On the social cost of interdependence: Alexithymia is enhanced among socially interdependent people

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ABSTRACT

We examine the link between self-construal and alexithymia, a personality trait related to low emotional regulation abilities. People with independent self-construals think of themselves in terms of their uniqueness from others, while people with interdependent self-construals see themselves as a part of an interconnected social context. In two studies we examined how self-construal is related to one's ability to identify and label emotions, and externally-oriented thinking (i.e. alexithymia). In both studies, we find that higher alexithymia is associated with lower independence and increased interdependence. In addition, Asian-Americans score higher in alexithymia as compared to Caucasians. We also control for mood, self-esteem, and ethnocultural background, and discuss implications of the current findings.

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1. Introduction

Words are not always necessary to communicate feelings. Whether in the supermarket or in the shower, most people are experiencing some sort of affective state, most of the time. And regardless of our intentions, these feelings are conveyed to others by subtle changes in one's body language such as posture, tone of voice, and facial expressions. Perhaps the most direct way to communicate feelings is to simply state them. In order to do this, one must be able to easily access to an emotional vocabulary.

In this paper, we posit that there are certain people for whom emotional language is more or less likely to richly develop, because of different developmental and sociocultural contexts that create different ways of perceiving the self in relation to others (i.e. self-construal). There are two main types of self-construal: independent and interdependent (Markus & Kitayama, 1991). People with *independent* self-construals think of themselves in terms of their stable traits and their separateness and uniqueness from others. They act in accordance with their feelings and personal attributes. People with *interdependent* self-construals think of themselves in terms of their connectedness to and unity with

others. As such, they act in accordance with their group roles, and relationships, and status (Singelis, 1994). People from more *individualistic cultural backgrounds* (e.g. European Americans) score higher in independent self-construal, and those from more *collectivist cultural backgrounds* (e.g. East Asians) score higher in interdependent self-construal (Oyserman, Coon, & Kemmelmeier, 2002; Triandis, 1995), although individuals within each culture can vary in their level of independent and interdependent self-construal.

Self-construal is related to specific cognitive, emotional, and motivational outcomes (see Markus & Kitayama, 1991, for a review). Most relevant to this paper is its relationship to emotional experience. In the current paper, we examine how self-construal relates to one's ability to identify and describe emotions (i.e. alexithymia; Taylor & Bagby, 2000; Taylor, Bagby, & Parker, 1997).

There is ample evidence for the benefits of being able to easily label one's feelings, at least in a Western context (e.g. Pennebaker, 1997). Higher alexithymia is associated with negative psychological outcomes including increased depression, anxiety disorders, eating disorders, somatoform disorders, and substance abuse disorders (Cox, Kuch, Parker, Shulman, & Evans, 1994; De Gennaro, Curcio, and Ferrara, 2004; Honkalampi, Hintikka, Tanskanen, Lehtonen, & Viinamaki, 2000; Jimerson, Wolfe, Franko, Covino, & Sifneos, 1994; Parker, Taylor, & Bagby, 1993; Taylor, Bagby, Ryan, & Parker, 1990). Negative physical health outcomes include increased hypertension and gastrointestinal problems (Jula,

Salminen, & Saarijarvi, 1999; Porcelli, Leoci, Guerra, Taylor, & Bagby, 1996; Todarello, Taylor, Parker, & Fanelli, 1995).

How might we expect self-construal to be related to alexithymia? On the one hand, more interdependent people (and those from interdependent ethnocultural backgrounds) might be skilled at identifying and describing their emotional states because of the primacy they place on connecting and fitting in with others. In fact, this hypothesis rests on the assumptions that articulating one's feelings is both desirable and necessary for smooth interpersonal relations. However, these assumptions are easily dismissed. First, not all feelings are created equally, and negative ones (e.g. anger, jealousy) have the potential to be interpersonally disruptive. Second, as previously mentioned, much emotional information can be conveyed through body language, without emotional words. Emotional words, then, may actually be *less* needed to communicate emotional information in contexts that are higher in interpersonal sensitivity.

