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ORIGINAL RESEARCH

Emotional Suppression Characteristics and Influencing Factors of Ovarian Cancer Patients - Latent Profile Analysis

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Background: This quantitative study aimed to analyze the potential categories of emotional suppression characteristics and explore the influencing factors of different categories among ovarian cancer chemotherapy patients in Western Region of China.

Methods: From September 2024 to March 2025, a convenience sampling method was used to administer a questionnaire to ovarian cancer chemotherapy patients at a gynecology center within a university hospital situated in the Northwest region of China. The investigation employed general information questionnaires, the Emotional Inhibition Scale (EIS), Social Constraint Scales (SCS), Family APGAR Index (APGAR), and the Hospital Anxiety and Depression Scale (HADS). Latent profile analysis (LPA) was conducted to identify the profiles of emotional suppression levels in patients with ovarian cancer undergoing chemotherapy. Multinomial logistic regression was used to investigate the correlations among these profiles in ovarian cancer chemotherapy patients.

Results: A total of 228 ovarian cancer chemotherapy patients participated, yielding an average score of 26.76 ± 5.71 on the emotional suppression. The LPA identified three emotion suppression profiles: high level emotional inhibition-low verbal inhibition (Profile 1,13.0%), high level emotional inhibition-high verbal inhibition (Profile 2,46.1%) and low level emotional inhibition-medium verbal inhibition (Profile 3,40.8%); Multiple Logistic regression analysis revealed that educational attainment (high/low), anxiety symptoms, severe family dysfunction, disease recurrence (yes), marital status (divorced/widowed), and social constraint were significant contributing factors.

Conclusion: Our research findings reveal significant heterogeneity in emotional suppression among ovarian cancer patients, which provides valuable information for tailoring intervention measures to meet individual needs, especially for patients in the high-level emotional inhibition group. To enhance patients' emotional management capabilities and alleviate their levels of emotional inhibition, healthcare practitioners should fully consider how the emotional regulation subgroup is influenced by factors such as disease recurrence, educational background, marital status, anxiety levels, family support and patients' perceived social constraints in the medical environment.

Keywords: ovarian cancer, chemotherapy, emotional inhibition, social constraints, Latent profile analysis

Introduction

In 2022, according to data from the National Cancer Center, there were 61,100 new cases of ovarian cancer and 32,600 deaths in China.[1] Ovarian cancer is not only the gynecological malignant tumor with the highest fatality rate, but also has the characteristics of high malignancy, strong invasiveness, and easy recurrence,[2] which seriously threatens women's health and life safety. Chemotherapy, as an effective treatment method for ovarian cancer, while suppressing the growth of tumors, inevitably causes long-term damage to normal cells and the human body. Patients are thus plagued by a variety of symptoms, leading to a relatively high incidence of negative emotions.[3] Long-term emotional inhibition will further lead to the occurrence of adverse psychological outcomes, affecting the prognosis of the disease[4] and the progression of tumors.[5]

Emotional suppression is defined as the deliberate restraint of expressive behaviors when individuals experience emotional arousal.[6] In China, influenced by cultural values, most patients often consciously suppress or regulate the

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expression of their internal emotions when under long - term stress or suffering from an illness.[4] However, cancer patients have a stronger sense of self-suppression and are prone to being immersed in negative emotions. In addition, Studies have shown that the tendency for emotional inhibition can positively predict symptom side effects, emotional states, and coping abilities during chemotherapy. Screening for emotional inhibition tendencies in ovarian cancer patients may help identify those who require additional assistance and support during chemotherapy.[5]

According to the social cognitive processing model of emotional adaptation to cancer,[7] individuals who perceive lower levels of social support or higher degrees of objective social constraints are more inclined to suppress emotional and behavioral expressions associated with distressing experiences. This suppression leads to heightened anxiety and depressive symptoms, as well as a diminished quality of life. The main drivers of perceiving social support or social constraints lie in family members or spouses. Because the family is the primary source of emotional and informational support for patients. The joint coping efforts within the family help regulate the patients' emotions.[4]

