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Financial Toxicity in Greek Cancer Patients: Social Determinants of Health and Clinical Factors

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Οικονομική Τοξικότητα σε Έλληνες Ασθενείς με Καρκίνο: Κοινωνικοί Προσδιοριστές Υγείας και Κλινικοί Παράγοντες

Abstract at the end of the article

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Introduction: Cancer imposes patients and their families to substantial financial strain, known as financial toxicity, encompassing both treatment costs and related emotional distress. Despite Greece's public healthcare system, indirect expenses and weakened social support following the economic crisis and COVID-19 pandemic have heightened patients' vulnerability. While global awareness of financial toxicity is increasing, research within the Greek oncology settings remains limited.

Aim: The aim of this study was to examine the relationship between financial toxicity and both clinical and social determinants of health among patients undergoing cancer treatment in Greece.

Method: A multicenter cross-sectional study was conducted from April 2023 to April 2024 in four tertiary hospitals in Greece, involving patients with solid tumors. Financial toxicity was assessed using the validated Greek version of the COmprehensive Score for Financial Toxicity (FACIT-COST). The analysis was performed using SPSS v.27 software, and the statistical significance level was set at $p \leq 0.050$.

Results: The study included 400 patients (49.3% male, mean age of 61.7 years, SD=12.5). The mean financial toxicity score was 20.83 (SD=7.90). Financial toxicity did not significantly differ by cancer type or metastatic status but was significantly lower among patients with stage I disease ($p=0.037$) and those reporting better self-perceived health ($p=0.005$). Longer duration of immunotherapy was weakly but significantly associated with reduced toxicity ($rho=0.17$, $p=0.043$). In multivariate analysis, higher education ($\beta=0.033$, $p<0.001$) and better health status ($\beta=0.038$, $p=0.027$) were significantly associated with less toxicity, while greater activity limitations associated with higher financial toxicity ($p<0.001$).

Conclusion: This study demonstrates that financial toxicity is a multidi-

mensional phenomenon influenced by both clinical and socioeconomic factors, particularly education and perceived health status. Integrating financial screening and support into oncology care can help mitigate financial distress and improve patients' overall quality of life.

Keywords: *financial toxicity, cancer, social determinants of health, socioeconomic factors nursing*

Introduction

A cancer diagnosis often marks the beginning of a complex and multifaceted trajectory, extending well beyond the physical, emotional and psychological manifestations of the disease to encompass profound financial challenges. One of the most pressing of these challenges is financial toxicity (FT), a term that refers to the "problems a patient has related to the cost of medical care", it captures the economic burden cancer treatments can cause to patients and their families, and includes both the objective burden, such as high out-of-pocket expenses, medical debt, or loss of income, and the subjective distress patients experience when trying to cope with this financial pressure[1,2].

In the context of rising global healthcare costs, patients are increasingly faced with difficult decisions, including delaying or forgoing treatment, skipping prescribed medications, or sacrificing fundamental needs such as adequate nutrition, housing, or transportation[1,3]. Even in countries with publicly funded healthcare systems like in the case of Greece, indirect expenses related to transportation, informal caregiving, and lost workdays can rapidly escalate. These burdens disproportionately affect individuals who are already economically vulnerable, thereby amplifying both the physical and psychosocial impacts of the disease and pressuring patients and their households. For individuals already facing financial difficulties, a cancer diagnosis not only jeopardizes their health but also threatens their financial stability and personal dignity[4].

In Greece, the national public health system has faced ongoing economic strains following the 2009 economic crisis and later the COVID-19 pandemic in 2020[5,6]. These crises have contributed to inadequate insurance coverage and weakened social support mechanisms, and along with persistently high levels of unemployment exacerbated patients' risk of experiencing financial toxicity [2,3,6]. In 2018, the estimated per capita financial burden of cancer in Greece was €188, primarily attributed to hospital expenditures [7], while in 2021, Greece's out-of-pocket medical charges constituted 33% of healthcare costs, compared to the European Union average of 18%[4]. Despite the provision of free healthcare services in Greece, including cancer treatment, several individuals utilizing the national public health system are suffering due to excessive out-of-pocket expenses. As a result, individuals experience financial stress, compromising their general well-being.[2].