Taken together, there is reason to expect that more interdependent people might actually be less skilled at identifying and describing their emotions than more independent people. Research supports such a hypothesis. For example, those high in independent self-construal are concerned with assertiveness and expressions of emotion (Markus & Kitayama, 1991), therefore we would expect them to be more proficient in identifying and describing their own emotions (i.e. they should score low in alexithymia). Those high in interdependent self-construal are concerned with maintaining group harmony and interpersonal relationships (Markus & Kitayama, 1991). One strategy to maintain harmonious social relationships might be to inhibit certain expressions of emotion, especially ones that might lead to potential confrontations or conflicts.

We next review evidence that people from relatively more interdependent cultures may have more difficulty identifying and describing emotions. Matsumoto and Kishimoto (1983) compared the *emotional identification* abilities of American and Japanese children and found that Japanese children had more difficulty recognizing angry facial expressions compared to Americans. They suggest that this may be because Japanese parents socialize their children from a very young age to avoid expressions of socially inharmonious emotions like anger.

Liu (1986) argues that the high importance in Chinese culture to be continually mindful of other people can have constraining effects on people's verbal fluency, and that this attention to others *inhibits assertive expressions of feelings* (Liu, 1986, p. 80, 84). Indeed, there is evidence that Japanese adults are less likely to be aware of and use affective terms when communicating with others (Bainbridge-Frymier, Klopf, & Ishii, 1990), and also report expressing emotions less frequently and feeling them less intensely than Americans (Matsumoto, Kudoh, Scherer, & Wallbott, 1988). Taken together, we predict that those who are high in interdependence will report difficulty in identifying and describing emotions.

While no research that we are aware of explicitly examines the relationship between self-construal and alexithymia, some research has examined the relationship between alexithymia and ethnocultural background. For example, Asians of various backgrounds have been found to score higher in alexithymia than Caucasians (Dion, 1996; Le, Berenbaum, & Raghavan, 2002; Zhu et al., 2007). This is likely because people from more collectivistic cultural backgrounds are less psychologically-minded than those from more individualistic ones (Dion, 1996).

We reviewed relevant research which suggested that more interdependent people (and those from interdependent ethnocultural backgrounds) may have difficulty identifying and describing emotions, however, as previously mentioned, it is also possible that more interdependent people might be better at attending to other people's emotions in order to enhance smooth social

relations. At present, this is an empirical question that our paper can address.

1.1. Overview

The purpose of these studies is to better understand the emotional abilities of more independent and interdependent people. In (Section 2), a predominantly Caucasian online adult sample of participants completed a measure of alexithymia (Bagby, Parker, & Taylor, 1994a, 1994b), self-construal (Singelis, 1994), and positive and negative mood (Watson, Clark, & Tellegen, 1988). In Section 3, a more ethnically diverse college student and community sample completed measures of alexithymia and self-construal, and also a self-esteem measure. We expected alexithymia to be associated with higher interdependence and lower independence. We also expected to replicate the past findings that Asians would score higher in alexithymia than Caucasians (Section 3).

2. Study 1

2.1. Method

2.1.1. Participants

Participants were 130 adults (50.8% women; M_{age} = 46.4, SD = 12.7) who received payment in exchange for their voluntary participation.[1] They were recruited from Study Response, an online social science recruitment service, after obtaining ethics approval from the University of Michigan Institutional Review Board. The ethnic composition was: 114 Caucasian, 4 Asian / Asian-American, 3 Hispanic-American, 5 African-American, and 2 Other / Multiracial. Over 95% of the participants were born in the United States (N = 124) and learned English as their first language (N = 126).

2.1.2. Procedure

Participants completed a questionnaire that contained measures of alexithymia, self-construal, mood, and a few unrelated filler items to disguise the purpose of the study. Alexithymia was measured using the Toronto Alexithymia Scale (TAS-20: M = 2.40, SD = .63; Bagby et al., 1994a, 1994b), which consists of 20 items (e.g. "*I am often confused about what emotion I am feeling*"; 1 = Disagree strongly to 5 = Agree strongly). Alexithymia has three subscales: Difficulty Identifying Feelings (M = 2.07, SD = 1.05), Difficulty Describing Feelings (M = 2.34, SD = .95), and Externally-Oriented Thinking (M = 2.72, SD = .42). Self-construal was assessed using the Self-Construal Scale (SCS: Singelis, 1994). It consists of 24 items, 12 that measure interdependent self-construal (e.g., "*It is important to me to respect decisions made by the group*"; M = 3.19, SD=.89), and 12 that measure independent self-construal (e.g., "*I enjoy being unique and different from others in many respects*"; 1 = Strongly Disagree to 7 = Strongly Agree; M = 2.61, SD = .84). Mood was measured using the Positive and Negative Affect Schedule (PANAS: Watson et al., 1988). The measure consists of 20 positive (e.g. enthusiastic, proud; M = 2.88, SD = .95) and negative (e.g. irritable, nervous; M = 1.50, SD = .80) items which participants rate to describe their current mood (1 = Very slightly or Not at all to 5 = Extremely).

