

# The Influence of Family Function of Caregivers of Malignant Tumor Patients on Their Positive Aspects of Caregiving

Yonge Gu<sup>1</sup>, Bingbing Hou\*

Sun Yat-sen University Cancer Center, Guangzhou, China

Email: \*guye@sysucc.org.cn

**How to cite this paper:** Gu, Y.E. and Hou, B.B. (2025) The Influence of Family Function of Caregivers of Malignant Tumor Patients on Their Positive Aspects of Caregiving. *Open Journal of Nursing*, 15, 311-326. <https://doi.org/10.4236/ojn.2025.154023>

**Received:** January 27, 2025

**Accepted:** April 25, 2025

**Published:** April 28, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

**Objective:** To understand the status quo of family function of caregivers of malignant tumors and the positive experiences of caregivers of malignant tumors, and to explore the correlation between family function and positive experiences of patients with malignant tumors. To provide reference for the improvement of positive experiences of caregivers of patients with malignant tumors. **Methods:** A cross-sectional study was conducted on the caregivers of malignant tumor patients admitted to Sun Yat-sen University Cancer Center from July to December in 2024. The questionnaire included general information forms for patients and caregivers, and the Chinese version of Family Adaptability and Cohesion Evaluation Scale (FACES II-CV) and the Chinese version of Positive Aspects of Caregiving (PAC) scale. Correlation analysis and regression analysis were performed. **Result:** A total of 80 questionnaires were collected, of which 72 were valid. The results showed significant correlations between family function scores and PAC scores. **Conclusion:** In this survey, we delved into the mechanisms and related factors of the influence of family functions on positive experiences. Our practice is beneficial for rapid screening of sick families which may require precise intervention in clinical applications.

## Keywords

Malignant Tumor, Caregiver, Family Function, Positive Aspects of Caregiving, Nursing

## 1. Introduction

Cancer has emerged as the leading health threat globally, whereas China faces the heaviest burden [1]. Due to the prolonged course and poor prognosis of malignant

tumors, most cancer patients require long-term care. Informal care tasks are mainly undertaken by their families. However, the unexpected role transition from family members to caregivers may result in significant economic, physical, and mental stress for caregivers, with a higher incidence of depression among caregivers than among patients [2]. The initial research on home care focused on evaluating negative factors caused by nursing stress, such as nursing burden. However, Lawton's model [3] points out that both burden and hope coexist in caregiving activities, and caregiving activities themselves can also bring positive experiences to caregivers. The specific representation of positive experience is relatively broad, and the narrow definition of positive experience mainly includes the sense of gain generated by caregivers during the caregiving process due to their own growth, good care for loved ones, and improved relationships with loved ones, as well as the hope, namely the Positive Aspects of Caregiving (PAC) [4]. Research has shown that these PAC help caregivers cope with stress, improve their mental state and quality of life, and ultimately enhance the quality of care for patients [5]. In order to effectively measure PAC, Tarlow developed the PAC scale, which focuses on two dimensions, self-affirmation and outlook on life [4]. Subsequently, the scale was translated into multiple languages and widely used in North America, Europe, and other regions. Given the cultural and social differences between China and the West, the PAC scale has been introduced to China and has undergone multiple revisions, achieving good localization results and better fitting the living conditions and emotional experiences of Chinese caregivers, thereby helping to provide effective care support [6].

As the main support system for family care, good family functioning is of great significance in alleviating the burden of care and enhancing the PAC [7] [8]. Intimacy and adaptability are core factors among family functions. On the one hand, love from family is better than medicine. Through emotional support such as companionship, listening, and encouragement, caregivers can help patients build confidence in treatment, which has a positive effect on cancer prevention. At the same time, caregivers will also gain a sense of value from it, generate positive experiences, and form a positive feedback loop with patients [9]. On the other hand, families with strong adaptability can alleviate long-term stress on caregivers and promote post-traumatic growth by flexibly adjusting role division and coping strategies [10]. The second edition of the "Family Adaptability and Cohesion Evaluation Scale" (FACES-II) evaluates the health level of family functioning in two dimensions (namely, intimacy and adaptability), by comparing the gap between the actual and ideal state of the family. However, due to differences in cultural environments, conceptual expressions may vary. For example, in Chinese families, intimacy may manifest as "interdependence" rather than "active emotional expression" in Western culture. The revised entries of the Chinese version of FACES II (FACES II-CV) are more conducive to filling in these cultural differences [11].

