ORIGINAL ARTICLE

MAYO CLINIC PROCEEDINGS:
INNOVATIONS, QUALITY & OUTCOMES

MAYO CLINIC

The Faces of Financial Toxicity: A Qualitative Interview Study of Financial Toxicity in Advanced Cancer Patients in Phase I Oncology Trials

Colt Williams, MD; Leigh Meyer, BA; Omar Kawam, BS; Konstantinos Leventakos, MD, PhD; and Erin S. DeMartino, MD

Abstract

Objective: To characterize the financial toxicity experienced by advanced cancer patients enrolled in phase I oncology trials.

Patients and Methods: We conducted structured interviews with cancer patients participating in phase I clinical trials. Using a thematic analysis approach, we identified recurring themes in patients' experiences of financial toxicity resulting from trial participation.

Results: Seven major themes emerged from the interviews: (1) the burden of travel, (2) a willingness to pursue treatment despite financial risk, (3) fear of destitution, (4) financial toxicity equaling physical toxicity, (5) changes in food spending, (6) reluctance to confide in the study investigator about financial toxicity, and (7) difficulty navigating financial aid. These themes highlight the multifaceted financial challenges faced by patients in early phase clinical trials and the need for targeted support services.

Conclusion: Our findings underscore the relevance of financial toxicity in the context of phase I clinical trials and provide insights into the diverse challenges faced by advanced cancer patients. These challenges likely augment the disparities seen in trial enrollment for historically marginalized populations. Addressing financial toxicity in this population is crucial for improving patient outcomes and quality of life. Future research should focus on developing effective interventions and support services tailored to the needs of patients in early phase clinical trials.

 ■ Mayo Clin Proc Inn Qual Out 2023;7(6):524-533

From the Department of Medical Oncology (C.W., K.L.), Biomedical Ethics Research Program (C.W., L.M., O.K., E.S.D.), and Division of Pulmonary and Critical Care Medicine (E.S.D.), Mayo Clinic, Rochester, MN.

The development and evaluation of novel cancer therapies often involve early phase clinical trials, with phase I trials being crucial for determining the safety, tolerability, and appropriate dosing of investigational agents.[1] Patients with advanced cancer who have exhausted standard treatment options may choose to participate in these trials in the hope of benefiting from novel therapies.[2] Participation in a clinical trial can be the best option for every cancer patient at any stage of their disease. However, participation in clinical trials can impose financial burdens on patients, their families, and the health care system, a phenomenon known as financial toxicity.[3]

Financial toxicity is a multi-dimensional construct that encompasses direct costs (eg, medical bills), indirect costs (eg, lost wages), and psychosocial aspects (eg, anxiety and stress related to financial issues).[4] Previous research has reported that cancer patients in the standard of care setting face substantial financial toxicity, with high out-of-pocket costs and financial distress often leading to treatment nonadherence and a decline in quality of life.[5,6] However, few studies have particularly examined the financial toxicity experienced by cancer patients enrolled in early phase clinical trials. Thus, this paper aims to contribute to the body of knowledge concerning financial

toxicity in early phase clinical trials, with a tailored focus on phase I clinical trials. Understanding the financial implications of participating in phase I oncology trials is essential because these trials often involve more frequent and extensive evaluations, treatments, and follow-ups compared with standard care, potentially exacerbating financial toxicity.[7] Moreover, the unique characteristics of early phase trials, such as their experimental nature, uncertain therapeutic outcomes, and the potential for serious adverse events, may contribute to heightened financial and psychosocial burdens.

Therefore, to address this knowledge gap, we conducted a single institutional semistructured interview study with cancer patients enrolled in phase I clinical trials to assess the effects of financial toxicity from trial participation. To our knowledge, this is the first in-depth characterization of the problem of financial toxicity in this patient population. This study seeks to provide insights into the financial challenges faced by patients and their loved ones and to inform strategies to mitigate the financial burden associated with early phase clinical trial participation.

METHODS

Study Population

We conducted a qualitative interview study at Mayo Clinic in Rochester, Minnesota, to assess the financial toxicity experienced by cancer patients enrolled in phase I clinical trials. The Institutional Review Board approved this study under protocol number 21-009097. All study participants provided written informed consent.