2.1.3. Results and discussion

We conducted a regression analysis using SPSS 17.0 with independent and interdependent self-construal as predictors of

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Table 1
Regression coefficients for relationship between alexithymia and self-construal in Section 2.

	Alexithymia Total	Difficulty identifying feelings	Difficulty describing feelings	Externally-oriented thinking
Regression Model 1: Independent and interdependent self-construal as simultaneous predictors of alexithymia				
Independent self-construal	−0.38[**]	−0.32[**]	−0.42[**]	−0.12
Interdependent self-construal	0.38[**]	0.29[**]	0.46[**]	0.13
Model statistics	Adjusted R^2 = .15, $F_{(2,120)}$ = 11.5, p < .001	Adjusted R^2 = .09, $F_{(2,120)}$ = 7.1, p = .001	Adjusted R^2 = .21, $F_{(2,120)}$ = 17.3, p < .001	Adjusted R^2 = .002, $F_{(2,120)}$ = 1.1, p = .33
Power	.996	.947	.999	.261
Regression Model 2: Step 1: Positive and negative mood as covariates				
Step 2: Independent and interdependent self-construal as simultaneous predictors of alexithymia				
Positive Mood	−0.25[**]	−0.19[*]	−0.24[**]	−0.16
Negative Mood	0.43[**]	0.47[**]	0.24[**]	0.21[*]
Independent self-construal	−0.38[**]	−0.31[**]	−0.45[**]	−0.14
Interdependent self-construal	0.23[*]	0.14	0.35[**]	0.05
Model Statistics	Adjusted R^2 = .33, $F_{(4,117)}$ = 15.6, p < .001	Adjusted R^2 = .30, $F_{(4,117)}$ = 13.7, p < .001	Adjusted R^2 = .28, $F_{(4,117)}$ = 12.8, p < .001	Adjusted R^2 = .04, $F_{(4,117)}$ = 2.2, p = .07
Power	1.00	.999	.999	.700

Note. N = 130. Post-hoc power analyses were conducted with an online power calculator (Soper, 2010).
[*] p < .05.
[**] p < .01.

alexithymia overall and its three subscales. As can be seen from Table 1, people scoring high in alexithymia score lower in independence and higher in interdependence. This pattern was similar for Difficulty Identifying Feelings and Difficulty Describing Feelings. However, there was no significant relationship between independent or interdependent self-construal and Externally-Oriented Thinking.

We next conducted a stepwise linear regression with positive and negative mood entered into the first step of the regression model (i.e. as covariates) and both types of self-construal entered into the second step (see Table 1 for coefficients). Alexithymia was associated with a less positive mood and a more negative one, justifying mood as a covariate. All three alexithymia subscales showed this pattern significantly with the exception of Externally-Oriented Thinking and positive mood, which was non-significant (p = .12). Notably, the pattern of results for self-construal and alexithymia remained similar, with one exception. Interdependent self-construal was still positively related to Difficulty Identifying Feelings, but the coefficient was reduced to non-significance when controlling for mood.

In an online sample of adults, we find preliminary evidence that high interdependence and low independence are associated with alexithymia overall, even when controlling for positive and negative mood. A similar pattern emerges for Difficulty Describing Feelings. However, the pattern for Difficulty Identifying Feelings (DIF) is less consistent. When controlling for mood, interdependent self-construal is no longer related to DIF, suggesting that participants' mood state influences the relationship between interdependence and DIF. As for the third subscale, Externally-Oriented Thinking, no significant relationship emerges between it and self-construal.