Financial toxicity is not an isolated phenomenon; rather, it is influenced and exacerbated by overarching cultural, societal and structural factors. Social determinants of health (SDoH), defined as "the conditions in which people are born, grow, live, work and age, and people's access to power, money, and resources," can influence health outcomes [8]. In the context of cancer care, social determinants such as income, education, employment status, housing conditions, and access to social support systems critically shape individuals' exposure to financial toxicity[9,10].

Despite increasing international awareness, there is a gap in research examining the prevalence and implications of financial toxicity within the Greek oncology landscape.

Aim

The aim of this study was to examine the relationship between financial toxicity and both clinical and social determinants of health among patients undergoing cancer treatment in Greece.

Participants and Methodology

This was a multicenter cross-sectional study in which participants were recruited during their treatment from Oncology Day Units at "Theageneio" Anticancer Hospital of Thessaloniki, General Oncology Hospital of Kifisia "Agioi Anargiroi", Athens General Hospital of Thoracic Diseases "Sotiria", and General Hospital of Athens "Ippokrateio" from April 2023 to April 2024. To qualify for

recruitment, patients should be a minimum of 18 years old, possess fluency in both spoken and written Greek, be patients diagnosed with solid tumors, have had therapy for at least 4 weeks prior to the study, and be capable of providing informed consent. The exclusion criteria comprised individuals with hematological malignancies and those with cognitive or behavioral disabilities that might hinder their ability to complete the questionnaires. We asked 538 patients to participate in the study, and 400 of them returned the questionnaires. All the questionnaires were completed anonymously, and the participants were asked for and completed written informed consent.

Measurements

Sociodemographic and Clinical Factors

A questionnaire was utilized to gather sociodemographic and clinical variables, including age, educational background, family status, financial circumstances, parental status and number of children, place of residence, cancer type, cancer stage, metastasis, type(s) of treatment and functional limitation due to health.

Financial Toxicity

To assess financial toxicity, the study employed the validated Greek version of the COmprehensive Score for Financial Toxicity (COST), part of the FACIT measurement system. A license agreement was obtained from "Functional Assessment of Chronic Illness Therapy" (FACIT.org). This is a self-administered questionnaire specifically designed to capture the financial burden experienced by oncology patients. It comprises 11 items rated on a 5-point Likert scale ranging from 0 ("not at all") to 4 ("very much"). The total score is calculated by summing the responses, multiplying the result by 11, and dividing by the number of items completed. Items 2, 3, 4, 5, 8, 9, and 10 are reverse-scored. Higher scores indicate better financial well-being. The Comprehensive Score for Financial Toxicity (COST) instrument has demonstrated reliability in both its original [11] and Greek-validated forms [12].

Statistical analysis

The Kolmogorov-Smirnov test was used for checking the normality distribution of the quantitative variables. Quantitative variables were expressed as mean values (Standard Deviation) and as median (interquartile range), while categorical variables were expressed as absolute and relative frequencies. The association between the Financial Toxicity scale and participants' characteristics was examined via the Mann-Whitney test, the Kruskal-Wallis test or Spearman correlation coefficients (rho). The coefficient is considered very high when it is above 0.9, high when it is 0.7-0.9, moderate when it is 0.5-0.7, low when it is 0.3-0.5 and very low when it is below 0.3 [13] . Multiple linear regression analysis in a stepwise method (p for entry 0.05, p for removal 0.10), with the Financial Toxicity scale as the dependent variable was conducted. The regression equation included terms for patients' demographical and clinical characteristics and adjusted regression coefficients (β) with standard errors (SE) emerged from this analysis. Logarithmic transformation of the Financial Toxicity scale was used for the regression analyses. All reported p-values are two-tailed. Statistical significance was set at $p<0.05$ and analyses were conducted using SPSS statistical software (version 27.0).

