

Original Study

Domestic Minor Sex Trafficking Patients: A Retrospective Analysis of Medical Presentation

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ABSTRACT

Study Objective: To describe the clinical characteristics of patients referred for domestic minor sex trafficking (DMST) to improve identification and intervention.

Design: Retrospective cohort study.

Setting: The Lawrence A. Aubin, Sr Child Protection Center at Hasbro Children's Hospital where patients are evaluated by child abuse pediatricians in outpatient, emergency department, and inpatient settings.

Participants: A total of 41 patients younger than the age of 18 years referred for the evaluation of DMST involvement between August 1, 2013 and March 30, 2015.

Interventions and Main Outcome Measures: We collected demographic, social-environmental, medical, and psychiatric variables from the medical records of patients referred for evaluation who have self-disclosed, been reported with evidence, and/or have histories that place them at high risk for DMST involvement.

Results: Children had frequent contact with medical providers, with 81% seen in the year before referral for DMST. Childhood maltreatment and family dysfunction were identified (sexual abuse, 21/37 or 57%; parental substance abuse, 22/37 or 60%) in the 41 patients. Children had medical problems (eg, sexually transmitted infection, 13/41 or 32%), psychiatric needs (eg, acute suicidality, 8/41 or 20%; at least 1 previous psychiatric admission, 19/41 or 46%), and substance use (36/41 or 88%). Although 26/41 (63%) had runaway and 17/41 (42%) lived in a group home placement, 28/41 (68%) currently lived at home and 29/41 (71%) presented with a parent/guardian or relative.

Conclusion: Children referred for DMST present frequently to physicians and have complex medical and psychiatric needs. Medical providers' increased awareness of this health issue would inform victim identification and intervention.

Key Words: Domestic minor sex trafficking, Commercial sexual exploitation of children, Sexual abuse, Victim, Patient

Introduction

The commercial sexual exploitation of children (CSEC) is often perceived as a hidden atrocity that occurs in an international setting. However, this severe manifestation of sexual abuse has become an increasingly recognized health issue in the United States, known as domestic minor sex trafficking (DMST). DMST, as defined by the Trafficking Victims Protection Act of 2000, is the "recruitment, harboring, transportation, provision, or obtaining of a person for the purpose of a commercial sex act" where the person is a citizen younger than the age of 18 years.¹ This encompasses sexual acts such as survival sex, prostitution, and stripping, where the child is the victim of criminal exploitation in exchange for remuneration in the form of money, food, shelter, or another valued entity.²⁻⁴ Research conservatively estimates that 150,000-300,000 American

children are at risk of being victimized each year, and the average age at which they are recruited is 12-14 years.⁵

By virtue of their age and development, children are more vulnerable than adults to exploitation and are susceptible to deception and manipulation.⁵ However, some children are at heightened risk because of individual, family, and community factors.⁶ According to the Institute of Medicine, children with a history of maltreatment (eg, sexual/physical abuse, neglect) are at especially high risk, as are those who come from families with other dysfunctions (eg, parental substance abuse, domestic violence), have a history of Child Protective Services (CPS) involvement, use substances, and/or have mental health disorders.⁶ Runaway, homeless, and group home youth are also at a high risk because they often come from environments with impaired parental supervision, poverty, neglect, and abuse.⁶

Victims suffer from significant immediate and long-term adverse health consequences as the result of severe sexual, physical, and emotional abuse endured during their exploitation.⁵⁻⁷ Existing studies indicate that victims experience physical assault, substance abuse, neglect, unsafe sexual practice (eg, exposure to sexually transmitted infections [STIs], lack of contraceptive use), malnutrition,

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untreated chronic medical conditions, and psychological issues (eg, depression, self-destructive behaviors).^{8,9} As a result of these serious consequences, trafficked patients present frequently for medical and psychiatric evaluations. Lederer and Wetzel reported that 88% of 107 US adult and adolescent female victims interacted with health care providers during their time of trafficking; however, none of them reported being identified and assisted by those professionals.⁸

Previous survey studies have identified that providers, including physicians, have limited training, low levels of confidence and knowledge, and reported barriers to identifying and managing sex-trafficked patients.^{10,11} A 2015 study by Titchen and colleagues showed that although medical trainees and physicians recognized the significance of knowing about sex trafficking, most have never suspected a patient was trafficked and were unaware of the scope of the problem.¹² These studies establish the importance of informing medical providers who have the opportunity to identify and care for victims. Patients being victimized do not always present with evidence and inconsistently self-disclose involvement^{6,13,14}; therefore, physicians must become knowledgeable of their clinical characteristics to recognize high-risk or involved youth.

