

**KEY WORDS**

STIGMA QUESTIONNAIRE

HEARING LOSS

HEARING AIDS

INSTRUMENT TRANSLATION

TRANSCULTURAL  
VALIDATION

PSYCHOMETRIC TESTING

**Claude Vincent**Université Laval,  
Québec, QC  
CANADACentre interdisciplinaire de  
recherche en réadaptation et  
intégration sociale,  
Québec, QC  
CANADA**Jean-Pierre Gagné**Université de Montréal,  
Montréal, QC  
CANADA**Tony Leroux**Université de Montréal,  
Montréal, QC  
CANADACentre de recherche  
interdisciplinaire en réadaptation  
du Montréal métropolitain,  
Montréal, QC  
CANADA**Audrey Clothier**Centre interdisciplinaire de  
recherche en réadaptation et  
intégration sociale,  
Québec, QC  
CANADA**Marianne Larivière**Université de Montréal,  
Montréal, QC  
CANADA**Frédéric S. Dumont**Centre interdisciplinaire de  
recherche en réadaptation et  
intégration sociale,  
Québec, QC  
CANADA**Martine Gendron**Centre de recherche  
interdisciplinaire en réadaptation  
du Montréal métropolitain,  
Montréal, QC  
CANADA**Canadian-French Validation of Two Questionnaires That Measure the Stigma Associated With Hearing Impairment: Initial Development****Développement initial et validation franco-canadienne de deux questionnaires mesurant les stigmates associés à une perte auditive****Claude Vincent**

Jean-Pierre Gagné

Tony Leroux

Audrey Clothier

Marianne Larivière

Frédéric S. Dumont

Martine Gendron

**Abstract**

Questionnaires evaluating stigma and its consequences are available in English for several stigmatizing traits. In many Western societies, including French-speaking countries, hearing loss is a stigmatizing trait. Hence, there is a need for French-language standardized questionnaires for measuring stigma associated with hearing loss. The goal of this study was to adapt, translate, and validate 2 questionnaires that assess different aspects of stigmatization and its consequences among adults with hearing impairment. The Stigma Consciousness Questionnaire (SCQ) for Women and the Stigma Scale for Mental Illness were specifically adapted for older adults with hearing impairment. The strategy consisted of the translation and back-translation of the questionnaires by 2 translators, revision by a committee of experts, and administration to 5 bilingual older participants. These 2 novel questionnaires were then administered to 32 Canadian-French participants, 65 years of age or older. For the Canadian-French adaptations of the SCQ for Hearing Loss (SCQ-CF) and the Hearing Loss Stigma Questionnaire (HLS-CF), the results yielded good internal consistency ( $\alpha = .79$  and  $.84$ , respectively) and slightly lower repeatability, with about 10% (1/10 and 3/28) of the items having no significant test-retest correlations. Factor analysis performed on the SCQ-CF data indicated 3 factors rather than the single factor reported for the original questionnaire. This study resulted in 2 English and French questionnaires for assessing stigma associated with hearing loss that will be used for further validations.

### Abrégé

Plusieurs questionnaires évaluant les stigmates, ainsi que les conséquences y étant associées, sont disponibles en anglais pour divers traits stigmatisants. Dans de nombreux pays occidentaux, dont les pays francophones, la perte auditive est un trait stigmatisant. Des questionnaires normalisés en français sont donc nécessaires pour mesurer les stigmates associés à la perte auditive. L'objectif de cette étude était d'adapter, de traduire et de valider deux questionnaires évaluant différents aspects de la stigmatisation, ainsi que les conséquences y étant associées, auprès d'adultes ayant une perte auditive. Deux questionnaires, soit le *Stigma Consciousness Questionnaire (SCQ) for Women* et le *Stigma Scale for Mental Illness*, ont été adaptés spécifiquement pour les aînés ayant une perte auditive. Ces questionnaires ont été traduits en français, puis retraduits en anglais (processus de traduction inversée), par deux traducteurs. Ils ont ensuite été révisés par un comité d'experts et administrés à cinq participants aînés bilingues. Enfin, les deux nouveaux questionnaires ont été administrés à 32 participants franco-canadiens âgés de 65 ans et plus. Les résultats montrent que les adaptations franco-canadiennes des questionnaires *SCQ for Hearing Loss (SCQ-CF)* et *Hearing Loss Stigma Questionnaire (HLS-CF)* ont une bonne cohérence interne ( $\alpha = 0,79$  et  $0,84$ , respectivement) et une stabilité légèrement inférieure à celle des versions originales : environ 10 % (1/10 et 3/28) des items n'ont pas de corrélation significative lors du test-retest. L'analyse factorielle effectuée sur les données du *SCQ-CF* a identifié trois facteurs, alors que la version originale du questionnaire en avait identifié un seul. Cette étude a permis d'obtenir deux questionnaires évaluant les stigmates associés à la perte auditive (disponibles en anglais et en français) et qui feront l'objet de validations supplémentaires.

People with hearing impairment may be perceived as less capable, cognitively diminished, and poor social communication partners (Heine & Browning, 2002; Jennings, Southall, & Gagné, 2013; Kochkin, 2007; Parrette & Scherer, 2004; Southall, Gagné, & Jennings, 2010). In terms of self-perception, hearing difficulties can lead hearing-impaired individuals to consider themselves old, weak, and less capable, leading them to shun rehabilitation services (Gagné, Southall, & Jennings, 2009). This may cause them to believe that others judge them negatively. The social and self-stigma associated with hearing loss constitutes one of the most important barriers to hearing aid use (Fraser, Kenyon, Lagacé, Wittich, & Southall, 2015; Gagné et al., 2009; Kochkin, 2007; Southall et al., 2010). Hearing impairment has an important impact on quality of life. Not only does it bring its share of functional and communication difficulties (Mulrow et al., 1990); it is also associated with stigma that can create important social and emotional hardships. The stigma associated with hearing loss often incorporates ageist stereotypes (Coleman, 2006; Espmark & Scherman, 2003; Fraser et al., 2015; Southall et al., 2010; Tannenbaum et al., 2015). It is common for older adults with hearing loss to quickly give up on their hearing aids or simply refuse to use them due to fear of stigmatization. Some of them eventually stop participating in social activities altogether because they do not want to be perceived as being “deaf” or to be seen with hearing aids (Kochkin, 2007). Accordingly, interventions that involve working on the negative perceptions of hearing loss with this population have been proposed in order to encourage people with hearing impairment to seek rehabilitation services (Hetu, 1996).

When implementing a new intervention program designed for people with hearing loss who self-stigmatize, it may be useful to appraise the client’s perception of the stigmatizing trait before, during, and after the program. Unfortunately, only English-language measures are available for individuals of other stigmatized groups such as women, gay men and lesbians, ethnic communities (Lewis, Derlega, Griffin, & Krowinski, 2003; Pinel, 1999), and people diagnosed with mental illness (King et al., 2007). In audiology, there is a need to measure stigma associated with hearing loss, and to do so it must be done in the mother tongue of the client. Quebec’s population (7,651,000) accounts for 23.9% of the Canadian population, and Quebec’s francophones account for at least 90% of all of Canada’s French-speaking population (Marmen & Corbeil, 2004). The importance of measuring stigma includes the need for researchers and professionals in all bilingual regions to have access to valid and reliable instruments in both French and English.

This article presents the initial development of transcultural validation of two questionnaires assessing different aspects of stigma and its consequences among older adults with hearing loss. This article also serves as a model for the rigorous process that may be used to translate and adapt existing measurement tools in another language. Moreover, the psychometric properties of the original English versions and the adapted Canadian-French versions of the questionnaires are compared in this article.