Although there have been a great many studies on emotional inhibition in patients with breast cancer[5,8,9] and gastric cancer[10] research on patients with ovarian cancer is still relatively scarce. Most existing studies largely depend on rating scales to assess emotional inhibition severity, thus overlooking patient population heterogeneity and failing to fully clarify the diverse manifestations of emotional inhibition. By contrast, latent class analysis (LCA),[11] a model-based statistical method, classifies latent subgroups using overt behavioral indicators. LPA was adopted to identify distinct subpopulations (latent profiles) based on shared patterns of emotional inhibition traits, overcoming the limitations of unidimensional scales that assume homogeneity. Therefore, the objectives of this study were twofold: (1) to depict the present state of emotional inhibition characteristics in ovarian cancer patients undergoing chemotherapy; (2) to employ Latent Profile Analysis (LPA) to discern the subgroups of these emotional inhibition characteristics in ovarian cancer patients and to identify their associated influencing factors.

Methods

Study Design and Setting

This cross-sectional study was conducted at a gynecology center within a university hospital situated in the Northwest region of China, from September 2024 to March 2025. This prospective observational study adhered to the guidelines outlined in the "Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)" statement.[12]

Participants

The sample consisted of individuals who met the inclusion criteria for ovarian cancer, including those who were receiving inpatient or outpatient chemotherapy, were over 18 years old, and were able to understand and speak Chinese, volunteering to participate and consenting to provide information for the study; without cognitive disabilities. The exclusion criteria included a diagnosis of any communication barrier, impaired consciousness or mental disorders, termination of questionnaire completion due to medical activities, and patients who were unaware of their disease. Additionally, patients who dropped out and were missing more than 20% of their information were excluded from the study.

All participants had a history of surgical treatment and were currently receiving chemotherapy. Specifically, 74 cases (30.2%) were recurrent ovarian cancer patients, while the remaining cases were undergoing postoperative adjuvant chemotherapy. In terms of treatment approaches, the cohort showed good homogeneity.

Study Size

This study adopted a two-stage sample size verification strategy to ensure the rigor of statistical test power. First, according to the sample size estimation rule of logistic regression,[13] that is, the minimum sample size should be 5–10 times the number of independent variables, this study included a total of 17 independent variables, thus requiring a minimum sample size of 85–170 cases.

According to the cross-sectional sample size calculation formula $n = (u_{\alpha/2}\sigma/\delta)^2$; Significance level $\alpha=0.05$, corresponding to a two-tailed critical value; Population standard deviation $\sigma=8.77$, extrapolated from emotional suppression

scores of breast cancer patients (mean $\bar{X}$= 27.26) in existing literature;[9] Permissible error δ is set at 5% of the mean, ie, δ=27.26×5%=1.36; Substitute parameters into the formula: n= $(1.96\times8.77/1.36)^2 \approx 160$.Considering a 20% invalid sample rate, at least 200 sample cases are required.

A total of 240 questionnaires were distributed in this study. After excluding 5 with too short a filling time (<3 minutes), 3 with regular options, and 4 with more than half of the questions omitted, 228 valid questionnaires were recovered, yielding an effective recovery rate of 95%.

Instruments

Demographic Characteristics

The collected socio-demographic data included age, residence, education level, employment status, marital status, and disease-related information such as FIGO staging, recurrence status, number of chemotherapy sessions, and family history of tumors.

Emotional Inhibition Scale, EIS

The EIS was compiled by Kellner[14] on the basis of the emotional inhibition theory model. Lu and colleagues adapted the scale for use in China, modifying it to align with cultural norms The scale contains four dimensions: verbal suppression (items 2, 4, and 5), self-control (items 1, 8, 9, and 12), disguising emotions (items 10, 11, 13, and 14), and timidity (items 3, 6, and 7). This scale uses a Likert 5-level scoring method. The total score ranges from 0 to 56. The higher the score, the more inclined the filler is to suppress emotional expression. In this study, Cronbach's α for the EIS was 0.801, showing adequate reliability and validity.

