Exploring User Satisfaction in Online Mental Health Platform: An Integrated Framework Analysis of Trust, Quality, and Value Perceptions

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Abstract

Background: The rapid digital transformation of mental health service has led to the emergence of online psychological platforms, presenting new challenges in understanding user satisfaction and service quality. Despite the growing importance of these platforms, there is limited research on the factors that influence user satisfaction in this unique context.

Objective: This study aims to develop and validate an integrated framework for understanding user satisfaction in online mental health platforms by (1) identifying perceived quality as the primary driver of satisfaction, (2) revealing the crucial role of trust and cost considerations in online psychological services, and (3) demonstrating how brand image and user expectations function as important antecedents in this emerging field.

Methods: A mixed-method approach was employed, combining expert interviews (N=10) and a user survey (N=629) of China's largest online mental health platform. Structural equation modeling (SEM) and analytic hierarchy process (AHP) were utilized to test the theoretical framework and evaluate the relative importance of factors.

Results: The findings reveal that perceived quality is the strongest predictor of user satisfaction (β=0.525, p<0.001), with trust (β=0.285) and cost structure (β=0.203) emerging as the most critical sub-dimensions. While brand image and user expectations showed no direct significant effect on satisfaction, they demonstrated important indirect effects through perceived quality. Notably, brand awareness (weight=0.866) and effect expectations (weight=0.771) carried substantial weights in the overall evaluation framework.

Conclusion: The findings suggest that while brand image and user expectations may not directly influence satisfaction, they serve as important foundational elements in shaping users' quality perceptions.

Keywords: Mental Health Service, Customer Satisfaction, Online Consumer Behavior, Influencing Factors

Introduction

In recent years, the psychological problems of social groups have increased dramatically under high-pressure and high-efficiency lifestyles, resulting in explosive growth in psychological counseling services. Research has found that people's attention to psychological problems has expanded beyond traditional counseling to include understanding general psychological knowledge, learning psychological principles, and finding diverse ways to confide psychological problems. Pure psychological counseling business can no longer fully meet market demand. Additionally, with the rapid development of the Internet industry and the special circumstances during the COVID-19 pandemic requiring isolation, numerous comprehensive "online psychological service platforms" have emerged, offering psychological counseling as their main focus, supplemented by various psychology-related services.

"Yi Dian Ling" platform is currently China's largest online psychological service platform with the largest market share in the field. Founded in August 2015, it has grown to serve more than 20 million users across the network, employing over 30,000 professional psychological practitioners and serving more than 4 million users and families. The platform includes four main functional modules: psychological counseling, Q&A community, psychological testing, and popular science courses, providing comprehensive mental health services for individuals with sub-optimal mental health through a rich business model.

Literature review

Definition of relevant concepts

The concept of psychological services originated in the United States with the "theory of vocational counseling" proposed by F. Parsons and E.G. Williamson (1908). The earliest psychological counseling service in the United States was founded by F. Parsons in Boston in 1908, which then expanded nationwide and initiated the "vocational guidance movement" - a development that coincided with the period of great industrial growth when there was increasing demand for both literacy and mental health support among workers. Parsons argued that vocational choices must align with individual interests to enable sound career decisions (Zhang, 2009). He bridged the gap between counseling services, learning and education, and social awareness, establishing the theoretical foundations for counseling as the cornerstone of various psychological services.

According to Gerring and Zimbardo (1937), psychological service aims to provide psychological help to visitors with psychological problems using psychological methods. In this paper, psychological services refer to the process of providing problem-solving and assistance to non-mentally ill clients, primarily through counseling but also through other psychological techniques and methods, with the aim of promoting population mental health.

Currently, the definition of online psychological service platforms receives limited scholarly attention, with most research centered on Internet psychological counseling. Online psychological counseling emerged in the late 20th century, almost concurrent with Internet development. Murphy

and Mitchell (1995) provided the earliest practice of online psychological counseling service. However, even the definition of online psychological counseling lacks complete uniformity both domestically and internationally. Grohol first defined online psychological counseling as an interactive process to help people solve their life and relationship problems through online communication between the visitor and counselor across regions.

The American Association of Certified Counselors (Wehrman et al., 2001) defines online counseling as "the interaction between a counselor and a client on the Internet, using email, chat software, or online video tools, across space." A review of current literature reveals that Internet counseling can also be called online counseling, automated therapy, and communication information therapy (Eleven et al., 2004; Alleman, 2002). Additionally, terms such as online-counseling, e-interventions, web-based therapy, e-counseling, e-Health, and computer-mediated interventions encompass Internet counseling content, though their scope and connotations differ.

The definition of e-interventions is the broadest, covering all interactive processes of intervening on physical and psychological problems through the Internet. In contrast, web-based therapy and e-therapy definitions are narrower, specifically referring to the treatment process between counselors and patients, excluding popularization, prevention, and education content (Rotini et al., 2005). The closest term to e-therapy in foreign concepts is telehealth, referring to professional help provided through telehealth services (Castelnuovo et al., 2003).

In Chinese research, Yang and Yu (2007) define online psychological counseling as various psychological services using the Internet platform as a medium to provide psychological counseling to visitors. However, Xiong and Huang (2014) describe network psychological

counseling as the process of solving psychological problems through online and other remote forms by professionals with sufficient psychological counseling expertise to reach licensed professional levels.

Through analysis of domestic and international literature, while there is no uniform definition of network psychological counseling in both broad and narrow senses, it has three characteristic features：（1）Using the Internet and other online forms as a medium；（2）Remote and real-time interaction；（3）Psychological counseling professionals providing counseling, psychotherapy, and other services

Comparison shows that Chinese scholars' definition of online psychological counseling aligns more closely with the foreign concept of e-interventions, essentially referring to psychological counseling activities in the narrow sense. Meanwhile, Yang and Yu's definition approaches the foreign concept of telehealth, extending beyond psychological counseling to cover all psychology-related helping activities. For this study's purposes, considering the research subject's current situation, online psychological service platforms are defined as Internet platforms focusing on psychological counseling, supplemented by other psychological skills and methods, with modes including psychological training, psychological popularization, and timely confession, aimed at promoting mental health and providing solutions for non-mentally ill visitors.