### Description of the Stigma Consciousness Questionnaire (SCQ)

The SCQ is a 10-item self-report questionnaire that measures the extent to which respondents expect to be stereotyped because of their disability, social role, or sexual orientation. It is also intended to measure how this affects the way respondents experience their stereotyped status (Pinel, 1999). This questionnaire was initially developed to measure stigma associated with being a woman (development  $N = 722$  and final form tested on  $N = 302$ ; Pinel, 1999). In subsequent studies, Pinel (1999) tested the generalizability of the stigma-consciousness construct by adapting and validating the scale for gay men ( $n = 23$ ) and lesbians ( $n = 27$ ), Caucasians ( $n = 198$ ), Asians ( $n = 63$ ), Hispanics ( $n = 53$ ), and Afro-Americans ( $n = 21$ ).

The initial version of the SCQ focused on two domains: (1) the phenomenological experiences of women when interacting with men (e.g., “I never worry that my behaviors will be viewed as typically female”) and (2) beliefs on how men view women (e.g., “Most men have a lot more sexist thoughts than they actually express”). The scale questioned women about their perceptions of how they are judged by men and of how differently men interact with them.

When answering the SCQ for Women, respondents are asked to read each of the 10 statements and indicate to what extent they agree with each statement by rating them on a 7-point scale ranging from 0 (completely disagree) to 6 (completely agree). The scale includes a midpoint of 3, denoting “neither agree nor disagree”. Seven of the 10 items are reverse scored. A high total score indicates that a respondent’s level of stigma consciousness is high. In other words, the respondent is strongly concerned with how others view him or her and is more aware of the signs of sexism. The evaluation of the instrument’s internal consistency as well as the discriminant and convergent validities were evaluated by comparing the SCQ to other instruments assessing concepts such as self-consciousness, modern sexism, and gender attitudes. The instrument’s construct validity and evaluation of test-retest reliability were also performed (Pinel, 1999).

## Description of the Stigma Scale for Mental Illness

The Stigma Scale for Mental Illness is a 28-item instrument that asks respondents about their experiences of discrimination and their feelings concerning prejudice. It is divided into three subscales: discrimination, disclosure, and positive aspects (King et al., 2007). The first subscale is composed of 13 items that address the discriminatory attitudes of others and their consequences (e.g., lost opportunities) as perceived by the respondent. The second subscale is composed of 10 items that address the respondent's embarrassment concerning mental illness and his or her way of managing disclosure in order to avoid discrimination. The third subscale is composed of five items that question the respondent's perspective on the possibility that having a mental illness has made him or her a better person (e.g., more understanding and accepting of others).

When this stigma scale is administered, respondents are asked to read the 28 statements and check off the answer that best corresponds to each of the statements. Respondents are asked not to ponder too long on each question because the questionnaire aims to obtain their first impression. Response options vary from "strongly agree" to "strongly disagree" on a 5-point Likert-type scale. A higher score on the stigma scale for mental illness is indicative of a greater amount of stigma. Evaluation of the instrument's test-retest reliability and internal consistency was performed (King et al., 2007).

## Methods

### Instrument translation

For both questionnaires assessing hearing loss stigma, the translation protocol used was inspired by the initial steps of the methodology proposed by Vallerand (1989). As outlined in Figure 1, the first step of the procedure involved preparing preliminary versions of the original questionnaires. The research team began by confirming that each original instrument was correctly adapted to the phenomenon of stigmatization generated by a hearing disability. Both questionnaires were modified since they originally targeted groups other than persons with hearing impairment. Consequently, the SCQ was adapted for this clientele and identified as the Canadian-French Stigma Consciousness Questionnaire for Hearing Loss (SCQ-CF). In French, the scale is referred to as the *Échelle de la conscience de la stigmatisation personnelle (associée à la perte d'audition)*.

Similarly, the Stigma Scale for Mental Illness was adapted to target persons with hearing loss and was identified as the Canadian-French Hearing Loss Stigma (HLS) questionnaire

(HLS-CF). In French, this questionnaire is entitled *Stigmatisation associée à la déficience auditive*.

Two other translations of each questionnaire were then performed independently, one by a member of the research team and the other by a professional translator with no particular background in the health domain. French was the native language of both individuals who translated the questionnaires. Then, using solely the French versions, a back-translation into English was done independently by two experienced Anglophone audiologists blinded to the original English questionnaires.

Following that step, a committee of experts ( $N = 4$ ) consisting of the research team and the professional translator met in order to review the preliminary French versions of each questionnaire and to generate only one French experimental version. The back-translated English versions were compared to their respective original (English) versions to see how much the original and translated versions were alike. The more closely the back-translated versions resembled the original English versions, the more they were deemed accurate. When discrepancies in wording were observed, the committee examined both translated versions carefully and decided which wording was the most accurate. The same process was used to translate the titles, the instruments' introductory text, the instructions, and the response options in order to obtain satisfactory experimental versions formatted similarly to the original instruments.

### Experimental versions

Ethical approval was obtained from the Research Ethics Board of the Centre de recherche interdisciplinaire en réadaptation du Montréal métropolitain (CRIR-731-0412). Before taking part in the study, each participant read and signed an informed consent form. The experimental versions of the questionnaires were administered to ensure that there was no ambiguity and to assess the validity of the content. Both the translated and original versions were administered to five bilingual persons using a two-step procedure. The questionnaires (see Appendices A–D) were administered in a pre-established order (SCQ French version, SCQ English version, then HLS English version and HLS French version). In the methodology proposed by Vallerand (1989), five participants are recommended.

The first part was carried out with a bilingual 79-year-old retired woman without hearing loss. Her native language was Canadian French and she learned English while working as a secretary at an anglophone accounting firm. With the help of a research team member, this participant