Empirical research available for pediatric providers regarding the risk factors for and the common medical and psychiatric problems associated with DMST patients remains relatively limited.^{15,16} Much of the available information relies on qualitative interviews of sex trafficking survivors and the professionals who work with them.¹⁶ Most peer-reviewed quantitative data occurs in an international population, with a focus on HIV and other sexual health outcomes of trafficking.^{17–19} Published studies typically use mixed populations of children and adults, different forms of human trafficking (labor and sexual), and geographically/culturally diverse samples,^{4,6,20} precluding identifying factors specific to incidence of sex-trafficked minors in the United States.

Recently, in a valuable study Varma and colleagues reported that suspected sex-trafficked patients were more likely to have had histories of substance use/abuse, STIs, running away from home, and CPS involvement compared with sexually abused children.²¹ However, their definitional criteria did not distinguish patients confirmed of sex trafficking involvement from those who were suspected. The study offered limited clinical detail to inform clinicians in providing direct and more specific care for this particular patient population. Greater focus in research on previous maltreatment and high-risk behaviors, mental health concerns, physical/genital examination findings, STIs, and treatment options during the referral visit is essential to develop a more comprehensive assessment of these youth within the medical environment.

The objective of the present study was to describe the demographic, social-environmental, medical, and psychiatric characteristics of pediatric patients referred to child abuse pediatricians for the evaluation of DMST in the context of a multidisciplinary team. Our goal was to contribute detailed quantitative evidence to further understand the risk factors associated with DMST involvement

and the complex medical and psychiatric needs of victims reported in previous literature.^{6,21,22} These data might assist providers who are in the position of identifying, managing and treating this unique patient population.

Materials and Methods

Setting

Medical records of patients at the Lawrence A. Aubin, Sr Child Protection Center (The Aubin Center) at Hasbro Children's Hospital were retrospectively reviewed (n = 41). The Aubin Center is the only child protection program in the state of Rhode Island where patients are evaluated by board-certified child abuse pediatricians in the outpatient, emergency department, and inpatient settings. The Aubin Center physicians, staff nurses, and social workers participate in a multidisciplinary setting comprised of CPS, law enforcement, forensic interviewers, attorney general's representatives, and community mental health providers.

Patients

Subject identification was obtained from an electronic record database of patients maintained between August 1, 2013 and March 30, 2015. Inclusion criteria were all patients younger than the age of 18 years referred to The Aubin Center for the evaluation of sexual abuse secondary to DMST involvement. Referrals were made by medical facilities (emergency department, inpatient psychiatry), a parent/guardian, teacher, legal and law enforcement agencies, as well as state child protective agencies. Referrals were on the basis of patient disclosure and/or evidence that indicated DMST victimization (eg, law enforcement sting operations, pictures posted on [Backpage.com](#)), or suspected involvement. Patients suspected of involvement were referred because of a combination of significant concerns: had friends who were victimized, had been solicited to engage, and/or had histories (eg, a referred patient who denies trafficking but frequently runs away with friends involved in trafficking and presents with an STI) that placed them at high risk.

Record Review and Data Analyses

The Rhode Island Hospital institutional review board approved all research procedures. An electronic medical record (EMR) review was conducted by a trained research assistant, the second author, and overseen by the principal investigator, the first author. EMRs included inpatient, outpatient, and consultation patient encounters in the emergency department, The Aubin Center, and other medical center clinics (eg, adolescent health care center, inpatient psychiatric). The sources of information consisted of physician (eg, child abuse pediatricians, psychiatrists, emergency medicine physicians) notes documenting patient/guardian interviews, demographic characteristics, medical histories, orders for the administration of medications, and diagnostic tests within medical encounters for the period of 1 year before and including their initial

referral for DMST. Demographic, medical, psychiatric, and social-environmental variables were selected from a combination of a comprehensive literature review^{5,6,13} and clinical practice. All variables were collected from EMRs when available and descriptive statistics were calculated.

Results

The demographic characteristics of the 41 patients included in this analysis are reported in Table 1. Most patients were female and the mean age was 15.5 years (range 11–17). Most patients lived at home (28/41, 68%) at the time of their initial evaluation for DMST involvement and were accompanied to the medical visit by a parent/guardian (26/41, 63%). For two-thirds of evaluations, there was documentation of self-reported school status; half of the patients who were asked, reported passing or doing well in school (14/41, 34%). However, 15/41 (37%) had a history of and/or current truant behavior.

