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GENDER DIFFERENCES IN VICTIMIZATION AMONG YOUTHS WITH AND WITHOUT HEARING LOSS ADMITTED TO SUBSTANCE ABUSE TREATMENT

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Abstract

The purpose of this study is to examine gender differences in the victimization profiles of deaf and hard of hearing youths presenting to substance abuse treatment and compare them with parallel profiles from their hearing peers. Intake data on 111 deaf and hard of hearing youths (42% female) was analyzed and compared with that from a weighted gender matched sample of hearing youths. Results indicate the victimization histories of the deaf and hard of hearing girls were more severe than those of their male peers. Although the same pattern was observed in the hearing group, the strength of the difference was greater for youths with hearing loss. Girls with hearing loss were the most severely victimized of all youths, with 75% reporting any abuse, 60% reporting two to four types of abuse, and 70% experiencing high severity victimization. Both groups of girls reported a significantly greater prevalence of sexual and emotional abuse, abuse by a trusted person, abuse that resulted in sex, and worry about future emotional abuse. Substance abuse treatment for deaf and hard of hearing youths should include routine screening of victimization and trauma-informed methods.

Keywords: deaf, hard of hearing, victimization, gender, drug alcohol abuse

The estimated prevalence of child abuse in the United States is influenced by many factors, including type of abuse (physical, sexual, emotional), the population under study (e.g., community vs. clinical), gender and age of the victim, and methodological differences across studies. For instance, a history of child abuse is typically higher in clinical populations (e.g., substance abuse or mental health treatment clients), especially among girls (Dembo, Berry, Williams, Getreu, Washburn, Wish, Schmeidler, & Dertke, 1988; Deykin & Buka, 1997; Hawke, Jainchill, & DeLeon, 2000; Rounds-Bryant, Kristiansen, Fairbank, & Hubbard, 1998). In the community, girls are more likely to report higher rates of sexual abuse, while boys often report higher rates of physical abuse (Kilpatrick & Saunders, 1997). Co-occurrence of different types of abuse is not unusual, and having a history of more than one type of abuse is associated with increased mental distress and worse outcomes (Bagley, Wood, & Young, 1994; Finkelhor, Ormrod, & Turner, 2009; Mullen, Martin, Anderson, Romans, & Herbison, 1996).

One of the many problems associated with a history of child abuse is an increased risk of drug and alcohol abuse (Bennett & Kemper, 1994; Kilpatrick et al., 2000; Widom, Marmorstein, & White, 2006). When compared with their non-abused peers, adolescent victims of child abuse exhibit a greater prevalence of substance abuse (Kilpatrick & Saunders, 1997). Likewise, among adolescent substance abusers, rates of victimization by child abuse are above those found in the general adolescent population. Gender differences in victimization are frequently reported among substance abusing youths, with girls more likely than their male peers to have a history of child abuse, experience multiple types of abuse, be sexually abused, and have more severe problems related to child abuse (Deykin & Buka, 1997; Grella & Joshi, 2003; Hawke, Jainchill, & DeLeon, 2000; Rounds-Bryant, Kristiansen, Fairbank, & Hubbard, 1998; Shane, Diamond, Mensinger, Shera, & Wintersteen, 2006; Titus, Dennis, White, Scott, & Funk, 2003; Titus, 2007). Having a history of child abuse is associated with worse substance abuse treatment outcomes (Shane et al., 2006; Titus, 2007; Titus et al., 2003), including a lower likelihood of posttreatment abstinence (Boles, Joshi, Grella, & Wellisch, 2005) and more negative disease course (Westermeyer, Wahmanholm, & Thuras, 2001). Symptoms of psychological distress for youths with severe child abuse histories are not ameliorated from the pre-to-post treatment phase (Titus et al., 2003). Victimization's indirect path to substance abuse appears to be mediated by heightened feelings of depression, anxiety, and posttraumatic stress, which in turn puts one at higher risk for alcohol and drug problems (see Downs & Harrison, 1998; Lo & Cheng, 2007; Schuck & Widom, 2001; White & Widom, 2008).

