The Development and Validation of an Auditory Perception Test for the Hearing Impaired

Mise au point et validation d'un test de perception auditive pour les personnes malentendantes

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Abstract

The *Auditory Perception Test for the Hearing Impaired* (APT/HI) was developed to aid teachers and clinicians in evaluating the hearing impaired student's ability to auditorily decode the spoken language, developing individual auditory skills training programs for the student; and measuring the student's progress in auditory skills training. The APT/HI was pilot tested on 118 students in Florida and California. Validity and reliability of the instrument were established.

Abrégé

*Le **Auditory Perception Test for the Hearing Impaired (APT/HI)** a pour but d'aider les professeurs et les cliniciens à évaluer l'aptitude des étudiants malentendants à effectuer un décodage auditif du langage parlé. Il devrait aussi les aider à concevoir des programmes personnalisés destinés à améliorer les compétences auditives de l'étudiant et à mesurer les progrès de l'étudiant à cet égard. Le test a fait l'objet d'essais-pilotes auprès de 118 étudiants de Floride et de California. Sa validité et sa fiabilité sont établies.*

Prelingual hearing loss impairs auditory perception, affecting the acquisition of speech and language. Auditory skills training is one approach used to compensate for the consequences of hearing loss. The rationale behind the use of this approach is that through training it is possible to improve an individual's functional use of residual hearing and, in turn, aid in the development of speech and language.

Depending upon the nature and degree of loss, we assume a student can improve his or her ability to detect, discriminate, identify, and/or comprehend different types and levels of auditory stimuli (Erber, 1982; Serwatka, 1980). The improved use of residual hearing provides the student with auditory information which complements the linguistic information received through other communication modes (Erber, 1982). Advocates of auditory skills training have proposed different models for providing this training, ranging from conversational auditory-only models to more structured task-specific models (Allen, 1987; Erber, 1982; Pollack, 1985; Serwatka, 1980: Stout & Windle, 1986).

An initial and on-going component of any of these auditory skills training models should be an assessment which profiles the student's auditory functioning level. The information derived from such an assessment serves as a guide in developing auditory skills training activities for the student and/or provides a mechanism for charting gains as auditory skills training progresses.

A number of different methods for assessing a student's auditory functioning are available to us as teachers and clinicians. Standard puretone audiometric procedures provide us with information on degree and type of hearing loss, i.e., conductive or sensorineural. Specific threshold information helps us to determine what spectral information is available to the student. The puretone audiogram, however, fails to tell us how the student uses this residual hearing in perceiving speech and language.

Available speech perception tests provide us with some of the missing information on perception. Instruments such as the *Word Intelligibility by Picture Identification Test* (WIPI) (Ross & Lerman, 1971), the *Phonetically Balanced-Familiar Test* (PBF) (Numbers & Hudgins, 1948) and the *Auditory Numbers Test* (ANT) (Erber, 1980) assess how well a student uses residual hearing in identifying or discriminating among monosyllabic words. Tests like the *Monosyllable, Trochee, Spondee Test (MTS)* (Erber & Wift, 1977) and *Early Speech Perception Test* (ESP) (Moog & Geers, 1990), provide us with information on how well a student uses suprasegmental and spectral information in identifying both monosyllabic and polysyllabic words.

The *Glendonald Auditory Screening Procedure* (GASP) (Erber, 1982) is a set of three subtests of auditory skills, including the MTS. The two other subtests provide the clinician or teacher with information on how well a student uses residual hearing to detect or identify selected vowels and consonants, and to comprehend unrelated sentences.

Assessment procedures designed for use with particular auditory skills training curricula, such as the *Test of Auditory Comprehension* (TAC) (Trammel et al., 1981) and the assessment section of the *Developmental Approach to Successful Listening* (DASL) (Stout & Windle, 1986) provide information on a student's use of residual hearing across an even wider array of auditory perceptual skills. The array and sequence of skills included in each of these procedures parallel the content of the corresponding curriculum. In both of these cases some of the items included confuse assessment of the student's level of auditory functioning with assessment of the student's linguistic development.

Each of the tests or procedures described above provides us with valuable information regarding a student's residual hearing and the use of the same. Each also has its own limitations. We wrote the *Auditory Perception Test for the Hearing Impaired* (APT/HI) (Allen & Serwatka, 1994) in response to some of the limitations of these tests. The APT/HI provides teachers and clinicians with detailed descriptive and diagnostic information on a student's use of residual hearing across a wide array of auditory perceptual skills. It is designed for use with any number of curricula. By using a limited set of words within the test and by using the recommended trial sets, the clinician or teacher can predetermine if a student knows the linguistic material included in the test item set. This allows us to know that auditory perception is being tested instead of linguistic functioning.

