



Child maltreatment and trauma exposure among deaf and hard of hearing young adults



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ABSTRACT

The purpose of the present study was to examine the prevalence of child maltreatment and lifetime exposure to other traumatic events in a sample of deaf and hard of hearing (DHH; $n = 147$) and matched hearing (H; $n = 317$) college students. Participants completed measures of child maltreatment (CM), adult victimization and trauma exposure, and current symptoms of posttraumatic stress disorder (PTSD). Overall, DHH participants reported significantly more instances of CM compared to H participants, with 76% of DHH reporting some type of childhood abuse or neglect. Additionally, DHH participants reported experiencing a higher number of different types of CM, and also reported increased incidents of lifetime trauma exposure and elevated PTSD symptoms. Severity of deafness increased the risk of maltreatment, with deaf participants reporting more instances of CM than hard of hearing participants, and hard of hearing participants reporting more instances of CM than H participants. Among DHH participants, having a deaf sibling was associated with reduced risk for victimization, and identification with the Deaf community was associated with fewer current symptoms of PTSD. A regression model including measures of childhood physical and sexual abuse significantly predicted adult re-victimization and accounted for 27% of the variance among DHH participants. DHH participants report significantly higher rates of CM, lifetime trauma, and PTSD symptoms compared to H participants. Severity of deafness appears to increase the risk of being victimized. Being part of the Deaf community and having access to others who are deaf appear to be important protective factors for psychological well-being among DHH individuals.

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Introduction

Child maltreatment (CM) is associated with a number of negative long-term outcomes including greater risk for psychiatric illness, interpersonal problems, substance abuse, later re-victimization, and academic and cognitive difficulties (Cicchetti, Toth, & Maughan, 2000; Landsford et al., 2002; Weiss, Longhurst, & Mazure, 1999). Moreover, long-term outcomes tend to be poorer as the number of different types and the severity of maltreatment increase, which suggests a dose effect (Clemmons, DiLillo, Martinez, DeGue, & Jeffcott, 2003; Clemmons, Walsh, DiLillo, & Messman-Moore, 2007; Schenkel, DiLillo, Spaulding, & Silverstein, 2005). Polyvictimization, or exposure to multiple forms of victimization (e.g., violence, crime, abuse, and neglect), place children at particularly high risk for later maladjustment (Becker-Blease, Turner, & Finkelhor, 2010; Finkelhor, Ormrod, & Turner, 2007a, 2007b, 2007c, 2009). In particular, childhood polyvictimization has been shown to be

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the strongest predictor of later trauma symptomatology, suicide risk, and subsequent re-victimization even after controlling for mental health status and abuse severity for any one type of maltreatment (Finkelhor, Ormrod, & Turner, 2007a, 2007b; Turner, Finkelhor, & Ormrod, 2010).

Individuals with disabilities, including physical, developmental, intellectual, emotional, and behavioral have been found to be at increased risk for CM (Sullivan, 2009) with rates being as high as 3.44 times that of nondisabled children (Sullivan & Knutson, 2000). Studies also indicate that children with disabilities are more likely to suffer from multiple types of CM, tend to be victimized at an earlier age than nondisabled children, and are more likely to experience CM in the home or in a specialized school setting (Kazak & Marvin, 1984; Sullivan & Knutson, 2000; Turner, Vanderminden, Finkelhor, Hamby, & Shattuck, 2011). The majority of investigations examining CM among disabled populations have combined many different forms of disability into a single index, making it difficult to distinguish the specifics of maltreatment for different disability subtypes, including those with hearing loss. Specifically, children with hearing loss are typically part of larger groups comprised of a broad array of communication disorders and/or children with physical disabilities. Moreover, the majority of CM studies among populations with disabilities have been large epidemiological investigations that typically do not allow for in-depth examinations of CM for any one type of disability. Because different disabilities are associated with varying types of impairments and levels of risk for victimization, more comprehensive and thorough studies of childhood trauma for specific disability subtypes are warranted (Turner et al., 2011).