Theories of Online Consumer Behavior

Internet consumption has become mainstream in today's market due to its ability to transcend spatial distance. Online shopping encompasses both product purchases and paid services on the Internet. As this study's research object, the online psychological service platform represents online platform consumption behavior. Therefore, this study establishes its theoretical foundation by examining how the online environment affects consumer shopping satisfaction through relevant literature and theories.

Fishbein and Ajzen (1975) argued that consumer behavior should integrate with consumer rational psychology, suggesting that consumers' behavioral perceptions impact their attitudes and shopping behavior. Shannon et al. (2014) maintained that online shopping behavior is influenced by one's attitude toward the internet. Jarvenpaa et al. (2000) demonstrated that in online consumption, consumers' trust in online transactions, after-sales service, and logistic security become key influences on online purchasing behaviors, with personal privacy being the most crucial dimension. This concept was confirmed in Eastlick et al.'s (2006) study, showing trust's crucial role in developing present purchasing behavior.

Burke (1997) studied online consumers' purchase attitudes, finding that consumers' online shopping behavior is affected by their offline shopping attitudes, and offline shopping experience directly influences online shopping acceptance. Consumers believe the Internet's advantages in product/service variety and information richness significantly exceed physical shops, facilitating quick optimal shopping decisions. Zhang et al. verified social value, emotional value, and IWOM's positive influence on online consumer behavior through structural equation modeling.

Tan and Hou (2019) argued that online consumers are more purposeful and opinionated compared to traditional consumers. Shen and Zheng (2014) contended that online consumer behavior is influenced by product website design, product technology factors, and consumer psychology factors.

Comprehensive research findings indicate that factors affecting online consumer behavior are complex, including convenience, perceived quality, perceived value, psychological factors, service experience, shopping risk, and convenience. However, all research approaches from a "customer-centric" perspective, making customer-focused research crucial in studying online consumer behavior, with customer satisfaction serving as an important measurement index.

Customer Satisfaction Theory

Evolution of Customer Satisfaction Concepts

The concept of customer satisfaction was first proposed by Cardozo (1965) in marketing, noting that declining customer satisfaction primarily stems from unmet product expectations, emphasizing the importance of managing psychological expectations through advertising, especially for new enterprises. Howard and Sheth (1967) argued that customers' satisfaction changes based on whether they perceive sufficient value relative to their expectations. Hunt (1977) defined customer satisfaction as willingness to make a satisfactory evaluation when actual shopping experience aligns with previous expectations.

Tse and Wilton (1988) emphasized pre- and post-consumption psychological comparisons as key satisfaction sources. Woodside (1989) found that customers develop specific expectations about their perceptions before and after consumption, with the contrast between these expectations significantly affecting satisfaction. Kotler defined customer satisfaction as the relationship between perceived effects and perceived expectations. Anderson (1996) highlighted the importance of differences between particular and cumulative transactions in analyzing post-purchase perceived behavior.

Table 1. Summary of Customer Satisfaction Theories

academia	Factors affecting satisfaction
Cardozo (1965)	Perceived expectations
Howard & Sheth (1967)	Relationship between price paid and expected compensation
Hunt (1977)	Relationship between perceived experience and perceived expectations
Tse & Wilton (1988)	Relationship between perceived quality and expected quality
Woodside (1989)	Relationship between post-consumer feelings and perceived expectations
Philip Kotler	Relationship between perceived effects

	and perceived expectations
Abderson (1996)	Relationship between transactional feelings and perceived expectations

While scholars have different understandings of customer satisfaction theories and influencing factors, including product value, expected quality, shopping experience, perceived effectiveness, and the relationship between transaction process and pre-consumption feeling expectations, all evaluation factors relate to "perceived expectations." Products or services with smaller differences from perceived expectations likely achieve higher satisfaction, making the relationship between customers' perceived expectations and other related influences a crucial dimension in measuring satisfaction.

The study of online consumer satisfaction encompasses not only factors affecting consumer shopping behavior satisfaction but also factors influencing user satisfaction with Internet-based services, including shopping convenience, website service, delivery speed, and payment security. Therefore, examining online consumer satisfaction requires full consideration of Internet characteristics and diverse products/services. Literature review reveals three main influencing factor categories: perceived quality, service quality, and other factors, summarized in

Table 2.   Relevant Studies on Factors Influencing Online Consumer Satisfaction

academia	variant	reach a verdict
A study of perceived quality as a significant correlate of satisfaction		
Liu, Hong and Huang, Xiaogang et al. (2004)	Perceived quality	Perceived quality is significantly related to online consumer satisfaction, with ease of shopping being the most relevant.
Sun Ying et al. and Du JG et al. (2011)	QOS	Service quality is significantly related to online consumer satisfaction.
Yu, Hui and Lu, Zhongmin (2011)	Perceived Quality, Perceived Ease of Use, Perceived Safety, Perceived Utility	Perceived Quality, Perceived Ease of Use, Perceived Security, and Perceived Utility are significantly correlated with online consumer satisfaction, with Perceived Quality being the most significantly correlated.
		System quality, service

Zhang, Jin (2012)	System Quality, Service Quality, Information Quality, Switching Costs, Online Trust	quality, information quality, switching costs and online trust are positively related to online consumer satisfaction, with system quality, service quality and information quality being the most significantly related.
Ryo and Li (2013)	Interaction quality, product quality, website quality, product price, seller reputation, delivery speed	Interaction quality, product quality, website quality, product price, seller reputation, and delivery speed are positively related to online consumer satisfaction, with product quality being the most significantly correlated.