Social Constraint Scale, SCS

SCS was compiled by Lepore[15] et al to assess patients' social limitations, and the Chinese version was translated by You[16] and colleagues, with a total of 15 items, each item was scored using the Likert 4-level scoring method, 1~4 points represent "never", "occasionally", "sometimes", "often", the total score is 15~60 points, the higher the score indicates the higher the level of social restrictions perceived by the individual. In this sample, the SCS exhibited a Cronbach's α of 0.791.

Family APGAR Index, APGAR

The APGAR contains a total of 5 dimensions of evaluation: family fitness, cooperation, length, intimacy, and affectivity, each item is scored 0~2 points from "almost rarely" to "often satisfied", with a total score of 0~10 points, and is divided into grades according to the score: good family function (7~10 points), moderate impairment (4~6 points), and severe impairment (0~3 points).[17] In this study, Cronbach's α for the APGAR was 0.763.

Hospital Anxiety and Depression Scale, HADS

The scores for the two subscales are divided as follows: 0–7 indicates no anxiety or depression, 8–10 suggests suspicious symptoms, and 11–21 signifies definite symptoms. The higher the score, the more severe the anxiety and depression. The study demonstrated that the scale is an effective instrument for screening and assessing patients' anxiety symptoms, with Cronbach's α coefficients for the overall HADS, anxiety subscale, and depression subscale being 0.879, 0.806, and 0.806, respectively.[18] This study utilized the anxiety subscale to investigate patients, and Cronbach's coefficient of this scale in the study was 0.806.

Data Sources/ Measurement

The investigator adopted standardized guiding language. Prior to distributing the questionnaire, the purpose, significance, and precautions of this study were thoroughly explained to the patients. Informed consent forms were signed upon obtaining patients' consent. Questionnaire collection was carried out on the first day of the patient's hospital admission (for inpatients) or prior to the injection of chemotherapy drugs (for outpatients). This timing was chosen to prevent patients from refusing to fill out the questionnaire due to drug-induced adverse reactions such as nausea or pain. During the filling - in process, in cases where the respondent was illiterate or an elderly individual who was unable to complete

the questionnaire independently, the researcher would, item by item, inquire about and verify the questionnaire content, and then mark the corresponding options. The questionnaires were distributed by the researcher and collected on the spot. The researcher also checked whether each questionnaire was fully completed. Any omissions were promptly addressed to ensure the accuracy, completeness, and validity of the questionnaire data.

Ethical Considerations

This study protocol has been meticulously reviewed and unanimously approved by the Medical Ethics Committee of the Affiliated Cancer Hospital of Xinjiang Medical University (approval number: K-2024214). The review process adhered strictly to the standards set forth in the Helsinki Declaration. Prior to their participation, all study participants provided informed consent.

Statistical Analysis

Step 1: Employ SPSS 27.0 software for data analysis and organization. Import the scores of different dimensions into Origin64 exe software to generate violin charts of emotion inhibition scores across various dimensions. This enables a more intuitive visualization of the overall emotional inhibition scores of ovarian cancer patients undergoing chemotherapy, categorized by different dimensions.

Step 2: Mplus software, version 8.3, was used to categorize the participants into subgroups based on the 14 items of the Chinese version of the Emotional Inhibition Scale. Initially, Initiate the process with a single model and progressively expand the number of models to identify the optimal one. Model adaptability test indicators include: (1) Akaike information criterion (AIC), Bayesian information criterion (BIC), and sample-adjusted BIC (a BIC). Lower values indicate higher model adaptability. (2) Entropy represents classification accuracy. Values approaching 1 signify higher classification precision. (3) Lo-Mendell-Rubin likelihood ratio test (LMRT) and Bootstrapped likelihood ratio test (BLRT) are used to compare the differences in model fitting. LMRT: $P < 0.05$ indicates the k-category model outperforms the (k-1)-category model; $P < 0.001$ indicates support for the K - category model. In addition, the sample size of each category should be greater than 5% of the total sample size to avoid invalid categories.

The latent profile analysis employed the maximum likelihood (ML) estimation method. During the model estimation process, 1,000 random starting values were set to ensure that the model converged to the global optimal solution. For handling missing data, the full information maximum likelihood (FIML) method was adopted to make the most of all available data.