There have been a limited number of published investigations that have examined the prevalence of CM among deaf and hard of hearing (DHH) individuals and findings indicate increased rates of neglect and physical and sexual abuse (Kvam, 2004; Sullivan & Knutson, 1998, 2000). However, risk profiles for different types of CM among DHH individuals have varied considerably across studies, with some indicating increased rates of neglect and physical abuse (Sullivan & Knutson, 1998, 2000), others reporting elevated rates of sexual abuse (Kvam, 2004), and others failing to find any type of elevated risk for victimization after controlling for the presence of additional comorbid disabilities and family risk factors (Turner et al., 2011). Inconsistent findings may be the result of important methodological differences across studies resulting in significant heterogeneity within disability groups. For example, negative findings for CM risk among DHH individuals may have been the result of combining DHH youth into larger groups of children with physical health and medical problems, as opposed to investigating those with hearing loss specifically.

There are a number of reasons why DHH individuals would be at an increased risk for CM. Factors such as language and communication barriers, isolation due to lack of exposure to other DHH adults and children, and limited and/or inadequate parental involvement place DHH youth at greater risk for CM (Glickman & Gulati, 2003; Sebold, 2008). For example, approximately 95% of deaf children are born to hearing parents, with the majority knowing little to nothing about deafness and/or sign language (Mitchell & Karchmer, 2004; Vaccari & Marschark, 1997). Lack of adequate communication between parent and child would likely result in greater caregiver burden, frustration, and stress, and subsequent strain in the parent–child relationship, leading to an increase in physical discipline strategies that could lead to abuse (Greenwald, Bank, Reid, & Knutson, 1997). There is some data to support this theory. For example, hearing mothers of deaf children have been shown to be more likely to endorse physical discipline strategies in response to child misbehaviors compared to mothers of normally hearing children, and were also more likely to intensify these strategies in response to child behaviors perceived as dangerous or destructive (Knutson, Johnson, & Sullivan, 2004). In addition, mothers of deaf children report greater amounts of stress (Meadow-Orlans, 1995), and have also been classified as being less sensitive and more negative and intrusive while interacting with their infants (Meadow-Orlans & Steinberg, 1993).

Deaf children may also be easy targets for maltreatment because of communication barriers that make it less likely for them to report instances of victimization to parents or other adults. Moreover, deaf children have been shown to be more socially withdrawn and less socially competent compared to their hearing counterparts (Bain, Scott, & Steinberg, 2004; Wauters & Knoors, 2008). Being different in the form of observable speech difficulties, use of sign language, and the appearance of hearing aids or cochlear implants can “single out” DHH youth and exacerbate peer-relationship difficulties leading to greater social isolation (Kouwenberg, Rieffe, Theunissen, & de Rooij, 2012). Taken together, this would place DHH youth at increased risk for victimization in the form of bullying and/or maltreatment. Indeed, notable risk factors for victimization by peers in mainstream educational settings include being perceived as different from the majority and deficits in social competence and prosocial behaviors (Card & Hodges, 2007; Flynt & Morton, 2004; Hodges, Malone, & Perry, 1997).

Past investigations have also cited increased rates of victimization among DHH youth who attended residential schools for the deaf (Brookhouser, 1987; Mertens, 1996; Sobsey, 1994; Sullivan & Knutson, 1998; Weiner, Day, & Galvan, 2013). Instances of physical and sexual abuse have most commonly been reported in areas that are less frequently monitored by staff such as dormitory bathrooms and bedrooms, and secluded transportation or storage areas (Sullivan & Knutson, 1998, 2000; Sullivan, Vernon, & Scanlan, 1987). Communication difficulties, lack of adequate information about what constitutes abuse, perceived threat or abandonment, feelings of guilt, and the need for social acceptance make it less likely that DHH children will report instances of maltreatment (Stalker & McArthur, 2012; Vernon & Miller, 2002). Even when cases of child maltreatment are suspected, they are less likely to be formally investigated due to institutional barriers and a reluctance to report instances to authorities (Paul & Cawson, 2002; Sullivan, 2009). Denial by staff and/or school administrators who do not want to believe that children under their care have been abused, and fears related to possible consequences (e.g., school closings) have been cited as barriers against reporting (Brookhouser, 1987).