Customer Satisfaction Index Models

The Swedish Customer Satisfaction Barometer (SCSB) model represents the earliest satisfaction index model, forming the foundation for subsequent national satisfaction models. This model comprises two antecedent variables (users' perceived product value and product expectations) and two dependent variables (users' product loyalty and complaint feedback). The dependent variable loyalty serves as a profitability predictor, with satisfaction variability termed the model's elasticity variable.

The China Customer Satisfaction Index (CCSI) model represents a modification aligned with China's national conditions. Since this study focuses on online psychological service platforms within the service sector, it is crucial to delineate a more detailed customer satisfaction index model for the Chinese service industry based on the CCSI.

Current research on online psychological service platform customer satisfaction remains limited, with most studies focusing on traditional psychological counseling satisfaction. Given that psychological counseling constitutes the main component of online psychological services, counseling satisfaction theory significantly informs new psychological service understanding. Literature review indicates two main categories affecting counseling client satisfaction: counseling fees and counseling trust. Table 3 summarizes relevant theoretical research.

Table 3.   Summary of theoretical research on factors influencing counselling client satisfaction

Academia	Main influencing factors	Findings

Strong (1968)	Counselling trustworthiness	Establishing three characteristics of trust: newness, expertise and attractiveness.
Bloom (1982)	Consultancy fees	The higher cost of counselling does not motivate consumers to have counselling.
Yoken & Berman (1984)	Consultancy fees	Consumers who pay for counselling are much less optimistic about the outcome than those who receive counselling for free.
Dorn (1984)	Counselling trustworthiness	Trust in counselling includes "interpersonal trust in the counsellor" and "emotional trust in the counsellor".
Tudor (1998)	Consultancy fees	The cost of counselling is a real link between the counsellor and the client.
		Practical knowledge that money is

Haynes & Wiener (1996	Consultancy fees	positively related to consumer satisfaction in counselling.
Cao Nanyan, Zeng Yan, Zhang Zhouyan, Hou Ruilin (2019)[	Counselling trustworthiness	Perceived trust is a positive correlate of psychological app users' continued willingness to use the apps

This study builds on China's classical customer satisfaction model (CCSI), incorporating online consumer satisfaction theory, psychological counseling satisfaction theory, and psychological service platform characteristics to establish an evaluation model for online psychological service platform user satisfaction. The research employs empirical analysis of case company influencing factors, contributing to both customer satisfaction theoretical research and psychological service industry satisfaction research.

Research design

User satisfaction model construction

Taking the customer satisfaction model of China's service industry as the basic model, combined with the research on the theory of online consumer behavior, the theory of customer satisfaction in psychological counselling and the characteristics of the psychological service industry itself, we select five variables, namely,brand image of the platform, users' expectations of

the platform, perceived quality of the product, perceived value of the product and users' final

satisfaction, to construct a user satisfaction model of the online psychological service platform for the

present study. The model is shown in Figure 1.

Figure 1.   User Satisfaction Model for Online Psychological Service Platforms
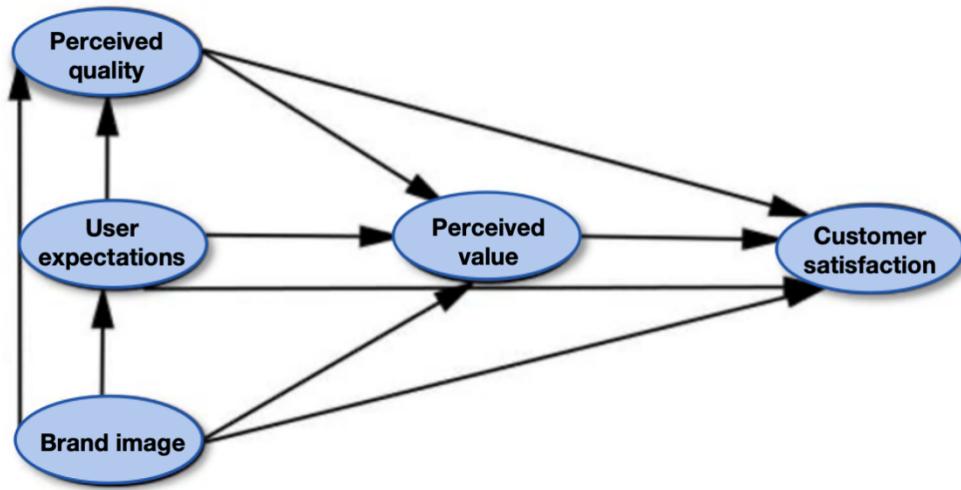
Hypothesis Development

Based on the theoretical framework and model construction, we propose the following

hypotheses:

H1: Platform brand image has a significant positive effect on users' expectations before

using the platform.

H2: Platform brand image has a significant positive effect on users' perceived quality when

using the platform.

H3: Platform brand image has a significant positive effect on users' perceived value when using the platform.

H4: Platform brand image has a significant positive effect on platform user satisfaction.

H5: User expectations of the platform have a significant positive effect on users' perceived quality when using the platform.

H6: User expectations of the platform have a significant positive effect on users' perceived value when using the platform.

H7: User expectations of the platform have a significant positive effect on platform user satisfaction.

H8: Users' perceived quality when using the platform has a significant positive effect on platform perceived value.

H9: Users' perceived quality when using the platform has a significant positive effect on platform user satisfaction.

H10: Users' perceived value when using the platform has a significant positive effect on platform user satisfaction.

H11: Specific sub-factors have significant positive effects on platform user satisfaction.

Questionnaire design

Base Scale Generation

The development of the measurement instrument involved multiple stages:On the basis of summarizing and analyzing the research results of a large number of previous researchers, this measurement index system plans to conduct in-depth interviews with 5 management experts of the "One Point Spirit" platform and 5 university psychology experts on the measurement indexes of the questionnaire, and then adjust the initial scale to form the final scale in combination with the experts' suggestions. The following adjustments were made through the results of the interviews: the scale deleted the "degree of communication" from " brand image". Change "Emotional trust" to "Attitudinal trust" in "Trust", and change the corresponding question to "Believe that the platform is able to empathies with the visitors when providing psychological services". The corresponding question should be changed to read "I believe that the platform is able to empathies with the visitors when providing psychological services". In the dimension of "Perceived Value", the measurement item of "Cost Value" is added, and the corresponding question item is set to "I believe that using the platform's services saves me travelling expenses".

