

Self-esteem and Coping Strategies among Deaf Students

Edina Jambor

Marta Elliott

University of Nevada, Reno

Research studies on the determinants of self-esteem of deaf individuals often yield inconsistent findings. The current study assessed the effects on self-esteem of factors related to deafness, such as the means of communication at home and severity of hearing loss with hearing aid, as well as the coping styles that deaf people adopt to cope with everyday life in a hearing world. Data were collected among the deaf students of California State University, Northridge. Hierarchical regression modeling showed that identification with the Deaf community significantly contributed to positive self-esteem. Results also revealed that deaf students with greater degree of hearing loss and with bicultural skills that help them function in both the hearing and the Deaf community generally have higher self-esteem. Implications for further study are discussed.

Self-esteem is a principal component of mental health. This study adopts Morris Rosenberg's definition of self-esteem as a person's summary evaluation of their worthiness as a human being (Rosenberg, 1979). In this delineation, self-esteem is global as it refers to the totalities of personal attributes rather than to a single dimension (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Self-esteem is an important concept since it is shown to have a pervasive and powerful impact on human cognition, motivation, emotion, and behavior (Campbell & Lavalley, 1993). Previous studies have shown that it is highly correlated with overall psychological well-being (Rosenberg et al., 1995), achievement (Campbell & Lavalley, 1993), and ability to cope with stressful life events (Campbell & Lavalley, 1993).

Correspondence should be sent to Edina Jambor, Interdisciplinary Social Psychology Program, Mail Stop 300, University of Nevada, Reno, 89557 (e-mail: jambor@unr.nevada.edu).

It has often been assumed that minority group members have relatively low self-esteem owing to their lower status in society. However, this assumption has been systematically contradicted (Crocker, Luhtanen, Blaine, & Broadnax, 1994; Phinney, 1991). Empirical data challenged the looking-glass self (Cooley, 1956; Mead, 1934), self-fulfilling prophecy (Merton, 1948), and efficacy-based (Franks & Marolla, 1976) self-esteem theoretical approaches. Even though prejudice and discrimination are agreed to be psychologically harmful, various studies establish a number of factors that can buffer their effects on self-esteem (Crocker & Major, 1989; Phinney, 1991).

One important factor that is claimed to have a moderating effect on self-esteem is membership in a minority group. A minority group consists of members who share one or more characteristics and are in a subordinate position in society vis-à-vis a more powerful majority group. Minority groups are often stigmatized and include racial/ethnic minorities, people with disabilities, and deaf people, among others. Crocker and Major (1989), in their discussion of the self-protective properties of stigma, argue that minority group membership protects one's self-esteem not only from explicit prejudice or discrimination but also from daily setbacks, failure, and rejections. Established membership in the minority group enables the individual to disregard the opinions of outsiders as non-significant and only incorporate the positive appraisals of significant others within one's own group.

Several research studies conducted on ethnic minorities suggest that factors such as family support and school experience can significantly influence the self-esteem of minority group members (Verkuyten, 2003; Way & Robinson, 2003). These studies demonstrate that those minority students who have a strongly integrated family background have higher self-esteem. In addition, those students who have a more positive school experience and face less discrimination on the part of their peers are also likely to have a more positive self-esteem. Bat-Chava (1993) found evidence of the importance of these factors in the case of deaf individuals as well.

Although there has been considerable debate over whether or not deaf people can be considered a cultural minority group, a sociocultural view of deafness is becoming more widely accepted. According to this view, deaf people belong to a unique community that is mainly made up of individuals who share a common sense of identity as Deaf¹. This community is partly a response to the frustrating everyday experiences of deaf people in a predominantly hearing society. Unlike some other cultural minority groups, deaf people have to make an active effort to find and associate with each other. Nonetheless, members of this community share a language, organizational networks, and values and norms that are unique to this group (Bat-Chava, 1994; Higgins, 1980; Lane, Hoffmeister, & Bahan, 1996; Reagan, 1995).

According to earlier theories of self-esteem, deaf people should have low self-esteem since they belong to a devalued minority group and are likely to internalize the negative attitudes of the hearing majority (Lane, 1992). Nonetheless, the few empirical studies conducted on the self-esteem of deaf individuals do not support this thesis (Bat-Chava, 1993, 1994). Rather, these studies argue that deaf people do not inevitably have low self-esteem, and they call for a more thorough examination of how deafness influences self-esteem (Emerton, 1996; Munoz-Baell & Ruiz, 2000). In addition to the supportive minority group that is shown to have a positive effect on self-esteem, there might be other influences at work that can help protect deaf people from the negative attitudes of the dominant group (Crowe, 2003). However, these contributing factors have not been clearly identified in the literature.

It is also not clear what kind of coping strategies deaf individuals use to protect their self-esteem while conducting their everyday lives in a world that is not set up to accommodate them. Coping represents attempts on the part of the individual to lessen the physical and psychological pain that are associated with negative life events and ongoing stressors. There are a number of different coping responses people employ with or without being aware of doing so. The common characteristic in all of these coping strategies is that they are adopted to help people deal with their hardships.

The literature argues that the adoption of productive coping styles can positively influence the self-esteem of members of minority groups (Jones et al., 1984). This thesis is applicable to deaf people as well. Deaf individuals can choose among various coping mechanisms to protect and enhance their sense of self-worth. Nevertheless, which strategies they use and when has not been thoroughly investigated (Bat-Chava, 1993, 1994; Becker, 1981; Higgins, 1980).

This study examines self-esteem among deaf students who are currently enrolled in college. Although there is no literature on deaf college students, per se, a number of studies indicate that college students, in general, derive their self-esteem from those life domains they rate as most important (Crocker, Karpinski, Quinn, & Chase, 2003; Crocker & Luhtanen, 2003; Crocker, Luhtanen, Cooper, & Bouvrette, 2003c). For example, Crocker, Karpinski, et al. (2003) found that academic achievement was only related to college students' self-esteem when they valued it as an indicator of their self-worth. Family and peer support are also related to self-esteem among college students (Fass & Tubman, 2002). Although our study does not include academic achievement in its scope of analysis, it does build on family support in the form of how deaf individuals are able to communicate with their parents (see *Factors Related to Deafness and Self-Esteem*).