Categorization of patient involvement in DMST at the initial evaluation visit is described in Table 2. Patients were identified as confirmed DMST victims (23/41, 55%) through self-disclosure or disclosure after evidence from law enforcement or a relative (21/41, 51%). Patients were also identified as DMST victims if they denied involvement to a medical provider, but were found by law enforcement or a

Table 1
Demographic Characteristics of Patients Referred for Evaluation of DMST (n = 41)

Characteristic	n (%)
Gender	
Female	39 (95)
Male	1 (2)
Transgender	1 (2)
Age (mean = 15.5), years	
11–12	1 (2)
13–14	9 (22)
15–17	31 (76)
Race/ethnicity	
Non-Hispanic white	21 (51)
Non-Hispanic African American	16 (39)
Non-Hispanic Asian	1 (2)
Hispanic	1 (2)
Unknown	2 (5)
Living situation	
Home	28 (68)
Group home	13 (32)
Who accompanied the child at evaluation*	
Parent/guardian	26 (63)
Relative	3 (7)
Group home staff	7 (17)
Police	15 (37)
Child welfare service	8 (20)
Social worker	4 (10)
Insurance	
Public	33 (80)
Private	6 (15)
Uninsured	2 (5)
School Status [†]	
Passing/doing well in school	14 (34)
Failing in school	10 (24)
Drop out of school	3 (7)
History of Truancy [‡]	15 (37)

DMST, domestic minor sex trafficking.

* Total percentage greater than 100% is the result of nonmutually exclusive variables.

† Total percentage less than 100% is the result of unavailable information in medical charts.

‡ School status and truancy were documented in medical charts by physicians via patient report or parental report.

Table 2
Postevaluation Categorization of Patients Referred for DMST

Categorization	n (%)
Confirmed DMST	23 (55)
Disclosed on own	7 (17)
Disclosed after found by law enforcement with evidence	12 (29)
Disclosed after found by a relative/friend with evidence	2 (5)
Denies but reported with evidence by law enforcement	1 (2)
Denies but reported with evidence by relative/friend	1 (2)
Suspected DMST	18 (44)
Denies but states they were solicited to become involved	5 (12)
Denies and states they were not solicited to become involved	6 (15)
Denies and not screened about whether they were solicited	7 (17)

DMST, domestic minor sex trafficking.

relative with evidence (eg, posting pictures on [Backpage.com](#), law enforcement sting operation; 2/41, 4%). The remaining patients were suspected of DMST engagement without patient disclosure or confirmed evidence (18/41, 44%). The suspicion was on the basis of activity highly suggestive of DMST (eg, frequent running away accompanied by returning with a change in appearance and/or large sums of money, running away with friends engaged in DMST) or patient reports of being solicited to sell sex but denied engagement to authorities and medical staff (5/41, 12%).

The social-environmental context of patients, identified in previous literature as risk factors for DMST involvement, is presented in Table 3.^{5,6} Patients had high rates of having a friend involved or suspected of DMST (15/41, 37%), alcohol or substance use/abuse (36/41, 88%), being placed in a group home or CPS custody (17/41, 42%), a history of runaway behavior (26/41, 63%), and/or exposure to a form of child maltreatment (37/41, 90%). The highest form of maltreatment was parental substance abuse (22/37, 59%), followed by sexual abuse (21/37, 57%).

Eighty percent of patients presented for medical attention at least once in the year before the date of their initial evaluation for DMST. There were a total 142 previous medical visits (mean = 3.46). Eighty-nine out of 142 total visits (63%) were located in the emergency department, 35 (25%) at a primary care clinic, 9 (6%) at the Aubin Center, 6 (4%) at another outpatient clinic (eg, adolescent health), and 3 (2%) for an inpatient admission. The most common chief complaints were as follows: 40/142 (28%) psychiatric problems (eg, depression, aggressive behavior, auditory hallucinations), 19/142 (13%) presentations for abdominal/back pain, 13/142 (9%) accidental and/or inflicted injuries (eg, concussion, broken bone), 12/142 (8%) gynecological problems (eg, vaginal pain, discharge), and 11/142 (8%) alleged sexual abuse/assault.

The historic medical and psychiatric features of patients are described in Table 4. A quarter had a history of an STI (10/41, 24%) and nearly two-thirds had a previously documented psychiatric diagnosis (27/41, 66%). There were high rates of reported previous suicidal ideation (24/41, 59%) and self-injurious behavior (18/41, 44%).

Patients were evaluated in 3 different settings at their initial medical visit for DMST involvement: 24/41 (59%) in the emergency department, 16/41 (39%) in an outpatient setting, and 1/41 (2%) in an inpatient setting. The medical

Table 3
Social-Environmental Factors of Patients Referred for Evaluation of DMST

Factor	n (%)
Social-environmental factors	
Friend involved or suspected of DMST	15 (37)
Alcohol/substance use	36 (88)
Group home/in CPS custody	17 (42)
Runaway	26 (63)
Exposure to child maltreatment	37 (90)
Type of maltreatment	
Sexual abuse	21 (57)
Physical abuse	11 (30)
Neglect	9 (24)
Emotional abuse	2 (5)
Exposure to DV	11 (30)
Parental substance abuse	22 (59)

CPS, Child Protective Services; DMST, domestic minor sex trafficking; DV, domestic violence.

and psychiatric features of patients at the time of that referral visit are reported in Table 5. Most completed a physical examination (38/41, 93%); of these patients, 14/38 (37%) had a self-inflicted or incidental cutaneous finding (eg, bruising) and 8/38 (21%) had at least 1 tattoo. Of the patients who completed a genital examination, 22/31 (71%) had evidence of vaginal penetration and 13/41 (32%) tested positive for an STI. Whereas more than half of the cohort received STI prophylaxis, less than a quarter of patients were given HIV postexposure prophylaxis (PEP) and pregnancy prophylaxis. Patient-reported suicidal ideation (8/41, 20%) and self-injurious behaviors (4/41, 10%) were identified during the medical evaluation.

