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Tal Lambez
Reichman University

Maayan Nagar
Reichman University

Maayan Nagar
Reichman University

Anat Shoshani
Reichman University

Ora Nakash
Smith College, onakash@smith.edu

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Tal Lambez[1], Maayan Nagar[1,2], Anat Shoshani[1] and Ora Nakash[1,2,*]

[1]Baruch Ivcher School of Psychology, Interdisciplinary Center, Herzliya, and [2]Smith College School for Social Work

*Correspondence should be sent to Ora Nakash, School for Social Work, Smith College, Lilly Hall, Northampton, MA, USA (e-mail: onakash@smith.edu)

Abstract

The sociocultural approach regards being deaf as a cultural characteristic in the identity of a deaf/hard-of-hearing (D/HH) person. The degree to which one integrates the hearing and Deaf cultures ("acculturation") is an important factor for the well-being of deaf adolescents. We examined the relationship between acculturation patterns and emotional distress among D/HH ($n = 69$) compared to hearing ($n = 60$) adolescents in Israel. We used culturally and linguistically accessible measures. Our findings showed no significant differences in emotional distress between D/HH and their hearing counterparts. Acculturation played an important role predicting emotional distress. Identification with both the Deaf and hearing cultures was associated with reduced somatization. Exposure to discrimination and social support was also associated with emotional distress in predictable ways. Findings are interpreted within the specific context of Israeli society and highlight the importance of using adaptive linguistic and cultural assessment tools with D/HH populations.

Children who are born deaf and are surrounded by hearing people who communicate with them only verbally, usually in a restricted manner, are liable to feel isolated. This is a common scenario, since 2 to 3 out of every 1,000 children in the United States are born hard of hearing or deaf (Centers for Disease Control and Prevention, 2010). In the United States, the overwhelming majority (approximately 90%) of deaf children are born to hearing parents (Mitchell & Karchmer, 2004).

According to the medical approach, the definition of the word "deaf" relates to an audiological situation, a hearing disability or loss, and those who identify with this definition regard themselves as "hard-of-hearing" (Eliyahu, Mazor, & Roknian, 2003). This approach aims to cure deafness and rehabilitate the deaf person while promoting the assimilation into hearing society. In contrast, the sociocultural approach defines a "Deaf" person as a member of the Deaf community, and consequently, its members object to the term "hard of hearing" because they do not regard deafness as a pathology, but as a cultural characteristic (Glickman, 1993). Adhering to this approach, other researchers have defined the Deaf community as a minority sociocultural group owing to the unique characteristics of its language and culture and the characteristics of belonging to a socially disadvantaged group (Bat-Chava, 1994; Davis, 1995; Dolnick, 1993; Humphries, 1996). These characteristics include endogamy (approximately 90% of members of the Deaf community marry members of the community; Schein, 1989), shared organizational networks and identification with a particular community on the one hand, and, on the other hand, experience of exposure to negative stereotypes, prejudice, and discrimination. Previous studies have applied different methodological approaches to examine the deaf or hard-of-hearing (D/HH) population. In the past 20 years, studies from the United States and Europe have mostly applied methods that stem from the cultural perspective (i.e., Bat-Chava, 2000; Glickman, 1996; Hamill, 2012; Hintermair, 2007; Maxwell-McCaw & Zea, 2011). This study aims to extend the body of research on another international Deaf community, the Israeli DHH community.

These differences in perception between the medical approach and the sociocultural approach reflect the different place that deafness can occupy in the life of a D/HH person who is required to navigate between different worlds and discrete cultures—the hearing and Deaf cultures. Each culture is characterized by a different language, behavioral codes, history, and values. The extent to which and the manner in which each

culture will influence identity is defined as "acculturation," a psychological process that occurs as a result of an encounter between two distinct cultural groups (Berry, 1990).

Acculturation

Two orthogonal dimensions underpin the process of acculturation, namely the degree to which the minority culture is preserved and the extent to which involvement in the dominant culture is fostered. Glickman (1993) believes that Deaf identity development is similar to that of other cultural identity development (e.g., ethnic minorities) and proposed four identities. These identities are hearing, marginal, immersion, and bicultural, and they represent developmental stages. The first stage is known as "marginalization," and it is characterized by no clear identity affiliation. The individual has little interest or ability in preserving their minority culture and no interest in adopting the dominant culture. Owing to the fact that in the United States, approximately 90% of deaf children are born to hearing parents (Mitchell & Karchmer, 2004), most parents of deaf children find it difficult to cope with a deaf child. Some hearing parents are unable to use sign language and are not familiar with the world of deaf people. The child's deafness then prevents him/her from acquiring the spoken language, values, and customs of the hearing environment, and the fact that the parents are not exposed to positive models of deafness prevents the child from acquiring sign language and the cultural values of deaf people. Marginalized children, therefore, need to form their identity with little familiarity with the cultural contrasts between the hearing world and the Deaf community and without mastery of the language that defines the identity formation process, which can lead to mental health problems (Glickman, 1996).

