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Health-Related Referral Patterns Among Labor and Sex Trafficking Survivors in Los Angeles County, CA

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ABSTRACT

Background: Most human trafficking survivors access healthcare during exploitation and often have significant post-trafficking health needs. Understanding these needs is essential for improving identification and support services.

Objective: This study examines health-related referral patterns among labor and sex trafficking survivors.

Method: This retrospective cross-sectional study used secondary data from a U.S.-based anti-trafficking agency, including client demographics and health-related referrals (medical, dental, vision, emotional/behavioral).

Results: The sample included 300 survivors (118 labor, 155 sex, 27 both). Labor trafficking survivors were 2.6 times as likely as sex trafficking survivors to receive dental referrals ($p < .05$) when controlling for demographics. Labor trafficking survivors received significantly more dental (109%), vision (64%) and other medical referrals (53%) and significantly fewer emotional/behavioral health referrals (66%) than sex trafficking survivors (all $p < .01$).

Implications: These referral patterns emphasize the range of health services needed by labor and sex trafficking survivors, highlighting the complex interplay between the type of trafficking, demographic factors, and access to care in the post-trafficking period. This research urges clinicians and anti-trafficking organizations to understand and address the unmet needs of labor and sex trafficking survivors, advancing global progress toward Sustainable Development Goals 8 (decent work and economic growth) and 16 (peace, justice, and strong institutions).

KEYWORDS

Behavioral health; chronic health conditions; dental care; labor trafficking; sex trafficking; vision care

Introduction

Human trafficking (HT) is a public health crisis that targets vulnerable individuals through force, fraud, or coercion for the purpose of exploitation, including acts of forced labor and/or commercial sex (Sprang et al., 2022). Individuals who experience HT suffer a myriad of human rights violations that threaten their short- and long-term health and well-being (Macias-Konstantopoulos & Stoklosa, 2022). Specific physical, psychological, and emotional health effects are determined by exposures unique to one's trafficking experience. These health outcomes are significantly influenced by the type of trafficking (labor and/or sex trafficking), demographic factors (sex, age, gender identity, race, ethnicity, geographic location, socioeconomic status, insurance status, immigration status, etc.), as well as baseline health characteristics prior to trafficking (Buller et al., 2015; Hemmings et al., 2016).

Significant investments demonstrate the recent prioritization to combat HT, including the United States' (U.S.) Justice Department's Office of Justice Programs allocation of \$90 million toward these

efforts in 2022 (Office of Public Affairs, 2022). Despite substantial criminal justice funding, gaps remain in funding available to evaluate the success of anti-trafficking interventions and their impact on survivor outcomes, including long term health outcomes, and to directly support survivors' longer-term needs.

Specifically, the lack of large representative samples and disproportionate emphasis on sex trafficking in empirical research often leads to the conflation of HT with sex trafficking and overlooks labor trafficking in the U.S. context (Burns et al., 2021; Cockbain & Bowers, 2019). Data from the U.S.-based National Human Trafficking Hotline (NHTH) suggests that incidents of sex trafficking are reported considerably more often than incidents of labor trafficking, although the gap has narrowed somewhat. For example, among 8,152 cases reported to the hotline in 2023, 68% involved sex trafficking only, 19% involved labor trafficking only, and 13% involved both labor and sex trafficking. Among 5,085 cases reported to the hotline in 2015, 82% involved sex trafficking only, 14% involved labor trafficking only, and 3% involved both labor and sex trafficking (NHTH, 2024). These data should not be considered prevalence estimates for trafficking in the U.S., so much as insights regarding the nature and scope of trafficking that have been reported to the hotline over time.

Globally, the United Nations (Global Report on Trafficking in Persons, 2022) highlights a significant increase in the prevalence of detected labor trafficking cases from 2003 to 2020. Specifically, the reported incidence of individuals who experienced forced labor rose from 0.02 to 0.37 per 100,000 population, comparable to the 0.37 of individuals who experienced sexual exploitation per 100,000 population in 2020 (Global Report on Trafficking in Persons, 2022). The report also highlighted an increased detection of "mixed labour and sexual exploitation situations" (p. 37). Ten percent of detected survivors in 2020 had experienced both labor and sex trafficking, compared with 2% in 2018. Whether these trends reflect better detection methods or an empirical increase in labor and "mixed" forms of trafficking, this trend underscores the urgency to capture the needs of individuals across different forms of trafficking, particularly labor trafficking (Schroeder et al., 2022). Given different exposures while being trafficked, Oram et al. (2016) posit that post-trafficking health and social needs may vary by trafficking experience. In order to provide person-centered care, understanding these differences is vital (Baldwin et al., 2020).

However, the paucity of disaggregated trafficking research may lead health professionals and service providers to inadvertently conflate the unique short- and long-term health needs among individuals who have experienced labor trafficking, sex trafficking, or both, resulting in a gap in person-centered care. Lack of disaggregated (by type of trafficking) research may also lead to ineffective allocation of anti-trafficking governmental and non-governmental organization funding, potentially diverting resources away from the most vulnerable.

A more refined data-driven approach will ensure that post-trafficking support reaches individuals who are routinely forgotten by our social and health care systems (Schroeder et al., 2022). Collecting information about the type of trafficking individuals experience, diverse demographics and socio-economic characteristics, and short-term and long-term needs will render more effective and equitable anti-trafficking interventions. Particularly, the design and implementation of interventions should be informed by the lived experiences of those marginalized and should represent both individuals experiencing labor and sex trafficking (Sprang et al., 2022).

