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Financial toxicity and firearm injury: exploring financial needs of participants in a hospital-based violence intervention program

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ABSTRACT

Background Financial toxicity refers to financial hardship experienced because of illness or injury. Poverty is a known driver of community violence, but financial toxicity has not been studied in firearm violence survivors. The objective of our study was to explore the financial needs of firearm violence survivors enrolled in a hospital-based violence intervention program (HVIP). We hypothesized that survivors would report numerous financial needs.

Methods This was a mixed-methods, retrospective study of firearm violence survivors enrolled in the Miami-Dade County HVIP from 2022 to 2023. Patients were eligible for enrollment if they were injured in shooting incidents that occurred in Miami-Dade police districts with high rates of group violence or gang-related violence. Social worker intake and longitudinal case records were reviewed. A qualitative thematic analysis of social worker notes was performed. Quantitative data were analyzed with descriptive statistics and χ^2 tests for association.

Results 103 patients were enrolled in the program. The median age was 27 years. The majority of patients were black (82.5%) and male (83.5%). More patients were insured (59.2%) than uninsured (40.8%). Thematic analysis revealed 10 distinct financial needs, including assistance with victim crime compensation (75.7% of patients), medical bills (35.0%), wage loss (22.3%), insurance applications (14.6%), burial (13.6%), and emergency relocation (12.6%). Overall, financial needs were identified for 94 (91.3%) patients: 91 (88.3%) at initial program intake and 3 additional patients (2.9%) during longitudinal case management.

Conclusions Survivors of firearm violence experience financial challenges after injury. Thus, financial support and assessment for financial toxicity should be included in firearm violence survivorship programs. Future investigations should use validated measures to study the financial toxicity of firearm violence survivors longitudinally.

INTRODUCTION

Survivors of firearm violence are a highly vulnerable population. Generally, firearm violence is concentrated in neighborhoods with high socioeconomic deprivation, low educational attainment, and a lack of job opportunities.[1–3] These neighborhoods tend to have high degrees of racial segregation and are impacted by long histories of structural racism.[4–6] Although trauma centers address the acute medical needs of patients after violent injuries, the social risk factors that may have led to the violence persist.[7 8] Hospital-based violence intervention programs (HVIPs) aim to address these social determinants and assist patients in navigating the wide array of medical, psychosocial, and financial challenges experienced after injury.[9]

Financial toxicity can be defined as financial hardship experienced by patients and their families as a result of illness, which can lead to forgone medical care, poor financial health, and poor long-term physical and mental health.[10–12] The financial impact of acute injury is increasingly recognized as a key issue in trauma care given that up to 88% of trauma patients experience financial toxicity in the year after injury.[13] In multiple studies of trauma patients, those with financial toxicity had worse physical and mental health outcomes at 1 year or more after injury compared with those without financial toxicity.[12 13] However, financial toxicity has not been well studied in subpopulations of trauma patients such as those with firearm injuries, despite these patients having higher rates of uninsurance than the general trauma population.[14] Additionally, trauma recovery programs for survivors of firearm violence tend to focus on addressing patients' mental health needs, for example, through early mental health screening and psychological intervention, but fewer address financial toxicity.[15 16] Finally, given that poverty is a key driver of community firearm violence, addressing financial toxicity is a form of secondary firearm injury prevention.[17]

The purpose of this study was to examine the financial toxicity of firearm violence survivors enrolled in an HVIP that serves communities with high rates of group violence or gang-related violence. We hypothesized that most patients would have financial needs.

METHODS

The Miami-Dade County Hospital-Based Violence Intervention Program (MDCHVIP) was established in 2021 in response to rising rates of violence. It is part of the greater Miami-Dade County Group Violence Initiative (GVI), which overall aims to reduce group violence or gang violence, through prevention, intervention, suppression, and re-entry programs.[18] The MDCHVIP, through the GVI, serves three Miami-Dade police districts (Northside, South, and Intracoastal) that have the highest rates of group violence. Individuals who were involved in

Table 1 Demographics of patients enrolled in the Miami-Dade County Hospital-Based Violence Intervention Program, 2022–2023 (N=103)