Table 4
Medical/Psychiatric Variables of Patients

Variable	n (%)
Number of medical visits 1 year before referral for DMST	
0	8 (20)
1–3	20 (49)
4–7	9 (22)
≥8	4 (9)
Most common chief complaints of previous medical visits	142 (100)
Psychiatric issues	40 (28)
Abdominal/back pain	19 (13)
Physical injury	13 (9)
Gynecological complaint	12 (8)
Sexual abuse/assault	11 (8)
Missing from care (AWOL)	8 (6)
Previous STIs detected	
0	31 (76)
1	9 (22)
> 1	1 (2)
Reported frequency of condom use*	
Always	8 (20)
Sometimes	14 (34)
Never	7 (17)
Previous psychiatric admission	19 (46)
Emergency psychiatric evaluations	
0	16 (39)
1	16 (39)
> 1	9 (22)
Psychiatric diagnosis	27 (66)
Suicidal ideation	24 (59)
Self-injurious behavior	18 (44)

AWOL, absent without official leave; STI, sexually transmitted infection.

* Total percentage less than 100% is the result of unavailable information in medical charts.

Table 5
Medical/Psychiatric Variables of Patients at the Time of Referral for DMST Evaluation

Variable	n (%)
Physical examination	
Refused	3 (7)
Completed	38 (93)
Cutaneous*	14 (37)
Tattoo	8 (21)
Genital examination†	
Refused	10 (24)
Completed	31 (76)
Normal	9 (29)
Consistent with vaginal penetration	22 (71)
Acute	2 (9)
Chronic	18 (82)
Both	2 (9)
STIs detected‡	
0	27 (64)
1	11 (27)
> 1	2 (5)
Medications given	
STI prophylaxis§	24 (59)
HIV postexposure prophylaxis	9 (22)
Pregnancy prophylaxis¶	10 (24)
Forensic evidence kit collected	5 (12)
Psychiatric admission at the time of DMST evaluation	14 (34)
Current suicidal ideation	8 (20)
Current self-injurious behavior	4 (10)

DMST, domestic minor sex trafficking; STI, sexually transmitted infection.

* Bruising or self-inflicted injuries found during physical examination.

† Some examinations are limited because of patient discomfort or refusal to continue.

‡ Total percentage less than 100% is the result of unavailable information in medical charts.

§ Azithromycin, metronidazole, ceftriaxone.

|| Two-drug regimen with tenofovir disoproxil/emtricitabine or lamivudine/zidovudine; 3-drug regimen includes raltegravir.

¶ Levonorgestrel.

Discussion

The current study captured detailed patient-level quantitative data historically and at the time of the initial evaluation for DMST involvement. Existing studies that focused specifically on DMST, particularly in a medical context, are limited; many combined mixed samples, target-restricted populations, and involve qualitative reports.^{16–20} In conjunction with recent research that addressed these issues and provided a conceptual framework for identification,²¹ our study contributes a comprehensive description of clinical features to aid professionals in more effective medical practice. Through an in-depth analysis of patients evaluated by specialty medical providers, we found that children referred for DMST frequently sought medical care and had medical and psychiatric needs.

Eighty percent of our patients interacted with medical professionals in a variety of health care settings within the year before their initial evaluation for DMST. This finding is consistent with previous studies documenting that 75% of sex-trafficked youth had contact with health care professionals within the past 6 months,²² and 88% of adult and adolescent victims sought medical care at some point during their period of exploitation.⁸ The current investigation also identified the settings and chief complaints of patients' previous visits that might inform identification and screening efforts in health care institutions. We found that patients presented most frequently in the emergency

department (89/142, 63%), followed by the primary care setting (35/142, 25%). More than a quarter (40/142, 28%) of the presenting concerns were related to psychiatric issues, including suicide attempts, bolstering the association between DMST and mental health problems.^{6,13} The second most common chief complaints were related to abdominal/back pain; gastrointestinal symptoms are relatively common for children who have been sexually abused, likely manifestations of psychological distress.²³ Medical encounters also included gynecological complaints, such as vaginal itching, pain, and bleeding (12/142, 8%). This presenting concern is not surprising, because of the ongoing and high-risk sexual behaviors inherent in these youth. Recurrent contact with these patients highlights the need for increased awareness among pediatric professionals to make identification, intervention, and ideally prevention true possibilities within the medical environment.