From June 26, 2022, to August 19, 2022, a total of 44 cancer patients were screened for eligibility. The inclusion criteria included adult patients aged 18 years or older with a confirmed solid tumor cancer diagnosis, who were currently enrolled in a phase I clinical trial. All patients enrolled in a phase I trial at our institution during this time period were screened for at least grade 1 (scores 14-25) financial toxicity as assessed by the comprehensive score for financial toxicity (COST) tool and its subsequent validated grading system.[8,9] Comprehensive score for financial toxicity is a validated instrument to grade financial toxicity in the same manner as other physical adverse effects per the common terminology criteria for adverse events v5.0.[10] The COST questionnaire is available in the Supplementary Materials. Those who met all inclusion criteria and reported grade 1 or higher financial toxicity were invited to participate in a qualitative interview. Grade 1 toxicity indicates that the patient is experiencing a mild effect on their lifestyle, spending habits, and emotional wellbeing. Of the 44 patients screened, 20 (45%) met the eligibility criteria and 16 (36%) agreed to participate in the study. Patients were not offered any incentives for participation.

Our institution offers phase I oncology clinical trials through the early cancer therapeutics clinic (ECTC) within the department of medical oncology. In addition to the treating oncology physician-scientists, the ECTC care team is staffed by a dedicated pharmacist, 2 nurses, and 1 social worker, all with experience managing patients in early phase clinical trials. New patients receive referrals from external providers or are referred internally by other oncologists within the Department of Medical Oncology for evaluation of candidacy. If enrolled in a clinical trial, patients do not incur the cost of any experimental therapies, interventions, or testing as a result of trial participation. However, reimbursement for either direct or indirect costs beyond experimental measures varies by trial on the basis of available funding. Provider visits, laboratory testing, or imaging considered within the standard of care for the patient's disease (eg, complete blood counts, x-rays, and toxicity evaluations) are billed to the patient's insurance.

Both investigator-initiated trials (IIT) and industry sponsored trials (IST) were active during the recruitment process. In the event a patient experienced financial toxicity, the ECTC social worker was available to assist with each patient's individualized needs.

Data Collection

Data were collected using a semistructured interview guide, which was developed on the basis of previous literature on financial toxicity in cancer patients.[6,11,12] The interview guide included open-ended questions to explore participants' experiences and perceptions of

TABLE 1. Participant Demographic Characteristics

Patient-Participant	Age(y)	Sex	Tumor Type	Previous Number of Lines of Therapy	Industry Sponsored (IS) vs Investigator Initiated trial	ECOG Performance Status	COST Score
1	40	F	Rectal	4	IS	0	11
2	68	M	Pancreatic	3	IS	0	22
3	53	M	Rectal	8	IS	1	11
4	46	F	Ovarian	11	IS	0	25
5	79	F	Lung	2	IIT	1	10
6	57	F	Ovarian	6	IS	0	18
7	38	F	Sarcoma	7	IS	1	16
8	76	F	Lung	1	IS	1	22
9	48	M	Lung	5	IIT	0	25
10	68	F	Lung	4	IIT	1	17
11	51	F	Endometrial	5	IS	0	1
12	32	F	Cervical	4	IS	0	11
13	61	M	Glioblastoma	3	IIT	0	21
14	53	M	GIST	2	IS	1	15
15	36	M	Thyroid	0	IS	0	19
16	66	M	Lung	1	IS	1	23

COST, comprehensive score for financial toxicity; ECOG: Eastern cooperative oncology group; IS, industry sponsored trial; IIT, investigator initiated trial.

financial toxicity related to their trial participation. The guide addressed the following domains: travel, direct costs (medical bills, travel, and lodging), indirect costs (lost wages and depletion of savings), psychosocial costs (emotional distress and effect of trial participation on the patient's family), financial coping strategies, communication with health care providers, the effect of financial toxicity on treatment decision-making, and quality of life. The interview guide is available in the Supplementary Materials.

Interviews were conducted in-person or by telephone by authors C.W. and L.M., and each interview lasted ~45-60 minutes. All interviews were audio-recorded and transcribed verbatim by a professional service (Landmark Inc) for data analysis. Transcriptions were reviewed for accuracy by the study team before undergoing analysis.

Data Analysis

This study was managed per the 21 topics outlined in the standards for reporting qualitative research.[13] Data analysis was performed using a thematic analysis approach.[14] Two independent coders (C.W. and O.K.) reviewed the transcripts and coded the data using a priori codes derived from the interview guide and emergent codes that arose during the analysis. Coding discrepancies were resolved through discussion and consensus. Data were managed using NVivo 12 software (QSR International). Reflexivity was maintained through the use of an audit trail and research team discussions to identify and address potential biases and assumptions during the data collection and analysis processes. Inductive thematic saturation was reached after 16 interviews.[15,16]

RESULTS

Of the 44 patients screened, 20 (45%) met the inclusion criteria, and 16 (36%) agreed to be interviewed. Patient characteristics and demographic characteristics are summarized in Table 1. This patient population represented a wide range of tumor types, such as lung, brain, ovarian, thyroid, and colon. The number of previous lines of therapy was also diverse, ranging from 0-11. The occupations included a waitress, software engineer, soybean farmer, elementary school teacher, and a digital media artist. Three patients reported that they were retired.