Health Needs Among Trafficking Survivors

Studies within the U.S. demonstrate that a majority of individuals seek health care services during their time of trafficking (Anthony, 2018; Chisolm-Straker et al., 2016). The Polaris Project estimates that 68% of individuals experiencing HT utilized emergency department or hospital services, compared to the 44% who accessed primary care, 32% mental health care, 30% dental health care, and 13% vision health care doctor visits (Anthony, 2018). In a study of labor trafficking survivors, up to 81% of health care accessed was via a hospital during their exploitation. Other points of medical contact included urgent care facilities, clinics, or private practices (DeCicco et al., 2023). In spite of these broad patterns,

it's important to recognize that some survivor populations have more limited access to healthcare services while being trafficked. A study of labor and sex trafficking survivors in England, the majority of whom were foreign nationals, found that only 19% reported having access to healthcare services during their victimization. Other participants shared that they declined to seek or were simply unable to seek healthcare services due to a range of issues including a lack of identification documents, language barriers, limited knowledge of healthcare systems, and concerns about retaliation or other negative repercussions from traffickers, law enforcement, or immigration officials. Those who were able to access services were often closely monitored by their traffickers (Westwood et al., 2016).

The health ramifications of trafficking extend beyond immediate injury to chronic illness (Oram et al., 2016). Yet, consistent and reliable access to comprehensive health care remains elusive (Ottisova et al., 2016). Barriers to care may persist after a trafficking experience ends. Survivors may face a lack of information regarding available services, delays in accessing care, and stigma or judgment if they share their trafficking experience with providers. Foreign national survivors may face additional ongoing challenges around issues such as language barriers, limited insurance coverage, and unfamiliarity with local healthcare systems (Westwood et al., 2016).

While there is some consensus on health care utilization among individuals during their time of trafficking, our grasp of their health needs is limited. The exact nature of their injuries and illnesses is influenced by numerous factors, such as the means and conditions of exploitation – overcrowded and unsanitary living and working environments; poor diet and hygiene; type of physical or sexual assault; forced substance use; length of trafficking; and excessive work hours (Oram et al., 2016). A study with 207 women survivors from 14 countries documented a range of serious physical health concerns including headaches, chronic back and abdominal pain, memory issues; sexual and reproductive health symptoms including pelvic pain and gynecological infections; and mental health symptoms including Post Traumatic Stress Disorder (PTSD) and depression. The authors further noted that “diagnoses may be complicated because [survivors’] symptoms might be the result of physical injury or infection, and/or they may be somatic (non-psychiatric symptoms associated with psychological reactions)” (Zimmerman et al., 2006, p. 55). Survivors often encounter violence that is not clearly associated with their form of exploitation (Hopper & Gonzalez, 2018; Oram et al., 2016). For example, one study emphasized how 54% of women subject to forced labor in domestic work also experienced sexual violence (Oram et al., 2016). In addition to health outcomes and needs related to trafficking victimization, little is known regarding other health issues among survivors, such as needs related to conditions that may have preceded their trafficking experience and access to routine care.

There is a considerable body of literature that has investigated the long-lasting psychological and emotional toll endured by individuals subject to forced labor and sexual exploitation, such as depression, anxiety, PTSD, complex PTSD (C-PTSD), and suicidal ideation, and consequent need for mental health services (Turgumbayev et al., 2023; Zimmerman et al., 2006). However, their access to and need for care regarding physical, dental, and vision health issues are less understood. In one study, 45% of participants reported chronic medical conditions and a myriad of symptoms, yet did not capture other health needs among individuals who experienced trafficking, such as dental and vision needs (Oram et al., 2016). At the time of this study, only one U.S. publication has explored post-trafficking acute and chronic health issues impacting individuals who experienced labor and sex trafficking. This cohort received primary care through one service provider in New York City. The most common health issues were “blood pressure management (20.2% sex trafficking, 35.7% labor trafficking), musculoskeletal pain (32.3% sex trafficking, 42.9% labor trafficking), and unprotected intercourse (43.5% sex trafficking)” (Ravi et al., 2022, p. 1). Labor and sex trafficking survivors (21.4% labor, 24% sex trafficking) received some referrals to dentistry specialists. However, the study included only 14 labor trafficking survivors (Ravi et al., 2022). In terms of dental care needs, little is known. While certain dental issues like poor oral health and dental trauma serve as physical indicators for violence and abuse, these areas are among the least empirically studied among individuals who are currently experiencing and formerly experienced trafficking (Nuzzolese, 2014). To our knowledge, vision health needs have yet to be explored among HT survivors as well. Multiple gaps remain in our

understanding of trafficked persons' physical, mental, vision, and dental health needs, disaggregated by labor and sex trafficking exploitation.

Study Objectives & Rationale

This study investigated health-related referral patterns among individuals who have experienced labor and/or sex trafficking. We utilize health-related referrals from the Coalition to Abolish Slavery and Trafficking (Cast) as a proxy for these individuals' health care needs. Study objectives include (1) examining referral patterns for general health, mental health, dental and vision services provided to survivors of sex and labor trafficking, and (2) understanding differences in referral patterns between survivors of labor and sex trafficking as well as by various demographics (Cutbush et al., 2023).

By identifying referral patterns among populations who have experienced labor and sex trafficking, this study offers insights into their health needs in categories not explored previously in the literature and with the largest United States cohort of labor and sex trafficking survivors to date. Importantly, such referrals may be provided to address health needs that resulted from trafficking victimization, to care for health conditions that may have arisen prior to or after the trafficking period, and/or to ensure that survivors access routine and preventive care. With a greater understanding of the breadth of trafficking survivors' health referrals, governmental and non-governmental organizations can also make informed decisions when establishing budgets for comprehensive services.