Sociocultural differences are an important factor restricting the application of standard scales [12]. In the context of Chinese culture, filial piety ethics are the

core driving force of family functions. Confucianism emphasizes “filial piety and respect for the elderly”, internalizing the responsibility of taking care of the family as a moral obligation that should be taken for granted [13]. This greatly affects the social life and decision-making of caregivers. It is generally believed that the traditional concept of valuing filial piety is beneficial for caregivers to view the caregiving burden positively, thereby resulting positive experiences. At the same time, traditional collectivist values place greater emphasis on mutual cooperation, which helps alleviate the burden of caregiving. However, in recent years, with the large-scale urbanization in China, the originally settled large families have gradually disintegrated into small families, weakening neighborly and kinship relationships. More than 60% of the households in this study were nuclear families, and over half of the families had only one or fewer people who could share the caregiving burden. This puts caregivers in an isolated and helpless situation, undoubtedly increasing the burden of care. However, some studies argue that even with the miniaturization of family structures, filial piety culture maintains the distribution of caregiving responsibilities through “hierarchical order” (such as seniority) [14]. For example, driven by “emotional bonds”, children are willing to participate in caregiving decisions remotely. Even though, in the traditional Chinese family structure, women bear the main responsibility of taking care of the family, which puts pressure on female caregivers. Overemphasizing sacrifice can also lead to neglect of self-care. Research has shown that cognitive interventions, such as restructuring “sacrifice” into “shared growth”, can significantly reduce caregivers’ risk of depression. [15]. In the research of localizing Family Environment Scale, it was found that Chinese families have low validity in the three subscales of “independence”, “religiosity”, and “emotional expression” [11]. In Chinese families, independence gives way to family intimacy, and there is a general lack of sense of distance among Chinese family members. However, most Chinese people have no religious belief, and their concept of religion is quite different from that of other countries. Chinese people tend to be introverted in their emotional expression. To some extent, these have strengthened the emotional interdependence among Chinese family members.

Due to the late start of home care research in China, most commonly used scales in China are derived from foreign sources. However, in recent years, the demand for localization and standardization of scales has become increasingly strong. Moreover, due to the large population of China, rapid screening of patients and caregivers who may need precise intervention is an urgent problem to be solved. This requires a simplified scale. Consequently, the Family Assessment Device (FAD) which has too many items, is not conducive to clinical application [16]. While, the FACES II-CV is more concise and evaluates through both ideal and realistic aspects, which can more accurately capture the needs of caregivers. In view of the above considerations, this study used the Chinese version of PAC scale and FACES II-CV, supplemented by patient and caregiver personal information forms, to conduct regression analysis on the impact of caregiver’s family function (intimacy and adaptability dimensions) on positive experience (self-affirmation

and life outlook dimensions). Based on the local community home care needs in China, this study provides a reference for rapid screening of patients and caregivers who may require precise intervention.

## 2. Materials and Methods

### 2.1. Participants and Procedure

This study adopts a cross-sectional study design and follows the observational study protocol template of the National Institutes of Health (NIH) in the United States to develop standardized operating procedures. According to the sample size calculation standards in [17], set the effect size  $d$  to 0.5, the occurrence rate of type I errors  $\alpha$  to 0.05, and the occurrence rate of type II errors  $\beta$  to 0.2, and using the software G\*Power 3.1 calculation, a minimum of 64 samples are required. Considering a 20% invalid questionnaire rate, the final sample size is determined to be 80. A convenience sampling method was employed to select approximately 160 caregivers of patients with malignant tumors who were hospitalized in the thoracic surgery, general surgery, gynecology, oncology, and respiratory departments at the Sun Yat-sen University Cancer Prevention and Treatment Center from July to December in 2024.

All participants voluntarily participated in the survey. Patients who are required to participate in the survey should have been diagnosed with malignant tumors for more than one month through clinical, pathological, or cytological methods, have a fixed caregiver, and have been fully informed of the purpose and content of the survey and confirmed to have informed consent before filling out the questionnaire. Caregivers participating in the survey are required to have provided care for at least two weeks, be at least 18 years old, be responsible for the primary care of patients, and be fully informed of the purpose and content of the survey and confirm informed consent before filling out the questionnaire.

In order to alleviate participants' concerns about privacy issues, we will explain clearly that the personal information in the survey questionnaire will be anonymized and guaranteed not to be disclosed. We tried to require patients and caregivers to fill out the questionnaire separately and informed them that they would not know the content and answers of each other. Due to the traditional Chinese cultural background, whether the patient is informed of the cancer condition and their level of knowledge about the disease can also affect the caregiver's psychology or increase their psychological burden [18]. During the process of filling out the questionnaire, we are confident that the staff will not mention any information related to the patient's condition.

For hospitalized patients, the survey is conducted in the afternoon before discharge with eligible nursing staff. For outpatient malignant tumor patients, once it is confirmed that both the patient and their caregivers meet the inclusion criteria, they will be required to fill out a questionnaire. In order to avoid readers' comprehension bias, we have prepared standardized instructions for each question in advance, ensuring comprehensive clarification of any unclear items dis-

covered by the respondents during the process. For example, when using FACES II-CV, Chinese participants generally have misconceptions about concepts such as “intimacy” and “ideal”; Participants from rural areas or with lower levels of education are unable to accurately express their actual situation [16], which requires our staff to be fully familiar with the content of the scale and patiently explain it to the subjects. Collect completed questionnaires on-site within 30 minutes and verify their completeness and validity. For any unanswered items, we provided explanations to the participants and encouraged them to fill in the missing information. The questionnaire is recorded and encoded through a unified processing method to eliminate sensitive information of the respondents, and the collected data is only used for research purposes.