Step 3: A one-way analysis of variance (ANOVA), the Kruskal-Walli's test, and the $\chi 2$ test were conducted to determine if there were differences in variables across the profiles. $P<0.05$ indicates that the difference is statistically significant. At the same time, multinomial logistic regression analysis was utilized to explore the relationships between patient-level characteristics and LP membership, using profile 3 (low level emotional inhibition-medium verbal inhibition) as the reference group.

Results

The demographic characteristics were as follows. Among the cohort (n=228), 41 participants were aged >60 years, and 187 were ≤60 years; 37 had a family history of cancer; 34 were divorced or widowed; 103 had an education level of junior high school or below, 53 had a high school education, and 72 had a college degree or above; 69 were On-the-job /self-employed, 87 were unemployed, and 72 were retired; 104 were covered by employee medical insurance, and 124 by resident medical insurance; A total of 74 patients (32.46%) received chemotherapy for disease recurrence, including 16 with ≥2 recurrences and 64 with first-time recurrence. In contrast, 154 patients (67.54%) were receiving postoperative adjuvant chemotherapy.

The overall emotional inhibition score of 228 ovarian cancer patients during chemotherapy was 26.76±5.71. Specifically, the scores for the four dimensions were as follows: verbal inhibition was 6.65±2.26, self-control was 7.88±2.14, timidity was 4.25±1.74, and camouflage emotion was 7.96±2.20 (Figure 1).

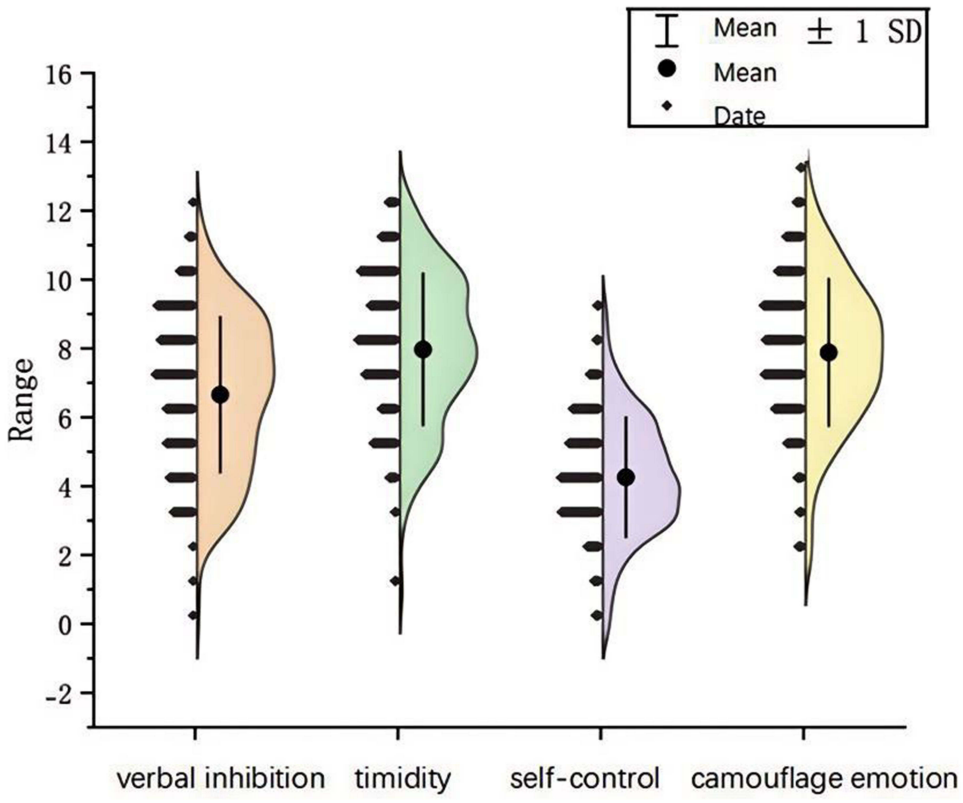

Figure 1 Overall emotional inhibition in patients undergoing chemotherapy for ovarian cancer.

The Results of Latent Profile Analysis

LPA were performed using the 14 items (four dimensions) of the Chinese version of the Emotional Inhibition Scale as input variables. We tested the models with 1 to 5 profiles. The model fit statistics of the four LPA models are shown in Table 1.