The second stage/strategy is named "hearing" and describes a situation in which members of the minority group seek to connect with the dominant culture, which is known as "culturally hearing." This identity is usually typical of people with slight-to-moderate hearing loss or those who lost their hearing after adolescence, most of whom were born to hearing families, attended integrated schools, and did not know other deaf and hard-of-hearing (DHH) children in school (Eliyahu et al., 2003). Individuals in this stage tend to regard deafness as a medical pathology or handicap and aspire to overcome it and achieve full integration into the hearing community by means of oral communication. Their guiding assumption is that the hearing world is the normal world, while the Deaf world is abnormal. As a result, they do not wish to join the Deaf community nor does the Deaf community view them as belonging to it.

The third stage/strategy, known as "immersion," is defined as the preservation of the original culture by members of the minority group who refrain from interaction with members of the dominant culture group. This strategy is relevant to the developmental stage in which deaf people are more fully vested in the Deaf community. They positively identify with the Deaf community and believe that only deaf people can serve or guide deaf people and they feel resentment and anger toward hearing people. The spoken language is considered inferior to sign language; hearing people are perceived as oppressors and subjugators. Immersed individuals tend to refrain from performing the actions that are characteristic of hearing people, such as the use of voice, hearing aids, or symbolized sign language that is based on the rules of spoken language.

The fourth strategy, known as "bicultural," describes the preservation of the original culture while adopting the dominant culture (Berry, 1997). This strategy characterizes deaf people who feel comfortable moving between deaf people and hearing worlds and are familiar with the cultural differences between them, as well as with the advantages and disadvantages of each culture. People with a bicultural identity are imbued with "Deaf pride" and accept the Deaf community, including its culture and values, but they also feel comfortable with hearing people who are perceived as supportive.

While Glickman's model (1993) focuses on the struggles and difficulties of members of the DHH community encounter when facing the hearing culture, others have focused primarily on identifying and describing the strength of members of the DHH community. Maxwell-McCaw and Zea's (2011) theoretical framework is informed by recognition of the positive influence that involvement in Deaf cultural activities can have on one's identity. This model views acculturation as a process by which individuals acquire and maintain characteristics of Deaf culture while simultaneously acquiring and maintaining characteristics of the hearing culture. By acquiring the characteristics of each group, cultural identification and involvement with both Deaf and hearing cultures are assessed independently of each other thus can better capture biculturalism.

Acculturation strategies and their association with emotional distress have been the subject of various studies among racial/ethnic minority populations in recent decades (Nakash et al., 2012). These studies have demonstrated that the most adaptive pattern is bicultural acculturation in which the person maintains his original culture while adopting characteristics of the receiving culture. In addition, other studies have demonstrated that marginalization acculturation, in which there is repudiation of both the original culture and the receiving culture, is the least adaptive in terms of mental functioning and health (Berry, 1990; Berry et al., 1987).

Despite the fact that many studies examined acculturation strategies in minority populations, few have explored such strategies and their association with emotional distress among DHH populations. Maxwell-McCaw's (2001) study that examined acculturation in DHH populations in the United States found that DHH adults with bicultural acculturation patterns and culturally Deaf patterns reported higher self-esteem and satisfaction with life compared to those with culturally hearing or marginalized identity patterns. This study was later replicated by Hintermair (2007), who studied adolescents and adults, aged between 14 and 73. He stated that a marginalized identity acculturation pattern was a risk factor for developing worse well-being compared with the three other acculturation patterns, while those with a bicultural acculturation pattern faired best in terms of mental health status. Adoption of an acculturation strategy does not only depend on the individual preference. Exposure to personal and group discrimination (Grant, 2008; Operario & Fiske, 2001; Sellers & Shelton, 2003) plays an important role in identity development and in particular their ability to integrate into the dominant culture (Ellis et al., 2010). Exposure to group-based discrimination can lead to significant stress (Meyer, 1995). For example, a feeling of injustice, which is more prevalent among people with disabilities, including deaf, was associated with emotional distress and increased risk of ill health (Elovainio, Kivimäki, & Vahtera, 2002).