The central purpose of this study is to explore factors that might determine the self-esteem of deaf people. In this paper "deaf" is used as an audiological term and refers to the full range of deaf and hard of hearing individuals who have some degree of hearing loss. The direct and indirect effects on self-esteem of factors related to deafness as well as different coping styles are examined. Furthermore, we assess the effect

of degree of hearing loss with hearing aid on self-esteem so as not to treat all deaf and hard of hearing individuals as though they are the same.

Factors Related to Deafness and Self-Esteem

Positive self-regard is important for successful functioning in everyday life. The self-evaluation of members of minority groups such as deaf people, however, is challenged by prejudice toward them on the part of the majority society. Nevertheless, the literature that focuses on the self-esteem of deaf people shows that there is considerable variation within the Deaf community (Bat-Chava, 1993; Crowe, 2003). While some studies report lower self-esteem among deaf people than among hearing individuals (Bat-Chava, 1994; Schlesinger, 2000), other studies demonstrate that prejudice does not inevitably lead to lower self-esteem (Bat-Chava, 2000; Emerton, 1996; Crowe, 2003).

There are a number of factors that may protect and enhance the self-esteem of deaf people: (a) mode of communication at home, (b) type of schooling prior to college, (c) age of onset of deafness, (d) severity of hearing loss with hearing aid, and (e) group identification. The following section explains the nature of each of these components as they are applied to the case of deaf people.

Mode of communication at home

Regardless of whether deaf children grow up in a hearing or deaf family, they all have to go through similar life experiences as they try to find their way in the majority society. They likely have faced frustration, embarrassing misunderstandings, and the loneliness of being left out of oral conversations. A number of studies show that those deaf children who are raised by deaf parents often have advantages over those who are born to hearing families because they are growing up in an environment where communication is naturally dependent on visual, not oral, cues. Almost all deaf parents use sign language while interacting with their children, and as a result family members are more likely to understand each other's needs and feelings (Crowe, 2003; Desselle & Pearlmutter, 1997; Hillburn,

Marini, & Slate, 1997; Lane et al., 1996; McIntosh, 2000; Schirmer, 2001).

The literature argues that effective communication with parents is very important for the psychosocial development of children. Lip-reading is a skill that most deaf people do not possess and are unable to develop perfectly (Moore & Levitan, 1992). Furthermore, 90% of those who were born deaf are unable to use their voice in an intelligible manner despite years of speech therapy (Lane et al., 1996). Since lip-reading and oral communication are only of limited help, parents who are not able to sign tend to raise children with limited opportunities to develop the social skills needed to interact broadly in society (Desselle & Pearlmutter, 1997; Hillburn, et al., 1997). These children often do not use a formal language fluently until they enter an environment where sign language is the dominant language (Luey, Glass, & Elliott, 1995). They also often feel more socially isolated in their home and communities than those who have less restricted opportunities to communicate in the family environment (Hillburn, et al., 1997).

Type of schooling prior to college

The literature argues that in addition to the family environment, the schools deaf individuals attend have a great influence on their adult self-esteem (Bat-Chava, 1993, 1994). Deaf children can be placed in different educational environments that can be ordered along a continuum from residential schools for deaf students to full mainstreaming with oral education. It is likely that those deaf individuals who attended residential schools where all the other students are deaf and American Sign Language is the primary mode of communication will tend to have higher self-esteem. In these schools, children learn and socialize in an environment that fosters the acceptance of deafness instead of treating it as a deficiency. Furthermore, these deaf students do not have to face negative attitudes from hearing students during their everyday lives that might also protect their self-esteem (Bat-Chava, 1994, 2000; Schirmer, 2001).

Nevertheless, the number of deaf children receiving instruction in general education environments has been increasing over the past two decades. Gallaudet

Research Institute's *Annual Survey of Deaf and Hard of Hearing Children and Youth* (2001) reports that while 29% of deaf children attend special schools, 45% are placed in regular education setting. Another 43% attend schools with a resource room or self-contained classroom for deaf children where they receive the services of either sign language or oral interpreters if needed and have regularly scheduled sessions with speech therapists to improve their speech skills². Recent research shows that attending schools with mostly hearing students, while having the opportunity to interact with other deaf students, is beneficial since it gives deaf children the chance to learn how to function in the hearing world (Kluwin, 1999, Luckner, 1999). However, there is also some evidence that separate special education throughout elementary school is beneficial for the social and academic achievement of deaf children during their secondary and post-secondary schools years (Geers, 1990). Ideally, inclusion would teach deaf children to function well in both the hearing and the Deaf communities. However, in their formative years deaf children are likely to benefit psychologically most from being in residential schools where they are among similar others and are able to fully communicate and share experiences.

Age of onset of deafness

Another important factor is the age of onset. Deafness acquired in adulthood creates problems that are different from the problems of those who were born deaf or who lost their hearing during their early childhood (Munoz-Baell & Ruiz, 2000). Congenital deafness is more of a linguistic problem since these deaf people most often do not learn any spoken language properly. Communication disability, in turn, may lead to social rejection, little education, low-status jobs and low income. This can have an important impact on self-esteem (Higgins, 1980; Strong & Shaver, 1991).

On the other hand, later-deafened individuals usually have other kinds of issues with self-esteem (Schirmer, 2001). There is a sensory-neural impairment that is acquired post-lingually or after they have already learned the language and the values and norms of the hearing community (Crowe, 2000). Their problems derive from the fact that their hearing loss significantly changes their lives. They have to learn to

adjust and adopt to new communication strategies and often to an entirely different lifestyle. They have to establish a new identity, recreate their already existing social relationships, learn to rely more on their other senses, and face the fact that they cannot hear the voices and sounds of the world any more. They may also struggle with feeling “‘damaged” or “‘diminished” as a result of their hearing loss. Taken together, these factors are likely to take a toll on their self-esteem.

Severity of hearing loss

Audiologically, hearing can be limited in any degree and in any combination of frequencies (Luey, Glass, & Elliott, 1995). Those with profound hearing loss are often forced to come to terms with their deafness since not even the most developed technological devices can help their hearing significantly. These deaf individuals are likely to accept their deafness as a condition that they have to live with. They often seek out the company of similar others and learn the different strategies that can help them live a full life regardless of their deafness.