Hearing loss, victimization, and substance abuse

Increased rates of maltreatment among children with disabilities are well documented (Crosse, Kaye, & Ratnofsky, 1993; Hershkowitz, Lamb, & Horowitz, 2007; Sullivan & Knutson, 1998b, 2000). Estimates from a school system-based sample of children ($N=50,278$; ages 0 to 21) found a 9% prevalence rate of maltreatment for non-disabled children and a 31% prevalence rate for children with educationally significant disabilities (Sullivan & Knutson, 2000). Among children with hearing loss, the best estimates currently available indicate deaf and hard of hearing children (infancy to 21 years) have twice the risk for neglect and emotional abuse and almost four times the risk for physical abuse than their non-disabled

Titus: Gender Differences in Victimization Among Youths with and Without peers (Sullivan & Knutson, 2000). Although high rates of sexual abuse have been observed among maltreated children with hearing loss (Knutson & Sullivan, 1993; Kvam, 2004; Sullivan, Brookhouser, Scanlan, Knutson, & Schulte, 1991; Sullivan, Vernon, & Scanlan, 1987), existing epidemiological evidence asserts that children with hearing loss do not appear to be at increased risk for sexual abuse when compared with non-disabled peers (Sullivan & Knutson, 1998a, 2000).

In addition, people with disabilities are at special risk for substance abuse, more likely to have a substance use disorder, and less likely to get effective treatment (Moore & Polsgrove, 1991; U. S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, 1998). The operating consensus in the literature has been that substance use and abuse among people who are deaf or hard of hearing is at least as prevalent as that among hearing people, though data from well-defined, controlled studies is lacking. Existing estimates of use are 10 to 30 years old, based on deduction, or are focused on usually small, restricted samples (Issacs, Buckley, & Martin, 1979; Lipton & Goldstein, 1997; McCrone, 1994). A recent study focusing on a sample of youths entering substance abuse treatment found that, on average, those with a hearing loss were arriving at treatment in a more progressed state than their hearing peers. They were more likely to report a variety of substance abuse behaviors indicative of a more severe level of involvement (e.g., earlier age of onset of drug and alcohol use, past year and lifetime dependence, lifetime withdrawal) (Titus, Schiller, & Guthmann, 2008).

In a related study focusing on a history of child abuse and its relationship to substance abuse in a treatment population of youths with hearing loss, Titus (in press) found high rates of victimization, even more so than those found among their hearing peers. Significantly greater proportions of treatment adolescents with hearing loss were found to have endured multiple types of abuse, high severity abuse, and high rates of physical abuse. Compared with their hearing peers, they also reported higher rates of abuse by a trusted person and abuse that made them afraid for their lives. This pattern of results is in line with child abuse research among children with hearing loss, which shows higher victimization rates (especially physical abuse) and greater severity abuse (Sullivan & Knutson, 1998a, 2000; Kvam, 2004).

Yet to be examined is the extent to which gender differences contribute to the child abuse victimization profiles of substance abusing youths with

hearing loss, especially as compared with the patterns commonly observed among treatment youths in general. The purpose of this study is to examine the victimization profiles by gender in groups of treatment youths with and without hearing loss. If results from previous research among the treatment hearing population and the general disability population are any indication, it is expected that (a) girls – regardless of hearing status – will report more severe victimization histories than those of the boys; (b) rates and severity of victimization among girls with hearing loss will be greater than those reported by their male peers, especially with regards to sexual abuse; and (c) patterns of the nature and severity of abuse among the girls with hearing loss will be the most pronounced of all groups.

Methods

Participants

Youths participating in this study were admitted to substance abuse treatment through one of 71 treatment studies funded by the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT). As part of their admissions procedure, information was collected across a wide range of life domains, including substance abuse behaviors, physical health, risk behaviors, emotional and behavioral health, social environment, school and work, and legal involvement. In the physical health section, youths were asked "Do you have any physical problems with your vision, hearing, limbs, or any other problems communicating or getting around?" Among the list of response choices offered, those participants selecting "deaf" or "limited hearing or other hearing problems" were selected for inclusion in the hearing loss group ($N=111$ or 2.5% of the total sample; 3.6% deaf, 96.4% limited hearing). Those youths not choosing either of those choices were selected for inclusion in the hearing group ($N=4368$). No further information was available on the youths' hearing status. However, given the participating study sites were mainstream treatment programs, it is likely that the majority of the youths were hard of hearing rather than D/deaf. Deaf youths from schools for the Deaf tend to be referred to practitioners and agencies serving the Deaf community, and no treatment programs focusing on substance abuse treatment for people with hearing loss were among the participating study sites.