With regard to members of a minority group in society, the question arises as to whether the fact of belonging to the Deaf community necessarily places its members at increased risk of emotional distress or whether it constitutes a resilience factor. Studies examining the association between deafness and emotional distress among adult members of various deaf commu-

nities have found that deaf participants reported higher emotional distress as well as higher rates of mood, anxiety, and behavioral disorders compared with hearing adults (Bridgman et al., 2000; Fellinger et al., 2005; Kvam, Loeb, & Tambs, 2007; Turner & Beiser, 1990). Studies among DHH children and adolescents, although more scarce, documented inconsistent findings (Dammeyer, 2009; Greenberg & Kusché, 1989; Marschark, 1997) pointing to the need for more culturally sensitive research.

Importantly, the familial and environmental protective variables such as social support may serve as a buffer against stress and protect from developing psychological symptomatology associated with stress (Smith, 1985). The importance of social support is reflected by findings documenting relations between the occurrence of mental disorders in deaf children and adverse experiences at school (Fellinger et al., 2009) and that a supportive social environment and particularly being a part of a Deaf community can increase social relationships, self-esteem, and lower emotional distress (Jambor & Elliott, 2005).

Objective of the Present Study

We examined the association between identity (acculturation patterns of Deaf identity) and emotional distress among Jewish DHH adolescents in Israel. Most Deaf communities consist of people with severe to profound hearing loss, who prefer to communicate via sign language. As a result, these communities are often closed to hearing people who do not sign fluently. Previous studies have applied different methodological approaches to examine emotional distress among DHH participants. Some have used written questionnaires (i.e., Bat-Chava, 1994; Jambor & Elliott, 2005; Kvam et al., 2007; Leigh et al., 1998) and some have used recorded videos of the questionnaires adapted to sign languages (Bridgman et al., 2000; Mejstad, Heiling, & Svedin, 2008). These methodological differences could explain the inconsistency of their findings. This study is theoretically and methodologically embedded in a sociocultural view of the Deaf community, and thus, we have adapted all questionnaires to Israeli Sign Language (ISL).

We hypothesized that DHH adolescents would report higher emotional distress, lower social support and greater feelings of discrimination than hearing adolescents. We also hypothesized an association between belonging to audiological group (D/HH) and acculturation pattern, so that adolescents that define themselves as deaf will primarily be associated with use of the "Deaf identity" strategy; while adolescents who define themselves as hard of hearing, will be more associated with "hearing' and 'bicultural' strategies. Last, we hypothesized that greater identification with the hearing culture and with Deaf culture (bicultural), will be related to less emotional distress beyond the effects of audiological group, demographics, perceived discrimination and perceived social support.

Method

Participants

The sample ($N = 129$) included self-defined deaf ($n = 18$) and hard-of-hearing ($n = 51$) and a sociodemographically matched sample of 60 hearing adolescents who volunteered to participate in the study. All participants were recruited via convenience sampling. Ages ranged from 10 to 18. The participants were recruited from the *Shema Center* for the DHH in central Israel and from schools for hearing children in central Israel. The

Shema Center is a social center for DHH adolescents located in Tel-Aviv and serving a large geographical location in central Israel (it is the only center for DHH adolescents in central Israel). None of the adolescents attending the social center had any cognitive deficits or other physical disabilities. Adolescents using the social center belong to diverse ethno/national groups, socio-economic status and religiosity levels. Since in Israel, most DHH adolescents are studying in an integrated education system, thus studying in integrated classrooms with hearing adolescents, we recruited DHH participants from the social center for DHH and not in schools. There is only a single school for Deaf children in Israel, which serves DHH students who have other comorbid cognitive and/or physical disabilities. In our study, all DHH adolescents participating in the study were integrated into the regular education system. Since there is no equivalent social center for hearing children, we recruited the matched hearing sample from schools in central Israel. The schools of the hearing participants underwent a rigorous selection process in order to match the background variables of the hearing participants to those of the DHH participants.

Informed consent was collected from participants' parents in writing prior to participation. Three DHH children declined participation and one hard-of-hearing child withdrew from the study. The study was approved by the Ethics Committee of the [XXX] and the Chief Scientist from the Israeli Ministry of Education.

Procedure

Letters detailing the study procedure and a form requesting approval to participate were sent to children's parents prior to participating in the study. Participants received an explanation of the study's objectives and procedure. In accordance with the guidelines of the Ethics Committee, all participants signed an informed consent form at the beginning of the study and they were told that they could withdraw from participation at any time. The study was conducted in schools and the *Shema Center* in the presence of translators into ISL. Participation lasted approximately 30 min.