Ethics statement

The study was conducted in full accordance with the code of human rights and the principles of deontology for research in human beings and animals, as they are clearly edited by the International Committee of Medical Journal Editors, (www.icmje.org) and the Declaration of Helsinki and was approved by the Ethics Research Committee of the University of Peloponnese (2251/03.02.2023), and the Ethics Research Committees of the following hospitals: "Theageneio" Anticancer Hospital of Thessaloniki (4/24.05.2023), General Oncology Hospital of Kifisia "Agioi Anargiroi" (285/03.04.2023), Athens General Hospital of Thoracic Diseases "Sotiria" (6336/10.03.2023), and General Hospital of Athens "Ippokrateio" (6243/29.03.2023). The study was conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Results

Sociodemographic and Clinical Characteristics

The study sample consisted of 400 patients, of whom 49.3% were male, with a mean age of 61.7 years (SD = 12.5). The study response rate was 74.3%. Demographic characteristics are presented in **Table 1**. 30.5% of the participants were high school graduates, and 38.8% were retired. The majority were married (60%), identified as heterosexual (88.5%), and had children (79.3%). Most participants resided in urban areas (74.8%), and nearly all (99.5%) received care in public hospitals, with

Table 1. Sample's demographical characteristics		
n=400		n (%)
Gender	Males	197 (49.3)
	Females	203 (50.8)
Age, mean (SD)		61.7 (12.5)
Educational level	Primary school	71 (17.8)
	Middle school	46 (11.5)
	High school	122 (30.5)
	Technical university	46 (11.5)
	University	73 (18.3)
	MSc	33 (8.3)
	PhD	9 (2.3)
Employment status	Public sector employee	52 (13)
	Private sector employee	77 (19.3)
	Freelancer	45 (11.3)
	Student	3 (0.8)
	Unemployed	68 (17)
	Pensioners	155 (38.8)
Family status	Unmarried	54 (13.5)
	Married	240 (60)
	Civil partnership	6 (1.5)
	Divorced	48 (12)
	Separated	6 (1.5)
	Widowed	46 (11.5)
Sexual orientation	Heterosexual	354 (88.5)
	Homosexual	15 (3.8)
	Bisexual	8 (2)
	Prefer not to say	23 (5.8)
Children		317 (79.3)
If yes, number of children	1	78 (24.6)
	2	168 (53)
	3	55 (17.4)
	4	12 (3.8)
	5	4 (1.3)
Satisfacton from economical status	Not at all	62 (15.7)
	A little	52 (13.2)
	Moderately	202 (51.1)
	Much	67 (17)
	Very much	12 (3)
Place of residence	Urban	299 (74.8)
	Rural	84 (21)
	Island	17 (4.3)
Hospital	Public	398 (99.5)
	Private	2 (0.5)
Private insurance		17 (4.3)

Table 2. Sample's clinical characteristics		
		n (%)
Type of cancer	Gastrointestinal Cancers	92 (23.0)
	Head &Neck Cancers	7 (1.8)
	Sarcomas	19 (4.8)
	Gynecological Cancers	22 (5.5)
	Lung Cancer	110 (27.5)
	Breast cancer	89 (22.3)
	Bladder cancer	20 (5.0)
	Pancreatic cancer	29 (7.3)
	Other	12 (3.0)
Metastatic		182 (45.5)
Disease stage	I	30 (7.5)
	II	95 (23.8)
	III	94 (23.5)
	IV	181 (45.3)
Time since diagnosis (months), median (IQR)		12 (6 — 30)
Surgery		240 (60.0)
If yes, how many months ago?, median (IQR)		16 (5 — 35.5)
Chemotherapy		399 (99.8)
If yes, for how many months?, median (IQR)		8 (4 — 20)
Radiotherapy		92 (23.0)
If yes, for how many months?, median (IQR)		1 (1 — 1)
If yes, how many, median (IQR)		30 (25 — 30)
Immunotherapy		139 (34.8)
If yes, for how many months?, median (IQR)		7.5 (3 — 18)
How would you describe your health?	Very poor	18 (4.5)
	Poor	29 (7.3)
	Moderate	145 (36.3)
	Good	149 (37.3)
	Very good	59 (14.8)
During the past 6 months or more, have you limited any of your activities or had difficulty accomplish them because of your health condition?	No, not at all	84 (21.0)
	Yes, but not too much	128 (32.0)
	Yes, too much	188 (47.0)

only 0.5% receiving simultaneous care in private healthcare settings. Private health insurance coverage was reported by 4.3% of participants.