Deaf and hard of hearing youths (42% female) were on average 15.8 years at intake (range 11 to 24 years; 93.6% between 12 and 18 years). Most described themselves as White (58%), followed by Hispanic (15%), Multi-racial (12%), African-American (11%), Native American/Alaska Native (4%), and Other (1%) (totals to 101% due to rounding). Just over half of the youths (53%) were from a single parent home. Characteristics of the hearing group (27% female) were very similar with the exception of the proportion of females in the two groups. The average age at intake was 15.9 years (range 11 to 25 years; 96.3% between 12 and 18 years), most described themselves as White (48%) followed by African-American (21%), Hispanic (15%), Multi-racial (13%), Native American/Alaska Native (1%), Asian (1%), and Other (1%). Half (50%) reported being from a single parent home. Additional information on the demographic, psychological, and social backgrounds of the youths in this sample is reported elsewhere (see Titus, in press) and revealed that the youths with and without a hearing loss were similar across a range of basic demographic and substance abuse-related characteristics. Trends were identified for higher rates of several co-occurring psychological conditions among the hearing loss sample, including symptoms of depression, suicidal/homicidal thoughts, conduct problems, and difficulties with attention/hyperactivity. Victimization among the hearing loss group was more severe than that observed in the hearing group, including a likelihood to report multiple forms of abuse. Trauma-inducing attributes of abuse that distinguished the hearing and hearing loss groups included higher rates of abuse by a trusted person and abuse that the victim believes is life threatening. No differences between the groups were observed in reports of sexual or emotional abuse, abuse that occurred over time or by more than one person simultaneously, abuse resulting in sex, abuse which others did not believe, or future concerns about abuse (Titus, in press).

Measures

The Global Appraisal of Individual Needs (GAIN; Dennis, Titus, White, Hodgkins, & Webber, 2003) is a collection of instruments designed to integrate clinical and research data for substance abuse treatment. The GAIN-I - the intake version of the GAIN instruments – was used in this study. Data collected via the GAIN-I provides diagnostic impressions based on the American Psychiatric Association's (APA, 1994, 2000) Diagnostic and Statistical Manual of Mental Disorders-IV (and IV-TR) and the American

Society of Addiction Medicine (ASAM) patient placement criteria (PPC-2, 1996; PPC-2R, 2001). The GAIN-I is typically interviewer-administered in approximately 90 minutes and is used with both adolescents and adults. Copies of the actual GAIN instruments and items, the syntax for creating scales and problem-specific group variables, and a comprehensive list of supporting studies are publicly available at <http://www.chestnut.org/li/gain>.

Psychometric studies of the GAIN-I's main scales reveal acceptable levels of internal consistency (alpha over .90 on main scales, .70 on subscales) and test-retest reliability (rho over .70 on number of days and problem counts, kappa over .60 on categorical measures) in both adolescent and adult populations. The scales are also highly correlated with measures of substance use from timeline follow-back measures, urine tests, collateral reports, treatment records, and blind psychiatric diagnosis (rho of .70 or more; kappa of .60 or more) (Dennis, Scott, & Funk, 2003; Dennis, et al., 2002, 2003, 2004; Godley, Godley, Dennis, Funk, & Passetti, 2002; Shane, Jasuikatis, & Green, 2003).

General Victimization Scale.

The *General Victimization Scale (GVS)* (Dennis et al., 2003; Titus et al., 2003) is part of the Environment and Living Situation domain of the GAIN-I. Information obtained via this scale is the focus of the study. The scale is composed of 15 items answered on a yes/no scale arranged in three sections and shown in Table 1. The first section contains four items that ask about the occurrence of lifetime abusive events: being attacked with a weapon, physical abuse, sexual abuse, and emotional abuse. Youths who endorse at least one of the abusive events also complete items in the second section of the scale, composed of seven items covering traumagenic factors – that is, characteristics of abuse experiences that can make them even more traumatic. The third section contains four items about current fears of future abuse. All respondents – regardless of whether or not they report any lifetime traumatic events – answer these last four items.

A total score on the scale is simply the sum of “yes” responses. Because items are scored on a yes/no (1/0) scale, the score range is 0 to 15, with higher total scores indicative of more severe victimization histories. A total score of zero is interpreted as a “low” score for victimization history, endorsing one to three symptoms is considered “moderate”, and four or

Titus: Gender Differences in Victimization Among Youths with and Without more endorsed items is interpreted as a “high” score. The interpretive cut-offs have been validated with an adolescent sample (Titus et al., 2003). Internal consistency estimates are .81 for deaf and hard of hearing youths and .81 for the hearing youths (see Titus, in press).

Procedures

Trained and certified GAIN administrators collected information from treatment study clients during a one-on-one treatment intake interview via data collection methods approved by each project’s Institutional Review Board. The GAIN-I is typically administered orally in English or Spanish. No information was available on possible accommodations made for clients who may have preferred alternative administration methods such as some form of signed communication. There are no signed versions of the GAIN instruments.