Because so little is known about CM in DHH populations, it is unclear whether or not certain risk factors and outcomes associated with CM among DHH individuals would differ from that of hearing individuals. Among community samples,

adult women with CM histories were more than twice as likely to experience later victimization in adulthood compared to women with no CM history (Parks, Kim, Day, Garza, & Larkby, 2011). Elevated rates of adult victimization and intimate partner violence (IPV) have been documented in DHH college students (Anderson & Leigh, 2011; Porter & Williams, 2011a, 2011b). However, it is unclear whether or not the same relationship between CM and increased risk for later re-victimization exists for DHH as it does for hearing individuals. Moreover, given the elevated rates of polyvictimization among DHH youth (Turner et al., 2011), it remains unclear whether or not DHH adults would be at an even greater risk for later re-victimization and elevated trauma-related symptoms as is the case for hearing individuals (Hickman et al., 2012; Turner et al., 2010). Although limited in number, studies have documented increased exposure to traumatic events among deaf adults along with elevated trauma symptomatology (Black & Glickman, 2006; Schild & Dalenberg, 2011).

In light of recent data that suggests increased trauma exposure among DHH individuals, they do not appear to be receiving adequate services to address their mental health needs. For example, there is a relative shortage of qualified mental health professionals who are trained to work with DHH individuals, and fewer who are able to communicate effectively with DHH patients and who are also knowledgeable about Deaf culture [The term *deaf* (lower case) is used to refer to the condition of not being able to hear. *Deaf* (uppercase) is typically used to refer to a group of people who share the same language and culture.] and mental health needs unique to the Deaf community (Black & Glickman, 2006; Pollard, 1996). Available mental health services are scarce for both DHH adults and children. For example, a recent study examining the availability of services for maltreated children with special health care needs reported that less than a third of DHH youth were able to access mental health services in sign language (Montoya, Giardino, & Leventhal, 2010). Communication barriers and lack of access to adequate mental health care may place DHH individuals at greater risk for negative outcomes, particularly among those with histories of CM and/or other types of victimization. Consistent with this, studies have reported elevated rates of trauma and increased posttraumatic stress disorder (PTSD) symptoms among DHH adults (Porter & Williams, 2011b; Schild & Dalenberg, 2011).

To date, there have been no systematic investigations that have examined multiple types of CM among DHH individuals, including physical and sexual abuse along with emotional abuse and neglect. Additionally, there have been no studies that have investigated CM along with lifetime trauma exposure and PTSD symptoms in DHH individuals. Therefore, the goal of the present study was to investigate the occurrence of childhood physical, sexual, and emotional abuse and neglect, and incidents of victimization, traumatic events, and PTSD symptomatology among DHH and hearing college students. Based on past investigations of CM and trauma in DHH samples, we hypothesized that compared to their hearing peers, DHH participants would show elevated rates of all types of CM, and increased incidents of later victimization and exposure to traumatic events. We also predicted that DHH participants would show increased PTSD symptoms. Finally, we conducted exploratory analyses to examine the extent to which having a deaf parent, a family member who knew sign language, or being part of the Deaf community would be important protective factors and would therefore be associated with reduced risk for CM, trauma exposure, victimization, and PTSD symptoms among DHH participants.

Method

Participants

The sample consisted of deaf (D; $n = 86$), hard of hearing (HoH; $n = 61$), and hearing (H; $n = 317$) college students who were recruited from undergraduate psychology classes at the Rochester Institute of Technology (RIT). RIT houses the National Technical Institute for the Deaf (NTID), the first and largest technological college for deaf people in the world. RIT and NTID students could select this project from an online listing of available studies, and upon participating received course extra credit. Three hundred forty three participants (74%) reported Caucasian ethnicity, and there were 35 (8%) Asian-American, 31 (7%) Latino/Hispanic, 35 (8%) African-American, and 20 (4%) other ethnicities. The mean age of the participants was 21.24 years ($SD = 4.59$), and the median annual income for the participants' parents was above \$100,000. All participants were required to have Shipley verbal IQ (Zachary, 1991) scores at or above 75 to insure proper understanding of the assessment measures (mean IQ for the sample = 100.86, $SD = 10.58$). Two DHH participants with Shipley verbal IQ scores of less than 75 were excluded from the study. There were no significant differences between the H and DHH groups on sex (H = 47% female; DHH = 53% female), age, race, IQ, or SES (Hollingshead, 1975).

Procedure

This study received approval from the University's institutional review board. Following both a written and verbal informed consent outlining the nature of the study and the types of questions asked, participants completed a demographic questionnaire, along with measures of CM and PTSD which are described below.