## 2.2. Questionnaire Design

This study mainly analyzes the impact of caregivers’ family functioning on positive experiences. In order to avoid unnecessary research bias caused by personalized self-made scales, this study selected fully validated standard scales, namely the Chinese version of Family Adaptability and Cohesion Evaluation Scale (FACES II-CV) to evaluate caregivers’ family functioning, and the Chinese version of Positive Aspects of Caregiving Scale to evaluate caregivers’ positive experiences. Another advantage of using standard scales is the ease of horizontal comparison with similar literature, which is beneficial for clinical applications. In order to analyze the influencing mechanism more effectively, we investigate some interested influencing factors and classify the population through a general information table.

Therefore, the questionnaire used in this study mainly includes four sub tables:

(1) **Patient General Information Survey:** This section gathers data across 13 categories, including the patient’s gender, age, level of education, occupation, marital status, religious beliefs, usual place of residence, presence of chronic illnesses, treatments received, clinical diagnosis and diagnosis date, cancer stage, current primary treatment strategy, and method of healthcare payment.

(2) **Caregiver General Information Survey:** This section collects information across 16 categories, including the caregiver’s gender, age, level of education, marital status, employment status, educational background, relationship to the patient, presence of chronic illnesses, daily hours of caregiving, number of individuals sharing caregiving responsibilities at home, motivation for caregiving, and family structure.

(3) Chinese version of **Family Adaptability and Cohesion Evaluation Scale (FACES II-CV)** [11]: The FACES II-CV is a self-report instrument designed to assess two primary family functions through its subscales: ① Cohesion, which measures the emotional bonds and support among family members, and ② Adaptability, which evaluates the capacity of family members to adjust and respond to challenges arising from varying family environments and developmental stages. Comprising 30 items, the scale assigns higher scores to indicate stronger

family cohesion and greater adaptability. The scale demonstrates high reliability and validity, with established norms [5].

(4) Chinese version of **Positive Aspects of Caregiving Scale** [6]: Developed by American researcher Tarlow and adapted for use in China by Zhang Rui, this scale assesses the positive experiences of caregivers. It consists of 9 items divided into two dimensions: self-affirmation (items 1 to 5) and life outlook (items 6 to 9). Utilizing a Likert five-point scale from strongly disagree (1) to strongly agree (5), the total score ranges from 9 to 45, with higher scores reflecting better positive experiences.

### 2.3. Data Entry and Statistical Analysis Methods

Data was entered by two operators using Excel software, and a database was established. Statistical analysis of the collected data was performed using SPSS 16.0 software. The statistical methodologies applied were as follows: ① For categorical data, statistical descriptions were conducted using composition ratios, while for continuous data, analyses were performed using mean  $\pm$  standard deviation ( $\bar{x} \pm s$ ). ② When examining the influence of general demographic characteristics of patients and caregivers on the family function and PAC, t-tests or analysis of variance were employed if the data conformed to a normal distribution and exhibited homogeneity of variance. In cases where the data displayed a skewed distribution or heterogeneity of variance, non-parametric rank-sum tests were utilized. ③ Pearson correlation analysis was used to assess the correlation between family function and PAC. ④ Multivariate linear regression analysis was employed to identify factors influencing family function and PAC. The level of significance was set at  $\alpha = 0.05$ , with  $P < 0.05$  considered indicative of statistically significant differences.

## 3. Results

### 3.1. General Information

A total of 80 questionnaires were distributed, and 80 were collected, with 72 valid responses. Among the 72 primary caregivers, there were 30 males, accounting for approximately 41.6%, and 42 females, accounting for approximately 58.4%. The age groups of 25 - 44 and 45 - 64 were predominant, with 33 and 30 cases respectively, representing 45.8% and 41.6%. There were 30 respondents with a bachelor's degree or higher, accounting for 41.6%, and 38 respondents were married, accounting for 52.7%. The relationship to the patient was children in 26 cases, making up 36.1%. A total of 61 respondents, or 84.7%, reported having no religious affiliation. The monthly family income ranged from 5000 to 10,000 yuan for 28 respondents, approximately 38.9%. In terms of the financial burden of medical expenses, 37 respondents, or about 51.4%, felt pressure but could manage it. A total of 53 respondents, or 73.6%, voluntarily assumed caregiving responsibilities. The family structure was a nuclear family for 43 respondents, accounting for 59.7%. The daily caregiving time was 3 to 6 hours for 36 respondents, representing

50.0%, and there was one person sharing caregiving tasks in 31 households, accounting for 43.1%.