Methods

Data Source

Cast is an anti-trafficking organization based in Los Angeles County, California. Staff provide comprehensive services including hotline support, emergency response, short- and long-term case management, emergency and transitional housing, and legal services. In addition to direct support for clients, Cast operates local and national survivor leadership programs, local and national training and technical assistance programs, and engages in research and policy advocacy. When clients enroll in long-term social services, staff administer standardized, comprehensive, and multifaceted assessments to identify clients' specific needs and service goals, e.g. the Outcomes for Human Trafficking Survivors tool (Cutbush et al., 2023). Clients may disclose additional needs outside of these assessments (e.g., during routine calls with case managers). If a need is identified that cannot be met within the agency and a client is open to accessing additional care, staff will provide a referral. Depending on available resources and clients' preferences, referral provision can range from simply providing information about a resource so that the client can make contact, to staff assisting with completing applications or connecting with resources, to attending appointments and advocating for clients within external sites. This process continues throughout clients' enrollment in services. Assessments are readministered every three to six months. Throughout referral provision, case managers assist clients in developing life skills through role playing and modeling advocacy skills. The hope is that, when a client graduates from the case management program, they are able to advocate on their own.

Secondary Analysis Methods

This project involved analysis of secondary, de-identified data from service provision at Cast. The data are considered secondary, as their primary purpose for collection is to inform programmatic efforts of the service-provider. Data were extracted by the second author, who oversees research and evaluation at the organization. Strict measures are in place to ensure confidentiality of clients' personal information. Staff who work directly with clients enter primary data into a database hosted on Quickbase, an application platform that Cast has used for years to store records from service provision and other program activities. Quickbase is

a secure platform, and all data stored there are encrypted. All client records are confidential (with exceptions for mandated reporting, as required by law). Only staff who provide direct support to clients are granted access to their personal information. Primary data from social services provision (emergency response, housing, case management) is restricted to social services staff. Primary data from legal services provision is restricted to staff attorneys. Clients' identifying information is automatically removed from intake forms, assessments, and service provision records before being made available to the research team. To add another level of protection, client ID numbers from service provision are changed so that de-identified, secondary data cannot be linked back to primary data.

The study sample included former clients who had accessed long-term social services, including community case management and/or transitional housing, between January 1, 2014 and June 30, 2023. Data came from two sources: intake forms, which provided information on clients' demographic characteristics and lived experiences; and service provision records, which provided information on referrals. In terms of ethical approval, this study was granted exempt status by the Institutional Review Board (IRB) at Mass General Brigham, waiving the need for informed consent as it was deemed non-human subjects research. The participants of this study did not give written consent for their individual data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

Measures

Client Demographics

Several demographic measures were drawn from client intake forms. These included country of citizenship (U.S., Mexico, Other), primary language (English, Spanish, Other), gender (cisgender women; cisgender man; transgender, nonbinary, or other), race/ethnicity (Black or African American, Asian or Pacific Islander, Hispanic/Latine, White or European, Multiracial or Other), and age category at intake (minor, 0–17; transitional aged youth, 18–24; adult, 25+).

Trafficking Experience

Categories included “labor trafficking,” “sex trafficking,” and “labor and sex trafficking.”

Health-Related Referrals

Cast collects data on four types of health-related referrals: dental, vision, general health (not including dental or vision), and emotional and behavioral health. Measures included the total number of referrals received for each category, as well as a binary variable (yes/no) to indicate whether clients had ever received referrals for each category.

Data Analysis

Initial analyses included descriptive statistics for all measures (means and standard deviations or frequencies and percentages, as appropriate) as well as bivariate analyses to explore associations between trafficking experience and each other measure (ANOVA or chi-squared tests, as appropriate). We then ran a series of logistic regressions to examine clients' relative odds of receiving any referrals for dental, vision, general health, or emotional and behavioral health care. These included bivariate models, with trafficking category as the sole independent variable, followed by multivariable models that included all demographic measures. Finally, following this same approach, we ran a series of Poisson regressions to examine patterns in the total number of health referrals received across each category. Poisson regression is particularly valuable for analyzing count data that is not normally distributed. Moreover, Poisson regression allows for the calculation of Incidence Increase Ratios (IRR's), which represent an anticipated percentage increase or decrease in a dependent variable with each single-unit change in an independent variable (Piza, 2012).

Table 1. Client Characteristics by Trafficking Experience ($N = 300$).

	Overall	Labor Trafficking Only	Sex Trafficking Only	Both Labor & Sex Trafficking
	N (%) or M (SD)	N (%) or M (SD)	N (%) or M (SD)	N (%) or M (SD)
<i>Trafficking Experience</i>				
Labor Trafficking Only	118 (39%)			
Sex Trafficking Only	155 (52%)			
Both Labor & Sex Trafficking	27 (9%)			
<i>Country of Citizenship^c</i>				
United States	119 (40%)	1 (1%)	110 (71%)	8 (30%)
Mexico	56 (19%)	43 (36%)	10 (7%)	3 (11%)
Other	125 (42%)	74 (63%)	35 (23%)	16 (59%)
<i>Primary Language^c (n = 295)</i>				
English	148 (50%)	15 (13%)	121 (79%)	12 (44%)
Spanish	105 (36%)	70 (61%)	24 (16%)	11 (41%)
Other	42 (14%)	30 (26%)	8 (5%)	4 (15%)
<i>Gender^c</i>				
Cisgender woman	223 (74%)	57 (48%)	144 (93%)	22 (82%)
Cisgender man	70 (23%)	60 (51%)	8 (5%)	2 (7%)
Trans, nonbinary, or other	7 (2%)	1 (1%)	3 (2%)	3 (11%)
<i>Race/Ethnicity^c (n = 291)</i>				
Black or African American	88 (30%)	12 (11%)	72 (48%)	4 (15%)
Asian or Pacific Islander	38 (13%)	27 (24%)	7 (5%)	4 (15%)
Hispanic/Latine	129 (44%)	68 (60%)	48 (32%)	13 (50%)
White or European	23 (8%)	4 (4%)	15 (10%)	4 (15%)
Multiracial or Other	13 (5%)	3 (3%)	9 (6%)	1 (4%)
<i>Age at Intake^{***c}</i>				
	28.39 (10.54)	31.84 (12.06)	24.83 (7.91)	33.70 (9.69)
Minor (0–17)	33 (11%)	12 (10%)	20 (13%)	1 (4%)
Transitional Aged Youth (18–24)	104 (35%)	26 (22%)	73 (47%)	5 (19%)
Adult (25+)	163 (54%)	80 (68%)	62 (40%)	21 (77%)

^a $p < .001$ in χ^2 analysis, ^{***} $p < .001$ in ANOVA.