Clinical characteristics are detailed in **Table 2**. Lung cancer was the most commonly reported diagnosis (27.5%), followed by gastrointestinal (23.0%) and breast cancer (22.3%). Nearly half (45.5%) of the patients had metastatic disease, and 45.3% were classified as stage IV. The median time since diagnosis was 12 months (interquartile range [IQR]: 6–30 months). Regarding treatment, 60.0% of the participants had undergone surgery, 99.8% had received chemotherapy, 23.0% radiotherapy, and 34.8% immunotherapy. In terms of self-reported health status, 52.1% described their health as good or very good, while 21.0% reported that they "had not limited any of their activities or had difficulty accomplish

Table 3. Patients' financial toxicity score and its association with their clinical characteristics

		Financial Toxicity Score (COST)		P
		Mean (SD)	Median (IQR)	
Total sample		20.83 (7.90)	20 (15-27)	-
Type of cancer	Gastrointestinal Cancers	20.53 (7.71)	21 (16-26)	0.682++
	Head &Neck Cancers	21.14 (9.63)	17 (13-30)	
	Sarcomas	21.79 (6.72)	22 (18-26)	
	Gynecological Cancers	19.59 (6.16)	18 (16-22)	
	Lung Cancer	20.36 (8.45)	20 (13-27)	
	Breast cancer	20.53 (8.06)	19 (14-26)	
	Bladder cancer	22.8 (7.64)	22.5 (17-28)	
	Pancreatic cancer	22.5 (7.81)	21.5 (16-30.5)	
	Other	23.08 (7.8)	23 (16-30)	
Metastatic	No	21.15 (8.16)	21 (15-27)	0.426+
	Yes	20.46 (7.58)	20 (15-27)	
Disease stage	I	23.33 (7.54)	21.5 (16-30)	**0.037++**
	II	19.45 (8.83)	19 (12-26)	
	III	22.12 (7.18)	21 (17-27)	
	IV	20.48 (7.66)	20 (15-27)	
Surgery	No	20.9 (7.79)	20 (15-27)	0.982+
	Yes	20.79 (7.98)	20 (15-27)	
Radiotherapy	No	20.93 (7.88)	21 (15-27)	0.517+
	Yes	20.49 (8.00)	19 (14-27)	
Immunotherapy	No	20.86 (7.87)	21 (15-26)	0.754+
	Yes	20.78 (7.97)	19 (14-27)	
How would you describe your health?	Very poor	15.22 (9.86)	11.5 (7-24)	**0.005++**
	Poor	19.45 (7.05)	20 (15-26)	
	Moderate	20.06 (7.14)	20 (15-25.5)	
	Good	22.38 (7.97)	22 (16-28)	
	Very good	21.21 (8.31)	20.5 (15-28)	
During the past 6 months or more, have you limited any of your activities or had difficulty doing them because of your health condition?	No, not at all	22.93 (8.27)	21.5 (17.5-29.5)	**<0.001++**
	Yes, but not too much	22.35 (7.34)	22 (17-28)	
	Yes, too much	18.86 (7.65)	18 (13-25)	
		rho		**P**
Time since diagnosis (months)		0.04		0.475
Time from surgery (months)		-0.04		0.499
Chemotherapy duration (months)		0.03		0.534
Radiotherapy duration (months)		0.01		0.219
Radiotherapy sessions		0.14		0.193
Immunotherapy duration (months)		0.17		**0.043**

Note: +Mann-Whitney test; ++Kruskal-Wallis test; rho: Spearman's correlation coefficient