### 3.2. PAC Scores for Primary Caregivers

The mean score for PAC among 72 primary caregivers was ( $25.79 \pm 3.54$ ), with the self-affirmation dimension averaging ( $16.00 \pm 3.79$ ), and the life perspective dimension averaging ( $9.79 \pm 4.19$ ). The scale exhibits a Cronbach's  $\alpha$  coefficient of 0.90 and a content validity of 0.95, indicating strong reliability and validity.

And we analysis the PAC scores across different demographic characteristics. According to **Table 1**, there are statistically significant differences ( $P < 0.05$ ) in PAC scores among caregivers based on educational attainment, religious affiliation, family structure, daily caregiving time, and the number of individuals sharing caregiving responsibilities at home.

### 3.3. Family Function Scores for Primary Caregivers

Within the domains of adaptability and intimacy, the scores were ( $49.57 \pm 3.83$ ) for adaptability and ( $66.14 \pm 3.85$ ) for intimacy. And we analysis the correlation between the PAC scores and the family function scores. Pearson correlation analysis was used to examine the relationship among the dimensions of PAC scale and those of FACES II-CV for caregivers of patients with malignant tumors, as shown in **Table 2**. The research results indicate a significant positive correlation between the overall family functioning score and the overall PAC score, as well as their two sub-dimensions. Specifically, the self-affirmation dimension score in PAC scale is significantly positively correlated with the total score of family functioning and its two dimensions. In addition, the overall PAC score is significantly positively correlated with the intimacy dimension score.

**Table 1.** Comparison of PAC scores with different characteristics.

Items	Number of Cases	PAC Score	F or t Statistic	P Value
Gender				
Male	30	$29.73 \pm 8.62$	0.003	0.958
Female	42	$29.83 \pm 7.37$		
Age (Years)				
18~	7	$28.71 \pm 4.03$	0.172	0.915
25~	33	$30.00 \pm 8.42$		
45~	30	$30.03 \pm 8.24$		
65~	2	$26.50 \pm 3.54$		
Level of Education				
Elementary school and below	4	$19.00 \pm 5.83$	2.793	0.015*
Middle school and vocational school	15	$29.60 \pm 7.22$		
High school and junior college	23	$28.22 \pm 4.48$		
Undergraduate and above	30	$27.73 \pm 5.75$		

**Continued**

Occupation				
Farmer	15	28.60 ± 7.84	1.971	0.095
Worker	13	32.85 ± 6.27		
Administrative Cadre	19	31.21 ± 8.39		
Technical Personnel	3	32.67 ± 7.23		
Businessperson	3	19.33 ± 4.16		
Other	19	28.42 ± 7.73		
Marital Status				
Married	38	29.97 ± 8.63	1.457	0.234
Divorced	3	24.00 ± 7.00		
Widowed	6	25.50 ± 4.89		
Single	25	31.24 ± 6.91		
Relationship to the Patient				
Spouse	17	28.88 ± 8.29	1.42	0.245
Offspring	26	28.31 ± 5.58		
Relatives/Friends	22	30.68 ± 8.97		
Others	7	34.71 ± 9.64		
Religious Belief				
Present	11	22.82 ± 7.00	3.833	0.002**
Absent	61	28.69 ± 5.72		
Permanent Residence				
Urban Area	41	29.34 ± 7.75	0.231	0.004
Town	28	27.57 ± 8.32		
Rural Area	3	28.67 ± 6.43		
Living with Patient				
Yes	37	29.16 ± 7.64	0.485	0.488
No	35	30.46 ± 8.14		
Family Monthly Income				
<3000 RMB/Month	5	28.60 ± 9.17	0.515	0.001**
3000 - 5000 RMB/Month	20	29.00 ± 7.86		
5000 - 10000 RMB/Month	28	28.95 ± 6.65		
>10000 RMB/Month	19	30.20 ± 7.50		
Experience pressure with the medical cost?				
No	14	28.43 ± 6.98	0.381	0.025*
Yes, but manageable	37	29.73 ± 8.61		
Yes, and very challenging to manage	21	30.81 ± 7.19		

**Continued**

The motivation for becoming a caregiver				
Providing care for the patient is my responsibility, and I willingly assume this role	53	29.74 ± 7.83	0.019	0.981
There are no other family members available to provide care, so I am the sole person to undertake this responsibility	13	30.15 ± 7.47		
Other	6	29.50 ± 10.25		
Family Structure				
Extended Family	15	31.00 ± 5.30	2.382	0.034*
Nuclear Family	43	26.93 ± 5.84		
Joint Family or Other Types	14	27.00 ± 3.00		
Daily Caregiving Time				
<3 hours	16	30.69 ± 2.89	3.244	0.007**
3 - 6 hours	36	26.33 ± 5.54		
More than 6 hours	20	28.10 ± 6.90		
Number of People Sharing Caregiving				
0 persons	6	29.50 ± 3.87	2.476	0.028*
1 person	31	27.29 ± 6.69		
2 persons	29	27.29 ± 5.69		
More than 2 persons	6	31.17 ± 5.57		

Notice: The \* in the table represents that it has statistically significance ( $P < 0.05$ ).