Results

The sample included 300 clients, including 155 survivors of sex trafficking, 118 survivors of labor trafficking, and 27 survivors of both sex and labor trafficking. Complete data were available for most variables. There were nine missing cases for race/ethnicity (3%) and five missing cases for primary language (2%). Due to the minor scope of data loss, multivariable analyses were limited to clients with complete data ($N = 287$, 96% of the original sample).

Client characteristics appear in Table 1. Approximately half spoke English as their primary language ($n = 148$, 50%) and approximately one third spoke Spanish as their primary language ($n = 105$, 36%). Forty percent ($n = 119$) were U.S. citizens and 19% ($n = 56$) were citizens of Mexico. A considerable majority were cisgender women ($n = 223$, 74%). Approximately one third of clients were Black or African American ($n = 88$, 30%) and 44% were Hispanic/Latine ($n = 129$). Slightly over half of clients were adults (25 years and older) at the beginning of services ($n = 163$, 54%).

Several demographic characteristics varied by trafficking experience in chi-squared analyses and ANOVAs ($p < .001$ for all). Sex trafficking survivors were the most likely to be U.S. citizens and to report English as their primary language, and labor trafficking survivors were the most likely to be citizens of Mexico or other nations and to report Spanish as their primary language. Sex trafficking survivors and survivors of both labor and sex trafficking were more likely to be cisgender women. More than half of labor trafficking survivors were Hispanic/Latine ($n = 68$, 60%) and only 11% ($n = 12$) were Black or African American, whereas 32% ($n = 48$) of sex trafficking survivors were Hispanic/Latine and 48% ($n = 72$) were African American. Sex trafficking survivors tended to begin services at younger ages than labor trafficking survivors or survivors of both labor and sex trafficking (mean age at intake = 24.83, 31.84, and 33.70 respectively).

Table 2. Referrals by Trafficking Experience ($N = 300$).

	Overall	Labor Trafficking Only	Sex Trafficking Only	Both Labor and Sex Trafficking
<i>Any Referrals</i>	N (%)	N (%)	N (%)	N (%)
Dental ^b	99 (33%)	52 (44%)	37 (24%)	10 (37%)
Vision	61 (20%)	31 (26%)	24 (16%)	6 (22%)
General Health ^c	190 (63%)	97 (82%)	78 (50%)	15 (56%)
Emotional & Behavioral	173 (58%)	61 (52%)	97 (63%)	15 (56%)
<i>Total Referrals</i>	<i>Overall</i> M (SD)	<i>Labor Trafficking Only</i> M (SD)	<i>Sex Trafficking Only</i> M (SD)	<i>Both Labor and Sex Trafficking</i> M (SD)
Dental	1.19 (2.81)	1.57 (2.97)	0.81 (2.45)	1.70 (3.67)
Vision	0.89 (2.81)	1.27 (3.43)	0.61 (2.38)	0.85 (1.77)
General Health*	4.93 (13.40)	7.70 (19.96)	3.07 (5.52)	3.52 (5.75)
Emotional & Behavioral**	4.73 (11.17)	2.14 (3.88)	6.37 (13.47)	6.67 (15.59)

"General Health" refers to all medical referrals aside from dental and vision.

^a $p < .05$, ^b $p < .01$, ^c $p < .001$ in χ^2 analysis; * $p < .05$, ** $p < .01$ in ANOVA.

Referrals Disaggregated by Trafficking Experience

A majority of clients had received general health ($n = 190$, 63%) and emotional and behavioral health referrals ($n = 173$, 58%), whereas one-third ($n = 99$, 33%) and one-fifth ($n = 61$, 20%) of clients had received dental and vision referrals, respectively. Chi squared tests indicated that labor trafficking survivors and survivors of both labor and sex trafficking were more likely to receive dental referrals than sex trafficking survivors (44% and 37% vs. 24%, $p < .01$). Labor trafficking survivors also received more general health referrals than either sex trafficking survivors or survivors of both kinds of trafficking (82% vs. 50% and 56%, $p < .001$ s).

When examining total referrals received for each category, clients overall received notably fewer dental and vision referrals ($M = 1.19$ and $M = 0.89$, respectively) than general and emotional and behavioral health referrals ($M = 4.93$ and $M = 4.73$, respectively). ANOVAs indicated significant variation for general health ($p < .05$) and emotional and behavioral health ($p < .01$) referrals. Bonferroni post-hoc analyses indicated that, on average, labor trafficking survivors received more general health referrals (7.70 vs. 3.07, $p < .05$), and fewer emotional and behavioral health referrals (2.14 vs. 6.37, $p < .01$) than sex trafficking survivors. Survivors of both labor and sex trafficking did not differ significantly from the other groups. Data for referrals by trafficking experience appear in Table 2.

Logistic Regression of Health-Related Referrals

We utilized logistic regression to explore patterns in clients' odds of receiving any health-related referrals. This began with a series of bivariate analyses for a more rigorous analysis of associations between trafficking experience and each referral category. Relative to sex trafficking survivors, labor trafficking survivors were 2.5 times as likely to receive dental referrals (OR = 2.51, SE = 0.66, $p < .001$), approximately twice as likely to receive vision referrals (OR = 1.94, SE = 0.59, $p < .05$), and 4.5 times as likely to receive general health referrals (OR = 4.56, SE = 1.32, $p < .001$). There were no significant differences in the odds of emotional and behavioral health referrals. Survivors of sex trafficking only did not differ significantly from survivors of both labor and sex trafficking for any of the referral categories we examined.