Table 4. Multiple linear regression analysis results with financial toxicity score as dependent variable			
	β+	SE++	P
Educational level[1]	0.033	0.005	<0.001
How would you describe your health? [2]	0.038	0.017	0.027
During the past 6 months or more, have you limited any of your activities or had difficulty doing them because of your health condition?			
No, not at all vs Yes, too much	0.086	0.022	<0.001
Yes, but not too much vs Yes, too much	0.071	0.019	<0.001

Note:. Analysis was conducted after logarithmically transforming the dependent variable
[+]regression coefficient (Standard Error) [1]higher values indicate greater educational level; [2]higher values indicate better health

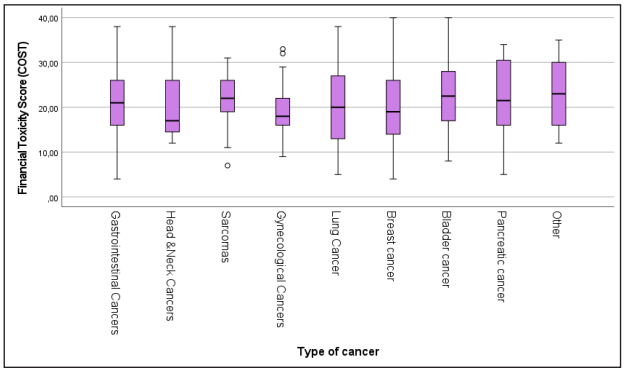

Figure 1. *Financial toxicity score by type of cancer*

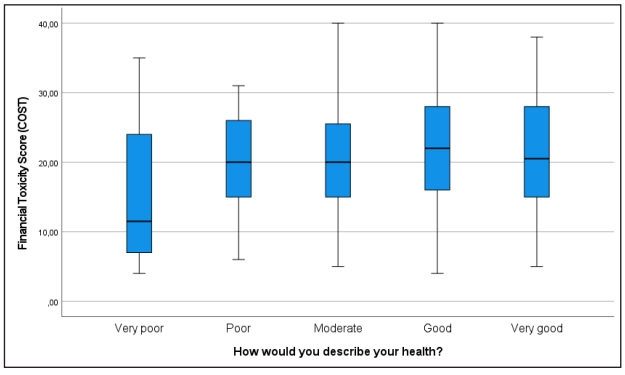

Figure 2. *Financial toxicity score by participants' health*

them because of their health condition".

Associations Between Financial Toxicity and Clinical Characteristics

The mean financial toxicity score was 20.83 (SD=7.90) **(Table 3)**. Associations between financial toxicity and participants' clinical characteristics are summarized in Table 3. Financial toxicity scores did not significantly differ across cancer types (p>0.05; **Figure 1**), nor between patients with metastatic versus non-metastatic disease (p > 0.05).

However, a statistically significant difference was observed across cancer stages (p=0.037), with patients at stage I reporting higher scores, indicative of lower financial toxicity. No significant associations were found between financial toxicity and receipt of specific therapeutic modalities (surgery, chemotherapy, radiotherapy, or immunotherapy). Nonetheless, longer duration of immunotherapy was weakly but significantly associated with reduced financial toxicity (rho=0.17, p=0.043). Moreover, better self-reported health status was significantly associated with lower financial toxicity (p=0.005; **Figure 2**). Patients who reported limitations in their daily activities due to their health condition exhibited significantly lower scores, reflecting greater financial toxicity (p<0.001).

Multivariate Analysis of Predictors of Financial Toxicity

After multiple linear regression, it was found that

financial toxicity score was significantly associated with patients' educational level, their health condition and having limited any of their activities due to their health condition (**Table 4**). More specifically, greater educational level (β=0.033; p<0.001) and better health (β=0.038; p=0.027) were significantly associated with less toxicity. Moreover, patients who either did not limit their activities or limited them moderately experienced significantly less toxicity compared to those who limited them excessively.