This cohort also revealed living and schooling environments not described in previous literature as characteristic in a DMST population. A significant number of our patients lived at home with a parent or guardian (28/41, 68%), and were often accompanied to their initial evaluation for DMST by a parent or guardian (26/41, 63%). Although DMST involvement for homeless youth has been clearly established,^{24–26} our cohort of patients' contact with an adult caregiver offers a perspective of youth not typically described. Attempts to engage a parent or guardian in identification and treatment was an important aspect of the evaluation and management process for our subjects. Similarly, although truancy has been linked to DMST involvement²⁷ and was identified in the current cohort (15/41, 37%), one-third of our patients reported passing or doing well in school. Some children presented to medical providers with features uncharacteristic of perceptions of trafficked youth, such as having regular contact with family or other potential support systems, and doing well academically. These data show the complexity of this unique patient population, and emphasize the need for broader DMST screening.

Risk factors previously described in published research^{6,8} were supported by our data, showing that childhood maltreatment and family dysfunction commonly co-occurred with sex trafficking victimization. A remarkably high number of patients in the current study had histories of child maltreatment (37/41, 90%), consistent with studies that reported 91%–95% of female victims had histories of abuse before their exploitation.^{28,29} Child sexual abuse victims, in particular, might be vulnerable to and have a propensity toward later engagement in high-risk sexual behaviors, such as sex trafficking.^{30–32} Stoltz and colleagues reported a significant association between sexual abuse and subsequent sexual exploitation in a population of drug-using youth.³² In addition, approximately 70% of subjects in 2 previous studies self-reported that a childhood sexual abuse history preceded their involvement in sex trafficking.^{30,31} More than half of our patients (21/37, 57%) had a history of sexual abuse, further contributing to the research that these victims are at increased risk of sexual exploitation.

Smith and colleagues reported that family dysfunction is often experienced by sex-trafficked youth.⁵ Similarly, our

data showed that more than half (22/37, 60%) of patients had at least 1 parent who abused substances and 11/37 (30%) witnessed domestic violence in their home. A foreground of family dysfunction and decreased support (eg, inadequate parental supervision) with the resultant traumatic developmental experience might weaken resiliency and create susceptibility to engage in risk-taking behaviors, placing youth at risk for DMST.⁶ For example, a large number of our patients had run away from home (26/41, 63%) at least once before their presentation for DMST. Williamson and Prior reported high rates of parental substance abuse (64%) and 'common' runaway behavior among a small cohort of 13 female victims.²⁸ Children who experience maltreatment or other adversities at home might feel the need to escape, leaving limited options for physical survival, consequentially increasing their risk for exploitation or to engage in survival sex. Previous surveys that targeted homeless or runaway youth reported that they have exchanged sexual acts for shelter, food, drugs, or money.^{25,26,33}

In addition, in the current study we found that most of our patients (36/41, 88%) used/abused substances (including alcohol). Curtis et al reported that nearly 80% of trafficked youth admitted to using a range of drugs: 53.8% reported using marijuana, 26.1% used cocaine, and 25.3% used alcohol.²² There are a few ways to understand these very high rates of substance use/abuse. Substance use might increase risk for exploitation because alcohol and drugs might decrease inhibitions and impair judgement, which might subsequently lead to risk-taking behaviors. Moreover, traffickers might use a youth's dependency on drugs to lure and control them into sex trafficking by promising to finance their addiction.⁶ In previous studies, substance use/abuse was one of the most prevalently stated reasons by adult survivors for entering into commercial sex work.^{32,34,35} Exploited youth might also use drugs to dull the psychological effects of trauma they experience.

All patients analyzed had a medical evaluation by a child abuse pediatrician. Of the 38/41 (93%) of patients who completed a physical examination, 14/38 (37%) had a cutaneous finding secondary to trauma; this is a finding less commonly seen compared with adolescent victims of acute sexual assault or children evaluated for sexual abuse.³⁶ Interestingly, 8/37 (21%) of patients had a tattoo, which in some cases was related to the child's trafficking experience (branding by a trafficker). Therefore, one screening step for DMST should be to inquire about the origin of tattoos incidentally noted during physical examination. Of the 31/41 (76%) of patients for whom a genital examination was completed using colposcopic magnification, 22/31 (71%) had evidence of vaginal penetration. Most of the genital findings (18/22, 82%) were determined to be chronic/healed trauma. Definitive evidence of penetration in this cohort was far more common compared with adolescents and children evaluated for sexual abuse.^{37,38}