Demographic	Frequency, n (%)
Age	
12–17 years	10 (9.7)
18–20 years	12 (11.7)
21–30 years	41 (39.8)
31–40 years	18 (17.5)
41–50 years	15 (14.6)
51–60 years	5 (4.9)
>60 years	2 (1.9)
Sex	
Female	17 (16.5)
Male	86 (83.5)
Race and ethnicity	
Black, Hispanic	2 (1.9)
Black, non-Hispanic	83 (80.6)
White, Hispanic	13 (12.6)
White, non-Hispanic	4 (3.9)
Other, non-Hispanic	1 (1.0)
Insurance	
Commercial	42 (40.8)
Corrections	1 (1.0)
Medicaid	17 (16.5)
Medicare	1 (1.0)
Self-pay	42 (40.8)
Education level	
Some middle school	5 (4.9)
Some high school	39 (37.9)
Graduated high school	30 (29.1)
GED	4 (3.9)
Some college	7 (6.8)
Graduated college	2 (1.9)
Not reported	16 (15.5)
Police district	
Intracoastal	10 (9.7)
Northside	61 (59.2)
South	30 (29.1)
Not reported	2 (1.9)
Hospital	
Jackson Memorial Hospital	74 (71.8)
Jackson North Medical Center	28 (27.2)
Jackson South Medical Center	1 (1.0)
Emergency department disposition	
Home	22 (21.4)
Floor	18 (17.5)
Stepdown	2 (1.9)
ICU	14 (13.6)
OR	35 (34.0)
Died	12 (11.7)
Consenting party/person completing intake	
Self	40 (38.8)
Father	3 (2.9)
Mother	29 (28.2)
Spouse or significant other	3 (2.9)
Other relative	8 (7.8)
Other proxy	1 (1.0)
Not reported	19 (18.4)

GED, General Educational Development; ICU, intensive care unit; OR, operating room.

Table 2 Patient needs identified at intake into the Miami-Dade County Hospital-Based Violence Intervention Program, 2022–2023 (N=103)

Financial needs	Frequency, n (%)
Victim crime compensation (Code 1)	78 (75.7)
Medical bills (Code 2)	36 (35.0)
Wage loss (Code 3)	23 (22.3)
Insurance assistance (Code 4)	15 (14.6)
Burial assistance (Code 5)	14 (13.6)
Emergency relocation (Code 6)	13 (12.6)
Employment (Code 7)	9 (8.7)
Utility bills (Code 8)	5 (4.9)
Rent assistance (Code 9)	4 (3.9)
Medical supplies (Code 10)	3 (2.9)
Other needs	
Mental health (Code 11)	25 (24.3)
Obtaining a cellphone (Code 12)	7 (6.8)
Education assistance (Code 13)	5 (4.9)
Childcare assistance (Code 14)	4 (3.9)
Assistance with obtaining identification documents (Code 15)	4 (3.9)
Food assistance (Code 16)	3 (2.9)
Immigration (Code 17)	2 (1.9)
Legal services/expungement (Code 18)	2 (1.9)
Housing (Code 19)	1 (1.0)
Mentorship (Code 20)	1 (1.0)
Transportation (Code 21)	1 (1.0)

shooting incidents in these districts and sustained a penetrating firearm injury are eligible to enroll in the MDCHVIP. Jackson Memorial Hospital is the primary clinical site, given that it is the largest level 1 trauma center in South Florida and is close in proximity to the Northside and Intercoastal districts. Patients also frequently present to Jackson South Medical Center, a level 2 trauma center close in proximity to the South district. However, since HVIP-eligible individuals are identified through the GVI rather than through the hospital, MDCHVIP patients are not limited to these hospitals.

Individuals enroll in the MDCHVIP through the following pathway: (1) a shooting incident occurs in the community and a police report is opened, (2) individuals who have been injured are brought to the hospital, (3) police notify the GVI of the incident and injured individuals, (4) an alert is sent to the HVIP social worker that HVIP-eligible patients are in the hospital, and (5) the HVIP social worker enrolls patients while they are in the hospital, via phone call after hospital discharge, or via custom notification. Patients who accept services are provided intensive wraparound case management by community GVI case managers.