Hierarchical analysis.

Hierarchical analysis method is proposed by T.L.Saaty[49] , which is a research method to decompose complex problems with many indicators into different levels for comprehensive analysis according to their different nature and inherent progressive logical relationship[50] . The method firstly determines the specific factors of each level by constructing the judgement

indicators of relevant influencing factors, for example, the first level indicator is A, the second level indicator is B1,B2,B3.   The method firstly constructs the judgement indicators of the relevant influence factors at each level, and determines the specific factors at each level, such as the first level indicator is A, and the second level indicators are B1, B2, and B3 respectively, and then constructs the judgement matrix of influencing factors in the same level of the indicator system by using the system of (1/9, 9), and finally calculates the weight and importance of each factor through the comparison scores of experts on the matrix of the various dimensions. The weights and importance of each factor are calculated by comparing the scores of each dimension matrix by experts.

According to the above online psychological service platform - "One Point Ling" user satisfaction measurement scale, we can get the system of indicators for each level of the influence factor, which is divided into a,b,c,d four levels. The corresponding questions are shown in Table 4.

Based on the fact that the test scales used by the subject users and the experts were the same, the hypothesis was thus formulated:

H12: Subject users and experts agree on the perceived importance of the measurement dimensions of the scale.

Formal questionnaire generation

After the initial scale was reduced according to the expert's recommendations, the

weighting analysis was used to generate the formal measurement index system and form the

corresponding questions. The corresponding questions are shown inTable 4.

Table 4.　Measurement Scale of User Satisfaction of Online Psychological Service Platform - One

Point Ling

measurement dimension	Measurement indicators	topic setting
Brand image (A)	Visibility (A1)	Psychological service platform field I was able to associate the first time to the "One Point Spirit" platform
	Awareness (A2)	I am more aware of the psychological services provided by the platform
	Word of mouth (A3)	The platform has a better reputation

User expectations (B)	Expectations of effect (B1)		I expect better results from using the platform.
	Expectations of experience (B2)		I expected a better experience in using the platform
	Expectations of empathy (B3)		I expect to meet empathetic people who will provide services when I use the Platform's services.
	Expectations of acceptance (B4)		I'm more interested in online services than in offline services.
Perceived quality (C)	Reliability (C1)	Reliable operation (C1-1)	The platform's network operation is stable and reliable,

		with few flashbacks.
Reliability (C1)	Payment reliability (C1-2)	The platform's payment system is reliable and there is no risk of funds being stolen.
Reliability (C1)	Service reliability (C1-3)	Psychological services provided by the platform are consistent with the description
Trustworthiness (C2)	Attitudinal trust (C2-1)	I believe that the platform is able to empathies with visitors when providing psychological services.

Trustworthiness (C2)	Professional trust (C2-2)	I believe that the psychological services provided by the platform are of a professional standard I believe that the platform will protect my privacy
Trustworthiness (C2)	Privacy trust (C2-3)	I find it easy to find all the functions of the platform and I think it is very convenient.
Convenience (C3)	Functional variables (C3-1)	I find it very convenient that the psychological services provided by the platform can avoid going out of

			the house.
	Convenience (C3)	Service facilitation (C3-2)	The platform's network operation is stable and reliable, with few flashbacks.
Perceived value (D)	Functional value (D1)		I think my psychological problems can be solved when I use the services of the Platform.
	Hedonic value (D2)		I think I'm in a good mood when I use the platform's services
	Educational value (D3)		I think my understanding of some psychological phenomena has

		been enhanced by using the services of the Platform.
	Economic value (D4)	I believe that using the platform's services has saved me money on travel expenses
Customer satisfaction (E)	Satisfied with effect (E1)	I am satisfied with the results after using the platform
	Satisfied with experience (E2)	I am satisfied with my real experience after using the platform
	Overall satisfied (E3)	I am generally satisfied with how I feel about using the platform

Data collection and analysis

In this study, we distributed questionnaires in the form of online questionnaires through the online questionnaires of "Question star" in the groups related to psychological counselling and other psychological services, such as psychological mutual aid and psychotherapy on the platforms of "One Spirit" course groups, WeChat groups, QQ groups, Douban groups, and so on. The screening questions in the questionnaire were used to screen the users who had used

The One Spirit platform in the groups, and 763 questionnaires were received. 134 invalid were excluded, and 629 valid questionnaires received in the end.

Results

Results of the questionnaire survey

Demographic analysis

From the above table, it can be seen that the ratio of male and female users using the online psychological service platform - "One Point Spirit" accounted for 41.2% and 58.8% respectively, and the ratio of male and female users is basically close to 4:6, and the ratio of male and female structure of China's Internet users as of 2021 is also close to 4:6, proving that the sample basically represents the group characteristics of users of online psychological service platforms. In terms of age distribution, 53.7% of the platform users in the sample are aged 25-35, which is significantly larger than the proportion of other age groups. This age group represents the majority of young and middle-aged people, and it can be seen that this group is the age group

with the greatest demand for online psychological service platform users. The second largest age group is 18-25 years old, accounting for 21.5 per cent, and most of the students in this age group are in school, which shows that student users are also the key demand users of the online psychological service platform in the sample. From the perspective of education distribution, users with bachelor's degree and users with specialist degree account for the largest proportion of 49.3% and 22.9% respectively in the sample, while users with less than college and those with master's degree and above account for 15.1% and 12.7% respectively, which is basically in line with the proportion of the normal distribution of the education of Internet users. From the perspective of income, the group with an average monthly income of 3,000-6,000 accounted for the majority of 42.1%, while the proportion of users with a monthly income of more than 20,000 was at least 2.9%. It can be found that the relatively high cost threshold of the psychological industry is not a direct factor hindering the users, but rather, the group with a relatively low income is more inclined to accept online psychological services.