The percentage of patients in the present sample with an STI in the past (10/41, 22%) or at the time of referral (13/41, 32%) exceeds the rates of STIs among children evaluated for sexual abuse,^{39–41} and in the general adolescent population of Rhode Island.⁴² However, these rates were lower than in

previous studies on sex trafficking.^{21,22} For example, Varma et al reported a history of STIs in 53% of 25 suspected CSEC victims,²¹ and Lederer and Wetzel reported that 67% of sex-trafficked survivors reported having an STI during their period of exploitation.⁸ All patients in the current study with an STI were treated; however, prophylaxis was not uniformly provided. Despite high-risk exposure, only 9/41 (22%) of our patients received HIV PEP, which might reflect a variety of factors. The 2015 Centers for Disease Control and Prevention guidelines recommend provision of HIV PEP within 72 hours of sexual contact and are on the basis of assessed potential compliance of patients with the 28-day course of medication(s).⁴³ Most of our patients presented for evaluation more than 72 hours since their last sexual contact. Additionally, many patients either stated they would run away from where they were placed after evaluation or denied engaging in high-risk sexual activity, thus decreasing the likelihood for compliance and subsequent HIV PEP recommendation. Therefore, the prescription of HIV PEP should be on the basis of careful individual evaluation of each patient.

Our review showed the psychological complexity of patients historically and during their referral visit for DMST. In a study of sexually exploited youth engaged in care in Northern California, high levels of depression, anxiety, anger, and attachment problems were found, and more than 30% of the youth engaged in self-harming behavior.⁴⁴ Additionally, Varma et al reported that 39% of their CSEC patients had a history of a mental health disorder.²¹ Our study provides further detail; most of our patients (27/41, 66%) had a previous psychiatric diagnosis in their medical record and 19/41 (46%) required a psychiatric admission in the year before referral for DMST. More than half of patients (54%) described previous and current self-injurious behaviors, 24/41 (59%) of patients reported previous suicidal ideation, and 8/41 (20%) reported current suicidal ideation. These data suggest several important points. First, evaluation for DMST should include psychiatric assessment. Second, children who are referred for DMST involvement present frequently for psychiatric assessment and attention to psychiatrists and other mental health providers. Psychogenic factors, such as chronic depression, suicidal ideation, and self-harm, might be concerning features of DMST that should prompt additional screening. Estes and Weiner reported that psychogenic factors, such as poor self-esteem and chronic depression, might be individual risk factors for sex trafficking.¹³ The Institute of Medicine further suggested that child sexual abuse has been shown to have a significant effect on these psychological factors, thus supporting the possible relationship between a history of sexual abuse and DMST.⁶ Incorporating standardized screening for DMST into psychiatric assessment might again make intervention, and possibly prevention, a viable opportunity deserving further research.

On the basis of direct clinical interactions, the 41 patients included in this analysis were categorized regarding their involvement at the initial evaluation for DMST (Table 2). More than half of our patients were confirmed DMST victims at the time of referral (23/41, 55%) through disclosure or evidence that indicated involvement. This is a notable

finding, because previous research has examined a legion of challenges to the immediate identification of DMST victims.^{14,45} One such challenge is that victims rarely disclose their involvement because of fear of and/or loyalty to their trafficker, distrust of authorities, and/or lack of realization they are being victimized.^{14,45} Interestingly, our patients disclosed involvement on their own (7/41, 17%) to a medical provider, or after being found with evidence by law enforcement or a relative/friend (14/41, 34%). Through increased awareness and knowledge of DMST patients, nonjudgemental listening, and proper intervention of their health needs, providers can create environments for disclosure within the medical setting. Within the suspected group, patients who reported being asked to engage in DMST but denied involvement (5/41, 12%) are likely at minimum being exposed to the concept of DMST, and warrant further evaluation and intervention to maximize prevention efforts.

This study has a number of limitations. The sample size of 41 patients limits a broader, more comprehensive depiction of this diverse patient population. In addition, there is an under-representation of male DMST victims. This study included patients who presented to medical providers in a single New England hospital; therefore generalizations derived from the data likely cannot be applied to all medical settings in the United States. Existing data do not consistently distinguish events occurring before or during the period of exploitation (eg, substance use). Considering the retrospective study design, no assumptions can be made as to causal factors for DMST.

This study identified demographic, medical, psychiatric, and historical features to help medical providers become knowledgeable of this vulnerable pediatric patient population to identify and assist victims. These data also might contribute to the development of a validated screening tool for this population in medical and nonmedical settings (eg, emergency departments, emergency psychiatric facilities, truancy courts). Future research is needed to explore the differences between confirmed DMST patients and those who are suspected or are at high-risk using a larger cohort. Because of the obstacles that make victim identification difficult and rare,^{14,44} it is important to inform physicians of the distinguishing features between patients who have evidence of and/or disclose involvement from those who do not present with that information. Future research should also examine adherence to follow-up after the referral visit, and their status as a DMST victim (eg, a suspected patient later discloses involvement to a trusted medical provider).