Data was entered into the GAIN data collection and reporting system, either directly through computer administration or after the fact. Individual treatment programs sent their de-identified data to a central data management system at Chestnut Health Systems. All handling of data, including de-identification of protected health information and transmission of such, was in compliance with Health Insurance Portability and Accountability Act (HIPAA) standards.

Analytic Methods

The proportion of females in the hearing loss group was significantly greater than that in the hearing group. Thus, any observed gender differences could be attributed to the heavier concentration of girls in the hearing loss group. Legitimate gender effects have been observed in victimization histories among substance abusing adolescents (Shane et al., 2006; Titus et al., 2003); thus, the overrepresentation of girls in the hearing loss group could potentially accentuate this effect. To curb this, gender balance was controlled in the hearing group to match that observed in the hearing loss group.

As described in Titus (in press), the total number of hearing boys was weighted by the ratio of number of boys with hearing loss divided by the number of hearing boys ($64/3186=.0201$). Similarly, the total number of

hearing girls was weighted by the ratio of the number of girls with hearing loss divided by the number of hearing girls ($47/1182=.0398$). By applying this weighting scheme, the hearing group would function as a sample of $N=111$, with 64 boys and 47 girls – the same sample size and gender balance as that observed in the hearing loss group.

The weighted hearing and unweighted hearing loss data was used in all analyses. For dichotomous items, the percent of client endorsement was computed and the chi-square statistic (2×2 tests) was used to examine differences between boys and girls within each hearing status. In addition, Cohen's effect size measure for the difference between two proportions ($h=2\arcsin^*(\sqrt{P_1})-2\arcsin^*(\sqrt{P_2})$, where P_1 =proportion 1 and P_2 =proportion 2) was used to judge the magnitudes of observed differences using the following guidelines: small=.20, moderate=.50, large=.80 (Cohen, 1988). The main advantage of effect sizes is that they are not dependent on sample size (as are traditional statistical tests) and thus are not impacted by decreased power due to small sample sizes such as those in this study. In studies that lack the sample sizes (and thus power) to detect a difference, it is possible that a true difference would not be detected using the traditional p -value (a type 2 error), but the effect size may indeed indicate an effect. Thus the effect size offers an alternative definition of the significance of results, focusing on practical significance rather than statistical significance.

In one case, Cramer's V was used as an effect size for a cross-tabulation greater than a 2×2 . This is a standard choice and the index is interpreted in the same way as a correlation coefficient.

Scores on a continuous scale – such as total scores on the GVS – were analyzed via Student's t test. Effect size was computed via Cohen's d , defined as $d=\mu_1-\mu_2/\sigma_{\text{pooled}}$, where the pooled standard deviation is $\sigma_{\text{pooled}}=\sqrt{(\sigma_1^2 + \sigma_2^2)/2}$. Interpretive guidelines for Cohen's d are the same as those for h .

Results

Meaningful effect sizes are reported with the p -values for the pertinent test statistics, even when the significance levels do not reach the traditional 0.05 cut-off. Given reduced power, the effect sizes may better indicate meaningful relationships. When neither the effect size nor the p -value is meaningful/significant, neither of these values is reported.

Table 2 contains information on the prevalence, breadth, and severity of victimization for boys and girls in each hearing status. For the hearing loss group, small to moderately strong effects were observed, all indicating that the victimization history of the girls is significantly more dire than that of the boys'. Girls were more likely than boys to experience any abuse (75% vs. 64%). They also reported a wider breadth of victimization; that is, they were more likely to experience 2 to 4 different types of abuse (e.g., emotional and sexual, physical and sexual and emotional, etc.) than the boys (60% vs. 34%). This observation was replicated in the *t* test of the difference between the average number of types of abuse reported by boys and girls (associated effect size of .57). Girls also experienced higher severity victimization than the boys. A full 70% of the deaf and hard of hearing girls reported abuse and trauma-inducing attributes of abuse falling in the high severity category. This is in sharp contrast to the deaf and hard of hearing boys, 39% of whom reported high severity abuse, a total that is distressing in and of itself. It is interesting to note that the distribution of the severity categories for boys is nearly evenly split between the three categories, whereas for the girls, there is a heavy concentration in the severe end of the spectrum. Higher severity abuse among the girls was also replicated using the total GVS scores. Deaf and hard of hearing girls' scores were significantly higher than those of the deaf and hard of hearing boys' (effect size of .63).