In Section 2, our sample was predominantly Caucasian, making it difficult to know to what extent our findings generalize to people from other ethnocultural backgrounds. In addition, we did not include a measure of self-esteem, which is problematic because past research has found that self-esteem is correlated with both self-construal and alexithymia (e.g. Singelis, Bond, Sharkey, & Lai, 1999; Wearden, Lamberton, Crook, & Walsh, 2005; Yelsma, 1995). Thus, in Section 3 we also include a measure of self-esteem and we recruited a more ethnically diverse sample.

3. Study 2

3.1. Method

3.1.1. Participants

Participants were 196 students and community participants (64.3% women; M_{age} = 22.9, SD = 6.5) who received payment in exchange for their voluntary participation.[1] The ethnic composition was: 84 Caucasian, 81 Asian / Asian-American, 8 Hispanic-American, 16 African-American, and 5 Other / Multiracial. Approximately 70% of the participants were born in the United States (N = 136) and learned English as their first language (N = 141).

3.1.2. Procedure

As in Section 2, participants completed the TAS-20 (Bagby et al., 1994a, 1994b;: $Ms.$ for Total, DIF, DDF, and EOT = 2.50, 2.13, 2.64, 2.73; SDs = .53, .79, .92, .49) and the SCS (Singelis, 1994; $Ms.$ for IND and INTER = 4.78 and 4.87, SDs = .90 and .82). For half of participants, self-esteem was assessed using the Self-Esteem Scale (Rosenberg, 1965), which consists of 10 items (e.g., "I take a positive attitude toward myself" and "On the whole, I am satisfied with myself"), that were scored using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). For the other half we used the Single-Item Self-Esteem Scale (Robins, Hendin, & Trzesniewski, 2001), which consists of a single-item: "To what extent do you agree with this statement: 'I have high self-esteem'" (1 = *not very true of me*, 11 = *very true of me*). Two measures were used because this sample originally consisted of two studies. We standardized the two measures by first converting them to Z-scores, and then combining them into a single data file for analysis (M = 0.0, SD = 1.0).

3.1.3. Results and discussion

We again conducted the same initial analysis as in Section 2. As can be seen from Table 2, more independent participants scored lower in alexithymia overall, and more interdependent participants scored higher in it. This replicates our previous finding that high alexithymia participants are low in independence and high in interdependence. This pattern was similar for Difficulty Identifying Feelings and Difficulty Describing Feelings. However, while more independent participants scored lower in Externally-Oriented

Table 2
Regression coefficients for relationship between alexithymia and self-construal in Section 3.

	Alexithymia total	Difficulty identifying feelings	Difficulty describing feelings	Externally-oriented thinking
Regression Model 1: Independent and interdependent self-construal as simultaneous predictors of alexithymia				
Independent self-construal	−0.32**	−0.18*	−0.32**	−0.23**
Interdependent self-construal	0.13*	0.14*	0.17*	−0.04
Model Statistics	Adjusted R^2 = .12, $F(2,189)$ = 13.8, p < .001	Adjusted R^2 = .05, $F(2,189)$ = 5.9, p = .003	Adjusted R^2 = .13, $F(2,189)$ = 15.5, p < .001	Adjusted R^2 = .04, $F(2,189)$ = 5.2, p = .006
Power	.999	.890	.999	.851
Regression Model 2:				
Step 1: Self-esteem as a covariate				
Step 2: Independent and interdependent self-construal as simultaneous predictors of alexithymia				
Self-esteem	−0.43**	−0.47**	−0.31**	−0.14~
Independent self-construal	−0.16*	−0.01	−0.20**	−0.17*
Interdependent self-construal	0.10	0.10	0.14*	−0.05
Model statistics	Adjusted R^2 = .27, $F(3,187)$ = 24.8, p < .001	Adjusted R^2 = .23, $F(3,187)$ = 19.7, p < .001	Adjusted R^2 = .21, $F(3,187)$ = 17.4, p < .001	Adjusted R^2 = .05, $F(3,187)$ = 4.7, p = .004
Power	1.00	1.00	.999	.904

Note. N = 196. Post-hoc power analyses were conducted with an online power calculator (Soper, 2010).
* p < .05.
** p < .01.
~ p < .10.

Thinking, there was no relationship between interdependence and EOT.