Measures

Demographic Questionnaire. In addition to standard demographic questions, information pertinent to deaf individuals was assessed and included: (a) mode of communication: American Sign Language, signed English, or oral; (b) status/type of hearing loss: deaf, hard of hearing, hearing; (c) age of hearing loss; (d) family hearing status; (e) self and family sign language

proficiency; (f) schooling: deaf residential school or mainstream; (g) whether participants had a cochlear implant; and (h) whether or not participants considered themselves part of the Deaf community.

The *Childhood Trauma Questionnaire* (CTQ; Bernstein, Fink, Handelsman, & Foote, 1994) is a 28-item measure that assesses five subtypes of childhood maltreatment before the age of 16 years: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Each abuse subtype is comprised of 5 items rated on a 5-point scale from 1 (*never true*) to 5 (*very often true*). The CTQ generates an overall dichotomous victim classification score (maltreatment vs. no maltreatment) and dichotomous scores for each of the five subscales, and a continuous score that provides an abuse severity indicator. It is well-established and has been used with community and clinical populations, with reliability coefficients that range from .72 to .96 (Bernstein & Fink, 1998). Scoring classifications range from none to minimal abuse, *low to moderate abuse*, *moderate to severe abuse*, and *severe to extreme abuse*. We included scores that fell at the low-to-moderate range and higher as indicating maltreatment status. We did not include scores that fell at or below the minimal range.

Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000). We used an abbreviated 16-item version of the TLEQ to screen for lifetime trauma history. For each item on the scale, the subject indicated whether he or she ever experienced that traumatic event over their lifetime in a binary (yes/no) format (e.g., “Has anyone threatened to kill you or seriously hurt you?”). Items that assess witnessing traumatic events and victimization, physical and sexual abuse, exposure to domestic violence, and intimate partner violence are included (“Have you ever been slapped, punched, kicked, beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend or girlfriend, or some other intimate partner?”). This version of the TLEQ was used to screen for trauma exposure in previous studies with persons with mental illness (Mueser et al., 2008). The total score indicates the number of traumatic events an individual experienced. For purposes of this investigation, a second TLEQ score was calculated to assess adult victimization. TLEQ items were chosen that specifically inquired about victimization in adulthood, and items that did not overlap with questions on the CTQ. Specifically, items assessing physical intimate partner violence, assault, adult sexual victimization, and stalking were combined to form one overall adult victimization composite score.

The *PTSD Checklist* (PCL; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) was used to screen and identify cases with probable PTSD, and to assess PTSD symptom severity. The PCL includes one question for each DSM-IV PTSD symptom, requiring the respondent to rate the severity of each symptom over the past month on a 5-point Likert scale (range: 1–5). A diagnosis of PTSD is suggested if at least one criterion B (intrusive) symptom, three criterion C (avoidant) symptoms, and two criterion D (hyperarousal) symptoms are rated at 3 or above, or if the total PCL score is 45 or more (Blanchard et al., 1996). The PCL has good test–retest reliability and convergent validity in both community and clinical samples (Blanchard et al., 1996; Grubaugh, Elhai, Cusack, Wells, & Frueh, 2007; Lu et al., 2013; Mueser et al., 2001).

Statistical Analysis

Chi-square analyses were completed to examine group differences between the DHH and H participants on the CTQ total dichotomous score (maltreated versus not maltreated) and each of the CTQ subscale dichotomous scores. *t*-tests were used to examine DHH and H group differences on the TLEQ and PCL scales (total scores), and the CTQ score for number of different types of CM reported. Follow-up item analyses using chi-square were completed for each of the TLEQ items to examine which questions DHH participants were significantly more likely to endorse. Among DHH participants, a series of chi-square analyses were done to examine group differences on the CTQ between DHH participants who had a deaf parent, family members who signed, who went to a deaf residential school, and who considered themselves to be part of the Deaf community versus DHH participants who did not. Analysis of variance (ANOVA) was used to examine group differences between D, HoH, and H participants on the number of different types of reported CM on the CTQ. Regression analyses were conducted in the DHH and H groups separately to examine the influence of CM on later adult re-victimization. Specifically, the extent to which a significant portion of the variance in TLEQ adult victimization scores could be accounted for by each of the CM indices of the CTQ (using the TLEQ adult victimization score as the criterion and each of the 5 scores on the CTQ as predictors).

Results

Demographic Information among DHH Participants

Among DHH participants, 15 (10%) had a parent who was deaf, 35 (24%) had a deaf sibling, 93 (63%) had a family member who signed, 58 (40%) went to a residential school for the deaf, and 99 (67%) considered themselves to be part of the Deaf community. Fifty two (35%) DHH participants reported that their primary mode of communication was oral, 30 (20%) communicated using signed English, and 65 (44%) communicated using American Sign Language (ASL).