Thematic analysis revealed 7 major themes that recurred across the interviews: (1) the

Mayo Clin Proc Inn Qual Out ■ December 2023;7(6):524-533 ■ https://doi.org/10.1016/j.mayocpiqo.2023.09.003
www.mcpiqojournal.org

TABLE 2. Main Themes and Demonstrative Quotes

Theme	Quote
Travel is a burden	"Every week that I go, it's literally, I'm only at Mayo Clinic for 25 minutes, and I'm like, I just drove 10 hours there and back for a 15, 20 minute appointment, which it's fine, I'm not gonna complain because obviously, it's working, so I'm not gonna complain or anything, but that's a little, you know, it's like, "God, I just drove all that way."
Willingness to pursue treatment despite financial risk	"When it first happened, when I first I got the news (that the participant could enroll), and I didn't know what was gonna happen, I was willing to sell everything I had. We were gonna sell my house. We were gonna sell my car. We were gonna everything we had just to afford what we could just to pay for things."
Fear of destitution	"It's constantly a worry in the back of my mind. I'm constantly thinking about 'Are we gonna have enough money for me to go up there? Do we have enough money for gas money? Is there enough food in the house for my husband to get food while he's gone?' I just worry about there bein' enough money to pay for our bills and the things that we like to do. Are we able to still do those things?"
Financial toxicity equals physical toxicity	"I would say my physical symptoms are probably only about a ten percent and my financial strain is a lot worse than that."
Changes in food spending	"We try to eat a big breakfast before we go and just pack a bar. The food adds up you know. It's bad enough with gas the way it is, then you add in eating at the cafeteria or restaurants on the road and suddenly that money is gone before you know it."
Reluctance to confide in the study investigator	"[*Laughter*] Why would I? (confide in the doctor about financial concerns) What are they gonna do about it? I mean, because a million patients, millions of us can't afford medicine. I think medical insurance should be more affordable and helpful for citizens than it is."
Difficulty navigating financial aid	"I tried to apply and just gave up. It was too complicated. My girlfriend did it for me, I wouldn't have my disability (income) if it wasn't for her."

burden of travel, (2) a willingness to pursue treatment despite financial risk, (3) fear of destitution, (4) financial toxicity as severe as physical toxicity, (5) changes in food spending, (6) reluctance to confide in the study investigator about financial toxicity, and (7) difficulty navigating financial aid. A summary of the themes discovered with supporting quotes is outlined in Table 2.

Travel is a Burden

All participants who lived outside of the city in which our institution is located (14 of 16 participants, 87%) reported travel to and from the institution as a major source of increased financial burden. Participants were previously receiving all care from their local oncologist or were traveling to our institution only once every 3 months for comanagement and restaging imaging. However, after trial enrollment, as participation in a phase I clinical trial requires treatment to be delivered at the enrolling center, these patients were required to change the frequency and venue of their oncology care to participate. All participants required intensive onboarding appointments and testing that required 3-5 days in town. Follow-up visits for treatment and toxicity monitoring were as frequent as weekly or as infrequent as every 3 weeks.

The range of travel time by car for patients to reach our institution was between 60 minutes and 11 hours. Nonmedical direct costs incurred by patients during this time included transportation (gas or airfare), parking, lodgings, and meals. No patients on investigator initiated trials received travel reimbursement, whereas those on industry sponsored trials had highly variable levels of reimbursement, ranging from $50/day (for all travel expenses) to carte blanche coverage of all travel costs. Higher costs were noted in participants with longer travel distances. The lowest reported total cost per round trip to and from our institution was $50 (1 individual who drove 1.5 hours each way and returned home every

night), and the highest was $900 (~1600-mile drive and a 3 day stay per trip).

Participants reported that they chose to enroll in a trial at our institution either because it was the closest center offering a phase I clinical trial or because of their pre-existing relationship with the institution. There were several participants who chose to seek care at our institution even though the travel was farther and more burdensome.

A caregiver was often required to assist the patient during travel, especially for patients traveling longer distances. Caregivers reported going from full to part-time or stopped working entirely owing to the complexity of travel logistics. Although they were able to adequately work and care for the patient while treatment was being delivered locally, the length and frequency of leave required was often incompatible with maintaining employment.