**Table 2.** Linear regression analysis between PAC scores and the underlying factors.

	B	Standard error	Beta	t	P	VIF	R <sup>2</sup>	Adjusted R <sup>2</sup>	F
Constant	24.989	6.083	-	1.467	0.202	-			
Education Level	0.362	0.689	0.1	0.525	0.603	1.846			
Religious Beliefs	-1.161	1.836	-0.109	-0.632	0.532	1.51			
Family Structure	1.481	1.326	0.199	1.117	0.272	1.604	0.385	0.266	3.24
Daily Caregiving Time	-2.413	1.379	-0.379	-1.75	0.09	2.37			
Number of Caregivers	-0.397	1.416	-0.087	-0.281	0.781	4.809			
FACES overall score	0.123	0.056	0.52	2.199	0.036*	2.819			
Closeness score	0.117	0.058	0.517	2.091	0.044*	3.279			
Adaptability score	0.126	0.037	0.53	2.177	0.038*	2.056			

**Table 3.** Pearson correlation analysis results.

Variable	Intimacy	Adaptability	Family Function Score
Life Outlook	-0.229	-0.206	-0.361*
Self-affirmation	-0.286*	-0.258*	-0.439*
Positive Emotions Score	-0.257*	-0.232	-0.4*

## 4. Discussion

### 4.1. Current State and Characteristics of Family Function

#### 4.1.1. Family Function Scores Are at a Medium-High Level

The adaptability evaluation of family function for primary caregivers is rated as flexible (50.9 - 57.1 points), and the intimacy evaluation is rated as intimate (63.9 - 71.9 points), with an overall evaluation of being balanced. In this study, the family function scores of primary caregivers are generally at a medium-high level.

#### 4.1.2. Factors Influencing the Family Function Scores

According to the results of this study, most caregivers (58.4%) are female, which is consistent with previous research also related to caregivers of malignant tumor patients [19]. In China, traditional cultural beliefs often dictate that caregiving responsibilities fall to family members, particularly female relatives, whereas in other countries, professional institutions predominantly provide caregiving [20]. The onset of cancer in a patient significantly alters family dynamics, requiring caregivers to juggle the demands of work and education alongside caregiving, which may result in inadequate care quality.

Most primary caregivers are based in urban areas, aligning with the study by [21] on the residential patterns of caregivers for children with autism. Urban-based families benefit from diverse information sources, extensive social networks, and greater economic resources, fostering a flexible and supportive family environment. Family members typically offer mutual support and explore various strategies to address challenges.

Regarding family structure, nuclear families constitute 59.7% of the sample. This reflects the family disintegration caused by urbanization in China in recent decades. This simple triangular family structure characterized by parent-child relationships, is the most stable among family types. This simple structure makes parents and children the only reliance on each other, often leading to closer relationships and more effective communication, which explains why some families exhibit strong family functions.

In the survey, 80.5% of caregivers reported feeling pressured by the medical expenses incurred by patients, with 29.1% confessing these costs difficult to manage. The income distribution of caregivers' families is relatively even, with the proportions of low income (<3000), low income (3000 - 5000), medium income (5000 - 10000), and high income (>10000) being 6.9%, 27.8%, 38.9%, and 26%, respectively, with the majority of families having a medium or higher income. One reason for this income distribution may be that sufficient economic capacity may provide patients with confidence in seeking medical treatment, while lower income patient families may choose to avoid it. In the absence of adequate financial resources, the substantial expenses associated with malignant tumor treatments can severely diminish a family's quality of life. The prolonged duration of treatment and the high costs of chemotherapy place a significant economic burden on patients and their families, leading to considerable psychological stress [22]. This

financial and emotional strain may contribute to the low family function scores observed in some households.

## 4.2. Current Status and Characteristics of PAC

### 4.2.1. PAC Scores Need Improvement

This survey reported that the PAC overall score for caregivers of malignant tumor patients was  $(25.79 \pm 3.54)$ . The PAC overall score ranges from 9 to 45, with the average score ( $=27$ ) serving as a benchmark. This indicates that the PAC overall scores among caregivers in this study is relatively low to moderate. This observation is consistent with [21] study on the positive experience of caregiver of children with autism. The underlying reason might be the unfavorable prognosis associated with both autism and malignant tumors.

### 4.2.2. Factors Influencing PAC Scores

The survey indicates that several factors significantly influence the PAC scores: educational attainment, religious beliefs, monthly per capita family income, family structure, daily caregiving duration, and the number of individuals sharing caregiving responsibilities. These findings are consistent with the study by [8], which examined factors affecting positive experience among primary caregivers of cancer patients.

The data reveal a correlation between higher educational attainment and higher PAC scores. Caregivers with higher educational backgrounds exhibit significantly higher PAC scores compared to those with only primary education or less. This suggests that caregivers with advanced education are better equipped to manage family normalization and participate effectively in caregiving. This may be attributed to their ability to access information about diseases and caregiving through literature and online resources, thus enhancing their confidence and reducing unnecessary anxiety during caregiving [23]. Furthermore, Fang Biyu *et al.* [24] propose that individuals with higher educational levels often enjoy higher social and economic status, and increased income can alleviate the family's economic burden while enhancing the quality of life for both individuals and families.