DHH and H Group Comparisons on the CTQ

DHH participants reported significantly more instances of CM (76%) compared to H participants (49%; $\chi^2 = 31.30, p < .0001, \eta_p^2 = .07$). In terms of the different types of CM, DHH participants had significantly higher scores on all maltreatment domains

Table 1

Reported instances (and percentages) of child maltreatment on the Childhood Trauma Questionnaire (CTQ) between hearing (H) and deaf and hard of hearing (D/HOH) participants. Chi-square and significance values are presented.

	Hearing	D/HOH	χ^2 value
Emotional abuse	93 (29%)	70 (48%)	$\chi^2 = 14.73, p < .0001$
Physical abuse	57 (18%)	57 (39%)	$\chi^2 = 23.43, p < .0001$
Sexual abuse	41 (13%)	47 (32%)	$\chi^2 = 23.69, p < .0001$
Emotional neglect	99 (31%)	66 (45%)	$\chi^2 = 8.19, p < .005$
Physical neglect	60 (19%)	69 (47%)	$\chi^2 = 39.26, p < .0001$

of the CTQ, including physical, sexual, and emotional abuse, and emotional and physical neglect. See Table 1. DHH participants also reported experiencing significantly more types of CM on the CTQ than H participants, $t(462) = 6.53, p < .0001, \eta^2 = .08$.

When examining the three groups individually (D, HoH, & H), there were significant group differences on the CTQ, $\chi^2 = 37.70, p < .0001, \eta^2 = .07$, with D participants reporting significantly more instances of CM than H ($p < .001$) and HoH participants ($p = .005$), and HoH participants reporting more instances of CM than H participants ($p < .05$; D = 84%, HoH = 64%, H = 48%).

There was also a significant group difference for the number of different types of CM, $F(2,461) = 25.80, p < .0001, \eta^2 = .10$, with D participants reporting significantly more types of CM than H ($p < .0001$) and HoH participants ($p = .01$), and HoH participants reporting more instances of CM than H participants ($p < .05$).

DHH and H Group Comparisons on the TLEQ and the PCL

On the TLEQ, DHH participants reported experiencing significantly more instances of traumatic events, $t(462) = 6.64, p < .0001, \eta^2 = .08$ (mean DHH = 3.4, mean H = 1.9). On the individual items of the TLEQ, DHH participants endorsed significantly more incidents of: witnessing an attack or murder, $\chi^2 = 13.54, p < .0001, \eta^2 = .03$; death threats, $\chi^2 = 10.67, p < .001, \eta^2 = .02$; physical abuse prior to age 16, $\chi^2 = 12.25, p < .001, \eta^2 = .03$; sexual abuse prior to age 16, $\chi^2 = 10.89, p < .001, \eta^2 = .02$; sexual abuse after age 16, $\chi^2 = 30.05, p < .0001, \eta^2 = .07$; witnessing domestic violence, $\chi^2 = 12.79, p < .0001, \eta^2 = .03$; intimate partner violence, $\chi^2 = 19.77, p < .0001, \eta^2 = .04$; and stalking, $\chi^2 = 20.70, p < .0001, \eta^2 = .04$. On the PCL, DHH reported increased symptoms of PTSD compared to H participants, $t(462) = 3.34, p < .001, \eta^2 = .02$.

CM and Demographic Variables among DHH Participants

Among DHH participants, having a deaf parent, having a family member who signs, or being part of the Deaf community did not differentiate those with CM from those without ($ps > .05$). However, having a deaf sibling was associated with reduced risk for CM on the CTQ, $\chi^2 = 4.50, p < .05, \eta^2 = .03$. There were also no significant group differences on the TLEQ among DHH participants who had a deaf parent, deaf sibling, a family member who signs, or identified as being part of the Deaf community versus those who did not ($ps > .05$). Interestingly, there was a trend toward increased rates of CM on the CTQ among DHH individuals who attended a residential school for the deaf compared to those who were mainstreamed, $\chi^2 = 3.61, p = .06, \eta^2 = .03$. Additionally, identifying with the deaf community was associated with fewer symptoms of PTSD on the PCL, $t(145) = 2.46, p < .05, \eta_p^2 = .04$.