On the other hand, those who have lesser hearing loss often try to conceal their deafness. They have some residual hearing that enables them to hear some of the sounds and voices around them. Nevertheless, their hearing loss is often severe enough to hinder them from smoothly conducting a conversation in spoken English where hearing and speaking are the required communication channels. They often need further cues, such as face-to-face communication with constant eye contact, lip-reading, and understanding body language. Since these are rarely completely available in encounters with hearing people, deaf individuals are likely to lose a lot of information during the communication process. Even the use of hearing aids cannot fully solve the problem since these assistive devices cannot make other people's speech clearer, only a bit louder (Moore & Levitan, 1992). Repeated experiences of ineffective communication may lead to frustration and a feeling of deficiency that could depress deaf individuals' self-esteem.

Even though previous studies (Beck, 1988; Brooks & Ellis, 1982) showed that deaf individuals have lower self-esteem than those with some residual hearing, we argue that this is not necessarily the case. Those with a profound hearing loss are often forced to come to

terms with their deafness and to arrange their lives according to this condition. On the other hand, those with some residual hearing are often caught in the middle since they may do not define themselves as deaf, yet they cannot fully function as hearing in a world that relies on hearing and speech. This may lead to frustrating experiences and a diminished self-regard.

Group identification

Strong identification with one's in-group is assumed to have a positive influence on self-esteem because it provides a sense of belonging and serves as a buffer against the negative impact of prejudice and discrimination (Bat-Chava, 1993, 1994, 2000; Crocker & Major, 1989, Phinney, 1991). As a result, group identification is deemed one of the most important factors leading to positive self-esteem among deaf people.

For those deaf people who identify with the Deaf community, being deaf is not seen as a deficiency; rather, it is a part of their total identity. For those who adhere to a medical/pathological view and do not recognize the cultural or linguistic aspects of their deafness, being deaf is a disability and disorder. Linderman (1997) argues that internalizing the pathological approach and rejecting deafness as a cultural concept has a negative impact on the self-esteem of deaf people. On the other hand, those who identify strongly with the Deaf community and spend considerable time with similar others often have positive self-worth (Bat-Chava, 1994; Olney & Brockelman, 2003; Schirmer, 2001). Even though these Deaf individuals also have to face discrimination and prejudicial attitudes on the part of the hearing during their everyday lives, they belong to a community of people that share the same experiences and a common fate. Previous studies show that those who identify strongly with their group often have positive self-esteem (Bat-Chava, 1993, 1994, 2000). On the other hand, deaf individuals who do not identify with the Deaf community but rather try to fully fit in with the hearing world are likely to suffer poor self-esteem (Schirmer, 2001). Despite the ever-improving technological innovations, there is still no perfect cure for deafness. Hearing aids and cochlear implants might help to get along better in the hearing world, but they

typically do not make deaf people able to hear well enough to fit in the hearing world on equal footing.

Self-esteem and Coping Strategies

There is no literature available that deals with the coping mechanisms of deaf people. Coping in relation to deafness has hitherto only been examined as a process that hearing parents have to go through upon the arrival of a deaf child. Nonetheless, deaf people themselves have to make adjustments and develop coping strategies in the hearing world to protect their self-esteem. They need to counteract the hassles they face every day in a world that is full of communication challenges and, at times, prejudice and discrimination (Linderman, 1997).

There are a number of coping strategies deaf people may adopt to manage their everyday lives and protect their self-esteem. These include withdrawal into a Deaf community, covering, and developing bicultural skills.

Withdrawal from society into a community of similar others can help to protect self-esteem, but at the same time it sets limits on those who adopt this strategy. It is assumed that those deaf individuals who have primarily deaf friends and are highly involved in a Deaf community usually have higher self-esteem. Nevertheless, since they remove themselves almost fully from the hearing society, they also have less chance of improvement or achievement in their life.

Covering is a technique that allows deaf individuals to pass as hearing. Erving Goffman (1963) argues that covering leads to a lot of stress since these individuals constantly have to live with the fear of being disclosed and face the consequences. Those who choose this strategy can pay a great psychological price since they have to live a life that may collapse at any moment. Deaf people usually do not have a chance to cover their hearing loss since it is often revealed once they enter a setting where they have to communicate with hearing people. Nonetheless, those deaf individuals who have good speech skills or have some residual hearing may successfully attempt to pass.

Deaf individuals who develop *bicultural skills* are able to function effectively in the dominant culture as well as in the culture of the minority group. They are often able to succeed professionally in the hearing

world as well as identify with the Deaf community and fight for social change (Bat-Chava, 2000). Those who are able to find a balance between their involvement in the Deaf and the hearing world tend to have positive self-esteem (Brubaker, 1994). Today more and more deaf people, especially the younger generations, adopt this strategy. They are proud of their cultural heritage, but they are also comfortable with pursuing their own individual interests in the majority society. These deaf individuals often have intelligible voices and are coming from a hearing family, which enables them to be more familiar with the norms and values of the majority society and to move comfortably back and forth between the two groups (Emerton, 1996).

The general literature on coping strategies argues that the influence of withdrawal and covering is rather ambiguous. They can lead to positive self-esteem; however, they can have negative consequences as well since they may lead to social isolation (Link, Struening, Rahav, Phelan, & Nuttbrock, 1997; Jones et al., 1984). On the other hand, developing bicultural skills is likely to have the most positive effects. Those deaf individuals with strong bicultural skills who both succeed professionally in the hearing world and who enjoy the support of the Deaf community likely enjoy optimal self-esteem. Not only have they exceeded others' expectations of what they are capable of, but they have maintained a bond that is an important source of their identify and of social support.

Hypotheses

The deaf population is diverse in its range of self-esteem and choice of coping strategies. In this study, we identify factors that predict the self-esteem of deaf individuals. The factors we consider relevant and will be used in this research are (a) mode of communication at home, (b) type of schooling prior to college, (c) age of onset of deafness, (d) severity of hearing loss with hearing aid, and (e) group identification. Based on the literature review, we test the following hypotheses:

Hypothesis 1: Those deaf people whose families use sign language as the primary mode of communication in the home tend to have higher self-esteem than those whose families cannot or do not sign.