AIC, BIC, and ABIC values decreased with an increasing number of latent profiles. The entropy value of the third category was the closest to 1. Additionally, in the 3-profile model, the Lo-Mendell-Rubin adjusted likelihood ratio test (LMR) was statistically significant ($p < 0.05$). The BLRT values remained significant ($p < 0.05$) for all profile models. Based on these statistics, a 3-profile model was selected.

Table 1 Fit Indices of the Latent Profile Model for Emotional Inhibition in Ovarian Cancer Patients Undergoing Chemotherapy

	AIC	BIC	aBIC	Entropy	LMR	BLRT	Class Counts
1	7384.864	7480.886	7392.145	–	–	–	
2	6980.875	7128.336	6992.056	0.792	0.1882	0.0000	43.9/56.1
3	**6821.088**	**7019.990**	**6836.169**	**0.878**	**0.0034**	**0.0000**	**46.1/40.8/13.0**
4	6731.410	6981.752	6750.391	0.859	0.1890	0.0000	24.4/12.7/23.3/39.7
5	6648.284	6950.066	6671.166	0.865	0.5880	0.0000	10.4/28.3/21.5/27.8/12.0

Note: Bold entries reflect the selected model; '_indicates no data.

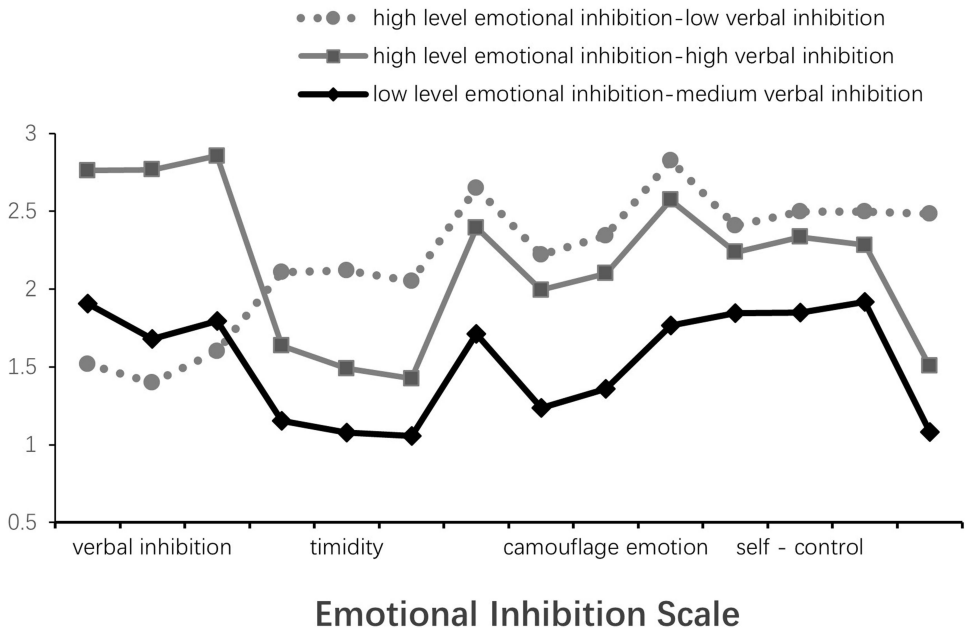

Figure 2 Latent profile model of emotional inhibition in ovarian cancer patients undergoing chemotherapy.

Categories of Latent Profile

Profile 1 had the highest level of emotional inhibition, registering a score of 30.72±3.68, while presenting the lowest score in verbal inhibition. As a result, it was labeled as "high level emotional inhibition-low verbal inhibition", making up 13.0% of the cases.

Profile 2 scored the highest in the verbal inhibition dimension, with an overall emotional inhibition score of 30.37±3.49. There was no significant difference in the overall scores between Profile 1 and Profile 2, Profile 2 was named " high level emotional inhibition-high verbal inhibition", which accounted for 46.1% of the sample.