Fear of Destitution

For 9 of the 16 participants (56%), out-of-pocket costs had become so high that they had plans to, or had already undertaken, measures including selling their home and moving in with family members, selling vehicles or household goods, or completely depleting their savings. Only 1 participant mentioned that they would set a limit on how much they would allow their family to spend to enable him to continue participation before he would voluntarily withdraw from the trial. Participants described 2 scenarios that engendered considerable fear: either surviving as a result of continued trial participation but no longer having stable housing or dying from their disease and leaving their family without a home or an income earner. A pattern of severe emotional distress emerged around this theme and was reported to be a primary driver of psychological burden for participants who experienced it.

Financial Toxicity as Severe as Physical Toxicity

Participants were asked to compare the relative effect on their quality of life from their physical symptoms as compared with their financial toxicity. Most patients expressed that the degree of detriment on their quality of life from financial toxicity was at least equal to their physical symptoms from treatment or the cancer itself. A minority of patients who had excellent symptom control reported that nearly all of their quality-of-life detriment was secondary to financial toxicity.

Patients identified several key subthemes that were responsible for the effect of financial toxicity on their quality of life: emotional distress from fear of destitution as described previously, loss of leisure activities owing to financial constraints, feeling out of control over the cost of their care, and a sense of degraded dignity.

To redirect liquid assets, leisure activities were often substantially reduced or eliminated entirely. For example, boats, second vehicles, camping trailers, and other recreational equipment were sold to fund travel to and from our institution. Vacations were most often not taken because of the frequency of travel for trial participation, and if they were taken, were for shorter durations and smaller in scale. Patients wistfully recounted missing family reunions, traditional family trips, or the ability to participate in season-specific activities that they had enjoyed for many years (camping in the summer, ice fishing in the winter, and boating).

Patients noted feeling burdensome to their families as their financial and logistical costs of trial participation changed many aspects of their families' daily lives. Particularly for patients who had been the primary income earner in their family, the loss of ability to work resulted in feelings of shame, guilt, and selfishness to take so many resources from their family. Patients who lost both their ability to work and their typical leisure activities described losing their sense of self-identity. No longer able to rely on many of their previous coping behaviors, patients reported both distress from the loss of these activities and secondary distress as they could no longer process their overall stress as effectively.

Changes in Food Spending

Every participant reported that they changed what groceries they bought, ate at restaurants less, or ate less food overall to minimize costs to be able to limit the financial effect of trial participation. Most commonly, participants reported attempting to curb restaurant spending by packing homemade meals to eat while traveling, eating a meal replacement bar in place of a full meal, shopping at grocery stores to

Mayo Clin Proc Inn Qual Out ■ December 2023;7(6):524-533 ■ https://doi.org/10.1016/j.mayocpiqo.2023.09.003
www.mcpiqojournal.org

prepare simple meals in their hotel rooms, or choosing less expensive options at restaurants while staying in town to receive care.

Although at home between visits, participants more often purchased store-brand items or less expensive alternatives to limit grocery spending. In 2 instances, participants reported skipping meals or only eating once per day while at our institution to minimize food spending as much as possible. No participants reported being unable to afford food, but many did state they had made the aforementioned changes to maintain a steady food supply.

Willingness to Pursue Treatment Despite Financial Risk

The willingness to go to extreme financial measures in order to continue to afford to participate in the trial was described by most participants. Participants expressed willingness to mortgage their home, declare bankruptcy, or provided all-encompassing statements such as "we'll do whatever is necessary" or "we'll make it work somehow" in order to continue trial participation.

Pre-existing financial toxicity was present universally and was often exacerbated by the increase in direct and indirect medical costs, as a result of trial participation. Participants cited an increase in out-of-pocket spending because of more frequent clinic visits, laboratory testing, and imaging. As travel became a substantial factor as described above, lodging and food expenditures also increased. This combination of expenses led to often unforeseen increases in monthly expenses that required use of savings accounts, crowdfunding, or liquidating assets to cover costs.

As a clinical trial was the only remaining therapeutic option beyond best supportive care for many patients, themes of desperation, such as the feeling of being backed into a corner developed. In the words of 1 participant, "It was either this [the clinical trial] or just hang out and wait to die." Iterations of this phrase were heard by most participants.

Views on Physician Responsibility in Addressing Financial Toxicity

Two polarizing opinions became evident when participants were asked whether they felt it was the physician's responsibility to address financial toxicity.

The first subgroup expressed the belief that the physician is the central figure in their treatment team, and although the physician themselves may not be able to help, they should be able to direct the patient to resources or to other care team members who could. Participants in this group cited previous interactions with multidisciplinary health care teams as their source of this belief.

