

Cross-cultural alexithymia Validity of the 20-item Toronto Alexithymia Scale in North American aboriginal populations

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Received 1 December 2003; accepted 16 June 2004

Abstract

Objective: The generalizability of the alexithymia construct to North American aboriginal culture was examined by assessing the replicability of the factor structure of the 20-item Toronto Alexithymia Scale (TAS-20) in two different adult samples. The study also assessed the reliability of the scale and the influence of gender, age, and education on alexithymia levels. **Method:** The first sample was a community-based group of 123 aboriginal men and women; the second sample was 102 male aboriginal offenders. Both samples completed the TAS-20. **Results:** The

replicability of the three-factor structure for the TAS-20 was supported in both groups using confirmatory factor analysis (CFA). The TAS-20 and its three factors demonstrated adequate internal reliability, and the variables of gender, age, and education accounted for small or nonsignificant amounts of variability in total TAS-20 and factor scale scores. **Conclusion:** The results provide additional support for the factorial validity of the TAS-20 in diverse cultural groups.

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Keywords: Aboriginals; Alexithymia; Cross-cultural; Toronto Alexithymia Scale

Introduction

Sifneos [1] coined the word *alexithymia* to describe a constellation of behaviors he often observed in individuals experiencing various psychosomatic health problems. Over the past three decades the personality construct of alexithymia has come to be defined by the following basic features: difficulty identifying feelings and distinguishing between these feelings and the bodily sensations of emotional arousal; difficulty describing feelings to others; constricted imaginal processes; and a stimulus-bound, externally orientated cognitive style [2]. Although initially linked with individuals experiencing psychosomatic problems [3], alex-

ithymia has come to be associated with a variety of clinical disorders, such as substance use disorders, eating disorders [2], and problem gambling [4]. Within various nonclinical populations, alexithymia has also been associated with a variety of health, lifestyle, and interpersonal problems. For example, Kauhanen et al. [5], while studying a large population-based sample, found alexithymia to be associated with being single and socially isolated. Kokkonen et al. [6] found a similar pattern in a younger population-based sample. Helmers and Mente [7], also using a sample of young men, found alexithymia to be associated with maladaptive health behaviors like poor nutritional consumption and a sedentary lifestyle. Waldstein et al. [8] have found evidence that these types of maladaptive behaviors continue to be associated with alexithymia in older adults.

An important research question in the alexithymia literature continues to be whether the construct generalizes across diverse cultural groups [9,10]. A number of writers

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have suggested that alexithymia may be a culture-bound construct that reflects an emphasis among European and North American health care professionals on introspection and psychological mindedness [11–13]. A case in point is whether the alexithymia construct can generalize to North American aboriginal culture, where previous writers have identified a constellation of socialization variables quite different from those dominate in nonaboriginal culture [14,15]. Aboriginal culture places greater emphasis than do other cultural groups on collective behavior; the cultural ideal is to succeed in life as part of a group and family. North American aboriginals often perceive less distinct boundaries between the self and other [16]. To date, the generalizability of the alexithymia construct in North American aboriginal culture has not been examined. This is particularly unfortunate because the members of this cultural group appear to be at greater risk than are other groups for many health problems that have been linked with alexithymia [17].

Aboriginals living in Canada and the United States have been shown to have a greater likelihood of various chronic health problems. For example, aboriginal adults are at greater risk for diabetes [18,19] and heart disease [19] than nonaboriginal adults are. The number of new cases of HIV/AIDS is also increasing at a greater rate among North American aboriginals compared with non-aboriginal groups [20]. Aboriginal samples have been found to have higher rates of drug abuse [17,21], alcoholism [21,22], and pathological gambling [23] than their nonaboriginal counterparts do.

A number of explanations have been offered for the higher levels of health-care problems in North American aboriginal groups. For example, the high prevalence of various health problems may be a result of the low socioeconomic status found in many aboriginal groups. North American aboriginals have been found to have higher levels of undereducation, unemployment, and poverty [17,20]. These factors may also help explain the higher rates of violence and crime found in aboriginal communities. Aboriginal individuals are overrepresented in the prison system [24,25], with the majority of offences being violent in nature [26]. Not only is there a greater proportion of aboriginal women who have experienced violence (predominantly domestic) than of nonaboriginal women [20], but aboriginal men have also been found to experience more violence than nonaboriginal men do [27].

The search for other factors to explain these cultural differences in health-related variables is still very much in its infancy [16,28]. Given the pattern of mental and physical health problems prevalent in North American aboriginal populations, the study of personality vulnerability factors like alexithymia might prove useful. Before this type of research is undertaken, however, special care needs to be directed at the validity of relevant tests and measures [29]. Researchers should not assume that measures developed primarily with North American nonaboriginal groups

will automatically generalize to aboriginal populations [28,30,31].