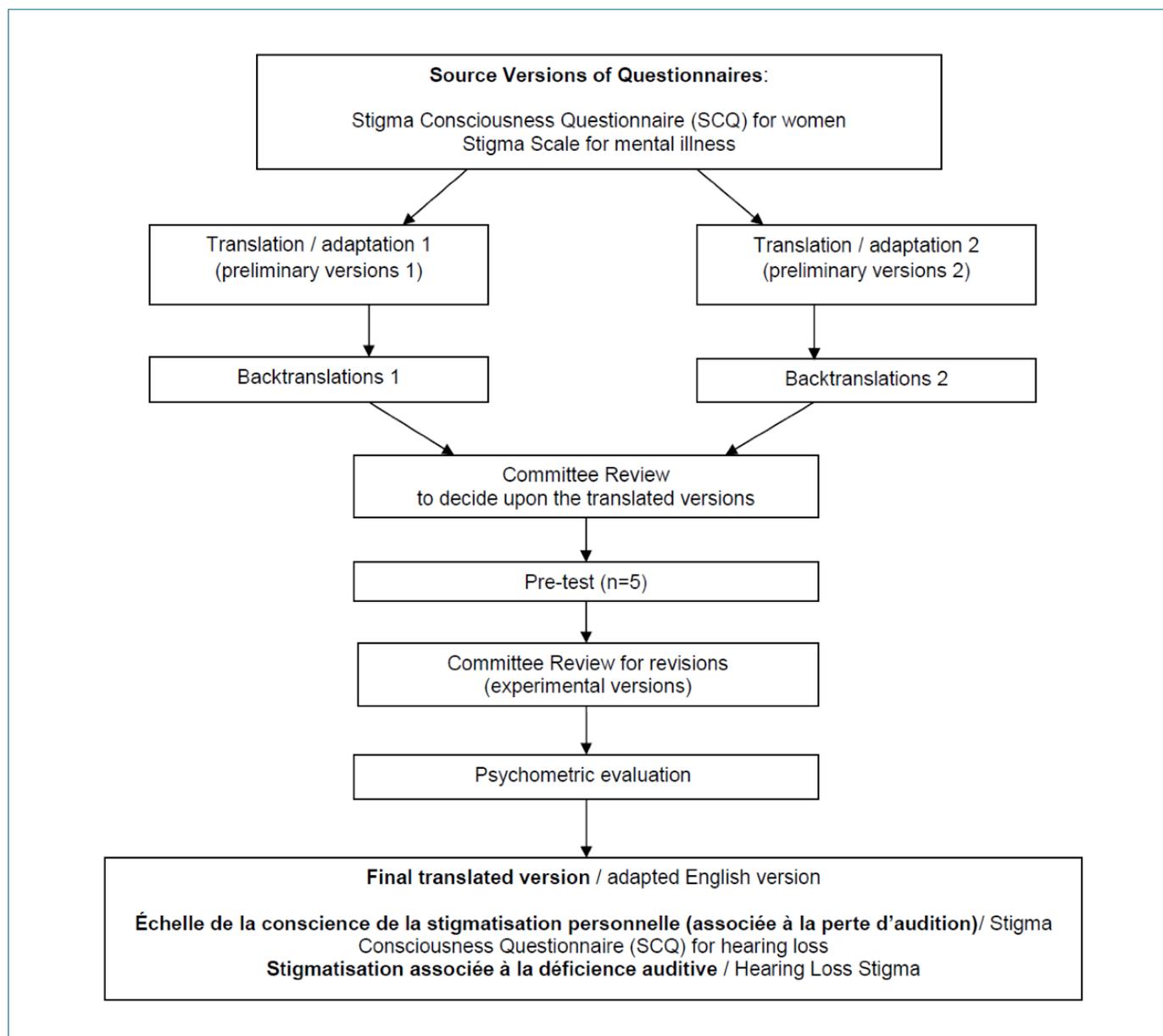


Figure 1. Adaptation and translation protocol for both stigma questionnaires

completed both versions of each questionnaire. For each questionnaire, she was asked to point out any ambiguities between the French and the English versions of the same test items, as well as the introductory text and test instructions of the translated versions. She was also asked to identify any differences in meaning that she noticed between both versions of the questionnaires. Following the administration of the questionnaire, the research team member compared the answers and collected the participant's comments. Whenever a mismatch occurred in the answers provided for the same test item in the two languages, the research team member discussed the nature of the ambiguity with the participant. Whenever

an item was unclear, the following rule was applied: If the ambiguous item only occurred in the French version, the unclear item was rephrased as needed. If, on the other hand, the same item was considered unclear in both languages, it was left unchanged. Once this step was completed, the research team and the professional translator met to validate the revisions made to the translated versions of the two instruments.

The second part of the administration of the experimental versions involved the participation of three females and one male. The four participants were between 66 and 82 years of age and all of them had hearing loss

ranging from mild to severe. This was an important aspect of the experimental versions because it was the first time that the questionnaires were administered to participants who had the same profile as the intended population (i.e., older adults with hearing loss). One participant was a retired office manager, and another was a retired financial advisor. The third person was a designer and the fourth was a translator. The participants were asked to complete the French and English versions of both questionnaires and point out areas of ambiguity. The purpose of this step was to further improve the translated experimental versions.

### Evaluation of the psychometric properties of the translated versions

According to Vallerand's methodology (1989), the research team needed to complete the transcultural validation by reproducing and reporting the same tests as the original (English) questionnaire. This had been done for the SCQ-CF and the HLS-CF versions for total scores, internal consistency, test-retest stability and factor analysis. The mean total score and standard deviation are presented for both versions as well as for the sub-scores when available. Calculations were made with G\*Power software, version 3.1.7, using sample sizes, means and standard variations to evaluate significant differences with the original article.

Statistics were calculated using SPSS 23 software. If missing data were encountered, we used the mean answer from two other participants having the most similar answer to the participant with the missing value (based on hot-deck imputation). The underlying principle was that researchers were to replace a missing value with the actual score from a similar case in the current data set (Roth, 1994). To replace each missing data point in the present study, the two participants with the most similar response patterns were identified from the 31 other participants, and the mean of their answers was used to fill in the missing answer. Internal consistency was assessed to examine the degree to which the items that made up each scale were homogenous. The coefficient of reliability computed was Cronbach's alpha ( $\alpha$ ), which can range between 0 and 1. In a good questionnaire, items must be balanced between homogeneity and diversity; this is why some authors suggest using a range between 0.7 and 0.9 (Boyle, 1991; Hyde, 2000; Norman & Streiner, 1999). Temporal stability was assessed by administering each translated questionnaire on two separate occasions in order to ascertain the correlation between the two sets of scores. The second test session took place approximately four weeks after initial testing. In psychometrics literature, an interval of 2 days to 6 weeks is acceptable (Cohen, Kamarck, & Mermelstein, 1983; Lee, 2012). A two-week interval is generally

acceptable to minimize the carryover effects due to memory and to limit the possibility of a change in participant status (Marx, Menezes, Horovitz, Jones, & Warren, 2003). Finally, for each translated questionnaire, an alpha-maximized factor analysis (oblimin rotation,  $\delta = 0$ ) was conducted to assess the underlying latent variables. This psychometric property verifies whether the items of a scale cluster into the appropriate subscales, as supported by the theory.

With our expected sample size we knew that the factor analysis for the HLS would not be conclusive ( $N = 32$  for 28 items), but we reported the data to show the results that would be obtained with this questionnaire using this sample size. Otherwise, it was postulated that the psychometric properties of the translated questionnaires could be at least as good as those of the original test versions.

### Participants

A convenient sample of 32 persons was proposed based on the feasibility of a stigma group intervention program. By "convenient" we mean that we recruited persons who initially wanted to participate in a research project focusing on preventing stigma related to hearing loss and wearing hearing aids. The intervention program consisted of two groups of participants ( $14 > n < 16$ ) that met together to practice adaptive strategies and conduct debriefings with peers. We took this opportunity to ask participants if they would be willing to validate the questionnaires for the study in French and they all agreed. Older adults were recruited with the help of audiologists from the *Centre intégré universitaire de santé et de services sociaux (CIUSSS) du Centre-sud de l'île de Montréal - Institut Raymond-Dewar* (a rehabilitation centre specializing in services for persons with hearing impairment). The audiologists informed their patients that a research project on hearing difficulties was taking place. Patients who wanted to participate in the study were invited to contact a member of the research team. Participant inclusion criteria were: (1) to be willing to participate and (2) to recognize having some hearing difficulties or issues associated with hearing loss. Hearing aid ownership as well as a clinical diagnosis of hearing loss were not required to participate. Finally, because of their unique profile, cochlear implant users were excluded from the study. Recruited patients signed a consent form.

### Results

The individuals selected for the study were adults who were 65 years of age or older ( $N = 32$ ). The majority of them ( $n = 24$ ) were hearing aid owners. Table 1 provides a summary description of the participants involved in the validation of the questionnaires.

Table 1. Characteristics of Participants Involved in Canadian-French Validation of the Stigma Consciousness Questionnaire (SCQ) and the Hearing Loss Stigma (HLS) Questionnaire

Degree of hearing loss	Sample size (N = 32)	Hearing aid users	Demographics		Psychometric properties investigated
			Mean age (range)	Male:Female ratio	
Mild (15-40 dB)	7	28%	73.0 (68-80)	2:5	
Moderate (41-70 dB)	19	84%	75.5 (66-90)	5:14	Internal consistency Factor analysis Temporal stability
Severe (71+ dB)	6	100%	78.2 (70-86)	1:5	

### Final Canadian-French version and comparison of psychometric properties of the SCQ

The translated versions of the questionnaire appear in Table 2. Every test item from the original English questionnaire is presented, along with the accompanying tests items from the translated Canadian-French version of the questionnaire.