The second subgroup felt that discussing financial toxicity was beyond the physician's scope. These participants expressed that they would not expect financial counseling from their physician and, moreover; would either feel uncomfortable discussing it with them or would prefer if the physician would "focus" on their organic medical issues. A philosophical distinction concerning who would be the ideal care team member to address financial toxicity arose organically during many interviews. The treating physician was the most common conclusion as they were viewed as the individual who sees the patient most frequently and could understand the patient's clinical and social situation the best. Other suggestions included social workers, financial counselors, or state legislators. Several participants insightfully commented that financial toxicity in the United States is a complex multilevel medical infrastructure issue that a single treating physician could not solve and therefore, felt that discussions of such in-office would be ineffective.

Difficulty in Navigating Financial Aid

Despite all participants having measurable financial toxicity, only 4 of the participants reported receiving financial aid. Applying for financial support such as the Family and Medical Leave Act, social security, disability, or patient assistance grants proved to be very challenging; only 2 participants reported successfully applying without assistance from another individual. Obstacles to applying included a lack of familiarity with the application process, complicated or lengthy forms, difficulty with concentration as a result of illness or treatment, or most commonly, the lack of knowledge of the existence of hospital financial counselors or assistance programs.

It was more common for patients to report having used crowdfunding, such as GoFundMe or community fundraising events,

instead of receiving financial aid. Crowdfunding, however, was associated with strong emotional responses and opposing views. The 5 participants who had received assistance by these avenues described it as integral to their ability to cover indirect costs in particular. Receiving aid in this manner provided these participants with a deep sense of interconnectedness, gratitude, and comfort in knowing their community came to their aid. Successful crowdfunding was described as much as an emotional wellbeing donation as a financial one.

By contrast, a theme of stigma against "being a beggar" arose in the participants who did not participate in crowdfunding. This group described crowdfunding as demeaning as it conflicted with their moral beliefs of self-reliance and that it was an expression of financial failure.

DISCUSSION

To our knowledge, this is the first ever interview study of financial toxicity experienced by cancer patients enrolled in phase I clinical trials. Although the relevance and pervasiveness of financial toxicity is appreciated in the standard of care setting, financial toxicity in the early phase clinical trial setting has been under investigated, potentially because experimental interventions are covered by the trials themselves. However, our participants highlighted their substantial financial toxicity and emphasized that although the study covers experimental interventions, nonmedical direct costs, indirect costs, and psychosocial costs still considerably contribute to their experiences of trial participation. Our thematic analysis revealed 7 major themes: the burden of travel, a willingness to pursue treatment despite financial risk, fear of destitution, financial toxicity equaling physical toxicity, changes in food spending, reluctance to confide in the study investigator about financial toxicity, and difficulty navigating financial aid. Examining these themes provides valuable insights into the complexities and challenges faced by cancer patients participating in early phase clinical trials.

Travel was the largest out-of-pocket cost that contributed to worsened financial toxicity from clinical trial participation. Similarly, to phase I patients, allogenic stem cell transplant recipients are tied to their enrolling institution and also have to shoulder the burden of frequent travel. Data from this patient population has reported not only worsened financial toxicity, but also decreased overall survival as distance from the transplant center increases.[17,18] Thus, as the average distance driven to reach a phase I center is over 300 miles,[19] future research could explore the role of telemedicine, local partnerships, and decentralization of clinical trials in reducing travel-related costs and expanding access to rural or socioeconomically disadvantaged communities.

All participants in our study expressed that their understanding of the goal of their respective trials would be to provide them with a novel cancer therapeutic agent that may—or may not—provide therapeutic benefit. In addition, every participant expressed that they enrolled for the potential for therapeutic benefit. However, several participants shared their feelings of cognitive dissonance between the risk of no therapeutic benefit contrasted against the costs (financial and psychosocial) of participation. This suggests that even among a cohort of well-informed patients who understood that the potential for therapeutic benefit was questionable, additional time with the treating physician should be prioritized to thoroughly clarify the benefits, risks, and costs of trial participation.

The cognitive dissonance described above raises the issue of who in the patient care team is best suited to manage financial toxicity. A previous study found that of the surveyed oncologists at National Cancer Institutes, the majority felt reluctant to discuss financial issues with their patients in addition to sensing that their patients were reluctant to ask for help when they needed it.[20] Moreover, the study indicated that the physician was the primary individual providing a comparative discussion of treatments and their costs only 38% of the time, whereas dedicated financial navigators filled this role the remainder of the time.[20] These findings corroborate the themes described herein, namely that although the treating physician is the most adept at describing the relative therapeutic benefit of different treatments, they infrequently address patients' inextricably intertwined socioeconomic determinants of

Mayo Clin Proc Inn Qual Out ■ December 2023;7(6):524-533 ■ https://doi.org/10.1016/j.mayocpiqo.2023.09.003
www.mcpiqojournal.org

health. Although our participants responded inconsistently when asked which care team member they would feel most comfortable discussing their financial wellbeing, considering patients' potential risk of financial toxicity, a discussion of the financial factors of trial participation should be included as part of informed consent for trial participation.