At enrollment, patients or their consenting proxies are informed about the MDCHVIP and the variety of services offered by the HVIP social worker, who is based at the trauma center. This intake conversation is carefully timed based on how the patient/proxy is dealing emotionally with their circumstances, situational factors, and family and community context. Generally, all patients are informed about victim crime compensation. The remainder of the conversation is directed by needs the patient expresses and services the HVIP social worker thinks will most benefit the patient. An intake form is completed, and the HVIP social worker documents patient demographics, services discussed, and other information they think is relevant

Table 3 Challenges identified at intake into the Miami-Dade County Hospital-Based Violence Intervention Program (N=103)

Theme	Count (%)	Included codes	Example quotes
Impact of violent incident on family members	4 (3.9)	Family members injured (Code 22)	'Patient's son was also a victim of the shooting'. 'Mother was grazed by bullet but did not want to go to the hospital'.
	5 (4.9)	Family emotional distress (Code 23)	'Patient has 4 children who would benefit from counseling. Patient is deceased'. 'Seeking mental wellness resources for siblings and family'.
	2 (1.9)	Safety of family members (Code 14)	'Mother received threats that their place of residence will be shot up'. 'Seeking relocation for the entire family'.
	17 (16.5)	Dependents of injured patient (Code 25)	'Patient assists family financially and cares for his mother'. 'Patient has three children: ages 8, 9, and 16'.
Prior episodes of violence	10 (9.7)	Patient with prior violent injury (Code 26)	'He was shot twice at the age of 21 and 27'. 'Was shot in Georgia'.
	4 (3.9)	Family member with prior violent injury (Code 27)	'The patient's father was killed in a shooting when his mother was pregnant'. 'Lost two kids to gun violence'.

to the client's case. These free-text notes are documented in a comment box at the bottom of the intake form (online supplemental appendix A). This intake form also serves as a handoff to the community GVI case managers. Notably, the HVIP social worker and community GVI case managers all hold Master's degrees and are individuals of color with substantial experience working in these high-risk Miami communities.

MDCHVIP clients who were hospitalized and enrolled between January 1, 2022, and December 31, 2023, were identified from the HVIP social worker's client list, which was kept in a Microsoft Excel document. This client list contained patient's name, age, medical record number, education level, date of injury, date of enrollment, and comments about needs and challenges identified at intake. We performed chart reviews in the Jackson Health System electronic medical record to obtain patient's sex, race, ethnicity, payor, and emergency department (ED) disposition. We reviewed client records in the Quest Case Management System,[19] which contained scanned and uploaded copies of the intake form. Quest also contains a log of topics addressed at each GVI case management meeting (recorded as counts for each topic). The 'comments' from the HVIP social worker's client list and 'comments' from the intake forms were combined to create a qualitative dataset of client needs and challenges identified. Where there were discrepancies in patient demographic data between the client list and the intake forms, data from the intake forms were used. Qualitative data were analyzed using thematic analysis, as outlined by Clarke *et al*.[20] This included an overview of all qualitative response data, generation of codes, development of themes, definition and naming of themes, and grouping response codes into themes. Quantitative data were analyzed using IBM SPSS Statistics (V.29.0.2.0). Descriptive statistics and χ^2 tests for association were performed.

Table 4 Topics addressed at longitudinal case management meetings (N=103)

Topic	Frequency, n (%)
Advocacy assistance	39 (37.9)
Community resources	19 (18.4)
Assistance funds	16 (15.5)
Employment referral	8 (7.8)
Change of dwelling	7 (6.8)
Career education	6 (5.8)
Earn while you learn (apprenticeship training)	6 (5.8)
Medicaid linkage	6 (5.8)
Relocation	6 (5.8)
Mental health linkage	5 (4.9)
Wellness check	5 (4.9)
Food assistance	3 (2.9)
Fit2Lead (job training for at-risk youth)	1 (1.0)
Rent assistance	1 (1.0)
Social security assistance	1 (1.0)

RESULTS

There were 103 patients enrolled in the HVIP from January 2022 to December 2023, according to the HVIP social worker's client list. 96 patients (93.2%) had profiles in Quest. The median age was 27 years (range 12–71). The majority of patients were male (83.5%), black (82.5%), non-Hispanic (85.5%), involved in shooting incidents in the Northside district (59.2%), and presented to Jackson Memorial Hospital (71.8%). Overall, 17 patients (16.5%) died. Twelve patients (11.7%) died in the emergency room and five (4.9%) died later during the hospitalization. All patient demographics are reported in table 1.

Patient needs and challenges at intake

On review of the HVIP social worker's client list and client records in the Quest Case Management System, 96 patients (93.2%) had comments present in the client list and 84 patients (81.6%) had comments present in the intake forms. Overall, 102 (99.0%) patients had present commentary regarding needs expressed and challenges identified at program intake. On qualitative analysis, 27 distinct codes were consolidated into four themes: financial needs (10 codes), other needs (11 codes), the impact of violent injury on family members (4 codes), and prior episodes of violence (2 codes).