In creating the APT/HI we wrote an instrument which would provide teachers and clinicians with a profile of a student's auditory functioning in sixteen different skill areas. The instrument does not yield a score but rather provides a display of mastered, emerging, and missing skills. The APT/HI profile reflects the trend toward authentic and curriculum-based assessments.

To assure that clinicians and teachers could use the APT/HI with various approaches to auditory skills training, we selected tasks which are compatible with content from a number of auditory skills training curricula. By providing teachers and clinicians with a profile of this nature we felt they could use the results of an APT/HI to identify targets for training and chart a student's progress in training.

Construction of the Test

We based the item sets on the APT/HI on a previously developed instrument (Allen, 1987) and an auditory skills training curriculum outline (Serwatka, 1980). In both of these cases auditory functioning is examined along two dimensions: the auditory task and the type of stimulus. Auditory tasks include detection, discrimination, identification, and comprehension. Stimuli used include the phonemic, word, phrase, sentence, and connected discourse levels.

The fifty item sets included on the current form of the APT/HI are organized into sixteen clusters or categories of auditory perception tasks. These include: (a) detection of speech and nonspeech sounds; (b) discrimination of speech sounds based on duration; (c) discrimination of speech sounds based on intensity; (d) discrimination of speech sounds based on pitch; (e) discrimination of words based on prosodic features; (f) discrimination of sentences based on prosodic features; (g) identification of vowel sounds in isolation; (h) discrimination of words based on vowel differences; (i) discrimination of words based on manner differences in initial consonants; (j) discrimination of words based on phonation differences in initial consonants; (k) discrimination of words based on place of articulation differences in initial consonants; (l) discrimination of words based on ending blends; (m) identification of consonants within words; (n) identification of phrases; (o) identification of sentences; and, (p) comprehension of questions.

In each of the sixteen clusters there are from two to six sets of items. For example, under the category "discrimination of words based on phonation differences in initial consonants" the student is required to discriminate between the two words in each of these three-item sets: pear/bear, coat/goat, Sue/zoo. In each item set the student is presented with one or the other of the words five times. As the teacher or clinician presents each of the words, the student points to one of the corresponding pictures. To pass each of these item sets, the student must point to the correct picture five times out of five. For four of the five correct responses, the item set it marked as "emerging". In total, there are 50 item sets included on the instrument.

In administering each item set, the clinician or teacher may give the student up to five trials to ensure that the student understands the task at-hand and the stimuli used. When presenting trial items, the student can use both vision (speechreading and/or sign) and audition. The stimuli used in detection and discrimination trial items are the same as those used in the actual test item. In trial items for identification and comprehension activities, the stimuli used are the same form but not the same exact items as those used in the test. This allows the examiner to determine if the student has the linguistic capability to complete the item without compromising the integrity of the item. For test items, the student relies solely on audition.

Before testing begins, the teacher or clinician is required to determine that the student's amplification is working

correctly. In pilot testing, clinicians made acoustic checks of the students' amplification devices.

All of the items on the APT/HI are administered by live voice. Clinicians felt that live voice administration allows for easier administration then does the use of taped stimuli. The use of live voice also allows them to accommodate individual students. The manual provides detailed information on such variables as phrasing and differing intensities and pitches to be used on the test items. Test-retest data reported later demonstrate the inter-tester reliability of the instrument.

Written instructions on administering the APT/HI and the individual items are included in the test manual. The manual also provides a description of the scoring procedures used on the test. The manual contains guidelines on how to use the results in planning and evaluating a student's auditory skills training program. In addition to the manual and test plates, the APT/HI kit contains 25 scoring checklists for use in recording individual students' responses and drawing a profile from these responses.

Pilot Testing

Originally, there were 60 item sets on the APT/HI. As a result of pilot testing, 10 item sets were removed from the original 60 items, leaving the 50 item sets currently included. The results of pilot testing also led to some item sets being reordered, sequencing them in accordance with student performance as opposed to author hypothesis.

As part of the development process, we pilot tested the APT/HI on 118 hearing impaired students from the Florida School for the Deaf and Blind (FSD&B) and the California School for the Deaf-Riverside (CSDR). Males made up 55% of the sample, with the remaining 45% being female. Seventy-two percent of the sample was European American, 13% was African American, 14% was Hispanic American, and 1% was of other ethnic/racial backgrounds. All of the students used English or ASL as their first language. None of the students were judged to have visual acuity problems that would prevent them from using the APT/HI.

Six speech clinicians from FSD&B and three from CSDR participated in the pilot test. The speech clinicians took part in three hours of training prior to pilot testing. The APT/HI was administered to each of the students who participated in the study. The MTS (Erber & Witt, 1977) was given to 96 of the students. Scores on the MTS were used to help establish validity.