We next controlled for self-esteem by conducting a stepwise linear regression with self-esteem entered into the first step of the regression model and both types of self-construal entered into the second step (See Table 2 for coefficients). As in past research (Wearden et al., 2005; Yelsma, 1995), alexithymia was negatively associated with self-esteem. Since alexithymia and self-esteem are strongly correlated, this justifies its inclusion as a covariate.

The original pattern of results remained similar for independent self-construal: more independence was associated with decreased alexithymia. The only exception to this result was that the relationship between independence and DIF disappears when controlling for self-esteem. For interdependence, the relationship again remains similar, with high interdependence associated with higher alexithymia, except that this relationship only remains significant for DDF when controlling for self-esteem.

4. Mediation analysis

We observed that Asians scored higher than Caucasians on alexithymia overall and on two of its subscales (DIF and EOT; See Fig. 1a), ps < .01. In addition, Asians scored higher than Caucasians on interdependence, *p* < .001, and marginally lower than Caucasians on independence (See Fig. 1b), *p* < .06.

Because of this, we decided to test a potential mediating model between ethnocultural background, self-construal, and alexithymia. However, before delving into this analysis, we first address one potential issue. All participants completed these questionnaires in an American college setting in English, leaving open the possibility that participants with an Asian ethnocultural background scored higher in alexithymia because of a language confound. Thus, we separated Asian participants by country of birth and language status. We found that there were no statistical differences on the alexithymia scores of Asians born in the United States compared to Asians born elsewhere, Fs < 1.When examining language status, we found that there was a marginal overall tendency for English-as-a-Second-Language Asians to score higher on alexithymia overall, p=.104, but this was driven by the less-language-relevant (i.e. more cognitively oriented) subscale of EOT, *p* < .05.

In the two more language-relevant (DIF, DDF), there were no differences between Asians whose first language was English versus another language, ps > .18.[2]

We next tested whether the relationship between ethnocultural background and alexithymia was mediated by self-construal (See Fig. 2). We first created a new variable, *socially atomized self-construal* (see Konrath, Bushman, & Grove, 2009), by subtracting interdependent self-construal from independent self-construal, such that higher numbers reflect unmitigated independence. We then used Baron & Kenny's (1986) four-step model for testing mediation on alexithymia and each of its subscales. We first used regression analysis to confirm that ethnocultural background (1 = Asian-born / Asian-American, 0 = Caucasian) was positively related to alexithymia total, Difficulty Identifying Feelings, and Externally-Oriented Thinking. (It was unrelated to Difficulty Describing Feelings.) Next, we confirmed that ethnocultural background was negatively related to self-construal, in other words, that Caucasians scored higher on socially-atomized self-construal than Asians. Then, we confirmed that high independence [high interdependence] was related to lower [higher] alexithymia.

Finally, we examined the relationship between ethnocultural background and alexithymia when controlling for self-construal. No relationship was reduced to zero when controlling for self-construal, ruling out full mediation. Instead, there is evidence that self-construal partially mediates the relationship between ethnocultural background and alexithymia overall (Sobel = 2.59, *p* = .01) and DIF (Sobel = 1.75, *p* = .08), but not EOT (Sobel = .68, *p* = .50). Thus, at least some of the relationship between ethnocultural background and alexithymia (and DIF) can be explained by self-construal.

5. General discussion

In two studies we found that lower independence and higher interdependence are associated with alexithymia overall and two of its subscales (DIF and DDF). The relationship between self-construal and EOT is less consistent: in Section 2 there was no