Findings for multivariable logistic regression, which included all demographic measures as well as labor and/or sex trafficking experience, appear in Table 3. Labor trafficking survivors were approximately 2.5 times as likely as sex trafficking survivors to receive dental referrals (OR = 2.61, SE = 1.15, $p < .05$). Spanish speaking clients were less likely to receive dental referrals than English speaking clients (OR = 0.28, SE = 0.16, $p < .05$) and transgender and nonbinary clients were 7 times as likely as cisgender women to receive dental referrals (OR = 7.05, SE = 6.58, $p < .05$). Hispanic/Latine clients were approximately 3 times as likely as Black or African American Clients to receive dental referrals

Table 3. Logistic Regressions for Health-Related Referrals ($N = 287$).

	<i>Dental</i>		<i>Vision</i>		<i>General Health</i>		<i>Emotional & Behavioral Health</i>	
	OR	SE	OR	SE	OR	SE	OR	SE
<i>Trafficking Category (ref: sex trafficking only)</i>								
Labor Trafficking Only	2.61*	1.15	1.78	0.85	2.21	1.05	1.10	0.49
Both Labor & Sex Trafficking	1.13	0.60	1.14	0.68	0.90	0.45	0.78	0.39
<i>Citizenship (ref: U.S.)</i>								
Mexico	1.55	0.95	2.63	1.89	3.37	2.33	1.04	0.67
Other	2.53	1.29	1.56	1.01	1.34	0.66	1.36	0.70
<i>Primary Language (ref: English)</i>								
Spanish	0.28*	0.16	0.91	0.59	1.67	1.00	1.14	0.68
Other	1.21	0.71	4.24*	3.01	3.90*	2.60	0.86	0.51
<i>Gender (ref: cisgender woman)</i>								
Cis man	0.52	0.23	0.10***	0.58	0.50	0.24	0.23**	0.10
Trans, nonbinary, other	7.05*	6.58	0.75	0.73	0.89	0.86	1.23	1.11
<i>Race/Ethnicity (ref: Black or African American)</i>								
Asian or Pacific Islander	0.71	0.43	1.23	0.83	0.74	0.50	0.70	0.41
Hispanic/Latine	3.13*	1.52	4.47*	2.62	2.01	0.93	2.28	1.10
White or European	0.60	0.37	0.77	0.67	1.82	0.94	2.39	1.26
Multiracial or Other	0.65	0.57	2.11	2.41	2.41	1.57	4.31*	3.13
<i>Age at Intake (ref: minor)</i>								
Trans. aged youth (18–24)	0.99	0.48	0.42	0.23	0.50	0.24	0.58	0.28
Adult (25+)	1.05	0.48	0.41	0.22	0.49	0.24	0.38*	0.18
<i>Log Likelihood</i>	-162.77		-120.88		-162.02		-179.30	
<i>LR χ^2 (df)</i>	36.01** (14)		49.86*** (14)		55.04*** (14)		30.87** (14)	
<i>Pseudo R²</i>	0.10		0.17		0.15		0.08	

* $p < .05$, ** $p < .01$, *** $p < .001$; OR = odds ratio, SE = standard error.

Log likelihood, LR χ^2 , and Pseudo R^2 are all measures of model fit, with higher values indicating a better fit.

(OR = 3.13, SE = 1.52, $p < .05$). We did not find significant associations between trafficking experience and any other referral categories. For vision, cisgender men were substantially less likely than cisgender women to receive referrals (OR = 0.10, SE = 0.58, $p < .001$) and Hispanic/Latine clients were approximately 4.5 times as likely as Black or African American clients to receive referrals (OR = 4.47, SE = 2.62, $p < .05$). The only significant measure for general health was primary language, with clients who spoke languages other than English or Spanish approximately 4 times as likely to receive referrals as those who spoke English (OR = 4.24, SE = 3.01, $p < .05$). For emotional and behavioral health, cisgender men were approximately one quarter as likely as cisgender women to receive referrals (OR = 0.23, SE = 0.10, $p < .01$). Clients in the “Multiracial or Other” group were 4 times as likely as Black or African American clients to receive referrals (OR = 4.31, SE = 3.13, $p < .05$) and clients who began services as adults were less than half as likely to receive referrals as those who began services as minors (OR = 0.38, SE = 0.18, $p < .05$).

Poisson Regression of Health-Related Referrals

We utilized Poisson regression to explore patterns in the number of referrals received across each category. As with logistic regression, we began with a series of bivariate analyses. Labor trafficking was significantly associated with more dental referrals (IRR = 1.93, SE = 0.22, $p < .001$), vision referrals (IRR = 2.10, SE = 0.28, $p < .001$), and general health referrals relative to sex trafficking (IRR = 2.51, SE = 0.14, $p < .001$) as well as fewer emotional and behavioral health referrals (IRR = 0.34, SE = 0.02, $p < .001$). Survivors of both labor and sex trafficking received significantly more dental referrals than survivors of sex trafficking only (IRR = 2.09, SE = 0.36, $p < .001$).

Findings for multivariable Poisson regressions appear in Table 4. Whereas associations between labor and sex trafficking experience and the odds of receiving health-related referrals had largely disappeared in multivariable logistic regressions, a different pattern emerged when examining the total number of referrals among groups (i.e., when examining the overall scope

Table 4. Poisson Regressions for Health-Related Referrals ($N = 287$).