The results for the hearing youths are somewhat similar though not nearly as strong. First, no difference was observed between the proportion of hearing boys and girls reporting any abuse at all (55% vs. 60%). Results for the measures of breadth are equivocal – one measure (percent of boys/girls reporting zero to one vs. two to four types of abuse) indicates no difference between hearing boys and girls. When measured using the raw total number of types of abuse reported, a small effect indicates the girls reported a slightly higher average number of types of abuse (effect size of .23). For severity, proportions for the hearing boys and girls were not distributed differently. On the other hand, when severity is measured using the GVS raw total scores, a small effect was observed, indicating the hearing girls reported slightly more severe levels of abuse than the hearing boys (effect size of .34).

Formal statistical tests to examine differences between the four gender by hearing status groups (i.e., hearing boys, hearing girls, deaf and hard of hearing boys, deaf and hard of hearing girls) were not performed due to low

power as a result of the small sample and resulting cell sizes. However, a review of the raw results reveals a relational pattern between these four groups of youths. Across all measures, the hearing boys report the least severe experiences, though keep in mind that “least severe” is relative: more than half of the hearing boys reported any abuse and 38% reported high severity victimization. The hearing girls and deaf and hard of hearing boys are similar in prevalence and breadth of victimization, though the hearing girls report more severe victimization (via the GVS) than the deaf and hard of hearing boys. Across all measures, the deaf and hard of hearing girls report the most prevalent, widest breadth, and most severe victimization histories. Severity particularly stands out, with 70% of the deaf and hard of hearing girls reporting high severity abuse (GVS mean score of 5.19); high severity for the hearing girls is closest to them at 51% (GVS mean score of 3.70).

Table 3 contains information on the types of abuse endured, traumagenic attributes of abuse, and current concerns about abuse. For the youths with hearing loss, no difference was observed in the proportion of boys vs. girls being attacked with a weapon or physically abused. On the other hand, strong gender effects were observed on sexual abuse (effect size of .72) and emotional abuse (effect size of .73), with the deaf and hard of hearing girls reporting significantly more widespread victimization. Regarding traumagenic factors and current concerns, small to moderate gender effects were observed for girls reporting more widespread fear for their lives (effect size of .21) and current worries about physical, sexual, and emotional abuse (effect sizes of .30, .28, and .45, respectively). On the other hand, deaf and hard of hearing boys more often reported being abused by more than one person at a time (effect size of .23). Moderate to strong gender effects were observed for no one believing the abuse (effect size of .51), being repeatedly abused (effect size of .52), and abuse that resulted in sex (effect size of .57); all effects indicated significantly more widespread reporting by the girls. A particularly strong gender effect was observed for abuse by a trusted person (effect size of .83). A full 64% of the deaf and hard of hearing girls reported abuse of this nature; 24% of the deaf and hard of hearing boys reported similarly.

Results for the hearing youth are once again similar but largely not as strong. A moderate gender effect was observed for being attacked, with hearing boys reporting significantly more widespread attacks (41%) than

hearing girls (21%; effect size of .44). Girls, however, were far more likely to have been sexually and emotionally abused (effect sizes of .57 and .70, respectively). All remaining gender effects indicated a more traumatic history for the girls. Small to moderate effects indicated the hearing girls were more likely to have endured repeated abuse (effect size of .32), abuse that resulted in sex (effect size of .45), abuse that no one believed (effect size of .28), and current worries about sexual and emotional abuse (effect sizes of .40 in each case). A moderate to strong gender effect was observed for abuse by a trusted person (effect size of .59), with 45% of the hearing girls and 18% of the hearing boys endorsing this item.

The pattern of raw results between the four gender by hearing status groups breaks out in several ways. Along gender lines, both the hearing and deaf and hard of hearing girls report more widespread sexual and emotional abuse, repeated abuse, abuse by a trusted person, abuse resulting in sex, abuse that no one believes, and current worries about sexual and emotional abuse. On the other hand, the hearing and deaf and hard of hearing boys more widely report being abused by more than one person in a single episode. Along hearing status lines, even without a formal statistical test it is clear the deaf and hard of hearing youth have more experience with physical abuse than their hearing peers (see Titus, in press). The deaf and hard of hearing boys and girls and the hearing boys are similar in their rates of being attacked with a weapon (41-49%), with hearing girls reporting half as much abuse of that nature (21%). Current worries over a possible weapon attack are highest among the deaf and hard of hearing girls (13%). Deaf and hard of hearing girls stand out for their rates of being afraid for their life (37%), with the deaf and hard of hearing boys a distant second (27%) and the hearing boys and girls lower still (16% and 19%, respectively). As observed previously in Table 2, the overall profile of the deaf and hard of hearing girls is the most severe of all the youths. Not only are their lifetime prevalence rates of all types of abuse the highest of all groups, but their rates are the highest on 12 of the 14 items (86%) in Table 3 (all but being abused by more than one person and current worries about sexual abuse).