Means, ranges, and standard deviations for the ages, degrees of hearing loss, and test scores of the students who participated in the pilot test are shown in Table 1. While the APT/HI does not yield a single numeric score for the purpose of our research, we did compute the number of items passed for each student in the pilot test. These data were used in determining the validity of the APT/HI.

Table 1. Characteristics of Students in the Pilot Sample

Characteristic	Mean	Standard Deviation	Range
Age	12.10	3.4	5.6 - 20
Puretone Average - unaided	90.30	18.0	53 - 120
Average - aided	51.98	16.2	22 - 97
MTS Scores			
Category	75.00	25.8	17 - 100
Identification	65.21	32.9	0 - 100
WIPI	64.47	24.5	20 - 100
APT/Hi Scores	30.75	14.6	0 - 50

Validity and Reliability

Reliability

A split-half reliability coefficient for the APT/HI was calculated using a Spearman Brown test. The resulting correlation was .99. This coefficient indicates strong reliability of the test as a whole. Homogeneity of the items within the test was measured using a Kuder Richardson test. The resulting correlation was .97. This correlation demonstrates strong consistency among items within the test.

For a sample of 30 students, test-retest reliability was .97. By using different clinicians for the first and second administration of the APT/HI, we were able to evaluate inter-tester reliability while measuring test-retest reliability.

Validity

Professional colleagues reviewed all test items to help establish content validity. Criterion validity was determined by correlating the number of items students passed on the APT/HI with available scores on the MTS (Erber & Witt, 1977). The correlations between the APT/HI and the scores on the MST were .80 with MTS-category scores and .83 with MTS-identification scores. These correlations were statistically significant, demonstrating a strong relationship between student performance on the APT/HI profile and these two single-task measures of auditory perceptual function.

In establishing construct validity, we proposed constructs which would account for student performance on the APT/HI based on logical analysis. The constructs we established and the hypotheses used to evaluate these constructs are listed below.

1. An individual's ability to use auditory perception to decode oral language is partly based on the person's degree of hearing acuity. This leads to the hypotheses that for hearing impaired individuals, performance on the APT/HI will be related significantly to (a) the degree of puretone hearing loss unaided, or (b) the degree of hearing loss aided.

2. For hearing impaired individuals, there is an improvement in auditory perception of oral language with increased age. This improvement, in part, results from the acquisition of language and the effects of formal and incidental auditory skills training. This construct leads to the hypothesis that hearing impaired individuals' performance on the APT/HI will be related significantly to their age.

3. For hearing impaired individuals, auditory perception of oral language is based on the combined effects of the person's degree of loss and the individual's level of language functioning and exposure to formal and incidental auditory skills training. This leads to the hypothesis that performance on the APT/HI will be related significantly to the individual's degree of hearing loss and the individual's age.

Table 2 shows the mean number of correct responses on the APT/HI by degree of hearing loss and age. These data indicate a pattern performance on the APT/HI associated with increased residual hearing. This pattern can be seen in each of the comparisons displayed on the table. There is also an overall pattern of improved performance with increased age from 5-20 years. This pattern was not apparent in two categories of hearing loss when 10 to 14 year old students were compared to 15-20 year old students. In both of these categories the younger students' mean hearing loss was less than the mean hearing loss for the older students. The younger students' better hearing may have given them an advantage over their older counterparts.

The mean of four items passed for students who had the greatest hearing losses and were between the ages of five and nine indicates that, as predicted, these students had mastered few of the skills required to use their residual hearing meaningfully. In contrast, the fact that the mean score for 15 to 20 year old students with the same degree of hearing loss was 32 provided evidence that students can develop meaningful use of residual hearing.

Table 2. Mean Number of Items Passed on the APT/HI by Age and Degree of Loss

Degree of Loss	Age of Students			
	5-9 years	10-14 years	15-20 years	total group
53-70 dB	35	48	44	43
71-90 dS	30	43	38	39
91-120 dB	4	25	32	24
Total group	19	34	38	31

To statistically test the patterns seen in Table 2 and the hypotheses that resulted from our proposed constructs, we correlated data on students' ages and unaided and aided degrees of hearing loss with totals of students' correct responses on the APT/HI. The resulting correlations (r) and multiple correlations (R) between each measure or combination of measures and performance on the APT/HI are given in Tables 3 and 4. Also shown are the coefficients of determination (r^2, R^2). These coefficients show what percentage of the variance of APT/HI scores that can be predicted using the other variable(s).

All of the correlations were significant at the .01 level or better. The correlations and coefficients of determination demonstrate good construct validity as we defined it.