	Dental		Vision		General Health		Emotional & Behavioral Health	
	IRR	SE	IRR	SE	IRR	SE	IRR	SE
<i>Trafficking Category (ref: sex trafficking only)</i>								
Labor Trafficking	2.09***	0.37	1.64**	0.30	1.53***	0.13	0.34***	0.03
Both Labor & Sex Trafficking	1.98**	0.40	1.06	0.26	0.99	0.12	1.13	0.10
<i>Citizenship (ref: US)</i>								
Mexico	2.43***	0.54	1.44	0.43	4.08***	0.49	2.73***	0.28
Other	2.35***	0.46	1.36	0.39	2.03***	0.22	2.52***	0.23
<i>Primary Language (ref: English)</i>								
Spanish	0.34***	0.07	1.17	0.31	0.39***	0.04	0.89	0.08
Other	1.60*	0.32	4.79***	1.46	4.07***	0.42	0.99	0.15
<i>Gender (ref: cisgender woman)</i>								
Cis man	0.37***	0.07	0.14***	0.03	0.52***	0.05	0.43***	0.05
Trans, nonbinary, other	0.80	0.31	0.41	0.19	0.63*	0.14	0.84	0.16
<i>Race/Ethnicity (ref: Black or African American)</i>								
Asian or Pacific Islander	0.42***	0.09	0.58*	0.15	0.51***	0.05	0.71*	0.12
Hispanic/Latine	2.37***	0.44	4.33***	1.01	2.55***	0.26	1.27**	0.12
White or European	1.03	0.24	0.17*	0.12	1.30*	0.15	1.99***	0.22
Multiracial or Other	0.44	0.27	0.95	0.70	1.23	0.27	0.94	0.20
<i>Age at Intake (ref: minor)</i>								
Trans. aged youth (18–24)	0.52***	0.09	0.85	0.20	0.71**	0.07	0.25***	0.02
Adult (25+)	0.53***	0.09	0.91	0.19	0.86	0.08	0.17***	0.01
<i>Log Likelihood</i>								
	-559.68		-484.20		-1305.78		-1357.78	
<i>LR χ^2 (df)</i>								
	198.25*** (14)		272.30*** (14)		1305.22*** (14)		1379.79*** (14)	
<i>Pseudo R²</i>								
	0.15		0.22		0.33		0.34	

* $p < .05$, ** $p < .01$, *** $p < .001$; IRR = Incidence Increase Ratio, SE = Standard Error.

Log likelihood, LR χ^2 , and Pseudo R^2 are all measures of model fit, with higher values indicating a better fit.

of referrals rather than their presence/absence). In multivariable Poisson regressions, labor trafficking was associated with 109% more dental referrals (IRR = 2.09, SE = 0.37, $p < .001$), 64% more vision referrals (IRR = 1.64, SE = 0.30, $p < .01$), 53% more general health referrals (IRR = 1.53, SE = 0.13, $p < .001$), and 66% fewer emotional and behavioral health referrals (IRR = 0.34, SE = 0.03, $p < .001$) than sex trafficking. Survivors of both labor and sex trafficking received 98% more dental referrals than survivors of sex trafficking only (IRR = 1.98, SE = 0.40, $p < .01$).

All demographic variables were significantly associated with referral totals in at least one category. Relative to U.S citizens, citizens of Mexico and other nations received more referrals for dental (IRR = 2.43 and 2.35, SE = 0.54 and 0.46, both $p < .001$), general health (IRR = 4.08 and 2.03, SE = 0.49 and 0.22, both $p < .001$), and emotional and behavioral health (IRR = 2.73 and 2.52, SE = 0.28 and 0.23, both $p < .001$). Relative to clients whose primary language was English, Spanish-speaking clients received fewer referrals for dental (IRR = 0.34, SE = 0.07, $p < .001$) and general health (IRR = 0.39, SE = 0.04, $p < .001$); whereas those who spoke other languages (besides English and Spanish) received significantly more dental (IRR = 1.60, SE = 0.32, $p < .05$), vision (IRR = 4.79, SE = 1.46, $p < .001$), and general health referrals (IRR = 4.07, SE = 0.42, $p < .001$). Relative to cisgender women, cisgender men received fewer referrals across all four categories (IRR = 0.37, IRR = 0.07 for dental; IRR = 0.14, SE = 0.03 for vision; IRR = 0.52, SE = 0.05 for general health; IRR = 0.43, OR = 0.5 for emotional and behavioral; all $p < .001$); and transgender and nonbinary clients received fewer general health referrals (IRR = 0.63, SE = 0.14, $p < .05$). Relative to Black or African American clients, Asian and Pacific Islander clients received significantly fewer referrals across all four categories (IRR = 0.42, SE = 0.09, $p < .001$ for dental; IRR = 0.58, SE = 0.15, $p < .05$ for vision; IRR = 0.51, SE = 0.05, $p < .001$ for general health; IRR = 0.71, SE = 0.12, $p < .05$ for emotional and behavioral); Hispanic/Latine clients received significantly more referrals across all categories (IRR = 2.37, SE = 0.44, $p < .001$ for dental; IRR = 4.33, SE = 1.01, $p < .001$ for vision; IRR = 2.55, SE = 0.26, $p < .001$ for general health; IRR = 1.27, SE = 0.12, $p < .01$ for emotional and behavioral); and White or European clients received significantly fewer vision

referrals (IRR = 0.17, SE = 0.12, $p < .05$), and significantly more general health (IRR = 1.30, SE = 0.15, $p < .05$) and emotional and behavioral health referrals (IRR = 1.99, SE = 0.22, $p < .001$).

Relative to clients who began services as minors, those who began as transitional aged youth (18–24) received fewer dental (IRR = 0.52, SE = 0.09, $p < .001$), general health (IRR = 0.71, SE = 0.07, $p < .01$), and emotional and behavioral referrals (IRR = 0.25, SE = 0.02, $p < .001$); and those who began as adults (25+) received fewer dental (IRR = 0.53, SE = 0.09, $p < .001$) and emotional and behavioral health referrals (IRR = 0.17, SE = 0.01, $p < .001$).