Surprisingly, in this study, caregivers with religious beliefs exhibited significantly lower PAC scores compared to those without religious beliefs, implying that religious beliefs would be a negative factor affecting caregivers' positive experiences. This is contrary to the research results of [21]. This may be related to the cultural environment in China. Coincidentally, in the study of localizing the family environment scale in [11], it was found that the reliability and validity of Chinese families in the three subscales of "independence", "religiosity" and "emotional expression" were very low, which proved that the measurement of religiosity might not be suitable for Chinese people. According to our survey statistics, most caregivers (84.7%) in China have no religious belief. The emotional adjustment function that might have been assumed by religious belief is actually assumed by family functioning. One evidence is that Chinese families generally score high on family function. Some caregivers may find it difficult to obtain suf-

ficient psychological comfort from their families and have to seek solace from religion and become believers. However, the sense of redemption created by religious beliefs comes at a cost. For example, some religions advocate that all sentient beings are guilty and require believers to seek inner peace through redemption. Cancer in family members may cause unnecessary guilt for believers, which increases their psychological burden. In addition, due to the minority of believers in China, the sense of difference from the neighboring society may be another reason for the lower positive experience of caregivers who are believers, which lead to loneliness and self-doubt. The reason why it contradicts with the research of [21] may be that [21] targets at autism. And due to the fact that autism does not cause as much harm to the family as cancer, and through mutual companionship among family members, intimacy can greatly alleviate the psychological burden of caregivers. In that case, religious beliefs can play a certain role in psychological support, thus manifesting as positive factors.

Family monthly income levels also play a crucial role in PAC scores. The extended treatment duration for cancer imposes a significant economic burden on families, compounded by the relatively low reimbursement rates of medical insurance in our country, leading to a sense of helplessness among patients [25]. This study's findings indicate a positive correlation between family income and PAC scores, aligning with the research of [26]. Higher family income allows for the maintenance of daily activities and expenses, fulfills the needs of other family members, and enables the pursuit of financial assistance and emotional support from friends and relatives [25].

Regarding family structure, stem families exhibit higher PAC scores compared to nuclear and joint families. Families serve as the fundamental units of society, grounded in marriage and blood relations [27]. Stem families, characterized by a structure centered around parents and associated with the primogeniture system under feudal patriarchy, foster intergenerational empathy, strengthen emotional bonds across generations, and facilitate elder care, childcare, and household management. These attributes may contribute to higher PAC scores evaluations among caregivers in stem family settings.

The time spent on daily care for patients significantly influences the PAC scores. It is evident that caregivers who spend less than three hours a day on caregiving report higher PAC scores. Prolonged and heavy daily caregiving duties can lead to a range of psychosocial issues for caregivers, ultimately diminishing their caregiving ability and the quality of care provided [28]. Additionally, caregivers who share caregiving responsibilities with more than two people exhibit higher PAC scores, a finding that is statistically significant and aligns with the research results of [29]. Shorter caregiving durations allow caregivers more capacity to manage their own work, social, and life burdens. However, shorter caregiving times also make it more challenging to ensure the quality of care provided to patients, which is related to the excessive caregiving burden on caregivers. For families requiring long-term bedside care, healthcare providers should reasonably schedule caregiv-

ing times, employing a multi-person rotation system where multiple family members collaboratively care for the patient. This approach includes timely rotation for rest to ensure that primary caregivers have adequate rest, alleviating their caregiving pressure and reducing anxiety [9].

### 4.3. Influence of Family Function on PAC scores

According to the linear regression results, after controlling for general demographic data, the total score of family function assessed by FACES II-CV can independently account for 26.6% of the variance in PAC scores. Intimacy and adaptability significantly influence PAC scores and are included in the regression model. These findings highlight that the family function of primary caregivers for malignant tumor patients is a significant determinant of their positive experiences. Pearson correlation analysis (see **Table 3**) reveals that most dimensions of family function among these caregivers are positively correlated with dimensions of PAC, suggesting that better family function corresponds to higher PAC scores. This implies that, within a certain scope, improved family intimacy and adaptability are associated with higher PAC scores among caregivers. The fundamental role of the family is to provide conditions conducive to the physiological, psychological, and social development of its members. Families play an irreplaceable role in mitigating psychological stress and conflicts among members, and robust family function can significantly alleviate internal conflicts induced by life stress [30]. Therefore, enhancing the family function of primary caregivers for malignant tumor patients is crucial. The lengthy treatment duration and high costs of chemotherapy impose a substantial economic burden and psychological stress on patients and their families. As caregivers who support patients in their battle against cancer, their physical and mental health are also challenged, and family support serves as their primary source of resilience. Adequate family support correlates with higher PAC scores among caregivers. Consequently, healthcare professionals should focus on family-centered initiatives for education and health promotion. These could include educating families on specialized knowledge of malignant tumors or providing psychological support, guiding family members to live harmoniously and collaboratively solve problems, ultimately aiming to enhance caregivers' positive experiences.