In conjunction with the nonmedical direct costs, the psychosocial costs of clinical trial-induced financial toxicity should not be underestimated. Patients reported decreases in quality of life in areas as disparate as leisure, habits of daily living, familial obligations, dietary habits, and self-identity. The fear of destitution and the degradation of self-worth were particularly poignant and caused substantial distress to the participants who reported these feelings. This dramatic and global effect on quality of life contradicts the holistic care model espoused for the care of the patient with a terminal diagnosis.[21-24]

From a combination of the inability to work owing to performance status and frequency of travel, along with the loss of leisure activities, a theme of degradation of dignity and identity emerged. This loss of self-identity was reported as profoundly dysphoric and unsettling. Patients felt that their legacy had been jeopardized as they no longer recognized key features of their character and worried that little would be left behind for their families after their death.

Our findings suggest that the financial toxicity experienced as a result of clinical trial participation is similar to that experienced in the standard of care setting, with the addition of several unique features. In the seminal 2013 prospective survey of insured cancer patients undergoing standard of care treatment, Zafar et al[25] found that 42% of participants reported a catastrophic financial burden, 68% cut back on leisure activities, and 46% reduced spending on food and clothing. These findings are analogous to those reported herein. However, our study highlights that there are unique aspects of financial toxicity to clinical trials, namely the burden of increased travel and the increase in indirect costs.

Despite these unique aspects, however, solutions proposed to mitigate financial toxicity in the standard of care setting may be equally appropriate in the clinical trial setting. For example, Khan et al[26] developed a framework to help mitigate financial toxicity, which could be applied at the community practice or institutional level. The 4 pillars of their framework are (1) implementation of financial toxicity screening; (2) providing financial literacy, navigation, and aid to patients suffering from financial toxicity; (3) incorporation of cost into treatment planning; and (4) minimization of low-value care. This framework has the flexibility to scale to practice size, allowing even small or rural clinics to address financial toxicity.

Although these mitigation steps aim to protect patients from unintended harm, it must be noted that this framework, and the implementation of financial toxicity screening in particular, carries the potential risk of exacerbating inequities in trial recruitment. It is already well established that there is inherent bias in the selection of phase I trial participants.[27] Racial and ethnic minorities are underrepresented in clinical trials compared with their prevalence in the US population.[28-30] Moreover, the classic good study patient is often described as well-educated, able to travel, financially solvent, and well supported socially.[31] In proposing incorporation of screening tools and cost discussions into treatment planning, a concern arises that medically eligible patients would be screened out of trials for financial reasons or be deterred from participation owing to the potential costs. Additional research should seek to understand how to integrate a robust informed consent process and financial screening tools without exacerbating biases already engrained in trial recruitment.

Strengths and Limitations

These semistructured interviews provided detailed, context-specific insights that generate a better understanding of the complexities and nuances of financial toxicity among phase I clinical trial participants. Few studies have particularly examined the financial toxicity experienced by cancer patients enrolled in early phase clinical trials.

The findings from this qualitative study may not be generalizable to all cancer patients in early phase clinical trials, as the study population was limited in terms of geographical location, cancer types, and socioeconomic

backgrounds. Moreover, this study only included patients with measurable financial toxicity and is not representative of every patient that enrolls in a clinical trial. The study's cross-sectional design captures patient experiences at a single point in time, limiting the ability to explore how financial toxicity evolves throughout the course of trial participation or assess the long-term effects of financial burdens on patients and their families.

CONCLUSION

We believe that participation in a clinical trial can be the best option for every cancer patient at any stage of their disease. Phase I clinical trials are pivotal in the identification of novel lifesaving antineoplastic agents. However, advanced cancer patients experience financial toxicity as a result of clinical trial participation, often in ways that are unique from the expressions of financial toxicity in the standard of care setting. Compounding their financial toxicity, many patients struggle with navigating financial aid and are uncomfortable sharing their financial burdens with their treating physician. As the cost of cancer care continues to rise, it is imperative to develop strategies to address and minimize the financial toxicity experienced by patients to improve their quality of life and overall outcomes. Future research should focus on identifying effective interventions and support services to address the diverse financial needs of patients in early phase clinical trials, without excluding patients from participating on the basis of socioeconomic status or geography.