Profile 3 had the lowest total score of emotional inhibition, which was 21.42±3.678, and its score in the speech inhibition dimension was moderate. Hence, it was termed "low level emotional inhibition-medium verbal inhibition", representing 40.8% of the subjects (Figure 2).

Inter-Profile Characteristic Differences

Table 2 shows that there were differences between profiles on age, residence, employment status, educational level, marital status, medical insurance type, recurrence, APGAR, anxiety, social constraint. (all $p < 0.05$).

Table 2 Comparison of Socio-Demographic and Clinical Variables Across Different Profiles of Emotional Inhibition

Variable	Profile 3 n=93	Profile 2 n=106	Profile 1 n=29	χ^2/H	*p*
Demographic Characteristics					
Age				7.774 (1)	**0.021**
≤60	79 (42.25)	80 (42.78)	28 (14.97)		
>60	14 (34.15)	26 (63.41)	1 (2.44)		
Residence				9.066 (1)	**0.011**
Suburb	74 (41.81)	75 (42.37)	28 (15.82)		
Rural	19 (37.25)	31 (60.78)	1 (1.96)		

(*Continued*)

Table 2 (Continued).

Variable	Profile 3 n=93	Profile 2 n=106	Profile 1 n=29	χ^2/H	*p*
Employment status				14.440 (1)	**0.006**
On-the-job/self-employed	33 (47.83)	21 (30.43)	15 (21.74)		
Unemployed	31 (35.63)	50 (57.47)	6 (6.90)		
Retirement	29 (40.28)	35 (48.61)	8 (11.11)		
Education level				38.418 (1)	**<0.001**
Junior high school and below	35 (33.02)	62 (62.26)	6 (4.72)		
High school	30 (56.60)	19 (35.85)	4 (7.55)		
University and above	29 (40.28)	22 (30.56)	21 (29.17)		
Marital Status				6.973 (1)	**0.031**
Married/Unmarried	86 (44.33)	84 (43.30)	24 (12.37)		
Divorced/Widowed	7 (20.59)	22 (64.71)	5 (14.71)		
Clinical Characteristics					
Medical insurance type				17.362 (1)	**<0.001**
Residents' Medical	50 (40.32)	68 (54.84)	6 (4.84)		
Employees' Medical	43 (41.35)	38 (36.54)	23 (22.12)		
Recurrence				27.813 (1)	**<0.001**
No	77 (50.00)	53 (34.42)	24 (15.58)		
Yes	16 (21.62)	53 (71.62)	5 (6.76)		
FIGO				5.975 (1)	0.426
I18	11 (61.11)	5 (27.78)	2 (11.11)		
II60	24 (40.00)	29 (48.33)	7 (11.67)		
III116	41 (35.34)	59 (50.86)	16 (13.79)		
IV34	17 (50.00)	13 (38.24)	4 (11.76)		
Family history of tumors				2.283 (1)	0.319
No	74 (38.74)	91 (47.64)	26 (13.61)		
Yes	19 (51.35)	15 (40.54)	3 (8.11)		
Number of chemotherapies	4 (2, 6)	6 (3, 11)	5 (3, 6)	15.578 (2)	**0.001**
APGAR				12.638 (1)	**0.013**
Good family function	73 (44.51)	75 (45.73)	16 (9.76)		
Moderate family dysfunction	19 (37.25)	24 (47.06)	8 (15.69)		
Severe family dysfunction	1 (7.69)	7 (53.85)	5 (38.46)		
Anxiety	4 (3, 6)	6 (4, 7)	7 (6, 9)	19.953 (2)	**<0.001**
Social Constraint	26 (24,30)	29 (26,32.25)	28 (25,35.50)	13.641 (2)	**0.001**

Note: Inter-profile characteristic differences (N, %); Bold indicates $p < 0.05$; (1) $\chi 2$ test; (2) Kruskal–Wallis test.

Factors Associated with Latent Profiles

Table 3 presents the results of a multinomial logistic regression analysis, which identifies the associations between participants' characteristics and profiles. Patients with higher anxiety scores, a high educational level, and severe family dysfunction were more likely to be categorized into Profile 1. Patients with a history of recurrence, those who were divorced or widowed, experiencing social constraints, and having a low educational level (junior high school and primary school or lower) were more likely to fall into Profile 2.