Regression Analyses Predicting Adult Victimization TLEQ Score

To examine the extent to which CM on the CTQ could account for a significant percent of the variance in adult re-victimization on the TLEQ composite score, separate regression analyses were performed in the DHH and H groups. Among DHH participants, there was a significant model, $F(5,146) = 10.19 (p < .0001)$, that accounted for 27% of the variance, with both physical abuse ($p < .05$) and sexual abuse ($p < .0001$) making significant contributions to the model. Among hearing participants, there was also a significant model, $F(5,316) = 3.45 (p < .01)$, that accounted for 5% of the variance, with emotional abuse and physical neglect making significant contributions to the model.

Gender differences for CM and Traumatic Experiences between DHH and H

We sought to investigate differences between males and females on the CM and trauma measures for the DHH and H groups independently. Among DHH participants, there were no significant differences between males or females on the CTQ or any of the CTQ subscales ($ps > .05$). There were also no significant differences between males and females on the TLEQ or the PCL ($ps > .05$). Similarly, among H participants, there were no significant differences between males or females on the CTQ and no significant differences on any of the CTQ subscales ($ps > .05$) except for physical abuse, where males had higher rates of physical abuse compared to females, $\chi^2 = 5.11, p < .05, \eta_p^2 = .01$. There were also no significant differences between males and females on the TLEQ ($p > .05$), however H females reported significantly more symptoms on the PCL than H males, $t(315) = 3.16, p < .01, \eta_p^2 = .02$.

Discussion

This study sought to investigate multiple types of CM, along with lifetime trauma exposure and PTSD symptoms in a sample of DHH young adults. Consistent with our prediction and past studies of victimization in deaf samples, we found elevated rates of CM among DHH participants compared to H participants (Sullivan & Knutson, 1998, 2000). Specifically, DHH participants reported increased incidents of CM on all CTQ domains with rates of physical and sexual abuse that were double the reported rates of H participants. Moreover, DHH participants also reported a greater number of different types of CM, higher incidents of exposure to traumatic events, and increased symptoms of PTSD.

In addition to neglect and physical and sexual abuse, this study examined histories of emotional maltreatment among DHH participants, and findings indicate significantly higher rates compared to H participants. Although much less studied than physical and sexual abuse, emotional maltreatment is thought to be equally as harmful, with some investigations suggesting that it has a greater negative impact on psychological well-being compared to other forms of maltreatment (Crawford & Wright, 2007; Wright, Crawford, & Del Castillo, 2009). It is often associated with feelings of worthlessness, shame, guilt, depression, and low self-esteem (Glaser, 2002; Webb, Heisler, Call, Chickering, & Colburn, 2007; Wright et al., 2009) and is thought to be more indicative of maladaptive parenting and damaging parent–child interactions rather than a specific harmful event or series of events (Glaser, 2002; Wright et al., 2009). Emotional maltreatment, therefore, is particularly relevant to DHH populations, where the quality of parent–child relationships and family dynamics can be significantly compromised due to substantial communication barriers and parental stress (see Sebald, 2008 for a review). Previous investigations have documented greater mood symptoms, and more negative self-perceptions and quality of life among DHH adolescents and young adults (Burnash, Rothman-Marshall, & Schenkel, 2010; Kushalnagar et al., 2011). Moreover, more impaired parent–child communication ability was associated with poorer quality of life and increased symptoms of depression among DHH adolescents (Kushalnagar et al., 2011). Further research into this issue, including the extent to which emotional maltreatment, in addition to other forms of CM, may be associated with more problematic parent–child relationships and poorer long-term mental health outcomes among DHH youth is needed.

Severity of deafness increased the risk of victimization, with deaf participants reporting more instances of CM than HoH participants, and HoH participants reporting more instances of CM than H participants. There are a number of reasons why this might be the case. Increased hearing loss would likely be associated with greater communication barriers between parents and their children, which could add to increased levels of frustration and harsher discipline strategies, therefore increasing the risk for both emotional and physical maltreatment. For example, hearing mothers of deaf children are more likely to engage in physical discipline than hearing mothers of hearing children, and poorer parent–child communication among hearing mothers of deaf children has been associated with increased risk for physical abuse (Knutson et al., 2004). Additionally, more severe hearing impairments are linked with lower levels of communication ability, which can place those with greater hearing loss at increased risk for victimization; they would be less likely to report the abuse and/or talk about it with others and therefore are better targets for victimization by perpetrators.