Discussion

The present study investigated financial toxicity (FT) among cancer patients and explored its association with sociodemographic and clinical characteristics. The mean financial toxicity score of 20.83 (SD=7.90) indicates a moderate to high level of financial distress, consistent with recent global findings showing that financial hardship remains a pervasive issue across cancer populations, irrespective of national income status or healthcare model[3,14,15].

Our results demonstrated that FT did not significantly vary across cancer types or metastatic status. This aligns with evidence from low- and middle-income countries (LMICs),–where cancer-related financial toxicity equally impacts patients regardless of clinical subgroup[15]. A recent systematic review and meta-analysis indicated that financial toxicity is widespread among various diagnostic groups, suggesting that systemic and structural factors, such as coverage gaps, income inequality, and treatment duration, may outweigh disease-specific variables [15]. Similarly, in an Indian palliative care sample, 92.6% of patients encountered significant financial toxicity regardless of cancer type, reinforcing the notion that FT transcends tumor biology and highlights systemic health disparities [16]. However, the disease stage was significantly associated with FT in our sample, with patients in the earlier stages reporting lower toxicity. This finding could be attributed to shorter treatment durations for disease at an earlier stage, similar to findings from other studies [17]. Advanced disease typically entails prolonged treatment courses, different types of therapy, and greater indirect costs (travel, caregiving), all of which compound financial strain. These results support a growing consensus that FT should be conceptualized not only as an economic metric but also as a disease-trajectory phenomenon closely intertwined with symptom burden and functional decline [18].

An intriguing finding of our study was the association between longer duration of immunotherapy and lower financial toxicity. Although initially counterintuitive, similar observations have been reported in recent Chinese studies of immunotherapy recipients, indicating that prolonged treatment is associated with improved disease management and psychological adjustment to expenses. These patients may represent a subset with more stable socioeconomic resources or effective coping strategies, allowing them to sustain therapy and hence endure relatively less perceived distress. The same study further demonstrated that self-perceived burden mediates the relationship between FT and quality of life, suggesting that psychosocial resilience moderates how financial pressures are internalized by patients [17].

Financial toxicity was significantly associated with self-reported health status and activity limitations. Participants who rated their health better and those who did not limit their activities due to illness had significantly less toxicity. This finding is consistent with findings from both Asian and Western populations. A multicenter cross-sectional study in China reported that higher financial toxicity scores were associated with lower psychological distress and improved functional outcomes across treatment groups, underscoring the reciprocal link between financial well-being and mental health[19]. Similarly, the U.S. National Cancer Institute's PDQ on financial distress highlights that patients who perceive their health as poor are more susceptible to the cumulative effects of medical debt, work loss, and social isolation[3]. Our data reinforce this connection, suggesting that interventions addressing both financial counseling and symptom management may produce mutually beneficial outcomes.

Educational level also emerged as a significant protective factor against FT, aligning with evidence that higher education enhances health literacy, access to information, and ability to navigate insurance or welfare systems[18,20,21]. Education may enable proactive communication with care teams, understanding of reimbursement mechanisms, and utilization of available aid programs.

The multivariate model confirms that FT is shaped by a wide range of social determinants of health, rather than clinical factors alone. This conclusion parallels the findings of studies carried out in India and Greece which demonstrated that financial burden was significantly associated with lower global health status scores, particularly in domains of emotional and functional and social well-being in the EORTC QLQ-C30[9,16]. Similarly, a cross-sectional study carried out in China identified

three latent profiles of FT (high, medium, and low) influenced primarily by literacy and income, which points to the importance of tailored interventions that account for socioeconomic heterogeneity [18].

The implications of these findings extend beyond individual patients. According to Dee[22], financial toxicity has ripple effect on families and caregivers, particularly in lower-income households, perpetuating cycles of economic vulnerability and reduced adherence to treatment. These results underscore the moral and policy imperative to integrate financial screening and navigation support into standard oncology care. International recommendations and guidelines[3,23], advocate for proactive discussions of cost, financial counseling, and systemic measures such as insurance optimization and value-based care models.

