage and family counseling problems. Such a negative correlation may be explained in multiple directions.

With the continuous improvement of educational background, the social function and identity recognition of callers will continue to improve, which means that they will encounter more complex social problems, which will make them pay little attention to marriage and family issues. At the same time, previous studies have shown that the paryners of highly educated people tend to have the same level of education, which means that highly educated people are more likely to understand and empathize with each other [7]. In the case of mutual understanding in marriage, life conflicts caused by marriage are less likely to occur.

Second, highly educated crowd sidease shame will be more intense between [9], this also means that this group there are complicated factors lead to the reluctant to express their problems and ideas, but, eith the improving of the degree and the social function of constantly improve, people can more clearly, to the understanding of the social division of labor in their cognitive and exploration will also have great progress, therefore, highly educated people tend to seek psychological help, but in the process of telephone, interview or counseling, they will have more stringent requirements for a sense of security and the establishment of a relationship between consultants and vistitors, and it is more difficult to build a relationship of mutual trust between consultants and visitors. In traditional concept and under the action of social expectations, highly educated people happiness is endowed with a higher degree, so in this area may lesd to a degree of ascension enables the betwween people are less likely to expose their problems arising from the family, adn this phenomenon is also caused the higherdegree, consulting the possibility of marriage and family problems, the less one of the reasons.

#### **Acknowledgement**

##### **Topics and acknowledgements the project to which the paper belongs:**

The funded scientific research project of Jiangsu province '333' project (BRA2020120);

The special project of diagnosis and treatment of key clinical diseases in Suzhou. (LCZX202016);

Suzhou Soft Science Research Plan Project of Jiangsu Province: Investigation of Psychological Stress of Prevention and Control Personnel and Their Families under Major Infectious Disease Public Health Events (SR202061);

This project is supported by the Mental Health Promotion Project of Suzhou Healthy City "531" Action Plan

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