Hypothesis 2: Those deaf individuals who attended residential schools for deaf people prior to college tend to have higher self-esteem than those who did not attend residential schools.

Hypothesis 3: Those who were born deaf tend to have higher self-esteem than those who lost their hearing later in life.

Hypothesis 4: The more profound the hearing loss, the higher the self-esteem of deaf people tends to be.

Hypothesis 5: The greater the identification with a Deaf community, the higher the self-esteem of deaf people tends to be.

We argue that each of these factors has an independent effect on self-esteem. In addition, there may also be interactive effects among these wherein the presence of beneficial factors might reduce the harmful effects of other factors. For example, when a deaf person's family does not use sign language to communicate with them, identification with a Deaf community may reduce the effect of poor communication with their family. Similarly, when parents do not sign, attending a residential school for deaf students where deafness is embraced as a cultural issue rather than a deficiency might also attenuate the potentially harmful consequences of communication difficulties at home.

In addition to deafness-related factors, we also explore the effects of coping strategies that deaf people adopt. The coping mechanisms we consider are withdrawal, development of bicultural skills, and covering.

Hypothesis 6: The more a person "withdraws," the lower his or her self-esteem.

Hypothesis 7: The greater a person's bicultural skills, the higher his or her self-esteem.

Hypothesis 8: The more a person "covers," the lower his or her self-esteem.

In addition to the main effects, interactions between deafness-related factors and coping strategies might affect self-esteem, such as when successful coping alleviates the negative effect of something else. For example, strong bicultural skills might attenuate the negative effect of acquiring deafness later in life.

Method

Participants

The sample for this study was drawn from the deaf student population of California State University, Northridge (CSUN). Specifically, all 207 deaf students were invited to participate. Of these, 78 completed the self-administered survey, leading to a response rate of 38%. The university was selected for its sizeable deaf student body, the second largest in the United States. The sample was representative of the population of deaf CSUN students on demographic variables. Sixty-four percent of the sample was female, 46% was Caucasian, close to 21% Asian or Asian American, 14% Hispanic, and 6% African-American. The average age was about 25 ($M = 24.96$, $SD = 6.88$), ranging from 19 to 48. While to our knowledge there has not been any research exploring the reason that the average age of deaf students is higher than that of their hearing counterparts, other studies conducted among deaf students yield similar results (see for example Crowe, 2003). There has been speculation that response to this question lies with the education system that struggles to teach deaf children adequate writing and reading skills in English, but other factors such as communication practices within the family are also likely to make a difference (MacDougall, 1991; Stewart & Kluwin, 2001). All participants were registered to attend classes in the fall semester of 2002.

Measures

The self-administered questionnaire (see Appendix) consisted of short scales measuring a number of variables: deafness-related factors, identification with the Deaf, self-esteem, coping strategies, and demographic variables.

The construct *mode of communication at home* was assessed by asking students if the primary mode of communication at home was oral communication only, mostly oral communication with some sign, or sign language as the primary mode of communication. The variable *type of schooling prior to college* was measured by asking students if their most recent school was a residential school for deaf students, mainstream school with special classes for deaf students, main-

stream school with special services for deaf students, or a mainstream school with oral instruction.

Group identification was measured by a 6-item scale adapted from Ellemers, Wilke, and Van Kippenberg (1993). Participants were asked to indicate to what extent they agreed with a number of statements that were indirectly or directly related to group membership or contact with other people in general (such as "Relationships with other deaf people are important to me") on a four-point scale ranging from "completely untrue" (1) to "completely true" (4). Higher in-group identification scores indicated that the participant strongly identified with the in-group.

The construct *age of onset of deafness* was measured by asking respondents at what age they had become deaf. Those who were born deaf were coded "0" and all others were coded their age in years. Two variables were constructed for the analyses: "born deaf" has a value of "1" for all who were born deaf and "0" otherwise; "age of onset" varies from 1 (deaf by age 1) on up through age 42. *Severity of hearing loss with hearing aid* was measured by a single item that asked the participants about their degree of hearing loss with hearing aid³. Answers to this question were scored on a four-point scale ranging from normal hearing (1) to profound hearing loss (4). Respondents self-identified their level of hearing loss without specific guidelines indicating measurement in decibels.

Since there were no available instruments to measure coping styles among deaf people in their own cultural context, we developed a series of items measuring the adoption of different *coping strategies* from a number of extant instruments. The items were pre-tested in a focus group discussion with 5 deaf individuals. After the pre-test, three scales of coping strategies were developed: (a) *withdrawal* into the Deaf world, consisting of three items such as "I go out of my way to hang out with deaf people"; (b) *covering*, consisting of three items such as "When I hang out with hearing people who cannot sign, I pretend that I understand everything that is going on"; and (c) *bicultural skills*, consisting of five items such as "I can get along well in both the hearing and the Deaf world." All items were scored on a four-point scale; some of them ranged from "strongly disagree" (1) to "strongly agree" (4), and others from "never" (1) to "often" (4).

Self-esteem was measured by the Rosenberg Self-Esteem Scale. The scale was scored using a four-point response format from strongly disagree (1) to strongly agree (4). The scale is considered a standard in measuring self-esteem, and, as Blascovich and Tomaka (1991) reported, for hearing individuals it has Cronbach alphas ranging on items from .77 to .88. Even though the scale has been translated into American Sign Language (ASL) and it produced an acceptable Cronbach alpha (.78; for further information see Crowe, 2003), we decided to use the English version, which in a previous study had a .63 Cronbach alpha for deaf individuals (Bat-Chava, 1994). We had two main reasons for adopting the standard English version: (a) our participants are college students who are likely to have sufficient English proficiency, and (b) the participants have diverse backgrounds, and we could not be sure whether they are all fluent in ASL. The alpha of the self-esteem scale in this study is .80.

Age, gender, and ethnicity were used as control variables. Each of them was measured by a single item inquiring about the participants' demographic background. The respondents' age was calculated by subtracting their year of birth from the current year, 2002. The construct *gender* had two categories: male (1) and female (2), while for ethnicity several categories were given: White (1), Black/African-American (2), Indian/Native American (3), Hispanic (4), Asian/Asian-American, (5) or other.