In conclusion, children who are referred for DMST (1) presented frequently to physicians for medical and psychiatric attention; (2) had complex medical and psychiatric needs; and (3) presented with features commonly associated with DMST victims, or might also have had characteristics not identified in previous literature (eg, living at home, reporting good school performance). It is incumbent upon medical providers to become knowledgeable of the characteristics that describe youth who are referred for DMST to treat the complex plethora of physical and mental health problems associated with these patients. This will

fortify medical institutions to develop systematic strategies to increase recognition of DMST, establish community partnerships and referrals for intervention, and develop thoughtful prevention efforts for involved or suspected youth.

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References

- Victims of Trafficking and Violence Protection Act of 2000. Public Law 106e386d Oct. 28, 2000 114 STAT 1465.
- Polaris Project: Sex trafficking. Available: <https://polarisproject.org/sex-trafficking>. Accessed September 15, 2015.
- Department of Justice: Federal strategic action plan on services for victims of human trafficking in the United States. Available: <http://www.ovc.gov/pubs/FederalHumanTraffickingStrategicPlan.pdf>. Accessed September 13, 2015.
- Stansky M, Finkelhor D: How many juveniles are involved in prostitution in the U.S.? Available: www.unh.edu/ccrc/prostitution/Juvenile_Prostitution_factsheet.pdf. Accessed September 13, 2015.
- Smith L, Healy S, Snow M: The National Report On Domestic Minor Sex Trafficking: America's Prostituted Youth; 2009. Available: http://sharedhope.org/wp-content/uploads/2012/09/SHL_National_Report_on_DMST_2009.pdf. Accessed December 11, 2015.
- Institute of Medicine and National Research Council: Confronting Commercial Sexual Exploitation and Sex Trafficking of Minors in the United States. Washington, DC, The National Academies Press, 2013
- Williamson E, Dutch N, Clawson H: Medical treatment of victims of sexual assault and domestic violence and its applicability to victims of human trafficking. Available: <http://aspe.hhs.gov/hsp/07/HumanTrafficking/SA-DV/index.shtml>. Accessed September 14, 2015.
- Lederer L, Wetzel CA: The health consequences of sex trafficking and their implications for identifying victims in healthcare facilities. *Ann Health Law* 2014; 23:61
- Greenbaum J, Crawford-Jakubiak J: Child sex trafficking and commercial sexual exploitation: health care needs of victims. *Pediatrics* 2015; 135:566
- Beck M, Lineer M, Melzer-Lange M, et al: Medical providers' understanding of sex trafficking and their experience with at-risk patients. *Pediatrics* 2015; 135:e895
- Cole J, Sprang G: Sex trafficking of minors in metropolitan, micropolitan, and rural communities. *Child Abuse Negl* 2015; 40:113
- Titchen KE, Loo D, Berdan E, et al: Domestic sex trafficking of minors: medical student and physician awareness. *J Pediatr Adolesc Gynecol* 2015; <http://dx.doi.org/10.1016/j.jpag.2015.05.006>
- Estes RJ, Weiner NA: The commercial sexual exploitation of children in the U.S., Canada and Mexico. Available: <http://www.gems-girls.org/Estes%20Wiener%202001.pdf>. Accessed November 14, 2015.
- Rafferty Y: Challenges to the rapid identification of children who have been trafficked for commercial sexual exploitation. *Child Abuse Negl* 2016; 52:158
- Gozdziaik E, Bump M: Data and research on human trafficking: bibliography of research-based literature. Available: <http://www.ncjrs.gov/pdffiles1/nij/grants/224392.pdf>. Accessed August 19, 2015.
- Baldwin S, Eisenman D, Sayles J, et al: Identification of human trafficking victims in health care settings. Available: <http://www.hhrjournal.org/2013/08/20/identification-of-human-trafficking-victims-in-health-care-setting/>. Accessed November 11, 2015.
- Lambert M, Torrico F, Billot C, et al: Street youth are the only high-risk group for HIV in a low-prevalence South American country. *Sex Transm Dis* 2005; 32:240
- Decker MR, McCauley HL, Phuengsamran D, et al: Sex trafficking, sexual risk, STI and reproductive health among a national sample of FSWs in Thailand. *J Epidemiol Community Health* 2011; 65:334
- Azage M, Abeje G, Mekonnen A: Sex trafficking awareness and associated factors among youth females in Bahir Dar town, North-West Ethiopia: a community based study. *BMC Womens Health* 2014; 14:85
- Oram S, Stöckl H, Busza J, et al: Prevalence and risk of violence and the physical, mental, and sexual health problems associated with human trafficking: systematic review. *PLoS Med* 2012; 9:e1001224