Moreover, the literature consistently validates the link between FT and diminished quality of life. Recent studies demonstrated that FT is inversely related to physical, emotional, and social quality of life, often more strongly than symptom burden itself [9,10,16,17]. Patients who experience financial strain report higher anxiety, reduced treatment satisfaction, and impaired coping capacity. These findings align with the conceptual framework advanced by Witte et al.[24] and summarized by Thomy et al.[25] in their systematic review, which identified six critical domains for better understanding FT; these include spending, resource utilization, psychosocial responses, support seeking, cost coping, and lifestyle adaptation each influencing patient outcomes across care settings.

In Greece, despite the existence of a universal public healthcare system, indirect and out-of-pocket costs related to transportation, informal caregiving, and loss of income remain substantial and are insufficiently addressed by current policy frameworks[26,27]. The lack of structured financial navigation services, limited coverage of non-medical expenses, and fragmented social welfare pathways exacerbate patients' vulnerability to financial distress, particularly among low-income and rural populations[28]. National strategies should therefore prioritize the integration of financial screening and counseling within oncology clinics and adopt models, where early identification of financial risk enables timely intervention and improved adherence[29]. Collaboration among public hospitals, primary care networks, and patient advocacy organizations could further enhance access to social benefits, transportation subsidies, and targeted support for economically disadvantaged households[30].

Finally, our results add to the growing literature highlighting the necessity of routine FT assessment in oncology settings, particularly using validated tools such as the the COmprehensive Score for Financial Toxicity (COST) scale, part of the FACIT measurement system. Screening for FT should be implemented alongside psychosocial and symptom assessments, allowing timely referral to social workers, financial navigators, or policy programs. As de Souza et al.[11,31] emphasized, mitigating FT requires interventions at both micro (patient-level counseling, transparent communication) and macro (insurance reform, equitable reimbursement) levels.

Study Limitations

This study sample was drawn from the oncology clinics of 4 tertiary hospitals located in Athens and Thessaloniki, two major urban centers located in Greece. Although these hospitals admit patients all over Greece, including patients residing in rural or remote areas, the study sample was not fully representative of the broader Greek oncology population. Consequently, individuals residing in rural or island regions, who may experience greater barriers to accessing specialized oncology services and financial support mechanisms, were likely underrepresented. Furthermore, recruitment was limited to individuals receiving outpatient chemotherapy, thereby excluding patients undergoing inpatient treatment or those at end-of-life care who may be less able to participate in outpatient care, factors which may introduce regional bias. The use of self-reported measures for financial toxicity and social determinants of health introduces potential recall and response bias, as participants may underreport or overestimate their experiences due to social desirability or subjective interpretation of questionnaire items.

The cross-sectional study design limits the ability to establish causal relationships between financial toxicity and social and clinical factors. Future research should employ longitudinal study designs to evaluate changes in financial distress over the course of cancer treatment, capturing both the onset and progression of financial burden and its temporal association with the cancer continuum. Given the underrepresentation of rural and remote populations in the present study, future research should prioritize targeted recruitment strategies to ensure adequate inclusion of patients residing in geographically isolated or underserved areas. Such studies should employ community-based or even remote-assisted data collection methods to overcome ac-

cess barriers and capture the experiences of individuals who face distinct financial, practical, and psychosocial challenges in cancer care. Moreover, the development and evaluation of nurse-led interventions focused on counseling, financial navigation[32], and the management of economic distress represent promising directions for improving patients' overall well-being and mitigating the long-term impact of financial toxicity.

Conclusions

In conclusion, this study provides robust evidence that financial toxicity is a multidimensional construct intimately connected to both health perception and social context. By integrating socioeconomic screening into routine oncology care and developing system-level policies to reduce out-of-pocket costs, health care systems can meaningfully alleviate financial suffering and enhance patients' quality of life.