Psychometric properties of the SCQ-CF as well as the psychometric properties of the respective original English questionnaire are displayed in Table 3. The latter are placed immediately under the results of the translated version to facilitate comparison.

Table 2. Item Translation of the Stigma Consciousness Questionnaire<sup>1</sup> (SCQ) for Hearing Loss

Item	English version	Canadian-French (CF) translation
1	Stereotypes about hearing loss have not affected me personally.	Les stéréotypes concernant la perte d'audition ne m'affectent pas personnellement.
2	I never worry that my behaviors will be viewed as stereotypical of a person who has a hearing loss.	Je ne suis jamais inquiet que mes comportements puissent être perçus comme étant typiques d'une personne ayant une perte d'audition.
3	When interacting with people who have normal hearing, I feel like they interpret all my behaviors in terms of the fact that I have a hearing loss.	Lorsque je dialogue avec des gens ayant une audition normale, je sens qu'ils interprètent tous mes comportements en fonction du fait que j'ai une perte d'audition.
4	Most people with normal hearing do not judge people with hearing loss on the basis of their ability to hear.	La plupart des gens ayant une audition normale ne jugent pas les gens ayant une perte d'audition en fonction de leur capacité à entendre.
5	My being hearing impaired does not influence how people with normal hearing act with me.	Le fait que je suis une personne malentendante n'a aucune influence sur la façon dont les gens ayant une audition normale agissent avec moi.
6	I almost never think about the fact that I have a hearing loss when I interact with people who have normal hearing.	Je ne pense presque jamais au fait que j'ai une perte d'audition lorsque je dialogue avec quelqu'un qui a une audition normale.
7	My being hearing impaired does not influence how people act with me.	Le fait que je suis une personne malentendante n'a aucune influence sur la façon dont les gens agissent avec moi.
8	Most people with normal hearing have a lot more prejudicial thoughts about people with hearing loss than they actually express.	La plupart des gens ayant une audition normale ont beaucoup plus de préjugés à l'endroit des personnes ayant une perte d'audition qu'ils ne le disent en réalité.
9*	I often think that people with normal hearing are unfairly accused of having prejudicial thoughts about people with hearing loss.*	Je crois souvent que les personnes ayant une audition normale sont injustement accusées d'avoir des préjugés envers les personnes qui ont une perte d'audition.*
10	Most people with normal hearing have a problem viewing people with hearing loss as equals.	La plupart des gens qui ont une audition normale ont de la difficulté à considérer les personnes qui ont une perte d'audition comme étant des égaux.

Note. <sup>1</sup>Translated as *Échelle de la conscience de la stigmatisation personnelle (associée à la perte d'audition)*. "SCQ-CF for Hearing Loss" is a better option to keep the original questionnaire in mind. \*The temporal reproducibility of this item (9) was not observed. Do not take this into account during longitudinal follow-up.

Table 3. Comparison Between the Psychometric Properties of the Original Stigma Consciousness Questionnaire (SCQ) for Women<sup>1</sup>

	French	English
	<i>N</i> = 32	201 <sup>2</sup>
<b>Total score (SD)</b>	37.1 (9.7)*	23.6 (6.8)
<b>Factor analysis</b>	3 factors	1 factor
Eigenvalues	3.9, 1.5 and 1.3	-
Total variance explained	67% (39% + 15% + 13%)	23%
Common variance explained	55% (35% + 11% + 9%)	91%
KMO	.704	-
Bartlett's test	< .001	-
Determinant	0.010	-
	<i>N</i> = 32	302 <sup>1</sup>
<b>Internal Consistency (<math>\alpha</math>)</b>	.79	.72
No. item increases $\alpha$ if deleted (new $\alpha$ )	2 (0.80)	0
	<i>N</i> = 32	57
<b>Temporal Stability (ICC): <i>r</i></b>	.62	.76
Number of non-significant items (#)	1 (#9)	0
Time interval (weeks)	4	5

Notes. <sup>1</sup>From Pinel, 1999, study 1; <sup>2</sup>From Pinel, 1999, study 5; \*Statistically different from the English version ( $\alpha$  probability of error < .05). Total score was made by an addition of the items after the inversion of the score of the appropriate items (1, 2, 4, 5, 6, 7 and 9); SD = Standard deviation; KMO = Kaiser-Meyer-Olkin, degree of collinearity between variables; ICC = Intraclass correlation coefficient.

When comparing the Canadian-French and English versions, it can be observed that the latent variables of the SCQ-CF are different from the original English version. The alpha-maximized factor analysis revealed three factors after an oblimin rotation (eigenvalues: 3.9, 1.5 and 1.3). These three factors account for 67% of the total variance (39% + 15% + 13%). The determinant was 0.010, indicating an absence of multicollinearity. The Kaiser-Meyer-Olkin (KMO) measure, indicating the degree of collinearity between variables, was satisfying (.704) and Bartlett's test was significant (< .001), demonstrating the absence of an identity matrix.

In comparison, the original article identified only one factor (principal-axis factor analysis), which accounts for 23% of the total variance. Of the three factors identified in the present study, the first one contains items 4 to 7. These items are related to interaction with others, especially people with normal hearing. The second factor contains items 1, 2, and 9. These statements are associated with the feeling respondents have about the stereotypes they project onto others. The third factor contains items 3, 8, and 10. These variables are related to respondents' perceived truthfulness of normal hearing people.

The Canadian-French version of the SCQ for hearing loss has a Cronbach  $\alpha$  value of .79. The removal of two items slightly increased the  $\alpha$  value to .80. No other change in the  $\alpha$  value was observed when other test items were removed (lowest: .74). Cronbach's  $\alpha$  was also evaluated for the three identified factors (Factor 1: .88, Factor 2: .62, and Factor 3: .56). For the second factor, the removal of item 2 reduced the  $\alpha$  value to .31, indicating that it was the main constituent of this factor. The same is true for the third factor, where the removal of item 8 induced a marked decrease in  $\alpha$  to .38. In comparison, the original article reported a lower  $\alpha$  value of .72 (no item increase the  $\alpha$  when an item is removed).

The Canadian-French SCQ for hearing loss had a test-retest correlation of .62 for the global score, compared to .76 in the original article. The time elapsed between testing sessions was 4 weeks for our study, compared to a mean of 5 weeks in the original article. The correlations were significant for nine of the 10 test items, and the correlation score ranged from .38 to .66. We did not find any correlation for item 9 ( $\rho = .20$ ;  $r = .15$ ).

### Final Canadian-French version and comparison of psychometric properties of the HLS

Every test item of the original English HLS questionnaire is presented in Table 4, along with the accompanying test items of the translated Canadian-French version of the questionnaire.

Psychometric properties of the Canadian-French version of the HLS as well as the psychometric properties of the original English questionnaire are displayed in Table 5.

For this questionnaire, there were 12 missing data points in total, out of all 32 participants answering 28 questions each, representing only 1.3% of all answers. The imputation method has been previously described in the Methods section. The factor analysis could not be used due to the small number of participants ( $N = 32$  for 28 items), as indicated by the low KMO (.415). In the original article, the investigators recruited an extra 100 participants in order to be able to perform this analysis. The internal consistency of the HLS-CF shows an equivalent coefficient compared to the original English version of the questionnaire (.91 versus .87, respectively). The removal of items did not increase the alpha value significantly. The internal consistency was also calculated for the three sub-scores. The discrimination and disclosure subscales showed high and comparable alpha values (.91 versus .87, respectively) compared to the original article (.87 and .85). We observed a much lower

alpha value for the positive aspect subscale (.33). A lower internal consistency was also observed in the original article for this subscale.