The purpose of the present study was to investigate the generalizability of the alexithymia construct to North American aboriginal culture. The most commonly used instrument for assessing alexithymia is the 20-item Toronto Alexithymia Scale (TAS-20; [32,33]). This instrument has been shown to be a reliable and valid measure, with a replicable three-factor structure. Taylor et al. [9] recently reviewed findings from studies that examined the factorial validity of the TAS-20 in various distinct cultural groups. The TAS-20 has been translated adequately into 18 different languages and evaluated by confirmatory factor analysis (CFA) in 19 different countries. The present study sought to examine the replicability of the factor structure among two different aboriginal samples. The first was a community-based sample of men and women, while the second was a sample of male offenders. The internal reliability of the TAS-20 and its three factors was also assessed, as well as the influence of gender, age, and education on TAS-20 scores.

Method

Participants

The first sample consisted of 123 aboriginal adults (48 men and 75 women) residing in several towns and cities in Ontario, Canada. The mean age of the sample was 33.9 (S.D.=12.58) years for men and 30.5 (S.D.=11.83) years for women. The mean years of education of the sample was 14.3 (S.D.=2.50) years for men and 14.4 (S.D.=2.11) years for women. The second sample was comprised of 102 aboriginal men residing in one of five medium- or maximum-security prisons located in Ontario, Canada. The mean age of the sample was 35.3 (S.D.=12.10) years and the mean years of education was 10.5 (S.D.=1.78).

The vast majority of participants in both samples come from one of three distinct aboriginal cultural groups with contrasting sociocultural and historical origins. The use of exact geographic locations and formal tribal names has been avoided in the present study. This practice is consistent with a convention that has been adopted by other investigators of North American aboriginals to prevent the stigmatization of specific cultural communities [30,34].

Measures

All of the participants completed the TAS-20 [32,33]. The TAS-20 is a self-report measure consisting of 20 items that respondents rate on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The TAS-20 has a three-factor structure, including seven items that assess a difficulty identifying feelings factor (Factor 1), five items that assess a difficulty describing feelings factor (Factor 2), and eight items that assess an externally oriented thinking factor

(Factor 3). The TAS-20 has been shown to be a reliable and valid measure of the alexithymia construct [9,32,33,35]. For respondents completing the instrument in English [35], individuals with an overall TAS-20 score of ≥ 51 can be considered “nonalexithymic”, while individuals with an overall score of ≥ 61 can be considered “alexithymic”.

Procedure

The community-based sample was recruited to participate in a study on “personality” from students and staff-members at a small university in Central Ontario, as well as nonstudent members of the local community. All of the participants were volunteers and completed the TAS-20 under the supervision of one of the authors.

The prison sample consisted of aboriginal offenders in one of several medium and maximum institutions in the province of Ontario. All of the participants were volunteers and completed the TAS-20 as part of a study on the emotional and social competency of aboriginal offenders. The majority of participants completed the TAS-20 individually, in special testing rooms at the prison, under the supervision of one of the authors. A small number of prisoners completed the TAS-20 in their individual cells and returned the instrument directly to one of the authors.

Statistical procedure

The three-factor structure of the TAS-20 was tested in the two aboriginal samples using CFA procedures with Statistica Version 6 [36]. CFA offers a variety of statistical tests and indices designed to assess the goodness-of-fit of data to a proposed model [37,38]. The present study used a broad range of indices because each type has potential strengths and weaknesses: the goodness-of-fit index (GFI; [39]), the adjusted goodness-of-fit index (AGFI; [39]), the nonnormed fit index (NNFI; [40]), the comparative fit index (CFI; [37]), and the root-mean-square residual (RMS; [37]). Based on the recommendations of several researchers [37,41–43], the following criteria were used to evaluate the goodness-of-fit of the three-factor model: $GFI > 0.85$, $AGFI > 0.80$, $NNFI > 0.90$, $CFI > 0.90$, and $RMS < 0.10$. Both samples ($n = 123$ and 102) were also large enough to permit the use of CFA [43].

Results

The three-factor structure of the TAS-20 was found to have good fit to the data from the community-based aboriginal sample: $GFI = 0.93$, $AGFI = 0.91$, $NNFI = 0.97$, $CFI = 0.97$, and $RMS = 0.09$; as well as from the forensic aboriginal sample: $GFI = 0.94$, $AGFI = 0.92$, $NNFI = 0.92$, $CFI = 0.93$, and $RMS = 0.08$. The item to factor parameter estimates for the two samples are presented in Table 1. All parameter estimates, for both samples, were significant

Table 1

Parameter estimates from the confirmatory factor analyses in the community-based ($n = 123$) and forensic ($n = 102$) aboriginal samples