Analytic Strategy

Our analytic strategy had three parts. First, we examine the descriptive statistics to demonstrate the characteristics of the students we have assessed. Next, we tested the direction and significance of bivariate correlations between all the variables. Since much of this study is exploratory, we put more attention on bivariate correlations than would normally be the case. Finally, once satisfied that there is sufficient variation in the population on the constructs of interest, and that the variables are related to one another in the expected ways, we proceeded to a multivariate analysis of self-esteem.

In our multivariate analysis, we performed a three-stage hierarchical regression. In the first stage, we enter deafness-related factors, those background character-

istics that are shared by all members of our population but that take different forms, such as mode of communication at home. This first stage tested hypotheses one through four. In this stage we also entered the demographic variables, such as ethnicity. Second, we entered identification with the Deaf to test hypothesis five. Identification with the Deaf is a social-psychological construct, rather than a background characteristic or a coping strategy. Therefore, we entered it separately in the second stage along with the deafness-related factors. In the third stage, we added the three coping strategies to test hypotheses six, seven, and eight. This strategy allowed us to examine the effects of each conceptual category of predictors separately, as well as to observe change in variables already in the model once new variables were entered.

Results

Descriptive statistics

Table 1 shows the mean, standard deviation, alpha reliability (when relevant) and variable range for the study variables. The majority of respondents were born deaf (48, or 62%). The mean age of hearing loss onset among those who were not born deaf is about 5 years. The standard deviation for age of hearing loss onset, 8.21, is an artifact of an outlying value of age 42 in the data. In fact, over 75% of those not born deaf were deaf by age 5 and the remainder by age 15, with the exception of the outlying case. Since the variable is positively skewed, its standard deviation cannot be taken literally.

Most participants had at least a moderate hearing loss (85%). This means that they are not able to conduct a verbal conversation effortlessly even with the use of their hearing aid since they cannot fully understand the message their conversational partners try to convey. Of these 85%, 26% had severe hearing loss and 12% had profound hearing loss.

A great number of the participants attended mainstream school with special services for deaf students at some point in their lives (48%), which is not surprising given the recent efforts of the hearing society to integrate deaf people into their world (Lane et al., 1996). CSUN is also a mainstream university where the professors teach verbally and the lessons are interpreted for deaf students; thus it is likely to be most

Table 1 Descriptive statistics

Variable	α	Mean	Standard Deviation	Variable Range
Demographic variables				
Age		24.96	6.88	19 to 48
Gender		.65	.48	0=male to 1=female
White		.46	.50	0=minorities to 1=white
Deafness related variables				
Born deaf		62%	49%	0=other to 1=yes
Age of onset		5.08	8.21	1=age 1 to 42 years
Severity of hearing loss with hearing aid		2.35	.88	1=normal to 4=profound
Type of schooling				
Attended residential school for the Deaf		25%	43%	0=no and 1=yes
Attended mainstream school with special services for the Deaf		48%	50%	0=no and 1=yes
Attended mainstream school with special class for the Deaf		21%	41%	0=no and 1=yes
Attended mainstream school with oral instruction		35%	48%	0=no and 1=yes
Mode of communication at home				
Using oral communication at home		53%	50%	0=no and 1=yes
Using oral communication with some sign language		23%	42%	0=no and 1=yes
Using sign language at home		19%	40%	0=no and 1=yes
Identification with the Deaf	.72	2.99	.53	0=no identification 4=strong identification
Coping strategies				
Bicultural skills	.71	3.32	.44	1 to 4, 1=no skills
Covering	.53	2.76	.59	1 to 4, 4=extreme covering
Withdrawal	.65	2.05	.64	1 to 4, 4=complete withdrawal
Self-esteem	.80	3.21	.42	1 to 4, 4=highest self-esteem

attractive to deaf students who have attended similar schools in their past. Twenty-five percent of the participants attended residential schools, 21% attended mainstream schools with special classes for deaf students, and 35% went to a public institution with no special services for deaf students. Some students attended more than one type of school in their lifetimes and were asked to report them all.

The majority of the participants used oral communication at home (54%) or oral communication with some sign language (23%), while only 19% used sign language as a primary mode of communication at home. Most respondents appeared to have developed strong bicultural skills ($M = 3.32$, $SD = .44$ on a scale from 1 to 4, where 1 indicates the absence of bicultural skills). This can be attributed to the fact that during most of their lives they lived with hearing people but

were also exposed to the Deaf world while attending mainstream schools with at least a small group of other deaf students. Most students indicated above-average identification with a Deaf community ($M = 2.99$, $SD = .53$ on a scale from 1 to 4, where 4 indicates the highest level of identification), which is not surprising in light of the fact that CSUN has a thriving Deaf culture. "Deaf CSUNians" is the largest chartered organization under the university's Associated Students. It is dedicated to promoting cultural, political, and social awareness on campus, and it also provides a variety of activities, including frequent social gatherings and intramural sports events. As a result, students have the opportunity to get actively involved in the life of a Deaf community (see <http://ncod.csun.edu/index.html>).

The alpha reliabilities of two of the coping strategies sub-scales, covering and withdrawal, are

somewhat below our target of .70 or above, most likely because the instruments were exploratory and have never been tested in this form before. The reliability for covering is .53, and for withdrawal it is .65.

Most students scored relatively high on the self-esteem measure, $M = 3.21$, $SD = .42$ on a scale from 1 to 4, where 4 equals the highest possible self-esteem, which was expected considering that respondents attend a campus with a deafness-friendly environment where they can get a lot of support to succeed both in their academic and social endeavors.

Bivariate analyses

Table 2 presents the correlations among all variables. To test bivariate correlations with the two nominal variables (i.e., mode of communication at home and type of schooling prior to college) we constructed dummy variables to represent each category for each of the two variables. For example, we created a dummy variable representative of sign language being the mode of communication at home that has a value of one for those who use primarily sign language at home and a value of zero for those who use either oral communications or a combination of the two. We used the same technique to create a unique dummy variable for each category of each nominal variable.