POTENTIAL COMPETING INTERESTS

Author K.L. discloses institutional grant funding from AstraZeneca and Mirati Therapeutics and provides consulting services to Boehringer Ingelheim Pharmaceuticals, MJH Life Sciences, AstraZeneca, and OncLive. Authors C.W., L.M., O.K., and E.D. have no conflicts of interest to disclose.

SUPPLEMENTAL ONLINE MATERIAL

Supplemental material can be found online at http://www.mcpiqojournal.org. Supplemental material attached to journal articles has not been edited, and the authors take responsibility for the accuracy of all data.

Abbreviations and Acronyms: **COST,** comprehensive score for financial toxicity; **ECOG,** Eastern cooperative oncology group; **ECTC,** early cancer therapeutics clinic; **IIT,** investigator-initiated trial; **IST,** industry sponsored trial

Financial Support: None.

Correspondence: Address to Colt Williams, MD, Mayo Clinic, 200 First Street SW, Rochester, MN 55905 (drcoltwilliams@gmail.com).

ORCID

Colt Williams: https://orcid.org/0000-0001-5752-0443

REFERENCES

1. Le Tourneau C, Lee JJ, Siu LL. Dose escalation methods in Phase I cancer clinical trials. *J Natl Cancer Inst*. 2009;101(10):708-720. https://doi.org/10.1093/jnci/djp079.
2. Horstmann E, McCabe MS, Grochow L, et al. Risks and benefits of Phase 1 oncology trials, 1991 through 2002. *N Engl J Med*. 2005;352(9):895-904. https://doi.org/10.1056/NEJMsa042220.
3. Zafar SY, Abernethy AP. Financial toxicity, part I: a new name for a growing problem. *Oncology (Williston Park)*. 2013;27(2):80-149.
4. Altice CK, Banegas MP, Tucker-Seeley RD, Yabroff KR. Financial hardships experienced by cancer survivors: a systematic review. *J Natl Cancer Inst*. 2017;109(2):djw205. https://doi.org/10.1093/jnci/djw205.
5. Ramsey SD, Bansal A, Fedorenko CR, et al. Financial insolvency as a risk factor for early mortality among patients with cancer. *J Clin Oncol*. 2016;34(9):980-986. https://doi.org/10.1200/JCO.2015.64.6620.
6. Zafar SY, McNeil RB, Thomas CM, Lathan CS, Ayanian JZ, Provenzale D. Population-based assessment of cancer survivors' financial burden and quality of life: a prospective cohort study. *J Oncol Pract*. 2015;11(2):145-150. https://doi.org/10.1200/JOP.2014.001542.
7. Unger JM, Barlow WE, Martin DP, et al. Comparison of survival outcomes among cancer patients treated in and out of clinical trials. *J Natl Cancer Inst*. 2014;106(3):dju002. https://doi.org/10.1093/jnci/dju002.
8. de Souza JA, Yap BJ, Wroblewski K, et al. Measuring financial toxicity as a clinically relevant patient-reported outcome: the validation of the COmprehensive Score for financial Toxicity (COST). *Cancer*. 2017;123(3):476-484. https://doi.org/10.1002/cncr.30369.
9. De Souza JA, Wroblewski K, Proussaloglou E, Nicholson L, Hantel A, Wang Y. Validation of a financial toxicity (FT) grading system. *J Clin Oncol*. 2017;35(15_suppl):6615-6615. https://doi.org/10.1200/JCO.2017.35.15_suppl.6615.
10. Common terminology criteria for adverse events version 5.0. 2017: https://ctep.cancer.gov/protocoldevelopment/electronic_applications/docs/ctcae_v5_quick_reference_5x7.pdf. Accessed August 26, 2022.
11. de Souza JA, Yap BJ, Hlubocky FJ, et al. The development of a financial toxicity patient-reported outcome in cancer: the COST measure. *Cancer*. 2014;120(20):3245-3253. https://doi.org/10.1002/cncr.28814.
12. Fenn KM, Evans SB, McCorkle R, et al. Impact of financial burden of cancer on survivors' quality of life. *J Oncol Pract*. 2014;10(5):332-338. https://doi.org/10.1200/JOP.2013.001322.
13. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med*. 2014;89(9):1245-1251. https://doi.org/10.1097/ACM.0000000000000388.
14. Sandelowski M. Whatever happened to qualitative description? *Res Nurs Health*. 2000;23(4):334-340. https://doi.org/10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G.
15. Strauss A, Corbin JM. *Grounded Theory in Practice*.. 1st ed. SAGE; 1997.