DHH participants also endorsed significantly more incidents of victimization, exposure to traumatic events, and PTSD symptoms compared to H participants. These findings are consistent with past investigations of increased trauma exposure and PTSD symptomatology among deaf adults, and support an “Information Deprivation Trauma” (IDT) model (Schild & Dalenberg, 2011). The IDT model argues that a lack of knowledge or information about a traumatic event can exacerbate the traumatic experience by making it seem more sudden, unpredictable, and uncontrollable (Schild & Dalenberg, 2011). Hearing loss is associated with limited access to environmental information, including information from the radio and television, and ambient sources of information such as overheard conversations. This accumulated lack of information is commonly referred to as “fund of information deficits” (Pollard, 1996, 1998), and results in a reduction in one’s knowledge base for a number of different types of information, including important health information (proper health care practices, coping strategies, safety behaviors). Limited communication with the hearing world can also result in a reduction of environmental cues and warnings from others, such as information pertaining to impending stressful or catastrophic events. Therefore, a greater severity of hearing loss would not only be associated with a reduction in health-related knowledge and practices (fund of information deficits), but it could also create obstacles for noticing valuable warning signs for traumatic events such as alarms, sirens, or calls from others, which could aid in the preparation of the event and guard against the element of surprise and/or the experience of being “taken off guard.” Therefore, it is not surprising that we found a significant association between increased hearing loss and more severe PTSD symptoms.

In both the H and DHH groups, CM was a significant predictor for later re-victimization in adulthood. However, the effect was much stronger among DHH participants compared to H participants, with over a five-fold increase in the percentage of variance in adult re-victimization scores accounted for by the occurrence of CM. This is not surprising given the increased rates of CM in the DHH group, along with the relatively limited mental health services that are available to DHH individuals. Future studies should aim at identifying specific factors that put this group at high risk for lifetime victimization.

There was a trend toward increased incidents of CM among DHH students who attended a residential school versus those who were mainstreamed. A number of previous investigations among individuals with disabilities (including those who are DHH) have reported increased rates of victimization in residential schools, including incidents of child physical and sexual abuse, neglect, and more recently bullying (Sullivan, 2009; Sullivan & Knutson, 1998; Weiner et al., 2013). This issue has also received significant attention in the media in recent years due to high profile lawsuits against residential schools for the deaf. Given the findings from past studies, recent media attention, and results from this study, it is clear that CM at

residential schools for the deaf continues to be a problem. More comprehensive investigations on this issue are needed to better understand important risk factors and to aid in the development of effective prevention strategies. Recent changes in policies and procedures at some residential schools for the deaf may produce different data in the future, but it's too early to tell at the present time. In light of this however, efforts to improve child welfare at residential schools for the deaf must continue.

Having a deaf parent, a family member who signs, or being part of the Deaf community was not associated with reduced risk for CM or later victimization, however, having a deaf sibling was associated with reduced risk for CM. We would have predicted that all of these variables would have been associated with a reduced risk for CM and other types of trauma exposure by enabling better communication and lowering risk, and providing increased support. The limited sample size of deaf parents may have, in part, accounted for the lack of a significant finding. There were only a small number of DHH participants who had a deaf parent (10%) which may have resulted in limited statistical power to find an effect, whereas there were a much larger number of DHH participants who had a deaf sibling (24%). Future studies with larger sample sizes are needed to examine this issue further. Additionally, our assessment of identification with the Deaf community was also somewhat restrictive. It was limited to only one question, and therefore, was not an ample measure of Deaf cultural identity. Moreover, it was an assessment of current Deaf cultural identity, not an affiliation to Deaf culture while growing up when CM would have likely taken place. Future studies on this issue should use more comprehensive measures of Deaf cultural identification that have been normed on DHH samples. In light of this limitation, we did find a significant association between identification with the Deaf community and reduced PTSD symptoms. Although this finding should be interpreted with caution, it may suggest that Deaf cultural identify serves as an important protective factor for psychological wellbeing in young adulthood.