The time elapsed between testing sessions was 4 weeks for our study, compared to a mean of 2 weeks in the original article. The original article reported that the coefficient of correlations ranged from .40 to .71 for individual items. The same range of individual correlations was observed for 25 of the 28 items (.42-.74). For the other three test items, the correlation was not significant (items 5, 6, and 15;  $r = .05$ -.28).

### Discussion

The goal of this study was to adapt, translate, and validate two questionnaires that assess different aspects of stigma and its consequences among older adults with hearing loss. We hypothesized that the psychometric properties would be as good as in the original article, even if their sample sizes were made of other clientele with a potentially lower chance of exposure to loud noise. We obtained very good comparisons for internal consistency and temporal stability of the HLS-CF, even if the factor analysis was not conclusive as anticipated. The SCQ-CF showed better internal consistency than the original article but a lower temporal stability and different results for the factor analysis. With these results, we did not reach an overall validation for the novel questionnaires, but these initial developments constitute a respectable preliminary validation. These aspects will be analyzed in detail in this section.

### Canadian-French Stigma Consciousness Questionnaire (SCQ) for Hearing Loss

Even though the participant/item ratio is low (3.2/1), we performed an alpha-max factor analysis that indicated a satisfactory determinant, KMO and Bartlett's test. This factor analysis maximizes Cronbach's  $\alpha$  for each factor. The oblimin rotation allows the factors not to be orthogonal, and in the case where there is truly no correlation between factors, the results are the same as those for a varimax. A correlation matrix between factors after the oblimin rotation shows correlation between factors 1 and 2 (-.31) and between factors 1 and 3 (.27), but no correlation between factors 2 and 3 (-.04). Tabachnick and Fidell (2007, p. 646) indicate that a correlation under .32 is considered orthogonal because the factors have less than 10% common variance. That we identified three factors rather than only one may be due to the fact that the questionnaire was adapted to a new population that perceives stereotypes differently. We are not the only

Table 4. Item Translation of the Hearing Loss Stigma<sup>1</sup> (HLS) Questionnaire

Item	English version	Canadian-French (CF) translation
1	I have been discriminated against in education because of my hearing problems.	J'ai subi la discrimination durant mes études en raison de mes problèmes d'audition.
2	Sometimes I feel that I am being talked down to because of my hearing problems.	J'ai parfois l'impression qu'on me rabaisse en raison de mes problèmes d'audition.
3	Having had hearing problems has made me a more understanding person.	Mes problèmes d'audition ont fait de moi une personne plus compréhensive.
4	I do not feel bad about having hearing problems.	Je ne m'en fais pas à propos de mes problèmes d'audition.
5*	I worry about telling people I received help concerning my hearing problems.*	Je crains de dire aux gens que j'ai reçu de l'aide pour mes problèmes d'audition.*
6*	Some people with hearing problems are cognitively challenged.*	Certaines personnes ayant des problèmes d'audition ont des difficultés cognitives.*
7	People have been understanding of my hearing loss.	Les gens se montrent compréhensifs à l'égard de mes problèmes d'audition.
8	I have been discriminated against by friends and relatives because of my hearing problems.	Je subis la discrimination de la part de mes amis et parents en raison de mes problèmes d'audition.
9	I have been discriminated against by employers because of my hearing problems.	Je subis la discrimination de la part d'employeurs en raison de mes problèmes d'audition.
10	My hearing problems have made me more accepting of other people.	Mes problèmes d'audition ont fait de moi une personne qui accepte mieux les autres.
11	Very often I feel alone because of my hearing problems.	Il m'arrive très souvent de me sentir seul(e) en raison de mes problèmes d'audition.
12	I am scared of how other people will react if they find out about my hearing problems.	Je crains la façon dont les autres personnes réagiront si elles découvrent mes problèmes d'audition.
13	I would have had a better chance in life if I did not have hearing problems.	J'aurais eu plus de chance dans la vie si je n'avais pas eu de problèmes d'audition.
14	I do not mind people in my neighborhood knowing I have hearing problems.	Cela ne me dérange pas que les gens de mon voisinage soient au courant de mes problèmes d'audition.

15*	I would say I have hearing problems if I was applying for a job.*	Je dévoilerais mes problèmes d'audition si je postulais un emploi.*
16	I worry about telling people that I have consulted hearing experts about my hearing problems.	Je crains de dire aux gens que j'ai consultés des spécialistes pour mes problèmes d'audition.
17	People's reactions to my hearing problems make me keep myself to myself.	Les réactions des gens à mes problèmes d'audition m'amènent à ne pas me livrer.
18	I am angry with the way people have reacted to my hearing problems.	La façon dont les gens réagissent à mes problèmes d'audition me met en colère.
19	I have not had any trouble from people because of my hearing problems.	Les gens ne m'ont jamais causé d'ennuis en raison de mes problèmes d'audition.
20	I have been discriminated against by health professionals because of my hearing problems.	Je subis la discrimination de la part de professionnels de la santé en raison de mes problèmes d'audition.
21	People have avoided me because of my hearing problems.	Des gens m'ont évité(e) en raison de mes problèmes d'audition.
22	People have insulted me because of my hearing problems.	Des gens m'ont insulté(e) en raison de mes problèmes d'audition.
23	Having hearing problems has made me a stronger person.	Mes problèmes d'audition ont fait de moi une personne plus forte.
24	I do not feel embarrassed because of my hearing problems.	Je ne suis pas gêné(e) de mes problèmes d'audition.
25	I avoid telling people about my hearing problems.	J'évite de dévoiler mes problèmes d'audition aux gens.
26	Having hearing problems makes me feel that life is unfair.	Mes problèmes d'audition m'amènent à penser que la vie est injuste.
27	I feel the need to hide my hearing problems from my friends.	Je sens le besoin de cacher mes problèmes d'audition à mes amis.
28	I find it hard telling people I have hearing problems.	J'ai de la difficulté à dévoiler mes problèmes d'audition aux gens.

Note. <sup>1</sup>Translated as *Stigmatisation associée à la déficience auditive*. HLS-CF is a better option to keep the original questionnaire in mind. \*The temporal reproducibility of these items (5, 6 and 15) was not observed. Do not take this into account during longitudinal follow-up.

Table 5. Comparison Between the Psychometric Properties of the Original Stigma Scale for Mental Illness<sup>1</sup>

	French	English
	<i>N</i> = 32	185-192
<b>Mean scores<sup>2</sup> (SD)</b>		
Total	33.7 (16.3) *	62.6 (15.4)
Discrimination	15.8 (10.6) *	29.1 (9.5)
Disclosure	10.0 (6.6) *	24.7 (8.0)
Positive aspect	7.9 (2.6)	8.8 (2.8)
	<i>N</i> = 32	163
<b>Factor analysis</b>	Not Valid	3 factors
Eigenvalues	NA	7.7, 2.8 and 2.1
Total variance explained	NA	72% (44% + 16% + 12%)
KMO	.415	-
Bartlett's test	< .001	-
	<i>N</i> = 32	93
<b>Internal Consistency (<math>\alpha</math>)</b>		
All items	.91	.88
Discrimination	.91	.87
Disclosure	.87	.85
Positive aspect	.33	.64
	<i>N</i> = 32	60
<b>Temporal Stability<sup>3</sup> (ICC) : <i>r</i></b>	.42-.73	.40-.71
Number of non-significant items (#)	3 (5, 6 and 15)	0
Time interval (weeks)	4	2