Discussion

The current status of the features of emotional inhibition in ovarian cancer patients during the chemotherapy period.

The results of this study showed that the emotional suppression score of patients undergoing chemotherapy for ovarian cancer was (26.76±5.71), which was closer to the level of emotional suppression in breast cancer patients (27.26 ±8.77).[9] Contributing factors may include chemotherapy patients with ovarian cancer have to endure physiological pain, such as the loss of a symbolic organ and sexual dysfunction, and most patients will still relapse and develop resistance to

Table 3 Logistic Regression Analysis of Influencing Factors for Emotional Inhibition Latent Profiles in Ovarian Cancer Patients Undergoing Chemotherapy

Variables	*P*	OR (95% CI)
Profile 1		
Anxiety	**0.022**	1.247[1.032,1.506]
Education level (College degree or above Reference)	**0.014**	7.938[1.524,41.339]
Severe family dysfunction	**0.032**	17.435[1.287,236.173]
Profile 2		
Recurrence (Yes)	**0.015**	3.359[1.268,8.898]
Marital Status (Divorced/Widowed)	**0.020**	3.505[1.216,10.104]
Education level (junior high school and below)	**0.022**	2.862[1.166,7.028]
Social Constraint	**0.033**	1.082[1.006,1.163]

Note: Reference group: profile 3. Bold indicates $p < 0.05$.

chemotherapy two to three years after completing the standard initial treatment.[19] This dual domain of physical and psychological stress leads to patients' inability to express and vent their negative emotions in a timely manner, which in turn may lead to emotional suppression.

Furthermore, the majority of the subjects in this study are middle-aged and young, and they are undergoing a transition in family roles, shifting from those of core function bearers to dependent roles. This transition can be particularly challenging for patients to accept. In China, a nation profoundly influenced by Confucian ideology and the promotion of harmonious social relationships, emotional suppression is often regarded as a hallmark of social competence and maturity.[20] Additionally, spouses and other family members frequently refrain from discussing and interacting with patients about disease-related information, thereby avoiding the potential for causing distress. This dynamic can engender a state of emotional isolation and vulnerability for the patient.[21] Consequently, patients often opt to suppress and contain their emotions, thereby shouldering the burden of cancer-related distress alone, with the intention of minimizing the adverse impact on their loved ones.

Previous studies have explored the influencing factors of emotional suppression level of patients from an overall perspective. In the current study, LPA identified three distinct emotional inhibition profiles. Two groups of high-level emotional suppression, Profile 1: high level emotional inhibition-low verbal inhibition group, Profile 2: high-level emotional inhibition-high verbal inhibition group. And one group of low-level emotional suppression, Profile 3: low-level emotional inhibition-medium verbal inhibition group. In this study, Profile 3 is selected as the control group for regression analysis, and the following explanations are made for the results.

Profile 1 was characterized by the highest score on the emotional disguise dimension and the lowest score on the verbal inhibition dimension, accounting for 13.0%. The characteristics of patients in this group are anxiety, high level of education and family dysfunction.

Patients with long-term suppressed emotions have relatively severe symptoms of anxiety and depression, which is consistent with previous studies.[22] Mindfulness-based therapy helps to reduce anxiety and stress during the treatment process by guiding patients to pay attention to their current physical sensations and psychological states,[23] and to reduce uncertainty about the future and emotional suppression.

Patients with a high level of education are easily classified into this group. This can be attributed to the fact that patients with a relatively high cultural level are good at emotional disguise. They disguise themselves with pleasant external manifestations to conceal their true negative emotions, resulting in a relatively high level of emotional suppression.

Family care is a protective factor for emotional suppression in patients undergoing chemotherapy for ovarian cancer, and patients with severe family dysfunction showed higher levels of emotional suppression, which is consistent with

findings related to other cancer types,[9] and can be attributed to the fact that family care can give patients more help and emotional support, and provide a certain environment for the expression of negative emotions and the maintenance of patients' mental health.

Profile 2 was characterized by the highest score on the verbal inhibition dimension, accounting for 46.1%. Regression results show that patients in this category have the following characteristics: recurrence, divorced/widowed, low level of education and social constraints.