Table 3. Correlations and Coefficients of Determination Between APT/HI Scores and Age and Degree of Hearing Loss

VARIABLE	r	r^2
Age	.43[1]	.18
Unaided puretone averages	-.69[1]	.48
Aided averages	-.77[1]	.58

[1]significant at the .01 level or better.

Table 4. Multiple Correlations and Coefficients of Determination Between APT/HI Scores and Age and Degree of Hearing Loss

VARIABLE	R	R^2
Age and aided averages	.84[1]	.71
Age and unaided puretone averages	.81[1]	.66
Age and unaided and aided averages	.86[1]	.74

[1]significant at the .01 level or better

Discussion

As clinicians and teachers, we should use assessment of auditory functioning as the initial step in planning and implementing an auditory skills training program. We also need to use ongoing assessment as an integral part of charting an individual's progress. Structuring effective auditory skills training programs requires that we have both a knowledge of the elements and skills needed to auditorily decode spoken English, and a method of assessing student's utilization of these elements and skills. The APT/HI provides us with these types of information.

Initial pilot testing of the APT/HI demonstrated this instrument's reliability. The results of pilot testing also showed that the test has good criterion and construct validity.

In interviews after pilot testing, clinicians who participated in the pilot test stated that they found the test to be easy to administer and the results easily used in developing auditory skills training programs for their students. They also stated that students responded well during test administration.

Clinicians also report that the APT/HI has implications for use in determining appropriate speech targets for students. Students who failed particular vowel or consonant discrimination and identification tasks frequently misarticulated these same sounds. Combining auditory training with speech therapy in addressing these targets proved to benefit the student both in auditory perception and in speech production.

Other pilot testing is continuing with a variety of populations at the University of Florida, Valdosta State University, and a private clinic in Jacksonville, Florida. Professionals involved in this pilot testing confirm the APT/HI has significant merit as a diagnostic tool and is particularly useful in developing auditory/communicative management programs.

The APT/HI has special merit for speech-language pathologists who are working with hearing impaired students but feel less than adequately prepared to develop auditory skills training programs.

The APT/HI has proven to be a "user-friendly" test that yields practical information to help the professional assess auditory perceptual functioning. The test can also be used to complement other diagnostic instruments and facilitate the development of speech and the acquisition of spoken language.

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The Incidence of Professional Burnout Among Canadian Speech-Language Pathologists

L'incidence d'épuisement professionnel chez les orthophonistes du Canada

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Key words: burnout, job satisfaction, personal and professional impact

Abstract

Canadian speech-language pathologists who are members of the Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) were surveyed to determine the frequency and severity of professional burnout and related factors. Of two hundred thirty questionaires completed, a 72% return, 76% (N=175) revealed the SLPs were experiencing either a mild or moderate degree of burnout. Five factors were significantly related to burnout ($p<.05$): gender, caseload size, effect on personal life, job satisfaction, and job effectiveness. Most respondents indicated they were managing burnout by confronting its possible sources in the work place.

Abrégé

Des orthophonistes canadiens qui sont membres de l'Association canadienne des orthophonistes et audiologistes (ACOA) ont fait l'objet d'un sondage sur la fréquence et l'intensité de l'épuisement professionnel et les facteurs associés. Deux cent trente sondés ont retourné leurs questionnaires remplis, ce qui représente un taux de réponse de 72 p. cent. De ce nombre, 76 p. cent (N=175) ont signalé un épuisement professionnel léger à modéré. Cinq facteurs étaient associés de façon significative à l'épuisement ($p < 0, 05$), soit le sexe, le nombre de cas traités, les répercussions sur la vie privée, la satisfaction a l'égard de l'emploi et l'efficacité professionnelle. La plupart des répondants ont affirmé tenter de résoudre leur problème à la source, dans le milieu de travail.

The purpose of this survey was to identify the incidence of professional burnout among Canadian speech-language pathologists (SLPs). In this article, *professional burnout* is defined as "a state of physical and emotional exhaustion, involving the development of negative self-concept, negative job attitudes, and loss of concern and feeling for clients" (Maslach, 1976). It has been well documented in the fields of health, mental health, college student personnel, administration (McDermott 1984), teaching (Hock, 1988; Scriven, 1979), social work, counseling psychology (Maslach, 1976), American speech-language pathology (Miller & Potter, 1982) and audiology (Potter, Hellesto, Shute & Dengerink, 1988).

Burnout, which occurs at the individual level, is an internal psychological experience involving feelings, attitudes, motives, and expectations (Hock, 1988). It is precipitated by constant or repeated emotional pressure associated with intense involvement with people over long periods of time (Pines et al., 1981). It cuts across demographic characteristics, affecting people regardless of age, sex, length of time on the job, marital status, number of dependents, and number of hours worked per week (McDermott, 1984).