The bivariate analysis reveals a number of correlations between the different deafness-related factors. Our data show that those respondents who were born deaf and have more severe hearing loss are more likely to have attended residential schools for deaf students than those who lost their hearing later in life or have less severe hearing loss. Severity of hearing loss with hearing aid is positively related to sign language use at home and negatively related to oral communication at home, as well as to withdrawal. Our data also show that those respondents who use oral communication at home are more likely to have attended mainstream schools rather than residential schools for deaf students.

Identification with the Deaf is significantly related to almost all deafness-related factors. Respondents who attended residential schools and use sign language as the primary mode of communication at home show stronger identification with the Deaf than those who attended mainstream schools and who use oral communication at

home. Furthermore, those with more severe hearing loss are more strongly identified with the Deaf.

In regards to the coping strategies, the analyses show that deaf people are less likely to use the covering strategy if they have more profound hearing loss, have attended residential school for deaf students, and use sign language at home. Those with more severe hearing loss are often unable to cover their deafness since they cannot hear the voice of their interactive partners or the noises of everyday life around them. Furthermore, using sign language as a primary mode of communication makes deafness visible, and those who attended residential schools for deaf students mostly sign and therefore cannot hide their deafness. These deaf individuals often take pride in their deafness, while those who try to pass as hearing are less likely to identify with a Deaf community. The bivariate analysis shows that those who withdraw into the Deaf world tend to identify more strongly with the Deaf community and are less likely to cover their deafness. They also are more likely to have severe hearing loss, to use sign language at home, and to have attended residential schools for the deaf or mainstream schools with special services as opposed to mainstream schools with oral instruction. Withdrawal is positively related to self-esteem, perhaps because of the protective effects of remaining within the Deaf community.

In addition to withdrawal, the dependent variable, self-esteem was also significantly correlated with severity of hearing loss with hearing aid, oral communication at home, identification with the Deaf and ethnicity. A surprising result is that in contrast to the currently existing research studies, our analysis shows that Whites, who constitute less than half the sample, have higher self-esteem than minorities. Previous research has shown approximately equal levels of self-esteem between Whites and minorities, if not higher self-esteem among minorities. However, the unique combination of being deaf and a minority may provide special challenges.

Self-esteem was positively related to severity of hearing loss with hearing aid; those who are more profoundly deaf are likely to have higher self-esteem. Furthermore, it was negatively correlated to oral communication at home, indicating that those who are forced to read lips and function without sign language may feel isolated and left out from conversations and home life, which has negative implications for their self-esteem.

Table 3 Regression analysis
Self-esteem (N = 78)

Variable	b	se	p
Step 1			
White	.32	.09	.001
Born deaf	.08	.10	.400
Hearing loss	.09	.06	.159
Residential school	-.13	.12	.272
Sign language use at home	.11	.14	.419
Step 2			
White	.27	.09	.005
Born deaf	.06	.10	.527
Hearing loss with hearing aid	.08	.06	.163
Residential school	-.16	.12	.171
Sign language use at home	.07	.14	.599
Identification with the Deaf	.19	.09	.043
Step 3			
White	.27	.09	.003
Born deaf	.07	.10	.481
Hearing loss	.10	.06	.081
Residential school	-.18	.12	.130
Sign language use at home	.10	.14	.443
Identification with the Deaf	.19	.09	.038
Bicultural skills	.23	.10	.025

Note: Adjusted $R^2 = .175$ for Step 1; $R^2 = .213$ for Step 2; and $R^2 = .260$ for Step 3.

Hierarchical regression analyses

As it is shown in Table 3, hierarchical regression analyses were estimated to assess the effects of deafness-related variables and coping strategies on self-esteem. The cell sizes of the multiple alternative categories for family mode of communication and type of schooling prior to college were too small to be reliable in multivariate analyses. Therefore, family mode of communication was measured as a dummy variable, where 1 = sign language and 0 = other, and type of schooling prior to college was also measured as a dummy variable, where 1 = residential school and 0 = other.

In the first step, hypotheses one through four were tested by entering the deafness-related factors, including being born deaf, severity of hearing loss with hearing aid, sign language use at home, and having attended residential school for deaf students. In addition to these variables, we entered the demographic variables of which only White (as opposed to minority) was left in the final analysis since age and gender were not significantly related to self-esteem. Ethnicity was

significant and showed that white deaf students have higher self-esteem ($B = .32, p = .001$) than minority deaf students. We also tried all other modes of communication at home and types of schooling prior to college categories separately to test their relationship to self-esteem, but none was significant.

In the second stage, hypothesis five was tested by entering identification with the Deaf. Inclusion of this variable raised the model fit somewhat since the factors included explain roughly 21% of the total variance as opposed to 18% in stage one. Hypothesis five was supported and identification with the Deaf emerged as a strong predictor of self-esteem of deaf individuals ($B = .19, p < .05$) indicating that those who identify with a Deaf community tend to have higher self-esteem. In the second stage, ethnicity of respondents has remained a significant factor ($B = .27, p < .01$).

Next, in the third and final stage, hypotheses six, seven, and eight were tested by entering the three coping strategies variables. When all three coping strategies—withdrawal, covering, and bicultural skills—were in the model, none was significant. However, bicultural skills approached statistical significance, so we retained this variable in the final model. The factor not only raised the model fit, but the variable severity of hearing loss with hearing aid also became marginally statistically significant ($B = .10, p < .10$) in addition to the already significant ethnicity ($B = .27, p < .01$), identification with the Deaf ($B = .19, p < .05$), and bicultural skills itself, ($B = .23, p < .05$). The final model therefore shows that those deaf who are White, have relatively more severe hearing loss, who identify with the Deaf, and who have developed bicultural skills, tend to have higher self-esteem. Thus, we found support for hypotheses five and seven and partial support for hypothesis four (hearing loss).

As a final step in our analyses, we tested various interactions between each combination of a deafness-related factor and coping strategies. For example, we tested the interaction between family mode of communication and biculturalism. We assumed that even if the family did not communicate with the student in sign language, a sense of biculturalism could develop that would have a positive influence on their self-esteem. However, none of the interaction terms we tested was found to be statistically significant.

Discussion

The primary objective of this study was to determine the factors that influence the self-esteem of deaf students as well as to explore the coping strategies that deaf people adopt, and how they relate to self-esteem. We hypothesized that each deafness-related factor and each coping strategy we identified would have an independent effect on self-esteem.