Discussion

As anticipated, the victimization histories of the deaf and hard of hearing girls were more severe than those of their male peers. The victimization histories of the treatment girls *in general* – regardless of hearing status –

were more severe than those of their male peers, though the strength of the difference between boys and girls was greater for deaf and hard of hearing boys and girls than for hearing boys and girls.

Comparing the four groups independently, the deaf and hard of hearing girls reported the grimmest victimization histories. They were followed in a similar but less severe pattern by the hearing girls, with notable exceptions around physical abuse (i.e., fewer attacks among hearing girls than among boys in either hearing status group, less physical abuse among the hearing group overall, and slightly fewer instances of abuse by multiple attackers for girls). The deaf and hard of hearing boys' victimization histories occur next in decreasing order of overall pattern severity, with hearing boys reporting the least severe – yet still worrisome – patterns.

Although the study design and data analysis did not directly test the question as to whether gender or hearing status would have a greater contribution to the prevalence of victimization in this population, it appears that gender may exert more influence. Although greater prevalence and severity of victimization has been observed among youths with hearing loss in treatment when compared to their hearing peers (Titus, in press), it is possible that much of the effect is being driven by gender, that is, the influence of far greater victimization among the deaf and hard of hearing girls than among their male peers. The increased severity of the deaf and hard of hearing girls' victimization increases the average severity for the deaf and hard of hearing group as a whole. If this pattern of results is indeed reflective of what occurs more generally, girls with hearing loss entering substance abuse treatment should especially be screened for a history of child abuse. These girls appear to be at higher risk for victimization given the combination of their gender and hearing status (with gender the likely stronger influence). That their drug and alcohol use problems are severe enough to gain attention – and a trip to treatment – is a “red flag” symptom of a victimization history.

The gender differences observed among the deaf and hard of hearing youths in this study are in line with gender differences previously reported in hearing populations of treatment youths. Although no gender differences in abuse have been previously reported among deaf and hard of hearing treatment youths, Sobsey, Randall, and Parilla (1997) found gender effects by disability status among children ages 1 to 17 with substantiated cases of abuse. Proportionally more boys than girls with disabilities were identified as experiencing any abuse; significantly more boys than girls with disabilities also

experienced physical abuse, neglect, and emotional abuse; and significantly more girls than boys with disabilities experienced sexual abuse. The gender difference in sexual abuse among the youths with disabilities observed in Sobsey, Randall, and Parilla (1997) was similar to that in the present study. The remaining gender differences between children with disabilities reported in Sobsey, Randall, and Parilla (1997) were not observed in the present study among deaf and hard of hearing treatment youths. The study populations are vastly different, so no direct comparisons can be made. However, the result on sexual abuse appears to be robust across different populations of girls.

Limitations

The results of this study should be viewed in light of several limitations. First, the sample size of deaf and hard of hearing youths is relatively small, thereby limiting the complexity of the questions that can be addressed. With a greater sample size, it would be possible to utilize a crossed design to estimate main effects for hearing status and gender as well as the interactions between the two. Although the patterns explored in the results provide a good hint as to what more formal analyses would reveal, more robust tests were not possible. Small sample size had the most effect on the items about current concerns given the base rate of those items appears to be low.

Another limitation is the lack of a signed version of the GAIN-I. Although it appears most of the youths with hearing loss whose data was included in the analysis were hard of hearing and most likely had a fairly well command of English, it is always possible any youth would have benefited from a signed assessment. Information on the availability of interpreter support is unknown.

Children who attend residential schools for the deaf tend to have more severe hearing losses and identify with Deaf culture. As mentioned above, the hearing loss group in this study appeared to be composed mainly of mainstreamed, hard of hearing youths. The results therefore may not reflect circumstances for youths who are severely or profoundly D/deaf or who attend residential schools.

Clinical Implications

The results underline the importance of screening for a history of child abuse upon entry to substance abuse treatment. Surprisingly, this is not as