In the field of speech-language pathology, limited consideration has been given to the incidence of professional burnout, although its occurrence could deleteriously affect the profession along with the personal and professional lives of speech-language pathologists. A survey of American speech-language pathologists (Miller & Potter, 1982) revealed that 43% of their sample (N=135) was experiencing moderate to severe burnout, while 36% were demonstrating mild symptomology. Twenty-one percent of all respondents indicated that their jobs had created a negative impact on their private lives, and 78% of the moderate-severe burnout group noted their personal existence had been negatively affected by professional status. Seventy-nine and 60%, respectively, of that same group expressed job dissatisfaction and job ineffectiveness. The degree of burnout was highly correlated with limited provisions for preventing and coping with burnout.

A survey of public school SLPs (Pezzie & Oration, 1991) indicated that three underlying factors related to job satisfaction: supervision, workload, and co-workers. Being supervised by individuals who held a degree within the field

correlated highly with job satisfaction, as did satisfaction with co-worker relationships and camaraderie among clinicians. The feeling of having an excessive caseload and insufficient time or help to accomplish the job correlated highly with job dissatisfaction. These findings supported earlier work by Miller and Potter (1982).

The present study attempted to investigate the incidence of professional burnout among Canadian speech-language pathologists. The research questions asked were: a) To what degree was professional burnout occurring within the field of speech-language pathology in Canada, and b) If it was occurring, what were the variables accompanying the phenomenon?

Method

Subjects

Subjects were identified through a randomly-selected sample of 327 Canadian speech-language pathologists who were members of the Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) as of March, 1992. The number of subjects surveyed per province was proportionate to the total number of CASLPA members currently working within each area (See Table 1).

Table 1. Surveys mailed out, distributed across ten provinces and two territories.

Province/Territory	# Surveyed
Ontario	96
British Columbia	62
Alberta	57
Quebec	21
Manitoba	18
Nova Scotia	15
Saskatchewan	12
Prince Edward Island	12
Newfoundland	12
Northwest Territory	4
Yukon Territory	6
Total =	327

Procedure

Of the 327 questionnaires mailed, nine were returned due to address problems. Of the remaining 318 surveys, 230 were completed, resulting in a 72% response rate. Since speech-language pathologists, who have similar backgrounds in academic and clinical preparation, may be considered a fairly homogeneous group, and other legitimate selection criteria were observed, the number of completed surveys was considered representative (Venery & Shiavette, 1986).

Data were collected through a 21-item anonymous questionnaire, consisting of 19 forced-response and two open-ended questions. The open-ended questions invited respondents to give further reasons for their burnout or to comment on steps taken to alleviate it (Miller & Potter, 1982). Factors such as job setting, number of years in the field, academic degree held, caseload size, and type and severity of client impairment were examined. Respondents were also asked to rate their working relationships with colleagues and clients, the impact of the profession on private life, overall job satisfaction, and feeling of success on the job (See Appendix A).

A survey, with a return address, stamped envelope, and a cover letter explaining the nature of the project, were sent to the subjects from each of the 10 provinces and two territories. Respondents were asked to complete the survey, based upon a general agreement with the definition of burnout as stated by Maslach (1976): "A state of physical and emotional exhaustion, involving the development of negative self-concept, negative job attitudes, and loss of concern and feeling for clients."

Within two weeks of mailing the initial packet, a reminder was sent. The respondents were given a month to return the completed surveys. Anonymity was maintained for all respondents.

Results

The salient question in the survey requested respondents to identify to what degree they were experiencing professional burnout. Four categories (severe, moderate, mild, and no burnout) were used to describe severity. Since only two respondents reported experiencing severe burnout, that category was combined with "moderate" and the remaining three categories were analyzed. Of the 76% (N=175) who had incurred professional burnout, 26% (N=61) and 50% (N=114) experienced moderate and mild burnout respectively. The remaining 24% (N=35) reported no burnout (See Table 2). To determine what variables were accompanying the burnout phenomenon, the remaining questions in the survey were compared to the severity ratings, using a chi-square analysis.

Table 2. Response to question: "To what extent do you consider yourself experiencing professional burnout, as previously defined?

Degree of Burnout	Frequency	Cumulative Frequency	%	Cumulative %
Moderate	61	61	26.5	26.5
Mild	114	175	49.6	76.1
No Burnout	55	230	23.9	100.0
	N = 230			

Work Setting

Thirty-nine percent (N=90) of the respondents worked in public schools, 31% (N=71) in hospitals/clinics, 15% (N=35) in health units, 2% (N=5) in institutions, 1% (N=2) in private clinics, 1% (N=2) in educational training, and 11% (N=25) reported working in other situations. A non-significant relationship was found between area of work and severity of burnout (X^2 = 15.349; df 12, p= .223).