Notes. <sup>1</sup>From King et al., 2007; <sup>2</sup>Each question scored 0-4 in the direction of greater stigma. Total score and subscores were made by a an addition of the items; <sup>3</sup>Presented item by item in the original article; \*Statistically different from the English version ( $\alpha$  probability of error < .05); SD = Standard deviation; KMO = Kaiser-Meyer-Olkin, degree of collinearity between variables; ICC = Intraclass correlation coefficient.

authors to have observed these three factors for a different version of the SCQ. An academic work by Huie shows the same three factors, composed of the same items, after a factor analysis performed on 149 participants who completed the Stigma Consciousness Questionnaire for Race (Huie, 2010). This cannot be a coincidence, and might explain the fact that the relationship between the normal-hearing population and the hearing-impaired population (or population with and without mental illness, in the case of Huie's work) differs compared to the relationship between women and men. We also need to consider that factors 2 and 3 are mainly driven by items 2 and 8 respectively, and in Pinel (1999), the factor loading for items 2 and 8 was among the weakest associated with the unique factor (.33 and .40). For this questionnaire, we obtained a lower test-retest score compared to the original article for the global score (.62 versus .76) and we observed that nine of the 10 items had significant test-retest correlations, ranging from .38 to .66. It is thus unlikely that the removal of the non-significant item (item 9) would increase the global test-retest score to the level of the original article. However, by looking more closely at this item, we realized that seven participants switched their answers to this question during the test-retest (i.e., from agree to disagree or vice versa). By replacing only one of these drastic changes (e.g., completely agree to completely disagree), we obtained a significant correlation ( $p = .036$ ;  $r = .373$ ). We are not sure what could have motivated these drastic changes of opinion for this particular item. Further investigations could have been done to verify whether participants understood this item, especially when item 9 was also one of the two items that increased Cronbach's  $\alpha$  very slightly (from .79 to .80) when it was removed.<sup>1</sup> However, this increase is very small and since we did not observe large variations in Cronbach's  $\alpha$  when items were removed, we believe this questionnaire is reliable for measuring stigma consciousness. In 1999, Pinel reported total scores for different populations and versions of this questionnaire. We report a total score that is significantly higher than the one reported for women but is quite similar to the one calculated for men ( $n = 142$ , mean 33.5, SD 6.83;  $\alpha$  probability of error .29).

### Canadian-French Hearing Loss Stigma (HLS) questionnaire

The total score for our questionnaire is significantly lower than the one reported for mental illness stigma. Scores for the discrimination and disclosure subscales are also significantly lower, but the positive aspect subscale is not different. We were not surprised to see these differences,

considering the different populations studied. The factor analysis was also not considered due to the low KMO and lack of participants.

An excellent and comparable Cronbach  $\alpha$  value was obtained for the adapted instrument compared to the one reported for the original questionnaire (.91 versus .88). The internal consistency is also similar for the discrimination and disclosure subscales. Cronbach's  $\alpha$  for the positive aspect is very low even when we consider that in the original version it was by far the subscale with the lowest Cronbach  $\alpha$  value. The removal of item 6 greatly increased the alpha value (to .55), indicating that it no longer fits in this subscale. The meaning of this item has been adapted between questionnaires, and it is normal to observe this difference (going from "Some people with mental health problems are dangerous" to "Some people with hearing problems are cognitively challenged").

We observed a comparable range of correlation coefficients for the 25 items showing significant correlation. Only three items (5, 6, and 15) had no correlation in the test-retest (see Footnote 1). A closer examination of the data revealed that the problem did not come from the fact that answers were random on the retest. Again, the problem comes from the fact that two participants had chosen opposite ratings relative to their original answers. The replacement of only one of these answers makes the correlations significant. These two participants had no other surprising answers and the two problematic answers were not part of the imputed data. We could also verify the interpretation of these three items to determine if the participants' understanding of the question differed.

### Limits of the study and future research

An increase in sample size would help to confirm the underlying latent variables of the questionnaires. In addition, validation measures targeting stigma need to be conducted on two additional questionnaires that we have prepared for use with Canadian-French-speaking adults: the International Outcome Inventory - Alternative Interventions (IOI-AI) (Laplante-Lévesque, Hickson, & Worrall, 2012) and the Expected Consequences of Hearing aid Ownership (ECHO) (Cox & Alexander, 2000). Since this is a first step in producing two questionnaires in French, it should be seen as a preliminary validation, and in that sense, more research is needed to enhance the psychometric qualities of those novel questionnaires. Additional validation work is needed to clarify some of the issues that arose during this first transcultural study (e.g., reproducibility of some items,

<sup>1</sup>In both versions of this questionnaire, an asterisk (\*) has been added with a footnote to invite the clinicians to include poorly reproducible items when computing subscores in longitudinal follow-ups.

missing data, item 9 on the SCQ, factorial analysis, and small sample size ( $N = 32$ ).

### Conclusion

This transcultural validation study successfully adapted two questionnaires that address the concept of stigma associated with hearing loss. Results indicate that they both have psychometric properties comparable to the versions used for the stigma against women and mental illness, with the exception of the latent variables, since they have been slightly modified for the hearing impaired. Readers who would like to obtain the questionnaires produced in this study should contact one of the first two authors of this manuscript. These two novel questionnaires addressing stigma (SCQ and HLS) provide useful information for clinicians when working with French- and English-speaking adults. Clinical implementation of these questionnaires should be incorporated into practice. Since it is more important to address stigma in clinics than to ignore it, we encourage clinicians to use both questionnaires in French and in English but to be careful with the interpretation of items having poor or weak reproducibility. For all items where reproducibility is still a challenge (only four), an asterisk (\*) has been added with a footnote to invite the clinicians *not* to include them when computing subscores. Also, French and English clinicians are welcome to email to authors with any suggestions to upgrade item formulation. These novel questionnaires could also be used while larger validation studies are being undertaken, especially with respect to factor analysis, since this was the first time these questionnaires have been used for older adults with hearing loss.