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[2] We entered ethnicity (0 = Caucasian, 1 = Asian) and its interactions with self-construal into a stepwise regression, to predict alexithymia and its subscales. There were no significant interactions between ethnicity and both types of self-construal.
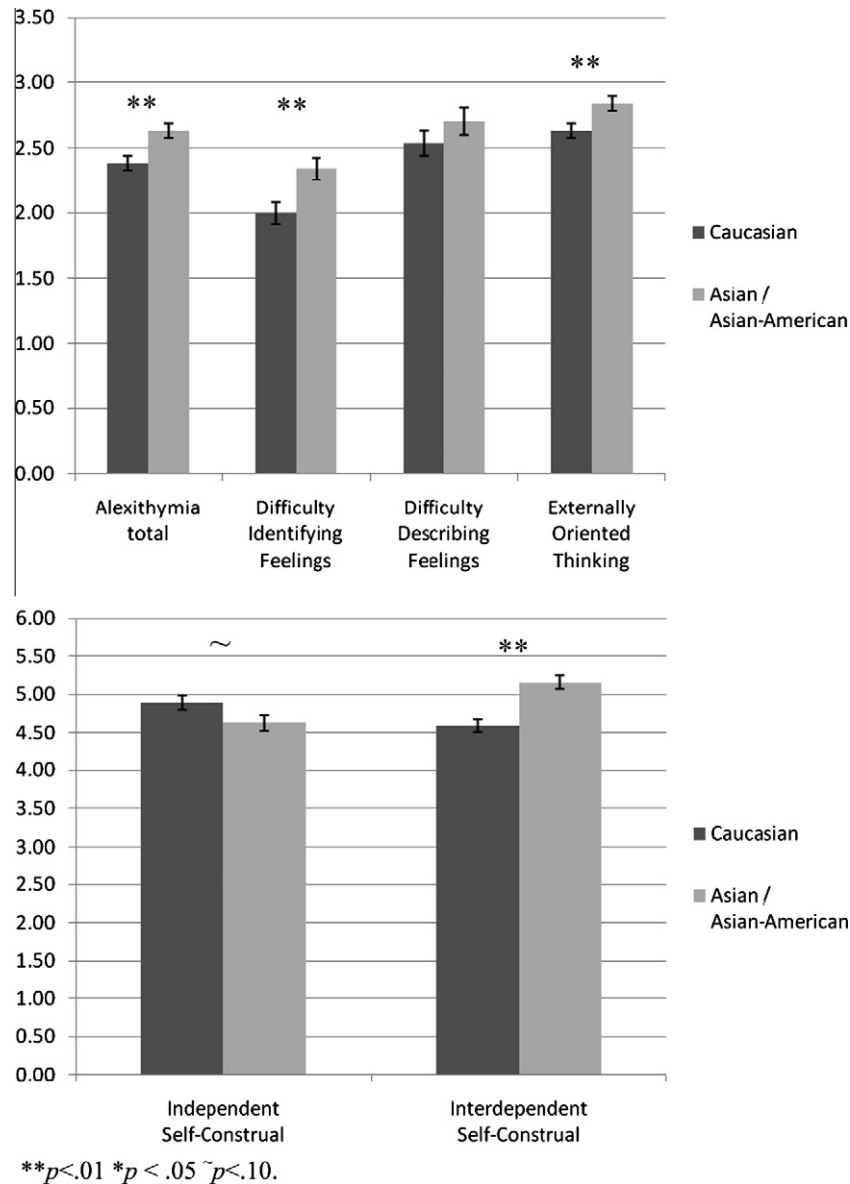
Fig. 1. Alexithymia (1a) and self-construal (1b) by ethnocultural background. Capped bars denote standard errors.

relationship with either type of self-construal and in Section 3 there was a negative relationship with independent self-construal only. In Section 3, we also find that Asians, an ethnocultural group characterized by lower independence and higher interdependence, score higher in alexithymia. This finding is not fully explained by country of origin or language status, and it replicates past research findings (e.g. Dion, 1996; Le et al., 2002; Zhu et al., 2007). Self-construal at least partially mediates the relationship between ethnocultural background and alexithymia (total and DIF).

When controlling for mood (Section 2) and self-esteem (Section 3), though, our results appear more complicated. Taken together, it appears that the associations between *independence* and alexithymia better resisted covariation as compared to associations between *interdependence* and alexithymia. Specifically, although the relationship between interdependence and DDF withstood the covariates, the relationship between interdependence and DIF was reduced to non-significance. The fact that one alexithymia subscale (i.e. DDF) is more robustly related to interdependence than another (i.e. DIF) can tell us something potentially interesting

about how emotional processes interact with self-related ones. When controlling for important covariates (mood, self-esteem), interdependent people no longer report having problems with *identifying their feelings*. What remains is difficulty in *describing their feelings*. This same pattern is present in research finding that psychiatric patients who used more references to others in their natural language also scored higher in DDF (Meganck, Vanheule, Inslegers, & Desmet, 2009). This disconnect between ability to identify versus describe feelings might point to motivational differences in people who are high in interdependence. Perhaps they realize that there are low risks to harmonious relationships if they *internally* acknowledge their own emotional states. Instead, they may think that the risk to harmonious social relations occurs if they *describe their feelings to others*. Or, perhaps they feel as if there is not much need to verbalize their feelings to others, since others in their social context should be able to read them reasonably well.