Gender

Ninety-three percent (N=214) of the respondents were female and 7% (N=16) were male. All males and 75% (N=158) of the females in the sample experienced some degree of burnout. A significant relationship existed between degree of burnout and gender (X^2 = 9.559; df 2, p =.008) (See Table 3).

Table 3. Degree of burnout by sex.

		Female	Male	Total
Moderate	N	55	6	61
	%	24.02	2.62	26.64
Mild	N	103	11	114
	%	44.98	4.80	49.78
No Burnout	N	54	0	54
	%	23.58	0.00	23.58
Total	N	212	17	229
	%	92.58	7.42	100.0

Frequency Missing = 1

Statistic	DF	Value	Prob
Chi-Square	2	5.668	0.059
Likelihood Ratio Chi Square	2	9.559	0.008

Career Source and Preparation

Twenty-eight percent (N=64) of the group initiated their careers in other professions and 72% (N=166) began in communication disorders. Eighty percent (N=184) of the group had either master's or doctoral degrees, 16% (N=37) had bachelor's degrees and 4% (N=9) had other levels of training (i.e., most indicated British certification). No significant relationship existed between degree held and severity of burnout (X^2 = 7.656; df 4, p = 1.05).

Time in the Field

The "number of years in the profession" responses were collapsed into four categories. Twenty-four percent (N=55) of the respondents had been in the field four years or less, 27% (N=62) five to nine years, 27% (N=62) 10 to 14 years, and 22% (N=51) for 15 years or more. No significant relationship existed between number of years in the field and degree of burnout (X^2 = 11.148; df 6, p = .084).

Caseload Size

Twenty-five percent of respondents (N=58) had caseloads between one and 15; 42% (N=97) between 16 and 30; 18% (N=41) between 31 and 45; and 15% (N=35) 46 or more. Caseload size increased with severity of burnout (See Table 4). Forty-four percent (N=27) of the moderate burnout group served caseloads of 32; 32% (N=36) of the mild group had caseloads larger than 31. Of the no-burnout group, 21% (N=12) managed caseloads of larger than 31. A significant relationship was found between caseload size and degree of burnout (X^2 = 18.098; df 8, p = .021).

Table 4. Degree of burnout by caseload size.

		1-15	16-30	31-45	46-60	60 or more	Total
Mod.	N	13	21	18	2	7	61
	%	5.80	9.38	8.04	0.89	3.12	27.23
Mild	N	23	52	20	8	8	111
	%	10.27	23.21	8.93	3.57	3.57	49.55
NBO	N	21	20	3	3	5	52
	%	9.38	8.93	1.34	1.34	2.23	23.21
Total	N	57	93	41	13	20	224
	%	25.45	41.52	18.30	5.80	8.93	100.00

Frequency Missing = 6

Statistic	DF	Value	Prob	
Chi-Square	8	18.098	0.021	
Likelihood Ratio Chi-Square	8	18.581		0.017

The severity of impairment of clients on caseload responses were collapsed into two main groups, moderate and severe. Very few respondents reported having mild cases. Seventy-three percent (N=168) of the respondents

reported a moderately impaired caseload, while 27% (N=62) reported one severely impaired client. Severity of client impairment was not significantly related to degree of burnout (X^2 = .718; df 2, p= .699).

Client Contact

Sixty nine percent (N=159) of the respondents worked primarily one-on-one clinically; 15% (N=35) spent the majority of their time with group therapy, and 16% (N=37) functioned basically in a consultative role. No significant relationship existed between degree of direct client contact and degree of burnout (X^2 = 3.241; df 4, p = .518).

Type of Impairment

The majority (75%, N=173) of speech-language pathologists in the survey managed clients predominantly presenting language impairments. Twenty percent (N=58) worked most often with articulation disorders, and 5% (N=11) noted voice and fluency cases as representing the bulk of their caseloads. Type of client disorder did not have a significant relationship with severity of burnout (X^2 = 3.599; df 6, p = .731).

Relationship With Colleagues and Clients

Fifty-two percent (N=120) of the respondents reported having "very good" working relations with colleagues; 36% (N=83) reported good relations; and 12% (N=28) reported "average" interaction. Fifty percent (N=31) of respondents in the moderate burnout category reported having very good relations with colleagues. Fifty-two percent (N=91) of the combined mild and moderate groups listed very good relations with clients, and 43% (N=75) reported good client relations. Remarkably, 95% (N=166) reported good to very good working relationships with their clients. Relationship with colleagues was not significantly related to degree of burnout (X^2 = 6.832; df 4, p = .145). Likewise, respondents noted very good relations with clients regardless of degree of burnout (X^2 = 4.342; df 4, p = .362).