In order to make the study questionnaires accessible to the population being studied and maintain linguistic and cultural adaptability, all questionnaires were translated from Hebrew into ISL and then back translated into Hebrew, in accordance with the cultural adaptation process of the indices based on Alegría et al. (2004). Five stages were implemented, where in the first stage the focal points to be investigated were constructed based on a comprehensive review of the literature. In the second stage, appropriate indices were selected, with preference being given to those which had been used in previous studies with DHH populations. In the third stage, the research tools were translated from Hebrew to ISL with assistance from deaf people who are qualified to teach ISL and use it fluently. The adaptation to ISL was done by two deaf people with academic training who use ISL fluently and teach ISL and ISL translation in academia. Each of the two translators provided an independent translation to each questionnaire, and then both translations were synced to create a single unified translation. Following this stage, back translation was done and all questions were compared with the original version and revised accordingly until unanimity between translators was reached. Then, all study questionnaires were videotaped and subtitled in Hebrew. In the fourth stage, a preliminary test of the indices was carried out by delivering them to a small number of DHH participants. In

the fifth and final stages, the internal reliability of the final indices was tested. Moreover, an ISL interpreter with a psychology background who was able to respond to clarification questions assisted with the final administration of the study questionnaires.

Measures were administered in the participant's preferred language individually by viewing the recorded questions or reading the written version. Participants completed a sociodemographic questionnaire, a mental health self-report symptom scale (The Brief Symptom Inventory, BSI; Derogatis & Melisaratos, 1983), a multidimensional perceived social support questionnaire (Zimet et al., 1988), The Deaf Acculturation Scale—Modified (DAS-M; Hamill, 2012), and the Everyday Discrimination Scale (Williams et al., 1997).

Measures

Brief Symptom Inventory This self-report measure assessing mental health symptoms consists of 53 items describing a variety of problems and complaints, ranging from trouble remembering things to feeling lonely, feeling strain, nausea, and so forth (Derogatis & Melisaratos, 1983). The items are rated on a 5-point scale ranging from *not at all* (0) to *extremely* (4). The inventory reflects nine primary symptom dimensions (somatization, obsessive–compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) and three global indices of distress (the general severity index, the positive symptoms distress index, and the positive symptom total). In this study, we used the somatization, depression, and anxiety dimensions that we considered particularly relevant to the study population. The anxiety and depression indices were selected following previous studies that pointed to a significantly higher frequency anxiety and depression among DHH populations compared with hearing populations (Theunissen et al., 2011; Van Eldik, 2005). As a result of studies that presented a different picture of the frequency of somatic complaints and symptoms among the DHH, in comparison with a hearing population, we also included the somatization index (Kouwenberg et al., 2012; Van Eldik, 2005). The scale has been widely used with adult and adolescent populations in Israel and worldwide and has been found to be reliable with minority populations (Gillaspy et al., 2002; Handal et al., 1993; Nakash et al., 2012). This scale was also previously translated to American sign language and used in a Deaf population (Fellinger et al., 2005). The indices for depression and somatization presented high reliabilities (DHH sample: α = .85, .82, hearing sample: α = .81, .85, respectively). Due to the low reliability of BSI anxiety scale in the DHH sample (α = .60), we have excluded this measure from further analyses.

The Deaf Acculturation Scale-Modified This abbreviated version of the DAS (Hamill, 2012; Maxwell-McCaw & Zea, 2011) is designed to determine the auditory acculturation patterns of the users and includes 19 items. Respondents evaluate the degree to which they agree with each statement on a 5-point Likert scale ranging from *do not agree at all* (1) to *very much agree* (5). Thirteen of the items are based on the original DAS (Maxwell-McCaw & Zea, 2011) and six items were developed by Jambor and Elliott (2005) in order to evaluate Deaf identity. The DAS-M consists of two subscales: "Deaf identity" and "hearing identity." The Deaf identity scale consisted of 10 items and final score is computed by summing all items and ranges between 10 and 50, where the highest score reflects higher identification with the Deaf community culture. The hearing identity scale consists of nine items with final scores ranging from 9 to 45 points, where the highest score reflecting a higher identification with the hearing culture. The internal reliability for Deaf and hearing identity scales were high (α = .91 and .85, respectively).

Everyday Discrimination Scale This 9-item self-report measure assesses the frequency of experiences of routine, minor acts of discrimination (Williams et al., 1997). Examples for questions include "You are treated with less respect than other people," "People act as if they think you are not smart," and "You are called names or insulted." Participants are asked to rate their experiences on a 5-point scale, ranging from *never* (1) to *almost every day* (5). Final score was the mean score for all items. Internal consistency in our sample was high (DHH sample α = .89, hearing sample α = .88).