Discussion

This study illuminates health-related referral patterns among 300 trafficking survivors (118 labor, 155 sex, 27 both) in the U.S., representing one of the largest cohorts of trafficking survivors assessed within a high-income country context. It is among the first studies to systematically evaluate such patterns among individuals accessing post-trafficking services, including labor trafficking survivors – an often-underrepresented group in existing trafficking literature. Health assessment and care delivery to individuals who have experienced trafficking have historically prioritized the immediate health needs of survivors, particularly for those who have experienced sex trafficking. While there is growing awareness of the need for long-term mental health support, there remains a significant empirical gap in understanding the wide range of long-term physical and mental health consequences affecting both labor and sex trafficking survivors. This study therefore provides critical insights for healthcare practitioners and anti-trafficking organizations, advocating for more data-driven and survivor-centered approaches in referral processes and clinical care for trafficking survivors.

Our findings build on prior research on the broad range of medical needs of labor and sex trafficked people. In our sample, sex trafficking survivors exhibited higher rates of emotional and behavioral health referrals. This trend echoes findings in existing literature, which links these survivors' elevated psychosocial needs to complex post-trafficking trauma, often due to widespread pre-trafficking adversities such as child abuse and physical and sexual violence (Hopper & Gonzalez, 2018; Turner-Moss et al., 2014). However, it is also important to note the significant levels of depression, anxiety, stress, PTSD, and suicidality among labor trafficking survivors, highlighting their substantial but possibly underrecognized behavioral health needs (Hopper & Gonzalez, 2018). Our observations regarding dental and vision referrals confirm that these persist as health concerns among larger samples of labor trafficking survivors (Ravi et al., 2022; Turner-Moss et al., 2014). Finally, more general health referrals for labor trafficking survivors suggest that a broader range of medical needs may exist in this population, including but not limited to long-term outcomes of victimization. It could also suggest that sex trafficking survivors are more likely to receive care while experiencing exploitation. These insights underscore three essential priorities for clinicians (e.g., health care providers and social workers), as well as anti-HT organizations: 1. Building capacity for mental healthcare to provide comprehensive and longitudinal support to labor and sex trafficking survivors, 2. Understanding survivors' dental and vision health needs and improving their access to affordable dental healthcare, and 3. Directing resources to better understand and address the broad, long-term health needs of both labor and sex trafficking survivors.

Given that a majority of our sample (58% overall, including 52% of labor trafficking only, 63% of sex trafficking only, 56% of both labor and sex trafficking survivors) received mental health referrals while enrolled in long-term services, it is crucial for stakeholders to prioritize understanding and addressing the complex psychosocial needs of both labor and sex trafficking survivors. Trafficking survivors experience significant trauma that manifests as both mental health and physical symptoms, such as chronic pain, headaches, sleep disturbances, and gastrointestinal symptoms (Hopper & Gonzalez, 2018; Oram et al., 2012). With proper education, service-providers can make necessary mental health referrals, such as chronic pain-focused psychotherapy. Failure to properly train clinicians in screening, identifying, and compassionately addressing the trauma roots of survivors' physical symptoms could exacerbate such symptoms and invalidate survivors' health concerns, further

ostracizing individuals already neglected by our health care and social systems (Lumley et al., 2022; Schubiner et al., 2023). First-line service providers must be trained to screen, evaluate, and treat not only these complex co-morbid conditions but also the physical manifestations of trauma.

Both labor and sex trafficking survivors can experience co-morbid mental health symptoms of PTSD, depression, substance use, and suicidality (Clawson et al., 2008; Hopper & Gonzalez, 2018; Lorvinsky et al., 2023). Co-morbid mental health conditions and our finding that many clients received multiple emotional/behavioral health referrals highlight the need for increased trauma-informed care training. This training should educate providers about trauma-related symptoms and psychological traumas experienced by sex and labor trafficking survivors (Anthony, 2018). C. Powell et al. (2018) emphasize the need to improve mental health service providers' capacity to meet the specific needs of HT survivors. Both a lack of training and full-time personnel contribute to gaps in mental health care for survivors (C. Powell et al., 2018).

Even trauma-informed mental health care, however, will need to ensure that survivors' psychosocial support is both comprehensive and long-lasting. This is particularly crucial considering the challenges faced by underinsured or uninsured survivors. Staff and client experiences at Cast speak to this issue, as clients typically receive mental health referrals to overburdened Federally Qualified Health Centers (FQHCs) and Los Angeles County's Department of Mental Health outpatient clinics. Inadequate insurance coverage, lack of clinical coordination at FQHCs, and relatively long wait times often confine survivors to short-term mental health care (Kaliebe, 2016; Lewis et al., 2018; Schraeder & Reid, 2015). Therefore, there is a critical need to increase funding for survivors' consistent and prolonged mental health care, particularly in FQHCs and other health care facilities that serve marginalized communities, which are currently overwhelmed by high demand and limited to offering basic services (Munro-Kramer et al., 2021; C. Powell et al., 2018). The practice of incorporating psychosocial support into primary care, or "integrated care," holds promise for providing survivors' with sustained access to mental health treatment and improving outcomes (Kinnan et al., 2019; C. Powell et al., 2018; Ravi et al., 2022).

With respect to our dental health findings, existing research primarily highlights the responsibility of dental professionals in recognizing common trafficking warning signs, identifying individuals experiencing trafficking, and providing adequate assistance (O'Callaghan, 2012). Of note, *both* dental health and general health practitioners should be attentive in inquiring about severe dental injuries, which may indicate potential trafficking situations (Fisher-Owens et al., 2017; O'Callaghan, 2012; Toney-Butler et al., 2023). However, we must not narrow our focus on the role of dentistry as a screening tool for HT. Our findings suggest that dental problems represent a neglected health concern among individuals who have experienced HT, particularly labor trafficking. The finding that labor trafficking survivors received 109% more dental referrals than sex trafficking survivors suggests that labor trafficking survivors might encounter conditions before, during, or after their trafficking experience that lead to more pronounced dental health needs or additional barriers to routine care (Turner-Moss et al., 2014). Previous research on oral health interventions for domestic violence survivors identified dental health as a preventable, yet overlooked, contributor to poor overall health and wellbeing. Following dental treatment, approximately half of one study's patients reported a reduction in pain and discomfort associated with their teeth and gums, as well as an improvement in their confidence regarding the appearance of their teeth and in their overall quality of life (Abel et al., 2013). Therefore, broadening clinicians' scope from immediate and severe dental traumas to prolonged care for oral health, could yield significant positive clinical outcomes. As health care systems actively incorporate post-trafficking training and support programs, stakeholders should specifically prioritize survivors' financial limitations and expand access to affordable dental health care. Programs, such as partnerships between dental schools and local anti-HT support organizations, are promising models for trauma-informed dental care in the context of training future dentists and providing free to low-cost dental care for survivors (Abel et al., 2013).