Three of the eight study hypotheses were confirmed by the analyses. Identification with the Deaf proved to be positively related to self-esteem. This finding is in line with other studies that showed that those members of the deaf population who identify strongly with their group have higher self-esteem. Identification with similar others who can provide social and emotional support has a positive impact on self-esteem even if the individuals are members of a devalued minority group.

The second hypothesis that reached marginal statistical significance ($p = .08$) was the influence of severity of hearing loss with hearing aid on self-esteem. As expected, those with a greater hearing loss have higher self-esteem, we suspect because they are less likely to deny their hearing loss and more likely to be accepting of themselves. Instead of trying to remedy their deafness through surgeries and hearing aids, they focus instead on ways to succeed both professionally and personally within their given circumstances. On the other hand, those with some residual hearing may feel torn between two worlds; they are not deaf but they are also not hearing, and their constant search for a clear-cut self-concept may take a toll on their self-esteem.

The third hypothesis for which we found support was the influence of bicultural skills on the self-esteem of deaf students in the multivariate case. Those who are able to get along well in both the Deaf and the hearing worlds tend to have higher self-esteem. These deaf individuals can take pride in their achievement in the dominant society but can also rely on the support they can get from the community of similar others. This is an important finding since it suggests that the endeavor to integrate deaf people into the majority society is a positive effort, but only if these individuals can keep their ties to the Deaf world for emotional and social support.

The school environment can help teach bicultural skills that enable deaf people to function well in both

the hearing and Deaf communities. Even though we found no effect of type of schools per se, our results suggest that the ideal school environment allows deaf students to develop the skills that are necessary to get along in the majority society while still identifying with the Deaf community. This suggests that school settings where deaf children are among similar others but also mainstreamed with hearing students would be ideal for deaf children's developing self-esteem.

We were somewhat surprised to find that, among deaf students, Whites have higher self-esteem than minorities. Perhaps the protective qualities of minority-group membership do not always extend to deaf members, whose communication with the group may be challenged. Therefore, minority group membership may not render the same positive effect on self-esteem among the deaf that it apparently does among the hearing.

Although we expected that every deafness-related factor would influence the self-esteem of deaf people, just as in previous studies, we were unable to show the relevance of all of them. We found evidence for the significance of severity of hearing loss with hearing aid, but the factors that are often cited to be important (mode of communication at home and type of schooling prior to college) did not have much influence on self-esteem in our study. However, one category of mode of communication at home reached significance in the bivariate case: using oral communication at home as opposed to sign language was associated with lower self-esteem. The literature emphasizes the importance of effective communication between parents and children so that the offspring can develop adequate social skills and a positive self-regard. Deaf children need a visual communication tool since processing information through the auditory channels is at best limited. Communicating through sign language may be necessary for the positive self-evaluation of those who become deaf pre-lingually, since this is often the most natural way for them to express their feelings, desires and beliefs.

Limitations and strengths of the study

This study was conducted among college students at a university with a large deaf student body. The question remains whether deaf people who conduct their everyday lives in a predominantly hearing environment would score as high on the self-esteem measure as

the respondents of this study. By present standards, the respondents cannot be considered representative of the deaf population at large. As of today, most deaf people are undereducated with low-status jobs and low levels of income (Crowe, 2003, Higgins, 1980; Munoz-Baell & Ruiz, 2000). The response rate was low, and we do not know why those who did not respond made their choice. It might be that they did not feel sufficiently encouraged to fill out the survey or they might have felt frustrated with the language of the questionnaire—it was administered only in English, which can be considered a second language for many deaf students (Jankowski, 2003, Lane, et al., 1996). Despite the low response rate, the sample is representative of CSUN students, at least demographically, and thus is representative of a new generation of deaf people who attend college to an ever-increasing extent and who learn to function both in the Deaf and the hearing worlds.

The academic environment from which the sample was drawn also cannot be considered representative of American colleges in general. CSUN has the second largest deaf student body in the United States and provides a nurturing social and cultural environment for deaf students. Although the sample itself may be selective, it had the strength of including students from a wide variety of geographical locations with diversity on the deafness-related factors and on the demographic variables.

Although several of our constructs were associated with self-esteem in the expected directions, few reached statistical significance, especially in the multivariate case. A probable cause of lack of significance is the low sample size owing to the size of the population we surveyed and the low response rate we obtained. Thus, the absence of results should not be treated as definitive.

Implications for further research

Future research should be directed to several issues left unresolved by the current study. Our results show the significance of identification with the in-group and developing bicultural skills for a positive self-esteem. Deaf people need the feeling of belonging to a group of similar others, but they also need to strive to function in the hearing world. Our findings show that this is the avenue to follow for the future since this can help bring up a new generation of deaf people who are able to

enjoy a good quality of life and make substantial contributions to the society at large. Secondly, future studies should attempt to tease apart the joint effects of minority group membership and membership in the Deaf community to better understand why deaf minority students appear to have lower self-esteem.

Another important line of research would address the *consequences* of higher self-esteem for other important outcomes such as academic achievement. While some studies report a positive relationship between self-esteem and academic achievement (Liu, Kaplan, & Risser, 1992), others claim that the association is too weak and confounded to be interpreted as causal (Hewitt, 1998; Kohn, 1994). Studies of minority groups such as African-Americans do not indicate a positive association between self-esteem and achievement (Van Laar, 2000), suggesting that other factors such as perceived or real barriers to success are a hindrance regardless of self-esteem. Thus, we cannot safely assume that improving the self-esteem of deaf college students will necessarily improve their academic achievement. They may need other resources and supports for this important task, but that is a subject for a different study.

Future studies should be conducted with larger and more diverse deaf populations. Our sample was drawn from an environment that stresses the importance of integration and mainstreaming while allowing deaf people to take part in activities organized specifically for them. It is important to realize that the deaf population is diverse and its members have different needs. Our findings cannot be generalized to all deaf people. Continuing research is needed to explore the nature of these differential needs in the interest of helping all deaf people feel good about themselves and enjoy high-quality lives.