## 5. Conclusion

Enhancing the positive experiences of primary caregivers for patients with malignant tumors can significantly improve their caregiving abilities, ultimately leading to a better quality of life for both caregivers and patients. The findings of this study indicate that the family functioning of caregivers plays a crucial role in augmenting their positive experiences. An in-depth study on the impact mechanism and related factors of family functioning on caregivers' positive experiences was conducted. The results are horizontally compared with existing literature and a detailed analysis of consistent conclusions and possible differences was conducted.

Our contribution lies more in exploring clinical practice. The use of universal scales is conducive to standardization. And the Chinese version of PAC scale and FACES II-CV are relatively concise, which allows us to control the questionnaire filling time within 30 minutes. This is beneficial for families of patients who may require precise intervention for rapid screening in clinical applications of oncology. In fact, caregivers often do not realize that they may be the “invisible patients”. Therefore, while treating patients, it is also necessary to evaluate the caregiver’s positive experience and family functioning. By combining cross hospital medical record systems and community service systems, we can also observe the medium- to long-term evolution of caregivers’ positive experiences and family functions, thereby more effectively determining the timing of implementing precise interventions. In this survey, FACES II-CV was able to effectively evaluate the intimacy and adaptability of families, thereby identifying pathological families that may have functional disorders. However, insufficient coverage of family interaction can easily underestimate the complexity of family functions. If research needs to supplement interactive details, we prefer the Communication Patterns Questionnaire-Short Form (CPQ-SF). In addition, in this survey, we did not classify the cancer staging of patients. However, the burden on patients and their families varies significantly at different stages of cancer. It is necessary to conduct a more detailed investigation in the future.

### Conflicts of Interest

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

### References

- [1] Bray, F., Laversanne, M., Sung, H., Ferlay, J., Siegel, R.L., Soerjomataram, I., *et al.* (2024) Global Cancer Statistics 2022: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, **74**, 229-263. <https://doi.org/10.3322/caac.21834>
- [2] Schene, A.H., Tessler, R.C. and Gamache, G.M. (1994) Instruments Measuring Family or Caregiver Burden in Severe Mental Illness. *Social Psychiatry and Psychiatric Epidemiology*, **29**, 228-240. <https://doi.org/10.1007/bf00796381>
- [3] Lawton, M.P., Kleban, M.H., Moss, M., Rovine, M. and Glicksman, A. (1989) Measuring Caregiving Appraisal. *Journal of Gerontology*, **44**, P61-P71. <https://doi.org/10.1093/geronj/44.3.p61>
- [4] Tarlow, B.J., Wisniewski, S.R., Belle, S.H., Rubert, M., Ory, M.G. and Gallagher-Thompson, D. (2004) Positive Aspects of Caregiving: Contributions of the REACH Project to the Development of New Measures for Alzheimer’s Caregiving. *Research on Aging*, **26**, 429-453. <https://doi.org/10.1177/0164027504264493>
- [5] Ericson, I., Hellström, I., Lundh, U. and Nolan, M. (2001) What Constitutes Good Care for People with Dementia? *British Journal of Nursing*, **10**, 710-714. <https://doi.org/10.12968/bjon.2001.10.11.10430>
- [6] Zhang, R. and Li, Z. (2007) Reliability and Validity of Chinese Version of Positive Aspects of Caregiving. *Chinese Journal of Nursing*, **42**, 1068-1071.