Clinical Implications

Findings point to a number of important clinical implications that highlight the need for comprehensive programs that focus on prevention and intervention for child victimization among DHH individuals. Raising awareness is an important first step toward prevention efforts, and can lead to increased funding and support for research and subsequent outreach programs. Multi-tiered prevention strategies are warranted at the child, family, and community levels. Such programs should focus on educating DHH children along with caregivers, family members, teachers, and others (e.g., school staff) about child maltreatment and victimization, and risk factors for abuse and neglect. Reducing social isolation among DHH youth through more effective communication (i.e., ASL, signed English, or other forms of communication) with caregivers, family members, and peers is essential. Programs should also focus on educating caregivers on issues related to deafness, and providing important community and educational resources. Additionally, reducing the social stigma associated with being deaf is an important component to long-term prevention efforts. Negative views and erroneous stereotypes about individuals with disabilities can lead to increased shame and low self-worth, which in turn, can result in greater social isolation, depression, and risk for victimization (Stalker & McArthur, 2012). Indeed, previous findings from our laboratory have linked negative thoughts about the self and others with increased victimization rates and depressive symptoms among DHH adults (Burnash et al., 2010; Priddy, Schlehofer, Rothman-Marshall, Garcia, & Schenkel, 2013). Additionally, devaluing individuals with disabilities and the contributions they make to society can make it more acceptable for others to treat them negatively (Sobsey, 1994). Finally, educational schools for the deaf should have comprehensive programs in place for all personnel that include, but are not limited to: (a) educating all staff about CM and victimization, including risk and protective factors; (b) maintaining clear procedures and guidelines for identifying, responding to, and reporting cases of child maltreatment that are strictly enforced; (c) providing consistent supervision and support to staff members; (d) specific training in positive behavioral techniques that limit the use of restraint or seclusion; (e) maintaining effective staff/child ratios and realistic expectations for staff responsibilities; and (f) proper screening of job applicants (for more information on this issues see [Child Welfare Information Gateway, 2012](#)).

The high rates of child maltreatment and lifetime victimization reported by DHH participants in this study highlight the need for qualified mental health professionals who are fluent in sign language and Deaf cultural issues, and who also have expertise in trauma, victimization, and CM. Additionally, assessing for trauma exposure, CM, and victimization should be part of routine comprehensive psychological assessment procedures for both DHH children and adults. Deaf children placed in foster care settings may be at particularly high risk for victimization (Brookhouser, 1987), and therefore, professionals in the foster care system need to be attentive to potential risk factors for child maltreatment, and the many challenges these children face with respect to reporting and receiving adequate services (for more information on this issue see the [National Association of the Deaf: Position Statement on Quality Foster Care Services for Deaf Children, 2012](#)).

Limitations and Future Directions

This investigation has begun to shed light on the occurrence of CM among DHH individuals, and important risk and protective factors for victimization. However, there are a number of important limitations to the present study. Most importantly, we did not use culturally sensitive sign-language based (ASL and signed English) measures of CM, trauma exposure, and PTSD. Therefore, it is possible that some of the questions and/or content on the measures may have been misunderstood and/or misinterpreted by DHH participants. However, in an effort to guard against this difficulty, we assessed verbal ability

(IQ) among all participants in this study, and required verbal skills that would be more than adequate for participants to understand and complete the measures.

A second limitation to this study is the absence of using comprehensive and detailed measures of CM, trauma, and PTSD symptoms. We used self-report screener instruments as opposed to more comprehensive assessments, and therefore, were not able to obtain details about the specifics of CM (intensity, duration, perpetrator characteristics, etc.), trauma exposure, or PTSD symptoms.

Thirdly, this study focused on a relatively homogeneous sample of college students at RIT, and therefore, does not reflect the larger population of DHH college students or the broader experience of DHH individuals in the United States. The sample in this study was educated and middle class, with proficient language skills, all of which are known to be important protective factors against child maltreatment (Cicchetti et al., 2000). In addition, we did not examine CM rates among DHH participants with secondary and tertiary disabilities, or those with more severe disabilities, all of which are factors that have been associated with increased risk for victimization (Stalker & McArthur, 2012). Larger investigations of CM and lifetime victimization with more heterogeneous DHH samples are warranted.

This study is an important first-step in better clarifying the nature of CM, victimization, and trauma exposure among DHH individuals, and can lay the groundwork for future investigations using more comprehensive culturally sensitive measures. It is essential that the mental health needs of DHH individuals be understood and adequately addressed. A better understanding of early trauma and victimization can facilitate more tailored and beneficial psychological services for DHH adults, including the implementation of effective prevention and intervention services.

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