The Multidimensional Scale of Perceived Social Support This scale is designed to evaluate the perception of support from three sources: family, friends, and significant others (Zimet et al., 1988). The scale contains 12 items (e.g., "I get the emotional help and support I need from my family"). Participants evaluate the degree to which they agree with each item on a 7-point Likert scale ranging from *very strongly agree* (1) to *very strongly disagree* (7). The final score is calculating by summing all responses with a higher score representing greater levels of perceived social support. This measure was previously used among hard-of-hearing participants and showed high internal consistency (α = .94; Cuevas et al., 2019). The internal reliability in our sample was high (DHH sample α = .87, hearing sample α = .92).

Sociodemographic questionnaire Self-report questions were used to collect information on participant's gender, age, primary language (e.g., "In my everyday life I primarily use: Hebrew/Israeli Sign Language/other"), self-labeled identity—auditory (e.g., "I define myself as: hearing/deaf/hard-of-hearing/implant/unknown"), and family socioeconomic status (e.g., "my family's socioeconomic status is: very good/good/average/low/very low"). The researchers explained and simplified the term "economic status" for the young participants.

Statistical Analysis

Demographic differences between hearing and D/HH participants were examined using *t*-tests for continuous variables and chi-square for categorical variables. Differences in mental health symptoms, perceived discrimination, and perceived social support between hearing and D/HH participants were examined using *t*-tests. Fisher's exact test was conducted in order to test the association between belonging to a self-labeled audiological–cultural group and an acculturation pattern. Correlations between demographic variables, self-labeled audiological group, mental health symptoms, perceived discrimination, and perceived social support were assessed using Pearson's r for continuous variables and Kandell's tau for dichotomous variables (coded as dummy variables). Finally, three-step hierarchical linear regression models were computed (one for each outcome: depression, anxiety, and somatization) to examine which variables contribute to greater mental health symptoms. In each regression, we entered the following predictor variables: age, gender (dummy coded as 0—male, 1—female) and belonging to self-labeled audiological–cultural group (dummy coded as 0—hard of hearing, 1—deaf; first block), perceived discrimination, perceived social support (second block), and identification with the D/HH culture (third block).

Table 1 Sociodemographic characteristics of the sample by hearing groups (N = 129)

	All (N = 129)	Deaf and hard of hearing (n = 69)	Hearing (n = 60)	Statistic
Gender				$\chi^2(1) = 3.48$, ns
Male	59.7% (n = 77)	52.2% (n = 36)	68.3% (n = 41)	
Female	40.3% (n = 52)	47.8% (n = 33)	31.7% (n = 19)	
Age (years); mean (SD)	14.06 (2.06)	14.38 (2.30)	13.71 (1.71)	t(122.6) = −1.885, p = .06
Audiological–cultural self-definition				
Deaf		26.1% (n = 18)	a	
Hard of hearing		73.9% (n = 51)	a	
Socioeconomic status				$\chi^2(3) = 4.53$, ns
Very good	31.2% (n = 40)	26.5% (n = 18)	36.7% (n = 22)	
Good	51.6% (n = 66)	50% (n = 34)	53.3% (n = 32)	
Average	14.1% (n = 18)	19.1% (n = 13)	8.3% (n = 5)	
Low	3.1% (n = 4)	4.4% (n = 3)	1.7% (n = 1)	
Very low	—	—	—	
Primary language				
Hebrew		46.4% (n = 32)	a	
Israeli Sign Language		13.0% (n = 9)	a	
Israeli Sign Language and Hebrew		36.2% (n = 25)	a	
Other spoken languages		4.3% (n = 3)	a	

[a]Data not collected therefore statistic comparisons were not possible.

Results

Sociodemographic Characteristics of the Sample

The sociodemographic characteristics of the participants by self-labeled audiological group are presented in Table 1. Most of the participants in the study were boys. The average age was 14.06 years (SD = 2.07). Most of the samples reported a socioeconomic status of good and higher. In audiological—cultural terms, 51 (73.9%) of the DHH participants defined themselves as hard of hearing and 18 (26.1%) defined themselves as deaf. Approximately half of the DHH participants reported that in their everyday lives they make more use of ISL or ISL and Hebrew together. No significant differences were found in the sociodemographic characteristics between the DHH participants and the hearing participants.

Differences in Perceived Social Support, Perceived Discrimination, and Emotional Distress Between DHH and Hearing Participates

Differences in emotional distress (somatization and depression), perceived social support, and perceived discrimination between DHH and hearing participants are presented in Table 2. No significant differences were found between the groups.