Reliability analysis

The reliability and validity of the questionnaire in this study are within reasonable limits. In this case, in order to conduct an in-depth test of validity, a validation factor analysis was first conducted on the perceived quality dimension. The first and second order structural equation modelling diagrams for perceived quality.

Figure 2.　Perceived quality first-order and second-order validity factor model plots
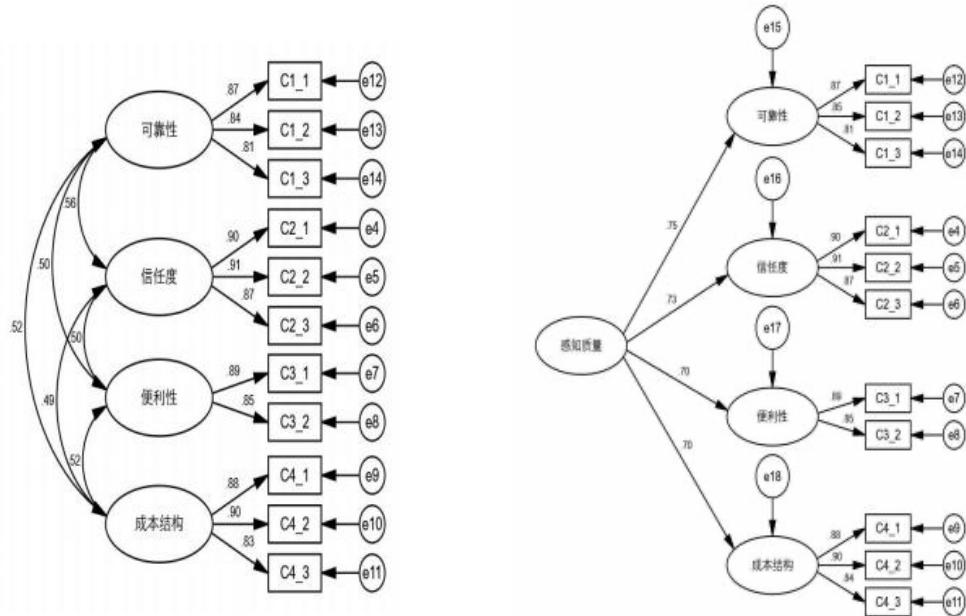
According to the criteria of the model fitting indicators, the fitting indicators of the

second-order model all meet the requirements, indicating that the second-order model is

established. On this basis, this study continues with the validation factor analysis of the overall

structural equations. The structural equation model diagram of the overall model is shown in

Figure 3.

Figure 3.　Structural equation modelling of the overall validity factor
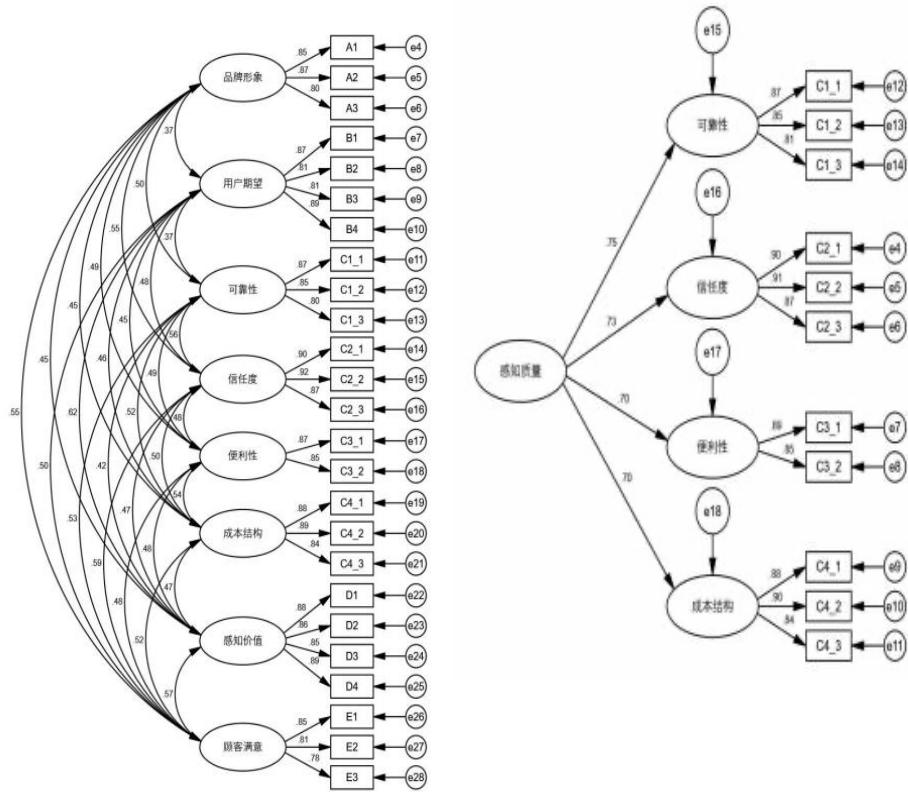
The overall fit of the model in this study was analysed computationally to be good. The reliability and validity are within the normal range.

One-way analysis of variance (ANOVA)

Occupation of platform users

Table 6.　One-way ANOVA scores for different occupations of users of the "YI DIAN LING" platfor

Based on the results of the analyses in the table above (F=1.31, p>0.05), it can be seen

sports event	norm	N	average value	(statistics) standard deviation	F	P
Careers	Institutional (civil servants, institutions, state-owned enterprises, central enterprises, doctors/teachers, etc.)	132	3.505	0.833		
		361	3.413	0.802		
	Outside the system (private, foreign, self-employed, etc.)	126	3.304	0.872	1.311	0.270
	schoolchildren No work	10	3.333	0.770		

that there is no significant difference between the different occupational classifications of the

platform users with respect to user satisfaction.