- Varma S, Gillespie S, McCracken C, et al: Characteristics of child commercial sexual exploitation and sex trafficking victims presenting for medical care in the United States. *Child Abuse Negl* 2015; 44:98
- Curtis R, Terry K, Dank M, et al: The Commercial Sexual Exploitation of Children in New York City, Vol 1, The CSEC Population in New York City: Size, Characteristics, and Needs. Available: www.ncjrs.gov/pdffiles1/nij/grants/225083.pdf. Accessed October 2, 2015.
- van Tilburg M, Runyan D, Zolotor A, et al: Unexplained gastrointestinal symptoms after abuse in a prospective study of children at risk for abuse and neglect. *Ann Fam Med* 2010; 8:134
- Walls N, Bell S: Correlates of engaging in survival sex among homeless youth and young adults. *J Sex Res* 2011; 48:423
- Chettiar J, Shannon K, Wood E, et al: Survival sex work involvement among street-involved youth who use drugs in a Canadian setting. *J Public Health (Oxf)* 2010; 32:322
- Greene JM, Ennett ST, Ringwalt CL: Prevalence and correlates of survival sex among runaway and homeless youth. *Am J Public Health* 1999; 89:1406
- Shared Hope International: Rapid assessment on domestic minor sex trafficking Virginia. Available: <http://sharedhope.org/wp-content/uploads/2012/09/VirginiaRA.pdf>. Accessed December 15, 2015.
- Williamson C, Prior M: Domestic minor sex trafficking: a network of underground players in the Midwest. *J Child Adolesc Trauma* 2009; 2:46
- Gragg F, Petta I, Bernstein H, et al: New York prevalence study of commercially sexually exploited children: final report. Rensselaer, NY, New York State Office of Children and Family Services, 2007
- Silbert M, Pines A: Sexual child abuse as an antecedent to prostitution. *Child Abuse Negl* 1981; 5:407
- Bagley C, Young L: Juvenile prostitution and child sexual abuse: a controlled study. *J Commun Ment Health* 1987; 6:5
- Stoltz J, Shannon K, Kerr T, et al: Associations between childhood maltreatment and sex work in a cohort of drug-using youth. *Soc Sci Med* 2007; 65:1214
- Murphy L, Taylor R, Bolden C: Trafficking And Exploitative Labor Among Homeless Youth In New Orleans. New Orleans, Modern Slavery Research Project, 2015. Available: <http://www.covenanthouse.org/wp-content/uploads/2015/03/Trafficking-Exploitative-Labor-Homeless-Youth-New-Orleans.pdf>; 2015. Accessed May 11, 2016.
- Edwards JM, Iritani BJ, Hallfors DD: Prevalence and correlates of exchanging sex for drugs or money among adolescents in the United States. *Sex Transm Infect* 2006; 82:354
- Weeks M, Grier M, Romero-Daza N, et al: Streets, drugs, and the economy of sex in the age of AIDS. *Women Health* 1998; 27:205
- Emmert C, Kohler U: Data about 154 children and adolescents reporting sexual assault. *J Arch Gynecol Obstet* 1997; 261:61
- Kelly P, Koh J, Thompson J: Diagnostic findings in alleged sexual abuse: symptoms have no predictive value. *J Paediatr Child Health* 2006; 42:112
- Anderst J, Kellogg N, Jung I: Reports of repetitive penile-genital penetration often have no definitive evidence of penetration. *Pediatrics* 2009; 124:e403
- Gallion H, Dupree L, Scott T, et al: Diagnosis of trichomonas vaginalis in female children and adolescents evaluated for possible sexual abuse: a comparison of the InPouch TV culture method and wet mount microscopy. *J Pediatr Adolesc Gynecol* 2009; 22:300
- Black C, Driebe E, Howard L, et al: Multicenter study of nucleic acid amplification tests for detection of chlamydia trachomatis and neisseria gonorrhoeae in children being evaluated for sexual abuse. *Pediatr Infect Dis J* 2009; 28:608
- Kellogg N, Baillargeon J, Lukefahr J, et al: Comparison of nucleic acid amplification tests and culture techniques in the detection of neisseria gonorrhoeae and chlamydia trachomatis in victims of suspected child sexual abuse. *J Pediatr Adolesc Gynecol* 2004; 17:331
- Rhode Island Department of Health: Rhode Island surveillance report 2013. Available: <http://www.health.ri.gov/publications/surveillance/2013/HIVSTD.pdf>. Accessed September 15, 2015.
- Centers for Disease Control and Prevention: 2015 Sexually Transmitted Diseases Treatment Guidelines. Available: <http://www.cdc.gov/std/tg2015>. Accessed January 4, 2016.
- WestCoast Children's Clinic: Research to Action: Sexually Exploited Minors (SEM) Needs and Strengths. Oakland, CA, WestCoast Children's Clinic, 2012
- Clawson HJ, Dutch N, Solomon A, et al: Human trafficking into and within the United States: a review of the literature. Available: <http://aspe.hhs.gov/hsp/07/HumanTrafficking/LitRev>. Accessed March 8, 2015.