Acculturation Patterns Among DHH Adolescents

Using a bipartite split, the acculturation index rendered a score for each participant that was placed on a 2 × 2 quadrant to determine participant's acculturation pattern (Nakash et al., 2012) resulting in four acculturation patterns: integrated\bicultural (n = 44), assimilated\"culturally hearing" (n = 7), separated\ "culturally Deaf" (n = 12), and marginalized (n = 6).

Fisher's exact test was conducted in order to test the association between belonging to a self-labeled audiological–cultural group and an acculturation strategy. This analysis allowed us to examine different acculturation strategies among partici-

Table 2 Means and standard deviations of mental health symptoms, perceived discrimination, and perceived social support of deaf and hard-of-hearing participants and hearing adolescents (N = 129)

	Deaf and hard of hearing (n = 69)	Hearing (n = 59)	Statistic
Perceived discrimination	2.52 (1.26)	2.34 (1.22)	t(126) = −.808, ns
Perceived social support	67.98 (13.76)	65.79 (17.83)	t(126) = −.783, ns
Somatization index	12.84 (5.49)	14.11 (6.48)	t(125) = 1.192, ns
Depression index	12.23 (5.41)	13.02 (5.83)	t(125) = .797, ns

pants self-labeled as D/HH. The analysis revealed significant results, p < .001. Hard-of-hearing participants reported primarily a "bicultural" acculturation pattern (76.5%; n = 39), followed by "assimilation" strategy (13.7%; n = 7), marginalization (5.9%, n = 3), and "separation" (3.9%, n = 2). Deaf participants, on the other hand, reported primarily a "separation/culturally Deaf" acculturation strategy (55.6%; n = 10), followed by "biculturalism" (27.8%, n = 5) and marginalization (16.7%, n = 3).

Association Between Acculturation and Emotional Distress Among DHH Adolescents

Bivariate correlations between independent and dependent variables among DHH participants are presented in Table 3. As expected, we found significant moderate–strong correlations between BSI somatization and depression indices. We also found moderate positive correlations between perceived discrimination and BSI somatization and depression indices. Social support was negatively associated with depression and som-

Table 3 Bivariate correlations between independent and dependent variables among deaf and hard-of-hearing adolescents (N = 65–67)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Age	—	.12	.04	.25*	−.16	.22	−.03	.20	.43***
2. Gender		—	.10	−.03	.12	.09	.09	−.04	.03
3. Self-labeled audiological group			—	.11	−.01	.24*	−.48***	.17	.05
4. Discrimination				—	−.07	.20	−.26*	.37**	.49***
5. Social support					—	.03	.01	−.25*	−.28*
6. Identification with deaf culture						—	−.13	−.05	.02
7. Identification with hearing culture							—	−.40**	−.07
8. BSI-somatization								—	.60***
9. BSI-depression									—

Note. For gender, male = 0, female = 1. For self-labeled audiological group, hard of hearing = 0, deaf = 1. Kendall's tau-b correlation coefficients were calculated for gender and self-labeled audiological group variables. All other correlation coefficients represent Pearson's *r*. BSI = the Brief Symptom Inventory. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4 Hierarchical multiple regression examining predictors of somatization and depression indices of the brief symptom inventory among deaf and hard-of-hearing adolescents (N = 67)

Model	Somatization index				Depression index			
	B	SE B	β	Partial *r*	B	SE B	β	Partial *r*
Step 1								
(constant)	25.74				6.84			
Age	.32	.27	.14	.16	.75	.25	.32*	.36
Self-labeled audiological group	−.14	1.77	−.01	−.01	−.24	1.66	−.02	−.02
Gender	−.16	1.26	−.01	−.02	.19	1.18	.02	.02
Step 2								
Discrimination	1.08	.53	.24*	.26	1.85	.49	.41**	.44
Social support	−.09	.04	−.23*	−.27	−.09	.04	−.22*	−.27
Step 3								
Identification with deaf culture	−.13	.08	−.20+	−.23	−.09	.07	−.15	−.18
Identification with hearing culture	−.27	.10	−.39**	−.34	−.00	.09	−.01	−.01
Model statistics	$R^2 = .354$, F (7, 57) = 4.465, p < .001				$R^2 = .410$, F (7, 57) = 5.649, p < 0.001			

Note. For gender, male = 0; female = 1. For self-labeled audiological group, hard of hearing = 0; deaf = 1.
*$p < .05$, **$p < .01$, +$p < .10$.

atization. Age was positively associated with perceived discrimination and depression. Most importantly, identification with the hearing culture was negatively associated with perceived discrimination and somatization. Participants self-identified as deaf reported greater identification with the Deaf culture and lower identification with the hearing culture as compared with those identified as hard of hearing.