Items	Parameter estimates	
	Community-based	Forensic
<i>Factor 1: Difficulty describing feelings</i>		
(1) Confused about emotion feeling	0.67	0.69
(3) Physical sensations doctors don't understand	0.36	0.56
(6) I don't know if I am sad or angry	0.57	0.68
(7) Puzzled by sensations	0.75	0.70
(9) Have feelings I can't identify	0.78	0.85
(13) Don't know what's going on inside	0.73	0.76
(14) Don't know why I am angry	0.77	0.56
<i>Factor 2: Difficulty describing feelings</i>		
(2) Difficulty to find the right words	0.73	0.87
(4) Able to describe my feelings	0.59	0.34
(11) Hard to describe how I feel about people	0.66	0.46
(12) People tell me to describe my feelings	0.50	0.33
(17) Difficult to reveal my innermost feelings	0.53	0.59
<i>Factor 3: Externally oriented thinking</i>		
(5) Prefer to analyze problems	0.26	0.23
(8) Prefer to just let things happen	0.45	0.65
(10) In touch with emotions is essential	0.60	0.41
(15) Prefer talking to people about activities	0.91	0.37
(16) Prefer “light” entertainment	0.44	0.25
(18) Feel close to someone even in silence	0.34	0.50
(19) Find examination of feelings useful	0.38	0.51
(20) Looking for hidden meanings distracts	0.41	0.25

All parameter estimates are significant ($P < .05$).

($P < .05$). The parameter estimates between Factors 1 and 2 was 0.78 ($P < .05$) for the community-based sample and 0.76 ($P < .05$) for the forensic sample; between Factors 1 and 3 was 0.43 ($P < .05$) for the community-based sample and 0.58 ($P < .05$) for the forensic sample; and between Factors 2 and 3 was 0.64 ($P < .05$) for the community-based sample and 0.73 ($P < .05$) for the forensic sample.

For the forensic and community-based samples, the correlations between the various TAS-20 variables and age and years of education were low and nonsignificant ($P > .05$). The means, standard deviations, internal reliability coefficients, and mean interitem correlations for the TAS-20 and its three factors are presented in Table 2. This information is presented separately for the forensic sample, community-based aboriginal men only, community-based aboriginal women only, and the community-based aboriginal combined. To compare results with a large North American nonaboriginal sample, Table 2 also presents results for the large set of TAS-20 data reported by Parker

Table 2

Means, standard deviations (S.D.), internal reliability coefficients (IRC), and mean interitem correlations (MIC) for the TAS-20

	Factor 1	Factor 2	Factor 3	TAS-20
<i>Forensic aboriginal men (n = 102)</i>				
Mean (S.D.)	16.47 (6.42)*	14.79 (3.91)*	21.95 (4.63)*	53.22 (12.18)*
IRC	0.86	0.63	0.60	0.85
MIC	0.48	0.26	0.16	0.22
<i>Community-based aboriginal men (n = 48)</i>				
Mean (S.D.)	14.04 (5.04)	12.56 (3.95)	19.73 (5.51)	46.33 (11.43)
IRC	0.82	0.66	0.75	0.85
MIC	0.41	0.29	0.31	0.24
<i>Community-based aboriginal women (n = 75)</i>				
Mean (S.D.)	15.32 (6.33)	12.75 (4.68)	19.67 (5.55)	47.73 (12.97)
IRC	0.85	0.77	0.71	0.86
MIC	0.46	0.41	0.24	0.26
<i>Community-based aboriginal sample (men and women combined; n = 123)</i>				
Mean (S.D.)	14.82 (5.87)	12.67 (4.40)	19.69 (5.51)	47.17 (12.37)
IRC	0.84	0.74	0.72	0.86
MIC	0.44	0.37	0.26	0.24
<i>Community-based nonaboriginal (men and women combined; n = 1910)</i>				
Mean (S.D.)	14.37 (5.21)	12.49 (4.20)	18.70 (4.72)	45.56 (11.35)
IRC	0.80	0.77	0.71	0.86
MIC	0.37	0.40	0.24	0.23

Community-based nonaboriginal sample is taken from Parker et al. [33].

* Forensic aboriginal men ≠ community-based aboriginal men ($P < .05$).

et al. [33]. The original sample consisted of 1933 adults, although the data reported in Table 2 use only the 1910 respondents who identified themselves as nonaboriginal.

For the community-based sample, aboriginal men and women did not differ on the total TAS-20 or the three factors ($P > .05$). When the means for the total community-based sample of aboriginal adults ($n = 123$) were compared with means from the large nonaboriginal sample ($n = 1910$) reported by Parker et al. [33], the groups did not significantly differ on the total TAS-20 or the three factors ($P > .05$).