commonplace as might be expected, even though systematic screening for victimization can dramatically improve the rates of identification (Rohsenow, Corbett, & Devine, 1988). Youths with co-occurring trauma and substance abuse enter treatment in far worse condition than their peers without traumatic backgrounds. Findings from numerous studies document increased levels of general mental distress, depression, anxiety, ADHD, conduct disorder, and problems controlling delinquent or aggressive behavior (Grella & Joshi, 2003; Stevens, Murphy, & McKnight, 2003; Titus et al., 2003; Titus, 2007; Williams, Smith, An, & Hall, 2008a; Williams, Smith, Gotman, Sabri, An, & Hall, 2008b). Higher rates of suicidal and homicidal thoughts and behaviors as well as other forms of self-harm (e.g., cutting behaviors) have been reported among treatment samples of adolescents with more severe trauma or victimization backgrounds (Stevens et al., 2003; Titus, 2007). Stevens et al. (2003) found increased health distress – including somatic symptoms and worrying about health – among outpatient girls and adolescents with acute levels of traumatic distress. Despite improvements made during treatment, treatment youths with co-occurring trauma and substance abuse often leave treatment with more ongoing substance use-related difficulties and higher levels of distress than those of their peers with lesser or no trauma and abuse (Titus et al., 2003; Titus, 2007), a difference that has been observed out to 12 months post-intake (Shane et al., 2006; Titus, 2007; Williams et al., 2008a). None of the studies mentioned about investigated these questions in a deaf and hard of hearing population, though given the results of this and another study (Titus, in press), it is likely they would generalize.

A current movement in the substance abuse treatment field aims to integrate trauma treatment with substance abuse treatment. Historically, substance abuse and mental health treatment developed along two independent tracks, each with their own treatment approaches, credentialing, funding streams, expertise, and turf. For instance, treatment for a mental health disorder might be delayed until the client had “dried out”, or a substance abuser might be treated for substance abuse issues in-house and referred for treatment of depression at a mental health facility. The truth of the matter is that substance abuse and a history of child abuse or some other serious trauma are tightly intertwined and should be addressed concomitantly rather than independently. Victimization increases the risk for substance abuse; likewise, substance abuse puts individuals at risk to be victimized. Securing appropriate substance abuse treatment for youths with hearing loss, especially those who are Deaf, is enough of a challenge given the scarcity of specialized

Titus: Gender Differences in Victimization Among Youths with and Without programs. The additional need to address victimization issues pushes the limits on locating appropriate treatment. A shortage of therapists with this collection of training would require consultative models for appropriate service delivery (National Child Traumatic Stress Network, 2006).

Research Implications

Assessments created and normed for the deaf and hard of hearing population are in short supply. It is not possible to know if the administration mode - that is, the lack of a signed version of the GAIN-I (including the GVS) - impacted the youths' answers. Although most of the youths were hard of hearing and likely had sufficient command of English, culturally appropriate assessments need to be developed and normed on the population in order to get a clearer picture of the scope of the problem.

The GAIN-I is a widely used substance abuse treatment intake assessment and has already been administered to youths with a hearing loss. It would be helpful to future research if several items that gather information on characteristics of hearing loss were added to the assessment. For instance, age of onset, degree of loss, educational environment, and cultural affiliation could provide pertinent information through which to view the results.

Previous research has identified attendance at a residential school as a risk factor for child abuse (Kvam, 2004; Sullivan & Knutson, 1998a). None of the youths in the present study were likely from a residential school. To provide a fuller understanding of circumstances for residential students, research should focus on victimization and substance abuse across various educational placements.

Individuals with disabilities are at a heightened risk for victimization, and those with hearing loss have a higher rate of co-occurring genetic and other physical and cognitive conditions. It is possible that higher rates of victimization among the hearing loss group could also be influenced by the presence of co-occurring physical or cognitive disorders, a topic that was not investigated in this study. Research is needed to tease out the unique contributors to victimization among youths with hearing loss who abuse drugs and alcohol.

Replication of the study using larger sample sizes would provide more stable results. The data set from which this study's data was taken grows

every year. In time, we will have the ability to conduct more vigorous tests with greater power.

Conclusions

Previous research on victimization histories of deaf and hard of hearing youths in treatment (Titus, in press) showed elevated rates of abuse. The current study further dissects those results and shows that the highly elevated rates of abuse among the girls with hearing loss are exerting a strong effect on the overall rate of abuse in the deaf and hard of hearing sample.

Youths in substance abuse treatment need to have issues around child abuse addressed in order to heal. Those issues cannot be addressed until they are known and appropriate treatment is available. Routine screening and trauma-informed treatment for substance abusing deaf and hard of hearing youths has the potential to positively impact lives damaged by the evils of child abuse.