Cancer recurrence itself is a huge psychological challenge for patients, which also means that patients need to be hospitalized repeatedly for treatment. This brings care burden and economic pressure to families, making them more prone to negative emotions such as anxiety and depression.[20] For ovarian cancer patients undergoing chemotherapy, their negative emotions will accompany the entire course of the disease. As an adaptive negative defense mechanism, emotional suppression makes patients more inclined to adopt passive endurance or reduce communication when facing the distress of negative emotions way to suppress the expression of this emotion. Therefore, patients have a higher level of emotional suppression.

Patients with limited education levels were readily classified into the Profile 2, aligning with the observations reported by Qin et al.[24] The study conducted a questionnaire survey on 210 hemodialysis patients revealing that patients' education levels influence their disease perception and management capabilities. This hinders their capacity to acquire and process disease-related knowledge, fostering a negative coping mindset that impedes verbal expression.

Divorced/widowed status and social constraints[10] are risk factors for emotional suppression in ovarian cancer patients undergoing chemotherapy. If patients do not have or receive low levels of emotional support from various social or intimate relationships for a long period of time, they also tend to adopt avoidance coping or selective communication[25] to avoid talking about cancer-related thoughts and feelings, and are eventually forced to adaptive indifference, which is not conducive to the catharsis of negative emotions related to cancer and thus leads to the aggravation of their psychological problems and the occurrence of high levels of emotional suppression.

Profile 3 accounted for 40.8%, the overall emotional inhibition of this group of patients was at a lower level, probably due to the fact that most of the patients in this group were first time treatments, were less likely to suffer from the symptoms of chemotherapy related adverse reactions, full of confidence in the treatment outcome. Thus, the patients were more willing to express their thoughts as well as the venting of their emotions.

The above research results suggest that clinical workers should adopt appropriate psychological guidance and health education for this group according to different potential characteristics. They should not only pay attention to the impact of social restrictions on patients' emotional suppression, establish a good relationship with patients by paying attention to their psychological conditions, reduce the social constraints they feel from the medical environment, and encourage and guide patients to actively express their inner painful emotions. They should also pay attention to strengthening the construction of family support systems and reducing patients' emotional suppression behaviors and promoting patients' mental health through family support and intervention and personalized care.

Limitation

There are several limitations to this study. First, the cross-sectional design of the study limits the ability to test causal relationships or to track the development of emotional inhibition traits over time. Conducting longitudinal studies could help to identify predictors of EIS traits and how they change over time. Secondly, all participants were recruited from a gynecology center at a university hospital in the north-western region of China. This led to a lack of sample representativeness. In future research, samples can be collected from hospitals in different regions. In addition, the integration of qualitative research methods can further explore the factors influencing emotional suppression in ovarian cancer patients undergoing chemotherapy.

Conclusion

This study, employing Latent Profile Analysis (LPA), discerned three distinct profiles of the emotional inhibition in ovarian cancer patients during chemotherapy. Findings revealed that Profile 1 was associated with factors such as high educational levels, experiencing anxiety, and severe family dysfunction. For Profile 2, recurrence, divorced or widowed, low educational levels, and social constraint were contributing factors.

Although educational background, marital status, and disease recurrence are non-modifiable factors, gaining insight into these demographic variables can help guide nursing workers to identify patients at a higher risk of emotional inhibition in a timely manner when medical resources are limited. In addition, Tailoring interventions according to these identified profiles can significantly enhance the effectiveness of care, as it allows for addressing the unique needs of each subgroup more precisely.

Abbreviations

LPA, Latent Profile Analysis; EIS, Emotional Inhibition Scale; APGAR, Family APGAR Index.

Data Sharing Statement

The datasets generated and analyzed during the current study are available from the corresponding author (TC) upon reasonable request.

Ethical Approval

This study protocol has been reviewed and unanimously approved by the Medical Ethics Committee of the Affiliated Cancer Hospital of Xinjiang Medical University (approval number: K - 2024214). The review process adhered strictly to the standards set forth in the Helsinki Declaration. Prior to their participation, all study participants provided informed consent.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflicts of interest in this work.

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