The finding that higher independence is related to lower alexithymia is more robust, and equally compelling. People with a pre-
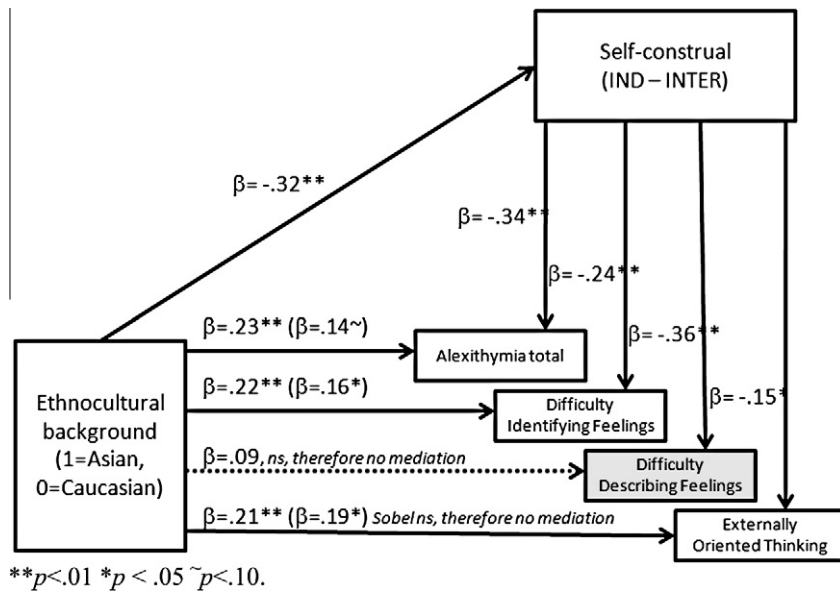
Fig. 2. Testing the potential mediating effect of self-construal on the relationship between ethnocultural background and alexithymia (and its subscales).

dominant focus on the autonomous aspects of the self actually report being better at identifying and describing their emotions. Perhaps this is because they are more comfortable being "psychologically-minded" (Dion, 1996). In any case, there are important potential implications of our findings. Given that increased ability to verbalize emotional states (i.e. low alexithymia) has been found to be associated with numerous positive health outcomes (see Section 1), this points to one highly speculative potential fruitful area of research in health psychology: perhaps future research could examine whether primed independent self-construal would increase emotional verbalizations, and whether this would have positive psychophysiological consequences (e.g. lower cortisol in response to stressors). Obviously, ethnocultural background is likely to play a role in any such finding, and it is likely that the match between emotional verbalization style and culture would be an important consideration in any future work.

Another potential implication of our findings is that we might expect surprising emotional detection abilities from those scoring high in alexithymia, despite past work showing that they have difficulty recognizing emotions (e.g. Lane et al., 1996; Machin, Casey, & Machin, 2009; Parker et al., 1993). Most of the emotions used as dependent measures in these studies were more ego-focused, and that there may be different effects for more other-focused ones. While people scoring high in alexithymia might have difficulty identifying and describing *ego-focused emotions* (like anger or pride; see Kitayama, Mesquita, & Karasawa, 2006), it is possible that they may in fact find it easier to identify and express more *other-oriented emotions* (e.g. friendly, guilty), considering their high interdependence.

While we report evidence for a link between alexithymia and self-construal, it is important to note that these data are only correlational. Thus, we cannot determine the nature of the causal relationship between these three variables. It is possible that higher alexithymia leads to lower independence or increased interdependence. However, it seems more logically plausible that differences in self-construal drive emotional verbalization abilities. Given the ethnocultural findings we and others have reported though, it is also possible that a third variable (e.g. emotionally restrained parenting style) may best explain the relationship between alexithymia and self-construal. In future research we will attempt to better understand why there is a relationship between the two variables.

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