City of platform user

Table 7.   One-way ANOVA for the city of the users of the "One Point Ling" platform

sports event	norm	N	average value	(statistics) standard deviation	F	P
host city	First-tier cities in North, Shanghai, Guangzhou and Shenzhen	230	3.474	0.819		
		217	3.372	0.842	1.123	0.326
	Second-tier cities such as Chengdu, Chongqing and Wuhan	182	3.372	0.806		
	Third-tier cities and others					

Based on the results of the analyses in the table above (F=1.123, p>0.05), it can be seen that there is no significant difference between the different classifications of the platform users' cities with respect to user satisfaction.

Number of platform user sessions

Table 8.   One-way ANOVA on the number of times users of the OneSpirit platform have used the

platform

sports event	norm		N	average value	(statistics) standard deviation	F	P
Number of uses of the OneSpirit platform	1-3 times	3-6 times	97	3.203	0.920		
	6-9 times		138	3.319	0.808		
	More than 9 times		230	3.471	0.804	4.073	0.007
			164	3.520	0.779		

Based on the results of the analysis in the table above (F=4.073, p<0.05), it can be seen that there is a significant difference between the different classifications of the number of times the platform users have used the platform on user satisfaction.

Common platform services for users

Table 9.　One-way ANOVA on the types of services users commonly use on the One Point Ling platform

sports event	norm	N	average value	(statistics) standard d	F	P

				deviation		
Most used	Psychological counselling services	335	3.493	0.737		
It's the One Spirit		197	3.398	0.890	6.879	0.001
platform.	Psychological course training services	97	3.144	0.911		
What services	Other services of the Platform					

According to the results of the analysis in the above table (F=6.879, p<0.05), it can be seen that there is a significant difference in user satisfaction between the different classifications of the types of platform services commonly used by users.

Relevant analyses

Table 10.   Correlation test for each dimension

	A	B	C1	C2	C3	C4	C	D	E
brand image	1								
user expectation	.372**	1							

dependa bility	.441**	.355**	1					
confide nce level	.493**	.454**	.501**	1				
conveni ence	.413**	.417**	.445**	.445**	1			
cost structure	.395**	.463**	.465**	.449**	.455**	1		
Perceive d quality	.565**	.550**	.770**	.781**	.760**	.774**	1	
perceive d value	.400**	.573**	.383**	.412**	.419**	.436**	.536**	1
customer satisfacti on	.477**	.480**	.460**	.511**	.402**	.461**	.595**	.536**	1

Note: ** indicates significant correlation at the P < 0.01 level.

From the results of the above table, it can be seen that the correlation coefficient between the

two variables of brand image and user satisfaction is 0.477, and the coefficient ≥ 0.4 at the same

time <0.7, P<0.01, indicating that the two variables of brand image and user satisfaction are significantly positively correlated.

The comprehensive results show that: brand image, user expectations, reliability, trust, convenience, cost structure, perceived quality, perceived value, customer satisfaction, the corresponding P-value of each variable is less than 0.01, all show significant positive correlation.

Structural equation modelling analysis

Through the fitting test the fitting indexes of this model all meet the requirements, indicating that the model of this study is more reasonable, and the path of the model can be further analyzed.

Path analysis

Table 11.　Path coefficient test of the model

	pathway relationship	Standardised path Coefficients	Residual Error S.E.	Critical Ratio C.R.	P
user expectation	<--- Brand Image	0.414	0.052	9.519	***
Perceived quality	<--- Brand Image	0.507	0.034	10.511	***
perceived	<--- Brand Image	0.034	0.074	0.594	0.553

value

customer satisfaction	<--- Brand Image	0.078	0.052	1.368	0.171
Perceived quality	<--- User expectations	0.446	0.027	9.8	***
perceived value	<--- User expectations	0.372	0.057	7.071	***
customer satisfaction	<--- User expectations	0.029	0.041	0.527	0.598
perceived value	<--- Perceived quality	0.363	0.148	4.584	***
customer satisfaction	<--- Perceived quality	0.525	0.113	5.952	***
customer satisfaction	<--- Perceived value	0.225	0.035	4.413	***

Note: *** indicates P<0.001.

According to the results shown in the above table, it can be seen that, except for the " brand image ---> perceived value ", " brand image ---> customer satisfaction " and " user expectations ---> customer satisfaction " three paths, the C.R. of the remaining paths are all significant at the level of P<0.001, which can reach the standard of the path test of structural

equation modelling.

Hypothesis Testing Analysis

H3: Hypothesis testing of the relationship between the brand image of the platform and the perceived value of using the platform. It can be learnt that the path coefficient of the brand image of the platform on the perceived value of the users in using the platform is 0.034, and the C.R. value is 0.594, corresponding to the significance of $P > 0.05$, therefore, the brand image does not have a significant positive effect on the perceived value, so the hypothesis is not valid.

H4: Hypothesis testing of the relationship between brand image of the platform and overall user satisfaction with the platform. It can be seen that the coefficient of the path of the platform's brand image on the overall satisfaction of users is 0.078, and the C.R. value is 1.368, corresponding to the significance of $P > 0.05$, therefore, the brand image does not have a significant positive effect on customer satisfaction, so the hypothesis is not valid.

H7: Hypothesis testing of the relationship between users' expectations of the platform and users' overall satisfaction with the platform. The coefficient of the path between users' expectations of the platform and users' overall satisfaction is 0.029, and the C.R. value is 0.527, which corresponds to the significance of $P > 0.05$, so the hypothesis is not valid because users' expectations do not have a significant positive effect on customer satisfaction.

Apart from that, the assumptions H1-H10 indicators are all valid within reasonable limits. Therefore, based on the validation results, the structural equation model was modified. The modified model is shown in Figure 4.4, with the dotted lines representing the assumptions that do

not hold.