Paperwork

Although it had been expected that the percentage of time devoted to paperwork would be significantly related to degree of burnout, no such finding was observed (X^2 = 11.767; df 8, p = .162).

Personal Lives

Thirty-three percent (N=76) of all respondents reported their jobs had a less than positive (i.e., "somewhat positive", or "negative") impact on their personal lives. Thirty-six percent (N=22) of the moderate burnout group reported their private lives had been negatively affected by the profession, whereas in the no-burnout group, no one noted that impression. Degree of burnout was shown to have a significant effect on respondents' personal lives (X^2 = 59.092; df 6, p = .000) (See Table 5).

Table 5. Degree of burnout by effect on personal life.

		Very Positive	Positive	Somewhat Positive	Negative	Total
Moderate	N	6	15	17	21	59
	%	2.63	6.58	7.46	9.21	25.88
Mild	N	13	69	23	9	114
	%	5.70	30.26	10.09	3.95	50.00
NBP	N	16	35	4	0	55
	%	7.02	15.35	1.75	0.00	24.12
Total	N	35	119	44	30	228
	%	15.35	52.19	19.30	13.16	100.00

Frequency Missing = 2

Statistic	DF	Value	Prob
Chi Square	6	59.092	0.001
Likelihood Ratio Chi-Square	6	0.994	0.001

Job Satisfaction

Eighty-five percent (N=52) of the moderate burnout group described various levels of satisfaction with their jobs: 37% (N=23) were "somewhat satisfied", 23% (N=14) were "somewhat dissatisfied", and 25% (N=15) were dissatisfied. Ninety-six percent (N=53) of the no-burnout group were satisfied or very satisfied with their jobs. A strong significant relationship was found between severity of burnout and job satisfaction (X^2 = 123.838; df 8, p = .000) (See Table 6).

Table 6. Degree of burnout by job satisfaction.

		Very Satisfied	Somewhat Satisfied	Satisfied	Somewhat Dissatis	Dissatis	Total
Moderate	N	0	9	22	14	15	60
	%	0.00	3.93	9.6	6.11	6.11	26.20
Mild	N	9	61	39	4	1	114
	%	3.93	26.64	17.03	1.75	0.44	49.78
NBO	N	19	34	1	1	0	55
	%	8.30	14.85	0.44	0.44	0.00	24.02
Total	N	2	104	62	19	16	229
	%	12.23	45.41	27.07	8.30	6.99	100.00

Frequency Missing = 1

Statistic	DF	Value	Prob
Chi-Square	8	125.838	0.001
Likelihood Ratio Chi-Square	8	131.948	0.001

Job Effectiveness

Within the moderate burnout group, 20% (N=12) felt ineffective at work and 70% (N=43) perceived themselves less than effective; 50% (N=31) were somewhat effective

and 20% (N=12) "ineffective". Of the mild burnout group, 46% (N=52) noted themselves less than effective on the job; 42% (N=48) were "somewhat effective", 4% (N=4) were "ineffective". All members of the no-burnout group identified their status as either "somewhat effective", "effective", or "very effective". The respondents' reports of job effectiveness were significantly related to degree of burnout ($X^2 = 40.454$; df 5, p = .000) (See Table 7).

Table 7. Degree of burnout by feeling of job effectiveness.

		Very Effective	Somewhat Effective	Effective	Ineffective	Total
Moderate	N	6	12	31	12	61
	%	2.6	5.2	13.54	5.24	26.64
Mild	N	7	54	48	5	114
	%	3.0	233.58	20.96	2.18	49.78
NBO	N	12	38	14	0	54
	%	5.24	12.23	6.11	0.00	23.58
Total	N	25	94	93	17	229
	%	10.92	41.05	40.61	7.42	100.00

Frequency Missing = 1

Statistic	D	Value	Prob
Chi-Square	6	40.454	0.001
Likelihood Ratio Chi-Square	6	41.580	0.001

Support Services

Availability of provisions for coping with burnout did not reveal any significant relationship with degree of burnout ($X^2 = 11.328$; df 6, p = .079) nor did geographical remoteness of the job site ($X^2 = 4.712$; df 4, p = .318).