Hierarchical linear regression analysis using the BSI-somatization index as outcome measure and age, gender and belonging to self-labeled audiological–cultural group (first block), perceived discrimination, perceived social support (second block), and identification with the D/HH culture (third block) as predictor variables was significant, predicting 35.4% of the variance. As can be seen in Table 4, discrimination was positively related to somatization, so that higher perceived discrimination was related to greater somatization. Perceived social support was negatively related to somatization, so that lower perceived support was related to greater somatization. Moreover, identification with the culturally hearing group was significantly and negatively related to somatization, such that higher identification with the culturally hearing was

associated with lower somatization above and beyond self-labeled audiological group.

A second hierarchical linear regression analysis using the same predictor variables and BSI-depression index as outcome variable was also significant, predicting 41% of the variance in depression. As can be seen in Table 4, age was significantly related to depression, such that older participants reported higher levels of depression. Perceived discrimination and perceived social support were also significantly associated with depression, such that greater perceived discrimination and lower social support were related to higher levels of depression. There were no significant associations between cultural identification or self-labeled audiological group and depression level.

Discussion

We examined the association between the dimensions of Deaf cultural identity and emotional distress among DHH adolescents. By applying a culturally sensitive perspective, this study

expands knowledge from previous studies mainly conducted in the United States and Europe to another international DHH community, the Jewish Israeli DHH community. The cultural perspective conceptualizes deaf people as a community that has a unique language, different cultural codes from the hearing community, its own events and conferences, and cultural and leisure frameworks. An examination of mental distress and well-being from a cultural perspective regards the deaf person holistically.

Our findings show that measures of emotional distress, social support, and exposure to discrimination did not significantly differ between DHH and their hearing counterparts. These findings are consistent with some previous research conducted among DHH communities in other Western countries (Remine & Brown, 2010; Theunissen et al., 2014). Yet, other studies have documented that members of the Deaf community report higher mental health problems compared to their hearing counterparts (Kvam et al., 2007; Stevenson et al., 2015). These inconsistent past results may be due to differences in the population studied. The sample in this study included mainly high functioning hard-of-hearing adolescents who did not have additional cognitive deficits or other physical impairments. In addition, DHH children and adolescents in Israel are mostly excluded from special education programs. Their integration into the general education system carries opportunities for greater contact with their hearing counterparts and may explain the higher proportion of those who identified as integrated acculturation in our sample.

Methodological differences may also explain some the differences in findings regarding the association between mental health problems and audiological group. In this study, we translated the questionnaires to ISL and administered them by a person fluent in ISL. Although limited, there were other studies that have been linguistically accessible in a similar manner as to include video sign language questionnaires and sign language interviews (Bridgman et al., 2000) or alternatively through computer-assisted self-administered sign language questionnaires (Fellinger et al., 2005). Using culturally and linguistically appropriate measures is paramount to avoid measurement bias. When there are linguistic obstacles, there could be an incomplete evaluation of mental status, which could distort and mask symptoms (Alegría et al., 2004; Bauer & Alegría, 2010).

Our findings further showed that a large majority of our sample identified as bicultural. Among our participants, identification with both the hearing and Deaf cultures was associated with lower somatization. Cultural characteristics of members of the DHH community should be considered within the social milieu and localized context in which they live. Our sample primarily included members of a social center who engage in social activities once a week. They meet members of a peer group, discuss their difficulties and strengths, and shared experiences. The center also offers activities dedicated to influential DHH people and students are taught about Deaf culture and are encouraged to take leadership courses that offer, among other things, content linked to the world of the DHH. It is possible that the center's activities constitute an affinity group for members of the DHH community. Meeting with similar peers can foster a sense of support and consolidate and empower identification with Deaf culture, and in so doing, it constitutes a resilience factor. Interestingly, our findings show that among our participants who were primarily hard-of-hearing adolescents who study in general classrooms, identification with hearing culture was negatively associated with exposure to discrimination. It

seems that adoption of the majority group culture may serve as protective factor against discrimination.

Identity development is complex, particularly for members of minority groups (Oppedal, Røysamb, & Sam, 2004). Moreover, adolescents whose cultural identity is in the process of being formed are at greater risk of having negative perceptions of themselves and their disadvantaged social group, in contrast to adolescents who have developed strong and positive cultural identities (Wakefield & Hudley, 2007). Since hearing loss affects communication, education, and interpersonal relationships, the process of consolidating identity for DHH people, some of whom regard themselves as a separate and minority linguistic culture (Filer & Filer, 2000; Lala, Jr., 1998) is likely to be more complex than it is for hearing people (Israelite, Ower, & Goldstein, 2002).