### References

- Boyle, C. M. (1991). Does item homogeneity indicate internal consistency or item redundancy in psychometric scales? *Personality and Individual Differences, 12*(3), 291–294. doi: 10.1016/0191-8869(91)90115-R
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385–396.
- Coleman, L. M. (2006). Stigma: An enigma demystified. In L. Davis (Ed.), *The disability studies reader* (2nd ed., pp. 141–152). New York, NY: Routledge.
- Cox, R. M., & Alexander, G. C. (2000). Expectations about hearing aids and their relationship to fitting outcome. *Journal of the American Academy of Audiology, 11*(7), 368–382.
- Espmark, A. K. K., & Scherman, M. H. (2003). Hearing confirms existence and identity: Experiences from persons with presbycusis. *International Journal of Audiology, 42*(2), 106–115. doi: 10.3109/14992020309078341
- Fraser, S. A., Kenyon, V., Lagacé, M., Wittich, W., & Southall, K. E. (2016). Stereotypes associated with age-related conditions and assistive device use in Canadian media. *Gerontologist, 56*(6):1023–1032. doi: 10.1093/geront/gnv094
- Gagné, J.-P., Southall, K., & Jennings, M. B. (2009). The psychological effects of social stigma: Applications to people with an acquired hearing loss. In J. Montano & J. Spitzer (Eds.), *Advanced practice in adult audiologic rehabilitation: International perspective* (pp. 63–92). San Diego, CA: Plural Publishing Inc.
- Heine, C., & Browning, C. J. (2002). Communication and psychosocial consequences of sensory loss in older adults: Overview and rehabilitation directions. *Disability and Rehabilitation, 24*(15), 763–773. doi: 10.1080/09638280210129162
- Héту, R. (1996). The stigma attached to hearing impairment. *Scandinavian Audiology Supplementum, 43*, 12–24.
- Huie, F. (2010). *Stigma consciousness and academic achievement: The role of self-regulatory processes*. Unpublished manuscript, Graduate School of Education, George Mason University, Fairfax, VA. Retrieved from [mason.gmu.edu/~fhuie/portfolio/AdvancedQuantFinalPaper.doc](http://mason.gmu.edu/~fhuie/portfolio/AdvancedQuantFinalPaper.doc)
- Hyde, M. L. (2000). Reasonable psychometric standards for self-report outcome measures in audiologic rehabilitation. *Ear Hear, 21*, 24S–36S.
- Jennings, M. B., Southall, K., & Gagné, J. P. (2013). Social identity management strategies used by workers with acquired hearing loss. *Work, 46*(2), 169–180. doi: 10.3233/WOR-131760
- King, M., Dinos, S., Shaw, J., Watson, R., Stevens, S., Passetti, F., & Serfaty, M. (2007). The Stigma Scale: Development of a standardised measure of the stigma of mental illness. *British Journal of Psychiatry, 190*, 248–254. doi: 10.1192/bjp.bp.106.024638
- Kochkin, S. (2007). MarkeTrak VII: Obstacles to adult non-user adoption of hearing aids. *Hearing Journal, 60*(4), 24–51. doi: 10.1097/01.HJ.0000285745.08599.7f
- Laplante-Lévesque, A., Hickson, L., & Worrall, L. (2012). Comparing response options for the International Outcome Inventory for Hearing Aids (IOI-HA) and for Alternative Interventions (IOI-AI) daily-use items. *International Journal of Audiology, 51*(10), 788–791. doi: 10.3109/14992027.2012.695875
- Lee, E. H. (2012). Review of the psychometric evidence of the Perceived Stress Scale. *Asian Nursing Research, 6*(4), 121–127. doi: 10.1016/j.anr.2012.08.004
- Lewis, R. J., Derlega, V. J., Griffin, J. L., & Krowinski, A. C. (2003). Stressors for gay men and lesbians: Life stress, gay-related stress, stigma consciousness, and depressive symptoms. *Journal of Social and Clinical Psychology, 22*(6), 716–729. doi: 10.1521/jscp.22.6.716.22932
- Marmen, L., & Corbeil, J. P. (2004). *New Canadian perspectives. Languages in Canada 2001 census* (Statistics Canada Cat. No. CH3-2/8-2004). Retrieved from <http://publications.gc.ca/collections/Collection/CH3-2-8-2004E.pdf>
- Marx, R. G., Menezes, A., Horovitz, L., Jones, E. C., & Warren, R. F. (2003). A comparison of two time intervals for test-retest reliability of health status instruments. *Journal of Clinical Epidemiology, 56*(8), 730–735. doi: 10.1016/S0895-4356(03)00084-2
- Mulrow, C. D., Aguilar, C., Endicott, J. E., Tuley, M. R., Velez, R., Charlip, W. S., ... DeNino, L. A. (1990). Quality-of-life changes and hearing impairment: A randomized trial. *Annals of Internal Medicine, 113*(3), 188–194. doi: 10.7326/0003-4819-113-3-188
- Parrette, P., & Scherer, M. (2004). Assistive technology use and stigma. *Education and Training in Developmental Disabilities, 39*(3), 217–226.
- Pinel, E. C. (1999). Stigma consciousness: The psychological legacy of social stereotypes. *Journal of Personality and Social Psychology, 76*(1), 114–128. doi: 10.1037/0022-3514.76.1.114
- Roth, P. L. (1994). Missing data: A conceptual review for applied psychologists. *Personnel Psychology, 47*(3), 537–560. doi: 10.1111/j.1744-6570.1994.tb01736.x
- Southall, K., Gagné, J.-P., & Jennings, M. B. (2010). Stigma: A negative and a positive influence on help-seeking for adults with acquired hearing loss. *International Journal of Audiology, 49*(11), 804–814. doi: 10.3109/14992027.2010.498447
- Streiner, D. L., & Norman, G. R. (1995). *Health measurement scales. A practical guide to their development and use*. New York, NY: Oxford University Press.

- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Upper Saddle River, NJ: Pearson/Allyn & Bacon.
- Tannenbaum, C., van den Heuvel, E., Fritel, X., Southall, K., Jutai, J., Rajabali, S., & Wagg, A. (2015). Continenence Across Continents To Upend Stigma and Dependency (CACTUS-D): Study protocol for a cluster randomized controlled trial. *Trials*, *16*, 1-11. doi: 10.1186/s13063-015-1099-x
- Vallerand, R. J. (1989). Vers une méthodologie de validation trans-culturelle de questionnaires psychologiques: implications pour la recherche en langue française. *Canadian Psychology*, *30*(4), 662-680. doi: 10.1037/h0079856

### Acknowledgements

This study was made possible by funding from the Partnership of the Réseau provincial de recherche en adaptation-réadaptation (REPAR), the Centre intégré universitaire de santé et des services sociaux (CIUSSS) du Centre-sud de l'île de Montréal – Institut Raymond-Dewar, and the CIUSSS de la Capitale Nationale – Institut de réadaptation en déficience physique de Québec. Also, we want to thank the Faculté de médecine of the Université Laval, which offered a bursary to Audrey Clothier who completed a summer research internship under one of the researchers' supervision. The authors wish to thank audiologists Dale Bonnycastle and Ronald Choquette for the back-translations, translator Lorraine Paquet, and the five participants who contributed to the pre-test.

### Authors' Note

Correspondence concerning this article should be addressed to Claude Vincent, Centre interdisciplinaire de recherche en réadaptation et intégration sociale, 525 boulevard Hamel, Office H-1112, Québec (QC), G1M 2S8, Canada. Email: [Claude.Vincent@rea.ulaval.ca](mailto:Claude.Vincent@rea.ulaval.ca).

## Appendix A. Hearing Loss Stigma (HLS) Questionnaire (Adapted from King, 2007)

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE OF BIRTH: \_\_\_\_\_

MALE

FEMALE

### Instructions:

You will find below a list of sentences. For each one of them, you need to check off the answer that best suits you by circling the answer in the appropriate square.

Answer all the questions without exception. Don't spend too much time thinking about the answer, as it is your first impression that is important.

1. I have been discriminated against in education because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

2. Sometimes I feel that I am being talked down to because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

3. Having had hearing problems has made me a more understanding person.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

4. I do not feel bad about having hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

5. I worry about telling people I received help concerning my hearing problems. \*

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

6. Some people with hearing problems are cognitively challenged. \*

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

7. People have been understanding of my hearing loss.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

8. I have been discriminated against by friends and relatives because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

9. I have been discriminated against by employers because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

10. My hearing problems have made me more accepting of other people.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

11. Very often I feel alone because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

12. I am scared of how other people will react if they find out about my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

13. I would have had a better chance in life if I did not have hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

14. I do not mind people in my neighborhood knowing I have hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

15. I would say I have hearing problems if I was applying for a job.\*

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

16. I worry about telling people that I have consulted hearing experts about my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

17. People's reactions to my hearing problems make me keep myself to myself.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

18. I am angry with the way people have reacted to my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

19. I have not had any trouble from people because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

20. I have been discriminated against by health professionals because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

21. People have avoided me because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

22. People have insulted me because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

23. Having hearing problems has made me a stronger person.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

24. I do not feel embarrassed because of my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

25. I avoid telling people about my hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	----------------------------	----------	-------------------

26. Having hearing problems makes me feel that life is unfair.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

27. I feel the need to hide my hearing problems from my friends.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

28. I find it hard telling people I have hearing problems.

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	-------------------

\* The temporal reproducibility of these items (# 5, 6 and 15) was not observed. Do not take this into account during longitudinal follow-up.