Notes

1. “Deaf” refers to a group of people who share the same values and practices based on the common experience of being deaf in a hearing world, and use a distinct language, American Sign Language. The term “deaf” refers to the audiological aspect and involves all people with some degree of hearing loss.
2. Percent totals more than 100.0 because of multiple responses.
3. We measured hearing loss both with and without hearing aid, but we decided to use the former since the recent survey on deaf children and youth shows that 63% of them use hearing aid for classroom instructions. See the *Annual Survey of Deaf and Hard of Hearing Children and Youth*.

Appendix Questionnaire

Please do **NOT** put your name on this questionnaire.

Please take your time and answer each question as accurately as possible. There are no right or wrong answers.

Part 1: Your Background

Please read each of the following questions concerning your background. All responses will remain confidential.

1. What is your gender?
 - Male
 - Female
2. What is your ethnicity?
 - White
 - Black/African-American
 - Indian/Native American
 - Hispanic
 - Asian/Asian-American
 - Other _ (please specify)
3. In what year were you born?
4. Were you born with hearing loss?
 - Yes Skip to question #5
 - No
- 4.a. In what year did you lose your hearing?
5. How would you characterize your degree of hearing without hearing aid?
 - Profound hearing loss (cannot hear anything)
 - Severe hearing loss (able to hear only really loud or high-pitched sounds)
 - Moderate or mild hearing loss (able to hear much of a conversation)
 - Normal hearing (can hear everything)
6. How would you characterize your degree of hearing with hearing aid?
 - Profound hearing loss (cannot hear anything)
 - Severe hearing loss (able to hear only really loud or high-pitched sounds)
 - Moderate or mild hearing loss (able to hear much of a conversation)
 - Normal hearing (can hear everything)
7. What kind of school did you attend prior to CSUN? (check all that applies)
 - Residential school for the deaf
 - Mainstream school with a special class for the deaf
 - Mainstream school with special services for the deaf
 - Mainstream school with oral instruction
 - Other _____ (please specify)
8. What is the mode of communication you use with your parents?
 - Oral communication only
 - Mostly oral communication with some sign

- Sign language is the primary mode of communication
 Other _____ (please specify)

Part 2: You and the Deaf Community

The following questions will ask you about your opinion about the Deaf community. Please circle the response that best describes how you feel about it.

9. I find it pleasant to be a member of the Deaf community.
 COMPLETELY TRUE SOMEWHAT TRUE SOMEWHAT UNTRUE COMPLETELY UNTRUE
10. I believe that, generally speaking, I have more in common with members of the deaf community than with any other groups.
 COMPLETELY TRUE SOMEWHAT TRUE SOMEWHAT UNTRUE COMPLETELY UNTRUE
11. I would rather belong to the hearing world than the Deaf community.
 COMPLETELY TRUE SOMEWHAT TRUE SOMEWHAT UNTRUE COMPLETELY UNTRUE
12. Relationships with other Deaf people are important to me.
 COMPLETELY TRUE SOMEWHAT TRUE SOMEWHAT UNTRUE COMPLETELY UNTRUE
13. I believe that I am a full-fledged member of the Deaf community.
 COMPLETELY TRUE SOMEWHAT TRUE SOMEWHAT UNTRUE COMPLETELY UNTRUE
14. I believe that members of the Deaf community are a lot like one another.
 COMPLETELY TRUE SOMEWHAT TRUE SOMEWHAT UNTRUE COMPLETELY UNTRUE

Part 3: Your Thoughts and Feelings about Yourself

The following questions ask you to agree or disagree with the statements you might make about yourself. Please circle the response that best reflects your opinion. Provide only one answer for each statement.

15. I feel that I am a person of worth, at least on an equal basis with others.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
16. I feel that I have a number of good qualities.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
17. All in all, I am inclined to feel that I am a failure.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
18. I am able to do things as well as most other people.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
19. I feel I do not have much to be proud of.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
20. I take a positive attitude toward myself.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
21. On the whole, I am satisfied with myself.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
22. I wish I could have more respect for myself.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
23. I feel useless at times.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE
24. At times I think I am no good at all.
 STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE

Part 4: You and the Hearing World

Please read the following statements and circle the response that best describes how you feel about your practices in the hearing world.

25. When I meet hearing people who cannot sign, I use paper and pen to communicate.
OFTEN SOMETIMES RARELY NEVER
26. I go to events where the majority of people are hearing.
OFTEN SOMETIMES RARELY NEVER
27. I try not to interact with hearing people.
OFTEN SOMETIMES RARELY NEVER
28. When I meet hearing people who cannot sign, I leave without trying to communicate.
OFTEN SOMETIMES RARELY NEVER
29. When I have to communicate with hearing people who cannot sign, I ask a hearing friend or relative to speak for me.
OFTEN SOMETIMES RARELY NEVER
30. When I do not understand what hearing people say to me, I ask them to repeat themselves.
OFTEN SOMETIMES RARELY NEVER
31. I initiate conversation with hearing people with whom I regularly meet at work or in class.
OFTEN SOMETIMES RARELY NEVER
32. I tell the hearing person right at the beginning of the conversation that I am deaf.
OFTEN SOMETIMES RARELY NEVER
33. I go to deaf events.
OFTEN SOMETIMES RARELY NEVER
34. When I hang out with hearing people who cannot sign, I pretend that I understand everything that is going on.
OFTEN SOMETIMES RARELY NEVER
35. I go out of my way to hang out with deaf people.
OFTEN SOMETIMES RARELY NEVER

Finally, please read the following statements and circle the response that indicates the extent to which you agree or disagree with them.

36. I can get along with hearing people just as well as with deaf people.
OFTEN SOMETIMES RARELY NEVER
37. I am involved in the life of a Deaf community.
OFTEN SOMETIMES RARELY NEVER
38. When I am communicating with a hearing person, I do not tell them that I am deaf unless I have to.
OFTEN SOMETIMES RARELY NEVER
39. I like building new relationships with hearing people.
OFTEN SOMETIMES RARELY NEVER
40. I can get along well in both the hearing and the deaf world.
OFTEN SOMETIMES RARELY NEVER
41. I do not have problems interacting with hearing people.
OFTEN SOMETIMES RARELY NEVER

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