16. Saunders B, Sim J, Kingstone T, et al. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quant*. 2018;52(4):1893-1907. https://doi.org/10.1007/s11135-017-0574-8.
17. Rao K, Darrington DL, Schumacher JJ, Devetten M, Vose JM, Loberiza FR. Disparity in survival outcome after hematopoietic stem cell transplantation for hematologic malignancies according to area of primary residence. *Biol Blood Marrow Transplant*. 2007;13(12):1508-1514. https://doi.org/10.1016/j.bbmt.2007.09.006.
18. Meehan KR, Meehan JM, Hill JM, et al. Caregivers' out-of-pocket expenses and time commitment following hematopoietic stem cell transplantation at a rural cancer center. *Biol Blood Marrow Transplant*. 2020;26(9):e227-e231. https://doi.org/10.1016/j.bbmt.2020.06.015.
19. Bomo HT, Zhang L, Siegel A, Chang E, Ryan CJ. At what cost to clinical trial enrollment? A retrospective study of patient travel burden in cancer clinical trials. *Oncologist*. 2018;23(10):1242-1249. https://doi.org/10.1634/theoncologist.2017-0628.
20. de Moor JS, Mollica M, Sampson A, et al. Delivery of financial navigation services within National Cancer Institute-designated cancer centers. *JNCI Cancer Spectr*. 2021;5(3). https://doi.org/10.1093/jncics/pkab033.
21. Ferrell BR, Temel JS, Temin S, et al. Integration of palliative care into standard oncology care: American Society of Clinical Oncology clinical practice guideline update. *J Clin Oncol*. 2017;35(1):96-112. https://doi.org/10.1200/JCO.2016.70.1474.
22. Gilligan T, Coyle N, Frankel RM, et al. Patient-clinician communication: American Society of Clinical Oncology consensus guideline. *J Clin Oncol*. 2017;35(31):3618-3632. https://doi.org/10.1200/JCO.2017.75.2311.
23. Crawford GB, Dzierżanowski T, Hauser K, et al. Care of the adult cancer patient at the end of life: ESMO Clinical Practice Guidelines. *ESMO Open*. 2021;6(4):100225. https://doi.org/10.1016/j.esmoop.2021.100225.
24. Mission ESMO. European Society of Medical Oncology. 2023: https://www.esmo.org/about-esmo#:~:text=ESMO%20Mission,-9%20Jul%202019&text=ESMO's%20core%20mission%20is%20to,and%20latest%20advances%20in%20oncology. Accessed May 8, 2023.
25. Zafar SY, Peppercorn JM, Schrag D, et al. The financial toxicity of cancer treatment: a pilot study assessing out-of-pocket expenses and the insured cancer patient's experience. *Oncologist*. 2013;18(4):381-390. https://doi.org/10.1634/theoncologist.2012-0279.
26. Khan HM, Ramsey S, Shankaran V. Financial toxicity in cancer care: implications for clinical care and potential practice solutions. *J Clin Oncol*. 2023;41(16):3051-3058. https://doi.org/10.1200/JCO.22.01799.
27. Niranjan SJ, Martin MY, Fouad MN, et al. Bias and stereotyping among research and clinical professionals: perspectives on minority recruitment for oncology clinical trials. *Cancer*. 2020;126(9):1958-1968. https://doi.org/10.1002/cncr.32755.
28. Murthy VH, Krumholz HM, Gross CP. Participation in cancer clinical trials: race-, sex-, and age-based disparities. *JAMA*. 2004;291(22):2720-2726. https://doi.org/10.1001/jama.291.22.2720.
29. Chen MS, Lara PN, Dang JHT, Paterniti DA, Kelly K. Twenty years post-NIH Revitalization Act: enhancing minority participation in clinical trials (EMPaCT): laying the groundwork for improving minority clinical trial accrual: renewing the case for enhancing minority participation in cancer clinical trials. *Cancer*. 2014;120(0 7 suppl 7):1091-1096. https://doi.org/10.1002/cncr.28575.
30. Scalici J, Finan MA, Black J, et al. Minority participation in Gynecologic Oncology Group (GOG) studies. *Gynecol Oncol*. 2015;138(2):441-444. https://doi.org/10.1016/j.ygyno.2015.05.014.
31. Joseph G, Dohan D. Diversity of participants in clinical trials in an academic medical center: the role of the 'Good Study Patient?'. *Cancer*. 2009;115(3):608-615. https://doi.org/10.1002/cncr.24028.