More generally, our findings demonstrate the critical need for increased funding not only for long-term mental health care but also for specialized dental and vision care for labor and sex trafficking

survivors. Currently, there is no systematic public health response to trafficking in the United States. Instead, the limited health care services available to survivors often arise from smaller, isolated programs rather than a coordinated system. Healthcare delivery for survivors has traditionally prioritized immediate needs, primarily within a criminal justice approach where victim service providers frequently collaborate with law enforcement. A true public health approach should expand beyond short-term, cooperation-based care and reallocate funding away from the DOJ or law enforcement channels to more diverse streams, such as safety-net health systems, local health departments, FQHCs, community mental health centers, anti-violence organizations, and other nonprofit organizations (Littenberg & Baldwin, 2017; C. L. Powell & Bennouna, 2017). Key government and non-governmental anti-HT stakeholders must broaden their funding scope to address the comprehensive health needs of trafficking survivors (Ravi et al., 2022). The current focus on initial health screenings – often driven by the goal of cooperation in investigations – leads to an oversight of survivors' longitudinal health consequences. This approach leads to an undervaluation of aggregate healthcare costs associated with untreated health issues and results in misaligned distribution of resources (Walby et al., 2022).

Specifically, there is a heavy emphasis on initial health screenings at the expense of addressing the long-term medical needs of survivors, particularly in areas such as oral and vision health. These gaps highlight the urgent need for funding that not only covers preventative care but also caters to the ongoing and diverse health needs of individuals who have endured *both* labor and sex trafficking. By broadening the scope of funding to include these critical areas, we can more accurately meet the true healthcare demands of trafficking survivors and ensure a more balanced and effective approach to their long-term well-being and recovery.

Finally, our findings have implications for program evaluation. Governmental and philanthropic agencies routinely request data on service provision and outcomes, in order to effectively guide the distribution of funding and other resources. In this study, we approached the question of variation among labor and sex trafficking survivors' health-related referrals in two ways: through logistic regression, which analyzed whether labor trafficking survivors were more or less likely than sex trafficking survivors to receive any referrals in a given category; and Poisson regression, which analyzed variation in the total number of referrals received for each category. In other words, we examined differences in the *presence* and *scope* of health-related referrals. Each approach yielded valuable, but different, information. When examining the odds of receiving any referrals (presence of healthcare needs), type of trafficking experience (labor vs. sex) was significantly associated with dental needs only. When examining the total number of referrals (scope of healthcare needs), there was significant variation between labor and sex trafficking survivors' dental, vision, general health, and emotional and behavioral needs. We encourage anti-trafficking practitioners to take multifaceted approaches to data collection and program evaluation, in order to develop as comprehensive as possible understanding of clients' needs.

Limitations

There are several limitations to consider when evaluating the results of this study. One primary limitation is the inability to distinguish between health referrals relating to victimization outcomes and health referrals for other needs, such as issues predating victimization or routine care, which limits our understanding of the overall health impacts. Future research should explore survivors' physical and psychological symptoms across pre-trafficking, trafficking, and post-trafficking periods that go beyond reports of symptoms and are disaggregated by exploitation type, and should further examine survivors' access to routine and preventive care. This comprehensive approach is necessary to develop interventions that effectively address survivors' acute and chronic health needs exacerbated after trafficking, and to further understand gaps in care access. For instance, our finding that labor trafficking survivors received more dental, vision, and general health referrals does not, in itself, explain the source of that difference. This may result from variation in health issues and resources

before, after, or even during exploitation. It's possible that sex trafficking survivors interact more frequently with clinicians during exploitation, possibly due to more immediate medical needs or easier access to healthcare. In contrast, individuals experiencing labor trafficking may encounter substantial barriers to accessing healthcare, often sharing overlapping challenges with immigrant populations; these barriers can be exacerbated in certain political climates and regions with stricter immigration enforcement.

While the use of referral data as a proxy for health needs provides valuable insights, it falls short of capturing the entire spectrum of these needs. This limitation is especially significant given some clients might hesitate to disclose certain health conditions or decline referrals. Additionally, our approach to preserving client confidentiality included a broad classification of secondary data into categories like “general health referrals” and “emotional and behavioral health referrals.” While this approach ensures client privacy, it constrains the specificity and depth of our analysis. For example, we do not have specific information regarding referrals for sexual and reproductive health services or related needs such as abortion, contraception, or prenatal care. This is an important area for further study. The absence of data on socioeconomic and insurance factors also represents a critical gap, essential for understanding the barriers to healthcare access and resulting health needs of survivors of HT. Lastly, while the findings contribute to the understanding of HT survivors' health referrals, they reflect the experiences of individuals who accessed anti-trafficking services, thus limiting the generalizability of our conclusions.

Despite these limitations, this research provides a foundational understanding of health-related referrals among labor and sex trafficking survivors and lays the groundwork for future studies that could encompass more diverse populations and address these identified gaps.

Conclusion

This study presents the largest data analysis of labor and sex trafficking survivors' health-related referral patterns, including dental and vision needs by exploitation type. Structural changes, including increased capacity of post-trafficking services to address mental, dental, vision, and general health care needs, are critical to improving the health and well-being of trafficking survivors.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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