Given the importance of identity formation to emotional well-being, studies have attempted to pinpoint the factors that contribute to identity development. A study by Kannapell (1993) found that the identity of a D/HH person is influenced by the language he uses. In our study, the language spoken in the homes of most of the participants who defined themselves as "Deaf" ($n = 11$, 61.1%) was ISL, while the language spoken in the homes of most of the participants who defined themselves as "hard-of-hearing" ($n = 36$, 70.6%) was Hebrew. It is therefore possible that the language spoken at home helped shape the identity formation of DHH adolescents. The findings of this study are likely to strengthen those of Bat-Chava (2000), who argued that the acculturation pattern itself is influenced by familial support and identification. Thus, for example, among deaf children with hearing parents, or those who have grown up in a home where spoken language is the primary means of communication, there is a greater risk that being deaf will be perceived as a disability or handicap and will lead these children to develop a culturally hearing identity. In contrast, deaf children with deaf parents, who have grown up in a home where the primary means of communication is sign language, will have a greater chance of perceiving being deaf as a culture and themselves as culturally deaf.

Using accessible communication, young deaf people can discuss what being deaf means to them, read stories of successful deaf persons, and consequently understand their shared experiences. In contrast, deaf children learning in schools for hearing people or in individual integration frameworks often lack the opportunity to speak of their experiences. According to Moore and Mertens (2015), the Deaf community preserves its cohesion and culture by celebrating a Deaf awareness week, organizing sign language events, and hosting festivals to recognize the achievements of deaf people. Deaf professionals can become role models by sharing their life stories and describing how they overcame obstacles.

Previous studies conducted among various minority groups have found that individual and group discrimination may lead to minority stress (French & Chavez, 2010; Smedley, Myers, & Harrell, 1993). In contrast to previous findings, we found no significant differences in reports of perceived discrimination between DHH and hearing participants. It is possible that our findings reflect the fact that we used a measure that assessed perceived discrimination in a broader and more general context rather than in the context of deaf people. Other studies have found that individuals belonging to disadvantaged groups do not report higher levels of discrimination (Crosby, 1982; Jetten et al., 2001), despite the fact that these individuals experience more discrimination in a wider range of contexts, for example, employment, health, income, and education, compared with individuals belonging to advantaged groups

(Bourguignon et al., 2006). The fact that our sample was composed mainly of hard-of-hearing individuals that identified as bicultural could explain the lack of a significant difference in exposure to discrimination as it suggests that these participants feel comfortable moving between the different cultures and that they represent a group of high functioning individuals that may experience low levels of discrimination.

Limitations

The study has several limitations. First, our sample, which included DHH adolescents who go to an educational–social center, may have been subject to selection bias and generalizability of findings is limited. This population may represent a higher functioning group with a more leaning to bicultural acculturation pattern. In the Israeli context, a vast majority of DHH adolescents are integrated into the regular educational system. The experience of studying in integrated classrooms could have an effect on identity development, particularly as it pertains to acculturation pattern. Future studies should examine DHH participants studying in separate educational systems in other societies. Second, we have focused solely on Jewish–Israeli adolescents. Future studies should examine intersectional identities and explore the issues related to identity development and mental health among ethnic and racial minorities. Third, our sample included mostly hard-of-hearing participants, thus generalization of our findings to the DHH community should be done with caution. Future studies should examine differences in mental health between DHH groups (e.g., our findings suggest that deaf adolescents may identify more as separated acculturation). Moreover, due to confidentiality, we had no access to recorded data regarding the level of the hearing loss and some misclassification may have occurred. Fourth, we found low reliability for the BSI anxiety index in the DHH sample, thus could not proceed with analyses on this important measure. After further examination, we found that the problematic item of the scale was related to "irritability." Finally, the data gathered included only indices of self-reports that had been gathered from the adolescents and may be subject to response bias (Sonuga-Barke et al., 1993). Future studies should include information from other informants such as parents or teachers.

Our findings underline the importance of the perception of being DHH as a cultural identity when designing services for the DHH adolescents who are developmentally at stages of identity formation. The identity consolidation process in its audiological–cultural context has significant implications for the well-being of the D/HH adolescents, and this must be taken into account, starting with notification to the parents of the results of their child's hearing test and their significance, through the selection of an appropriate educational framework and supportive social framework, and developing environmental supports for the cultural choices made by the D/HH adolescent. Using adaptive linguistic and cultural assessment tools with DHH should become best practice in the field.

Conflicts of Interest

No conflicts of interest were reported.

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