Figure 3.　Modified model of factors influencing user satisfaction of online psychological service platforms
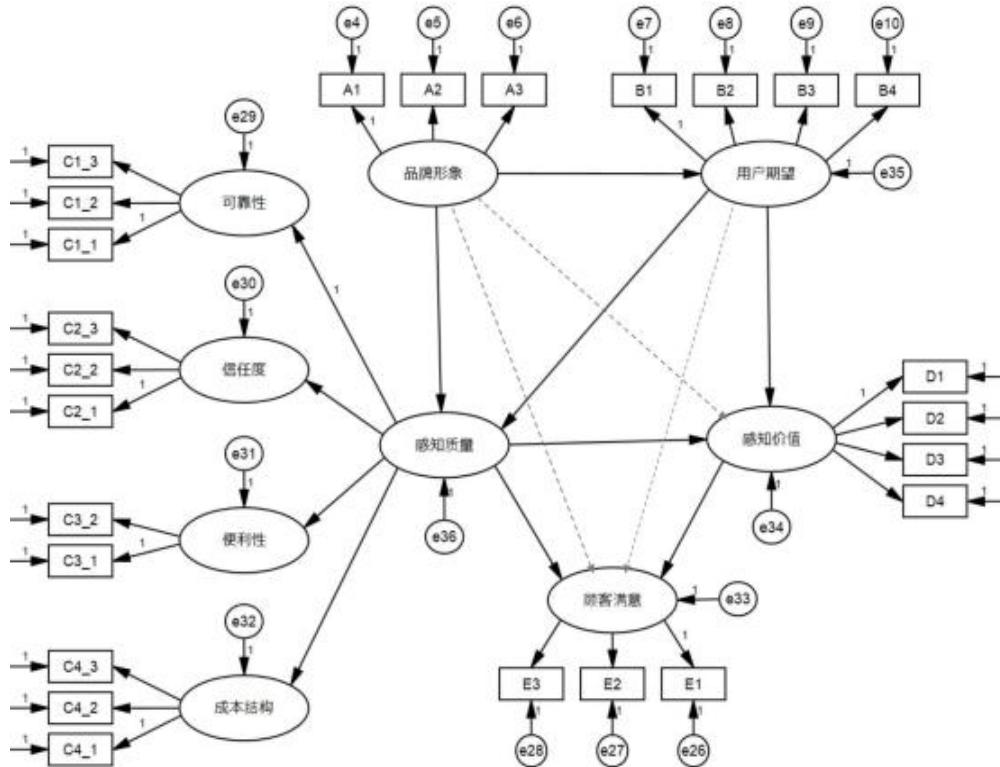
Regression analysis of sub-factors on user satisfaction

In order to further analyse the influencing factors of user satisfaction of online psychological service platform, in addition to judging the relationship between variables in the structural equation of this study, it is also necessary to analyse whether there are specific sub-factors affecting user satisfaction, and to what extent. Regression analysis is a widely used method of statistical analysis in data analysis, and its characteristic is that it can be used to examine whether there is a relationship of mutual influence between variables, such as in this

study, the perceived quality dimensions have the greatest influence on the overall user satisfaction, which sub-factors have the greatest effect on the satisfaction, so that the variables in the study can be accurately judged to determine the extent of the influence of the variables. Therefore, this study will use regression analysis to examine the relationship between the four dimensions of perceived quality on user satisfaction.

Table 12.   Regression test of perceived quality dimensions on user satisfaction

modelling					Sig.	VIF
(Constant)	1.037	0.131		7.900	0.000	
dependability	0.162	0.036	0.177 4.449		0.000	1.543
confidence level	0.234	0.032	0.285 7.227		0.000	1.522
convenience	0.089	0.033	0.104 2.700		0.007	1.451
cost structure	0.167	0.032	0.203 5.230		0.000	1.481
R^2			0.362			
F			88.678***			

As can be seen from the above table, the model covariance statistics VIF (Variance

Infiation Factor) are less than 5, which meets the monitoring standard and proves that the user satisfaction model of online psychological service platform is reasonable.

Hypothesis testing shows that the standardised coefficients of the four dimensions of perceived quality are all greater than 0, and the hypothetical p-value is less than 0.05, so there is a more significant positive effect on user satisfaction. The regression coefficients of trust, cost structure, reliability, and convenience are 0.285, 0.203, 0.177, and 0.104, respectively, in decreasing order. This indicates that under the premise that each sub-factor is positively related to user satisfaction with the platform, trust and structure and cost are the sub-factors that have the most significant effect on user satisfaction, so hypothesis H11 is established.

Hierarchical analysis results

Based on the scoring results of all the experts, the average of the scoring weights of each expert for the indicators in tiers a, b, c and d was calculated in turn.

Table 13.   Ranking of c-level indicators relative to a-level indicators

A tier indicator	B tier indicator	C tier indicator	Weighting	Ranking
Online		Visibility (C1)	0.0866	2
psychological	Brand image	Awareness	0.0840	3
service	(b1)	(C2)		
platform User		Word of	0.0770	7

satisfaction (a)		mouth (C3)		
	User expectations (b2)	Expectations of effect (C4)	0.0771	6
		Expectations of experience (C5)	0.0464	12
		Expectations of empathy (C6)	0.0402	14
		Expectations of acceptance (C7)	0.0398	15
	Perceived quality (b3)	Reliable operation (C8)	0.0825	4
		Payment reliability (C9)	0.0809	5
		Service reliability (C10)	0.0543	11

Attitudinal trust (C11)	0.0871	1
Professional trust (C12)	0.0761	8
Privacy trust (C13)	0.0448	13
Functional variables (C14)	0.0674	9
Service facilitation (C15)	0.0559	10

Table 14. Ranking of d-level indicators relative to a-level indicator

B tier indicator	C tier indicator	D tier indicator	Weighting	Ranking
Brand image (b)	Reliability C1	Reliable operation d1	0.0875	9
		Reliable payment d2	0.0885	8
		Service reliability d3	0.1023	2
	Trustworthiness C2	Emotional trust d4	0.0767	11
		Professional trust d5	0.0990	3
		Privacy trust d6	0.0902	5
	Convenience C3	Functional Convenience d7	0.0889	6
		Service Convenience d8	0.0889	6
		Counseling Fees d9	0.1075	1
	cost structure C4	Course fees d10	0.0872	10
		Other fees d11	0.0967	4