Open-Ended Questions

The two open-ended questions were evaluated objectively to document response trends. The first requested respondents to discuss possible causes of their burnout not addressed previously by the survey. Thirty-six (21%) of the 175 respondents in the mild and moderate burnout categories reported program administration had adversely affected their job environments. The shift of service delivery from the Department of Education to the Department of Health and Communication Services in many provinces (i.e., Alberta, New Brunswick, P.E.I., and, to some degree, Manitoba and Ontario), which was discussed in many of the surveys, had reportedly culminated in a lack of supervision and a situation where direct supervision by a speech-language pathologist was rare. Many respondents expressed a paucity of support for, or understanding of, the SLP's job by administrators and other professionals and unclear administrative guidelines regarding the role of SLPs in the schools.

The secondary trend of response (N=20, 8%) reflected the issue of time. Many SLPs discussed not having enough time to be effective because caseloads were too large to manage adequately. Others reported an excess of unpaid overtime expended on paperwork. Although the relationship between paperwork and degree of burnout was not significant, it was still identified often as a probable negative job component contributing to burnout. The feeling of not being able to accomplish tasks optimally due to lack of manpower, overwhelming waiting lists, and lack of time to contact parents to develop home programs were also reported frequently.

Other reasons related to burnout were identified as: too much travel time (N=8), lack of progress seen in clients (N=5), and tension due to job cuts (N=3). Although geographical remoteness was not seen as a significant factor relating to degree of burnout, it may be a contributing issue for those professionals who spend considerable time driving to locations of responsibility. Such stress could also be exacerbated by winter driving conditions.

Three respondents cited frustration at being required to remain current in every diverse area of the field without feeling completely competent in any.

The replies to the question "If you sensed burnout occurring, what did you do to manage it?" revealed that seventy-eight (34%) individuals were confronting burnout by making positive changes in the workplace such as: talking with supervisors and peers, exchanging caseloads, collaborating with other professionals, setting realistic expectations of themselves, and creating new programs to effectively serve more people. A large group (N=43, 19%) dealt with burnout by spending or planning vacations, taking time off to have families, and making use of sick leave as necessary. Twenty-six (11%) of the respondents spent more energy on life outside of work rather than dwelling exclusively upon occupational stresses. These diversions included hobbies and family activities. Seven respondents sought professional help through psychologists, counselors, and stress management trainers.

Discussion and Conclusions

The results of the study suggested the majority of Canadian SLPs (76%) belonging to the Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA), have been experiencing some degree of burnout at either the mild or moderate level. None reported undergoing the effects of severe burnout. Amount of burnout was significantly related to gender, caseload size, effect on personal lives, job satisfaction, and job effectiveness.

That more males than females experienced burnout was surprising in view of past findings that burnout cuts across demographic characteristics. That is, it affected individuals regardless of age, sex, length of time on the job, marital status, number of dependents, and hours worked per week (McDermott, 1984).

With the exception of gender and caseload size, the survey results strongly supported those found with members of the American Speech-Language-Hearing Association (ASHA) (Miller and Potter, 1982). Although Canadian speech-language pathologists were not experiencing the same severity of burnout that Americans did in the 1982 study, the same factors of job dissatisfaction, feeling of job ineffectiveness, and negative effects of job status on personal life were all significantly related to burnout.

American speech-language pathologists affiliated with ASHA reported the lack of provisions for managing burnout as a significant factor contributing to degree of burnout. The same relationship was not found in the Canadian survey ($p > .05$), although the majority of respondents (57%) reported that few or no services were available in the workplace to alleviate burnout. Only 7% of the respondents noted provisions were "very available", but many (34%) reported dealing with burnout by speaking with supervisors, changing caseloads and schedules, and developing new programs. Despite the lack of availability of formal services, the SLPs were apparently managing burnout by directly confronting possible job sources.

In general, our data suggested a profile of the speech-language pathologist in CASLPA who is more likely to experience a mild or moderate degree of burnout. That person has a large caseload, has some job dissatisfaction, feels a degree of ineffectiveness on the job, and is undergoing some negative effects of job status upon her or his personal life. Regardless of these, this SLP will have positive relationships with clients and colleagues.

It is the accumulation of stressful factors that reduces one's resistance to burnout rather than one specific factor (Hock, 1988). Further research is needed to determine exact stressors within the field of speech-language pathology and in what contexts they exist. The open-ended questions have revealed some important trends and may supply future investigators with a number of areas to probe. For example, further investigation is necessary to identify trends in work locations and to reveal situations where a beginning clinician is less likely to have direct supervision by a speech-language pathologist. Further research is also needed to identify more specific causal factors and subsequent support systems (e.g., 40% of those experiencing moderate burnout reported that no formal support provisions were available in the workplace). As stated earlier, burnout can result in departure from the field. When that occurs, burnout no longer affects just the individual, but the entire profession (Hock, 1988).

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