## Appendix B. Stigmatisation associée à la déficience auditive or HLS-CF<sup>1</sup>

NOM : \_\_\_\_\_

DATE : \_\_\_\_\_

DATE DE NAISSANCE : \_\_\_\_\_

HOMME

FEMME

**Directives :**

Voici une liste de phrases. Pour chacune, encerclez la réponse qui correspond le mieux à votre expérience. Veuillez indiquer une réponse pour chacune des phrases sans passer trop de temps à analyser les choix de réponse: c'est votre première impression qui importe.

1. J'ai subi la discrimination durant mes études en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

2. J'ai parfois l'impression qu'on me rabaisse en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

3. Mes problèmes d'audition ont fait de moi une personne plus compréhensive.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

4. Je ne m'en fais pas à propos de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

5. Je crains de dire aux gens que j'ai reçu de l'aide pour mes problèmes d'audition. \*

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

6. Certaines personnes ayant des problèmes d'audition ont des difficultés cognitives. \*

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

7. Les gens se montrent compréhensifs à l'égard de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

<sup>1</sup>Hearing Loss Stigma (HLS) Questionnaire in Canadian French

8. Je subis la discrimination de la part de mes amis et parents en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

9. Je subis la discrimination de la part d'employeurs en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

10. Mes problèmes d'audition ont fait de moi une personne qui accepte mieux les autres.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

11. Il m'arrive très souvent de me sentir seul(e) en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

12. Je crains la façon dont les autres personnes réagiront si elles découvrent mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

13. J'aurais eu plus de chance dans la vie si je n'avais pas eu de problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

14. Cela ne me dérange pas que les gens de mon voisinage soient au courant de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

15. Je dévoilerais mes problèmes d'audition si je postulais un emploi. \*

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

16. Je crains de dire aux gens que j'ai consultés des spécialistes pour mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

17. Les réactions des gens à mes problèmes d'audition m'amènent à ne pas me livrer.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

18. La façon dont les gens réagissent à mes problèmes d'audition me met en colère.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

19. Les gens ne m'ont jamais causé d'ennuis en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

20. Je subis la discrimination de la part de professionnels de la santé en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

21. Des gens m'ont évité(e) en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

22. Des gens m'ont insulté(e) en raison de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

23. Mes problèmes d'audition ont fait de moi une personne plus forte.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

24. Je ne suis pas gêné(e) de mes problèmes d'audition.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

25. J'évite de dévoiler mes problèmes d'audition aux gens.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

26. Mes problèmes d'audition m'amènent à penser que la vie est injuste.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

27. Je sens le besoin de cacher mes problèmes d'audition à mes amis.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

28. J'ai de la difficulté à dévoiler mes problèmes d'audition aux gens.

Complètement en accord	En accord	Ni en accord ni en désaccord	En désaccord	Complètement en désaccord
------------------------	-----------	------------------------------	--------------	---------------------------

\* La reproductibilité temporelle de ces items (#5, 6 et 15) n'a pas été observée. Ne pas prendre en compte cet élément lors d'un suivi longitudinal.

## Appendix C. Stigma Consciousness Questionnaire (SCQ) for Hearing Loss (Adapted from Pinel, 1999)

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE OF BIRTH: \_\_\_\_\_

MALE

FEMALE

**Instructions**

*Please circle the letter that indicates the extent to which you agree with each statement listed below.*

- A. Completely agree**
- B. Agree**
- C. More or less agree**
- D. Neither agree nor disagree**
- E. More or less disagree**
- F. Disagree**
- G. Completely disagree**

1. Stereotypes about hearing loss have not affected me personally.	<b>A B C D E F G</b>
2. I never worry that my behaviors will be viewed as stereotypical of a person who has a hearing loss.	<b>A B C D E F G</b>
3. When interacting with people who have normal hearing, I feel like they interpret all my behaviors in terms of the fact that I have a hearing loss.	<b>A B C D E F G</b>
4. Most people with normal hearing do not judge people with hearing loss on the basis of their ability to hear.	<b>A B C D E F G</b>
5. My being hearing impaired does not influence how people with normal hearing act with me.	<b>A B C D E F G</b>
6. I almost never think about the fact that I have a hearing loss when I interact with people who have normal hearing.	<b>A B C D E F G</b>
7. My being hearing impaired does not influence how people act with me.	<b>A B C D E F G</b>
8. Most people with normal hearing have a lot more prejudicial thoughts about people with hearing loss than they actually express.	<b>A B C D E F G</b>
9. I often think that people with normal hearing are unfairly accused of having prejudicial thoughts about people with hearing loss. *	<b>A B C D E F G</b>
10. Most people with normal hearing have a problem viewing people with hearing loss as equals.	<b>A B C D E F G</b>

\* The temporal reproducibility of this item (# 9) was not observed. Do not take this into account during longitudinal follow-up.

## Appendix D. Échelle de la conscience de la stigmatisation personnelle (associée à la perte d'audition) or SCQ-CF<sup>1</sup> for Hearing Loss

NOM : \_\_\_\_\_

DATE : \_\_\_\_\_

DATE DE NAISSANCE : \_\_\_\_\_

Homme

Femme

**Directives**  
*Pour chacun des énoncés ci-dessous indiquez votre niveau d'accord ou de désaccord*

- A. Complètement en accord**
- B. En accord**
- C. Plus ou moins en accord**
- D. Ni en accord ni en désaccord**
- E. Plus ou moins en désaccord**
- F. En désaccord**
- G. Complètement en désaccord**

1. Les stéréotypes concernant la perte d'audition ne m'affectent pas personnellement.	<b>A B C D E F G</b>
2. Je ne suis jamais inquiet que mes comportements puissent être perçus comme étant typiques d'une personne ayant une perte d'audition.	<b>A B C D E F G</b>
3. Lorsque je dialogue avec des gens ayant une audition normale, je sens qu'ils interprètent tous mes comportements en fonction du fait que j'ai une perte d'audition.	<b>A B C D E F G</b>
4. La plupart des gens ayant une audition normale ne jugent pas les gens ayant une perte d'audition en fonction de leur capacité à entendre.	<b>A B C D E F G</b>
5. Le fait que je suis une personne malentendante n'a aucune influence sur la façon dont les gens ayant une audition normale agissent avec moi.	<b>A B C D E F G</b>
6. Je ne pense presque jamais au fait que j'ai une perte d'audition lorsque je dialogue avec quelqu'un qui a une audition normale.	<b>A B C D E F G</b>
7. Le fait que je suis une personne malentendante n'a aucune influence sur la façon dont les gens agissent avec moi.	<b>A B C D E F G</b>
8. La plupart des gens ayant une audition normale ont beaucoup plus de préjugés à l'endroit des personnes ayant une perte d'audition qu'ils ne le disent en réalité.	<b>A B C D E F G</b>
9. Je crois souvent que les personnes ayant une audition normale sont injustement accusées d'avoir des préjugés envers les personnes qui ont une perte d'audition. *	<b>A B C D E F G</b>
10. La plupart des gens qui ont une audition normale ont de la difficulté à considérer les personnes qui ont une perte d'audition comme étant des égaux.	<b>A B C D E F G</b>

\* La reproductibilité temporelle de cet item (#9) n'a pas été observée. Ne pas prendre en compte cet élément lors d'un suivi longitudinal.

<sup>1</sup>Stigma Consciousness Questionnaire (SCQ) for Hearing Loss in Canadian French