ΠΕΡΙΛΗΨΗ

Οικονομική Τοξικότητα σε Έλληνες Ασθενείς με Καρκίνο: Κοινωνικοί Προσδιοριστές Υγείας και Κλινικοί Παράγοντες

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Εισαγωγή: Ο καρκίνος προκαλεί στους ασθενείς και τις οικογένειές τους σοβαρή οικονομική τοξικότητα, η οποία περιλαμβάνει τόσο τα άμεσα οικονομικά κόστη που βιώνει ο ασθενής, όσο και τη συναισθηματική επιβάρυνση που τα συνοδεύει. Παρότι διεθνώς η έννοια της οικονομικής τοξικότητας αναγνωρίζεται ολοένα και περισσότερο, η σχετική έρευνα στον ελληνικό ογκολογικό τομέα παραμένει περιορισμένη.

Σκοπός: Η διερεύνηση της σχέσης μεταξύ οικονομικής τοξικότητας και κοινωνικών καθώς και κλινικών προσδιοριστών υγείας σε ασθενείς που υποβάλλονται σε αντικαρκινική θεραπεία στην Ελλάδα.

Υλικό και Μέθοδος: Διεξήχθη πολυκεντρική συγχρονική μελέτη από τον Απρίλιο 2023 έως τον Απρίλιο 2024 σε τέσσερα τριτοβάθμια νοσοκομεία της Ελλάδας, με τη συμμετοχή 400 ασθενών με συμπαγείς όγκους. Η οικονομική τοξικότητα αξιολογήθηκε μέσω της σταθμισμένης και επικυρωμένης ελληνικής έκδοσης του εργαλείου COmprehensive Score for Financial Toxicity (FACIT-COST). Η ανάλυση πραγματοποιήθηκε με το λογισμικό SPSS v.27. και το επίπεδο στατιστικής σημαντικότητας τέθηκε στο p≤0,050

Αποτελέσματα: Συνολικά συμμετείχαν 400 ασθενείς (49,3% άνδρες, μέση ηλικία 61,7 έτη, SD=12,5). Η μέση τιμή οικονομικής τοξικότητας ήταν 20,83 (SD = 7,90). Δεν παρατηρήθηκαν στατιστικά σημαντικές διαφορές ως προς τον τύπο καρκίνου ή την ύπαρξη μεταστατικής νόσου, ωστόσο η οικονομική τοξικότητα ήταν χαμηλότερη μεταξύ των ασθενών με νόσο σταδίου I (p=0,037) και μεταξύ εκείνων που δήλωναν καλύτερη αυτό-αντιλαμβανόμενη υγεία (p=0,005). Η μεγαλύτερη διάρκεια ανοσοθεραπείας συσχετίστηκε ασθενώς αλλά στατιστικά σημαντικά με μειωμένη οικονομική τοξικότητα (rho=0,17, p=0,043). Στην πολυμεταβλητή ανάλυση, το υψηλότερο επίπεδο εκπαίδευσης (β=0,033, p<0,001) και η καλύτερη αυτό-αξιολογούμενη κατάσταση υγείας (β=0,038, p=0,027) συσχετίστηκαν με χαμηλότερα επίπεδα οικονομικής τοξικότητας, ενώ μεγαλύτεροι περιορισμοί δραστηριοτήτων συσχετίστηκαν με αυξημένη οικονομική επιβάρυνση (p<0,001).

Συμπέρασμα: Η οικονομική τοξικότητα αποτελεί ένα πολυδιάστατο φαινόμενο, το οποίο επηρεάζεται από κοινωνικοοικονομικούς και κλινικούς παράγοντες, κυρίως από το επίπεδο εκπαίδευσης και την αντιλαμβανόμενη κατάσταση υγείας. Η ενσωμάτωση, αξιολόγηση και υποστήριξη στο πλαίσιο της ογκολογικής φροντίδας μπορεί να συμβάλει στην ανακούφιση της οικονομικής δυσχέρειας και στη βελτίωση της συνολικής ποιότητας ζωής των ασθενών.

Λέξεις-κλειδιά: Οικονομική τοξικότητα, καρκίνος, κοινωνικοί προσδιοριστές υγείας, κοινωνικοοικονομικοί παράγοντες, νοσηλευτική

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