- [7] Liang, H. (2023) The Relationship among Positive Feelings, Family Function and Coping Styles of Caregivers in Patients with Brain Tumor. Master Thesis, China Medical University.
- [8] Chen, S., Liu, W. and Liu, Y. (2017) Analysis of the Positive Perception Status and Influencing Factors of Cancer Patients' Main Caregivers. *Journal of Nursing*, **24**, 55-58.
- [9] Utne, I., Miaskowski, C., Paul, S.M. and Rustøen, T. (2013) Association between Hope and Burden Reported by Family Caregivers of Patients with Advanced Cancer. *Supportive Care in Cancer*, **21**, 2527-2535. <https://doi.org/10.1007/s00520-013-1824-5>
- [10] Guité-Verret, A. and Vachon, M. (2025) In Search of a Habitable World: The Long Journey of Women Who Survived Breast Cancer. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*. <https://doi.org/10.1177/13634593251319919>
- [11] Fei, L., Shen, Q., Zheng, Y., et al. (1991) Preliminary Evaluation of Chinese Version of FACES II and FES: Comparison of Normal Families and Families of Schizophrenic Patients. *Chinese Mental Health Journal*, **5**, 198-202.
- [12] Yu, D.S.F., Cheng, S. and Wang, J. (2018) Unravelling Positive Aspects of Caregiving in Dementia: An Integrative Review of Research Literature. *International Journal of Nursing Studies*, **79**, 1-26. <https://doi.org/10.1016/j.ijnurstu.2017.10.008>
- [13] Yuan, Q., Zhang, Y., Samari, E., Jeyagurunathan, A., Goveas, R., Ng, L.L., et al. (2023) Positive Aspects of Caregiving among Informal Caregivers of Persons with Dementia in the Asian Context: A Qualitative Study. *BMC Geriatrics*, **23**, Article No. 51. <https://doi.org/10.1186/s12877-023-03767-8>
- [14] Zhang, J. (2024) The Inheritance and Development of Filial Piety Culture in the Chinese Elderly Care Model. *Journal of Southeast University (Philosophy and Social Science)*, **26**, 113-123.
- [15] Cui, P., Yang, M., Hu, H., Cheng, C., Chen, X., Shi, J., et al. (2024) The Impact of Caregiver Burden on Quality of Life in Family Caregivers of Patients with Advanced Cancer: A Moderated Mediation Analysis of the Role of Psychological Distress and Family Resilience. *BMC Public Health*, **24**, Article No. 817. <https://doi.org/10.1186/s12889-024-18321-3>
- [16] Luan, F. and Du, Y. (2016) The Current Application Status of the Family Function Assessment Scale. *Chinese Journal of Child Health Care*, **24**, 1287-1289.
- [17] Cohen, J. (1992) Statistical Power Analysis. *Current Directions in Psychological Science*, **1**, 98-101. <https://doi.org/10.1111/1467-8721.ep10768783>
- [18] Li, Q. and Loke, A.Y. (2012) Research Status of Family Caregivers for Cancer Patients. *Chinese Journal of Nursing*, **47**, 1132-1135.
- [19] Liu, X., Wu, R., Li, J., et al. (2012) The Reactions and Its Influencing Factors of Primary Caregivers of Liver Cancer Patients. *Chinese Journal of Nursing*, **47**, 539-542
- [20] Afuwape, O.O., Irabor, D.O., Ladipo, J.K. and Ayandipo, B. (2011) A Review of the Current Profile of Gastric Cancer Presentation in the University College Hospital Ibadan, a Tertiary Health Care Institution in the Tropics. *Journal of Gastrointestinal Cancer*, **43**, 177-180. <https://doi.org/10.1007/s12029-011-9259-z>
- [21] Zhou, C., Wu, H., Li, Y., et al. (2015) The Analysis of the Relationship between Positive Feelings and Family Function and the Related Factors in Caregivers of Children with Autism. *Chinese Journal of Nursing*, **50**, 1479-1484.
- [22] Miao, P., Liu, G. and Wu, S. (2019) Analysis of the Causes of Psychological Imbalance in Patients with Malignant Tumors Undergoing Chemotherapy and Nursing Strategies. *Capital Medicine*, No. 8, 119.

- [23] Liu, J., Zou, Z. and Du, L. (2012) Investigation on the Anxiety and Depression of Children's Primary Caretakers in Class "AAA" Hospital and Influencing Factors. *Chinese Journal of Modern Nursing*, **18**, 4249-4252.
- [24] Fang, B. and Guo, J. (2013) Study on Burden of Main Caregivers of Hospitalized Patients with Femoral Neck Fracture and Its Influencing Factors. *Chinese Nursing Research*, **27**, 1071-1073.
- [25] Xu, C., Cui, X. and Zhang, C. (2018) Analysis of Family Status Quo and Influencing Factors of Hospitalized Patients with Liver Cancer. *Chinese Nursing Research*, **32**, 3375-3379.
- [26] Zhang, T., Lin, Z., Zhang, X., *et al.* (2016) Analysis of Influencing Factors on Hospitalization Expenses of Liver Cancer Patients in a Hospital from 2006 to 2013. *Medical Higher Vocational Education and Modern Nursing*, **33**, 123-126.
- [27] Li, Y. (2009) The Impact of Three Types of Family Structures on Health. *Medicine and Society*, **22**, 48-49, 67.
- [28] Clark, M.M., Atherton, P.J., Lapid, M.I., Rausch, S.M., Frost, M.H., Cheville, A.L., *et al.* (2013) Caregivers of Patients with Cancer Fatigue: A High Level of Symptom Burden. *American Journal of Hospice and Palliative Medicine*, **31**, 121-125.  
<https://doi.org/10.1177/1049909113479153>
- [29] Kim, Y., Baker, F., Spillers, R.L. and Wellisch, D.K. (2006) Psychological Adjustment of Cancer Caregivers with Multiple Roles. *Psycho-Oncology*, **15**, 795-804.  
<https://doi.org/10.1002/pon.1013>
- [30] Wang, X. (2010) The Impact of Group Psychotherapy on Family Intimacy and Adaptability in Patients with Depression. Master Thesis, Shanxi Medical University.