A different pattern of results was found when TAS-20 scores were compared between the forensic aboriginal and the community-based samples of aboriginal men. The forensic sample scored significantly higher than the community-based sample did on the difficulty identifying feelings factor [$t(148) = 2.31, P < .05$], difficulty describing feelings factor [$t(148) = 3.25, P < .05$], externally oriented thinking factor [$t(148) = 2.58, P < .05$], and the total TAS-20 [$t(148) = 3.29, P < .05$]. In addition, when cut-off scores were applied to the total TAS-20, there were significantly [$\chi^2(2) = 11.22, P < .05$] more alexithymic individuals in the forensic sample of aboriginal men (33.3%) compared with the community-based sample of aboriginal men (8.3%).

Discussion

The overall results of the present study provide empirical support for the validity of the three-factor structure of the TAS-20 using North American aboriginal respondents. This structure was replicable in a community-based sample of men and women, as well as in a sample of male aboriginal offenders. The parameter estimates for the relationships among the three factors provide solid evidence that the factors reflect three separate, yet empirically related, facets of the alexithymia construct. The overall CFA results are also consistent with a recent review of results from various cross-cultural studies [9] that demonstrates good support for the generalizability of the three-factor structure of TAS-20 across diverse languages and cultures.

There were three items from the TAS-20 that produced parameter estimates lower than desirable. Item 5 (“I prefer to analyze problems rather than just describe them”) was low in both samples (0.26 for community-based sample and 0.23 for the forensic sample). The reason for these low values are unclear, although it should be noted that in a recent CFA of the TAS-20 with a large community-based sample [33], Item 5 had the lowest parameter estimate of all items on the instrument (0.36). Items 16 (“I prefer to watch light entertainment shows rather than psychological dramas”) and 20 (“Looking for hidden meanings in movies or plays distracts from their enjoyment”) also produced less than desirable parameter estimates, but only in the forensic sample (0.25 for both items). Both items ask respondents to reflect or comment on their entertainment preferences. The low parameter estimates for these items are likely the result of the restricted access that individuals in a forensic setting have to various forms of entertainment. It is worth noting that in the only other published study examining the factor structure of the TAS-20 in a forensic sample [44], Items 16 and 20 had exceedingly low communalities (0.096 and 0.038, respectively) when the items on the scale were subjected to an exploratory factor analysis (with two rotated factors).

The internal reliabilities for the total TAS-20 were highly consistent across samples (.85 to .86), as were several of the subscales. The homogeneity of the full and the factor scales was also confirmed by the mean interitem correlations, which tended to fall within the optimal range of .20 to .40 [33]. A recent review of psychometric research on the TAS-20 [33] has noted that some estimates of the internal reliability of Factor 3 have been below the generally recommended standard of $> .70$ [45]. The relatively low alpha coefficient for Factor 3 in the forensic sample was likely the result of the presence of the two entertainment-related items discussed earlier because the alpha for Factor 3 in the community-based sample was .72 (slightly above the level found in the large community-based nonaboriginal sample).

Previous research examining levels of alexithymia in forensic populations have produced contradictory results. Kroner and Forth [44], using the TAS-20 in a large sample

of male offenders, reported a mean of 47.5 for the total TAS-20. The magnitude of the mean is virtually identical to one (47.3) reported in a large community-based sample of men [33]. Louth et al. [46], using the original 26-item TAS [47] with a relatively small sample of female offenders, report a mean for the total TAS much higher than the mean reported with women from community-based samples [48]. The present study found results very consistent with Louth et al. [46]; the forensic sample was significantly higher than the community-based sample on all TAS-20 variables. The discrepancy in alexithymia levels across the forensic samples is likely the result of important methodological differences. For Kroner and Forth [44], the TAS-20 was administered as part of an intake assessment conducted with the prisoners at the start of their prison sentence. In Louth et al. [46] and the present study, participants were all volunteers who were in various stages of their prison sentences. It is worth noting that Louth et al. [46] report a prevalence rate for alexithymia (33%) that is identical to one found in the present study.

Although the results of the present study support the use of the TAS-20 in North American aboriginal populations, future research should examine the validity of the instrument using aboriginal respondents. It is not clear at the present time, for example, whether the cutoff scores for the TAS-20 have the same clinical utility in aboriginal respondents as they do for other respondents [35]. It would also be desirable to explore the generalizability of the concept of alexithymia in a broader range of aboriginal cultures and using a broader range of measurement approaches [49]. Since North American aboriginal groups appear to be at greater risk than other North American groups are [17] for many health-related problems linked with alexithymia [1–8], future research is also warranted on the link between alexithymia and specific health problems in aboriginal populations.

Acknowledgments

This study was supported by research grants to the first author from the Social Sciences and Humanities Research Council of Canada (SSHRC), the Ontario Government's Premier's Research Excellence Award program, and the Canadian Foundation for Innovation (CFI), as well as Ontario Graduate Scholarships (OGS) to the third and fourth authors.

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