According to the above statistical results, it can be seen that in the c-level influencing factors weight ranking, the cost structure, brand awareness and brand recognition account for the largest weight of the first three factors, respectively 0.871, 0.866 and 0.840, indicating that the cost of the platform and the establishment of the brand are the most important factors, and two of them come from the brand image dimension, indicating that the establishment of brand image is crucial for the development of the platform; ranking 4 and 5 are reliability and trust, respectively 0.825 and 0.809, indicating that improving the quality of the platform can be started from reliability and trust. The 4th and 5th ranked factors are reliability and trust, with weights of 0.825 and 0.809 respectively, indicating that improving the quality of the platform can start from reliability and trust; the 6th ranked factor is expectation of effect, with a weight of 0.0771, which comes from the dimension of users' expectation, and the other three factors under this

dimension are ranked in the next 12, 14 and 15 places, which indicates that the factors under this

dimension are the most important, and the other three factors under this dimension are ranked in

the next 12, 14 and 15 places. The 6th ranked factor is Effect Expectation with a weight of

0.0771, which comes from the dimension of User Expectation, while the other three factors

under this dimension are ranked 12, 14 and 15 respectively, indicating that Effect Expectation is

the most important dimension under this dimension; and the 13th ranked factor is Hedonic Value,

while Functional, Educational, and Economic Values are more important under this dimension in

the 8th, 9th and 10th rankings.

In the d-layer, we can see that the counselling fee is the most important factor in the cost

structure, with a weight of 0.0328, and the service reliability is the most important factor in the reliability

dimension, with a weight of 0.0314, which shows that the platform's control of counselling fee and

service reliability is a relatively more effective means; and the farther away from counselling fee

in the cost structure is the course fee, with a weight of 0.0266, which proves that the platform's

business module is still based on counselling as the main mode. In the cost structure, farther

away from the consulting fee is the course fee, ranking 10th with a weight of 0.0266, which proves that

the business module of the platform is still mainly based on psychological counselling; and in the

reliability dimension, the operation reliability and payment reliability rank 8th and 9th respectively,

which shows that the importance of these two factors is relatively low compared to the reliability

of the service; and in the convenience dimension, the convenience of the function and the

convenience of the service are tied in 6th place, which shows that the two are equally

important; and in the trust dimension, the professionalism and trustworthiness are tied in 6th place, which shows that the two are equally important. In the trust dimension, professional trust is clearly the most important factor in the 3rd place, while emotional trust is in the last place in the overall index, indicating that emotional trust is actually the default when using the platform, and its influence is basically a factor that can be temporarily disregarded compared to professional trust in trying to solve psychological problems.

Comparing the results of the hierarchical analysis with the measurements of the subject users, it is evident that the subject users considered the perceived quality dimension as the most important influencing factor, and the emotional trust (attitudinal trust) in the perceived value was also ranked high in terms of its degree of importance relative to the experts' scores, so that H12 was not valid.

Discussion

Brand Image

The results of this study demonstrate that brand image has a positive effect on several other dimensions, while showing no direct and significant effect on perceived value and user satisfaction. However, brand awareness within brand image and effect expectation within user expectation carry greater weight in the overall index.

Brand image holds irreplaceable value in enterprise development strategy. However, as the psychological service industry represents a new type of service product gradually entering public

awareness, and online psychological service platforms even more so, the impact on users'
perception of products in this field will not manifest directly. "Yi Dian Ling," as a new brand in
the emerging online psychological service platform field, may not directly impact users'
perspective through first impressions of brand image and value attribute perception, but rather
needs to grow alongside the online psychological services industry, promoting mutual
development.

User Expectations

When users engage with a product or service, they may hold certain psychological
expectations about its attributes or aspects, typically generated during pre-use psychological
activities. With online psychological service platforms emerging as a new type of online service
product, users encountering various psychological problems approach with an experimental
mindset, holding certain expectations about platform quality reliability and post-use value
perception. However, because online psychological service platforms have not yet achieved
widespread public recognition, combined with their distinctive service modules differentiating
them from traditional psychological counseling, they represent a relatively unfamiliar domain
from users' perspectives. Consequently, directly correlating users' pre-experience expectations
with post-experience satisfaction proves challenging.

Perceived Quality

Both theoretical foundations and hypothesis verification indicate that perceived quality represents the dimension receiving most attention from subjects, with its influence on user satisfaction showing the most significant path in the model. The study's decomposition of perceived quality into four variables—reliability, trust, convenience, and cost structure—reveals that user satisfaction with any of these variables during platform service use can directly influence judgments of high value and overall satisfaction with platform services.

Furthermore, as the online psychological service industry represents a new comprehensive field combining online consumer industry and psychological counseling characteristics, trust in products or services remains paramount for users in both online consumption and psychological counseling. When these fields' characteristics and attributes overlap, the importance of user trust increases accordingly. In traditional psychological industry sectors, such as psychological counseling, public perception of hourly fees and high pricing directly affects user ordering behavior and service satisfaction.

Therefore, while perceived quality significantly positively influences perceived value and user satisfaction, two sub-factors—trust and cost structure—also demonstrate direct, significant positive relationships with user satisfaction.

Perceived Value

From users' perspectives, any product or service use carries expectations of receiving corresponding value attributes. Psychological service industry products differ from other goods

like clothing, where dissatisfaction usually allows returns. Psychological service products, once

delivered, prove difficult to recover, substantially increasing users' mental costs. The relationship

between these higher costs and overall platform service quality directly reflects platform service

value. Under higher cost conditions, better platform service effects can regulate users' cost

perceptions.

Thus, perceived value, as a composite term based on each dimension's positive influence,

can directly affect users' overall platform service satisfaction.

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