Overall, financial needs were identified for 91 patients (88.3%) and other needs were identified for 37 patients (35.9%). The most frequently reported need was assistance in applying for victim crime compensation (75.7% of patients), followed by assistance with medical bills (35.0%) and wage loss (22.3%) (table 2). On χ^2 tests for the association, there were no associations between the presence of financial needs and sex (female 76.5% vs. male 90.7%; p=0.095), race (black 89.4% vs. non-black 82.4%; p=0.664), ethnicity (Hispanic 86.7% vs. non-Hispanic 88.6%; p=0.826), police district (Intracoastal 90.0% vs. North 91.8% vs. South 80.0%; p=0.257), insurance status (commercial 83.3% vs. government-issued 84.2% vs. self-pay 95.2%; p=0.194), education level (high school graduates 81.4% vs. non-high school graduates 90.9%; p=0.198), ED disposition (home 81.8% vs. non-home 90.1%; p=0.282), and consenting party (self 88.6% vs. proxy 90%; p=0.840).

The other two themes identified by qualitative analysis were the impact of violent injury on family members and prior episodes of violence. Table 3 illustrates the frequencies of these themes, incorporated codes, and example quotes.

Longitudinal case management

Forty-nine patients (47.6%) had records of longitudinal case management meetings. The topics addressed are listed in table 4. Twenty-seven (26.2%) patients addressed financial-related topics at longitudinal case management meetings (assistance funds, change of dwelling, earn while you learn, employment referral, Fit2Lead, Medicaid linkage, relocation, rent assistance, or social security assistance). Three (2.9%) patients addressed financial-related topics during longitudinal case management who were not initially identified as having financial needs at intake. Five (4.9%) patients addressed mental health during longitudinal case management who were not initially identified as having mental health needs during initial intake.

DISCUSSION

This study sought to analyze the financial needs of firearm violence survivors who were enrolled in a group violence-focused HVIP at both initial program intake and during longitudinal case management. Financial needs were identified for 91 patients at initial intake and an additional 3 patients during longitudinal case management for a total of 94 (91.3%) firearm violence survivors with financial needs. This is consistent with prior studies showing that 44% to 88% of trauma patients experience financial toxicity after injury, with higher financial toxicity rates among patients with intentional injury.[12 13]

Although our study did not comprehensively examine financial toxicity, we identified a number of financial needs, such as medical bills, lack of health insurance, wage loss, and inability to afford non-medical bills, which all contribute to financial toxicity and may in turn perpetuate cycles of violence.[2] Because many of our patients return to unsafe environments after leaving the hospital, our HVIP emphasizes relocating our patients to safer neighborhoods as part of secondary injury prevention. Our HVIP also reveals that financial toxicity is not limited to patients but also affects their families. Our social workers were keen on identifying when patients had dependents who could be negatively impacted by their injuries and patients' family members frequently received services on the patients' behalf. Although not directly observed in our study, patients' family members often take on long-term caretaking roles, which can also contribute to financial toxicity.

This study sheds light on several efforts that attempt to address financial toxicity. Victim crime compensation is a state-federal program that provides financial assistance to victims of crimes. Most firearm violence survivors are eligible to receive victim crime compensation, but unfortunately, up to 96% of victims do not ultimately receive funds.[21] In our HVIP, we have started a quality improvement initiative to ensure that patients are guided through the entire application process and that applications are followed closely, in coordination with victim crime advocates. Although funding is limited, our HVIP provides some patients with cash stipends for basic needs. Advocacy efforts should work to reduce bureaucratic barriers to victim crime compensation and expand available funding to assist patients with immediate financial needs.

This study has several limitations. Although we used multiple data sources to improve data validity, the qualitative nature of the 'comments' limits the generalizability of our findings. This study also does not measure all domains of financial toxicity, such as the psychological response to financial strain and coping behaviors. Rather, this study presents an exploratory study of financial needs, other needs, and other challenges that were identified at program intake. Comprehensive assessment of financial toxicity and testing of specific hypotheses will require additional study. Nonetheless, this study presents a useful contribution to the current knowledge base about the early financial needs of high-risk patients after firearm injury.

CONCLUSIONS

Survivors of firearm violence experience financial challenges after injury. Thus, financial support and assessment for financial toxicity should be included in firearm violence survivorship programs. Future investigations should use validated measures to study financial toxicity of firearm violence survivors longitudinally.

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