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Table 1

Global Appraisal of Individual Needs (GAIN) General Victimization Scale (GVS) Questions

	Yes	No
The next questions are about things that other people may have done to you. Please answer the next questions using yes or no.		
E9. Has anyone ever...		
a. attacked you with a gun, knife, stick, bottle or other weapon?	1	0
b. hurt you by striking or beating you to the point that you had bruises, cuts, or broken bones or otherwise physically abused you?	1	0
c. pressured or forced you to participate in sexual acts against your will, including your regular sex partner, a family member or friend?	1	0
d. abused you emotionally; that is, did or said things to make you feel very bad about yourself or your life?	1	0
[IF ALL OF ABOVE ARE NO, GO TO E9n BELOW.]		
e. About how old were you the first time any of these things happened to you?	_____	Age
e18. [IS E9e UNDER 18?]	1	0
Did any of the previous things happen...		
f. several times or over a long period of time?	1	0
g. with more than one person involved in hurting you?	1	0
h. where one or more of the people involved was a family member, close family friend, professional or someone else you had trusted?	1	0
j. to the point that you were afraid for your life or afraid that you might be seriously injured?	1	0
k. and result in oral, vaginal or anal sex?	1	0
m. and people you told did not believe or help you?	1	0

	Yes	No
Are you currently worried that someone might...		
n. attack you with a gun, knife, stick, bottle or other weapon?	1	0
p. hurt you by striking or beating , or otherwise physically abuse you?	1	0
q. pressure or force you to participate in sexual acts against your will?	1	0
r. abuse you emotionally ?		
(If E9a-d and E9f-r are all No, circle No to E9s below and continue.)		
E9s. Have you gotten the help you need to deal with these problems?	1	0

Table 2
Severity of Victimization of Youths with or without Hearing Loss by Gender

	Deaf and Hard of Hearing Youth				Hearing Youth			
	Males (%) (N=64)	Females (%) (N=47)	p-value	Effect Size	Males (%) (N=64) ^g	Females (%) (N=47) ^g	p-value	Effect Size
Any abuse	64	75	.244	.24 ^a	55	60	ns	--
Multiple types of abuse								
0-1 types	66	40	.008	.53 ^a	72	66	ns	--
2-4 types	34	60			28	34		
N types of abuse descriptive statistics								
Mean (SD)	1.09 (1.02)	1.77 (1.35)	.005 ^b	.57 ^c	.90 (1.00)	1.16 (1.23)	.221 ^f	.23 ^c
GVS categorical severity								
Low (0 items)	31 30	21 9			42 20	36 13	ns	--
Moderate (1 to 3 items)	39	70	.003 ^d	.33 ^c	38	51		
High (4 to 15 items)								
GVS descriptive statistics								
Mean (SD)	3.14 (2.92)	5.19 (3.51)	.001 ^f	.63 ^c	2.60 (2.81)	3.70 (3.57)	.083 ^b	.34 ^c

^a Effect size is measured by Cohen's *h*.

^b Reported p-value is for the *t* with unequal variances.

^c Effect size is measured by Cohen's *d*.

^d Reported p-value is for χ^2 with 2 degrees of freedom.

^e Effect size for a cross-tabulation greater than 2x2 is measured by Cramer's *V* and is interpreted as a correlation coefficient.

^f Reported p-value is for the *t* with equal variances.

^g Sample size was obtained via gender balanced weighting.

Table 3
General Victimization Scale (GVS) Item Endorsement of Youths with or without a Hearing Loss by Gender

	Deaf and Hard of Hearing Youths				Hearing Youths			
	Males (%) (N=64)	Females (%) (N=47)	p-value	Effect Size ^a	Males (%) (N=64)	Females (%) (N=47)	p-value	Effect Size ^a
Lifetime prevalence								
Attacked with weapon	47	49	<i>ns</i>	--	41	21	.031	.44
Physically abused	39	47	<i>ns</i>	--	30	28	<i>ns</i>	--
Sexually abused	2	23	.000	.72	2	17	.004 ^b	.57
Emotionally abused	22	57	.000	.73	17	49	.000	.70
Traumagenic factors								
Repeated abuse	28	53	.007	.52	25	40	.084	.32
Multiple abusers	31	21	.242	.23	30	23	<i>ns</i>	--
Abused by trusted person	24	64	.000	.83	18	45	.002	.59
Afraid for life	27	37	.287	.21	16	19	<i>ns</i>	--
No one believed the abuse	6	23	.009	.51	8	17	.136	.28
Current concerns								
Worried about weapon attack	9	13	<i>ns</i>	--	8	6	<i>ns</i>	--
Worried about physical abuse	6	15	.196 ^b	.30	6	9	<i>ns</i>	--
Worried about sexual abuse	0	2	.418 ^c	.28	0	4	.177 ^c	.40
Worried about emotional abuse	8	24	.018	.45	5	17	.051	.40

^a Effect size is measured by Cohen's *h*.

^b The p-value for the exact test was used because one cell had an expected count of less than 5.

^c The p-value for the exact test was used because two cells had an expected count of less than 5.

^d Sample size was obtained via gender balanced weighing.