

Affectionate experience mediates the effects of alexithymia on mental health and interpersonal relationships

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ABSTRACT

Affection has long been found to be a foundational force in any sort of human relationship, influencing such areas as relational closeness, stress, and depression. One psychological condition that may influence the communication of affection is alexithymia, which hinders the ability of an individual both to experience and to express emotion. On the basis of affection exchange theory, we hypothesized a mediating effect of affectionate communication on the association between alexithymia and relational and mental health indices. Participants ($N = 347$) provided self-reports of alexithymia, affectionate communication, depression, stress, relational closeness, nonverbal immediacy, happiness, and relational affection. Findings implicated affectionate communication as a mediator of the relationships between alexithymia and several of the outcome measures.

KEY WORDS: affection • affection exchange theory • alexithymia • relational closeness • stress

Scholars have long claimed that affection is a fundamental human need (Burgoon & Hale, 1984; Rotter, Chance, & Phares, 1972; Schutz, 1958, 1966). Indeed, it plays a central role in the development of adult attachment styles (Ozen, 2004), in the reduction of insecurity and the promotion of emotional stability in children (Davies, Cummings, & Winter, 2004), in

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the strengthening of relational communication with spouses (Beatty & Dobos, 1993), in the improvement of mental well-being and the reduction of loneliness (Downs & Javidi, 1990), and in the enhancement of physical health (Komisaruk & Whipple, 1998). Affectionate communication also covaries with the level of intimacy in a host of relationship types (Floyd & Morman, 2000, 2003; Register & Henley, 1992). Contemporary research is illuminating the benefits of affectionate behavior not only for relational quality but also for individual health and well-being (Floyd, 2002, 2006b; Floyd, Hesse, & Haynes, 2007; Floyd & Morman, 2001). Using affection exchange theory as a guide, the current study addresses associations between affectionate communication and the psychological condition of alexithymia. Moreover, this study proposes that the experience of affectionate communication mediates relationships between alexithymia and various indices of relational and mental health, including depression, happiness, and relational closeness.

We begin our review by summarizing previous research on the associations between affectionate communication, mental and physical health, and relationship quality. Next, we articulate relevant propositions from affection exchange theory that lead us to examine alexithymia as a potential individual-level characteristic influencing people's experiences with affectionate communication. We then review previous research on alexithymia, paying specific attention to its implications for individual and relational well-being. Finally, we advance hypotheses regarding direct and mediated relationships between alexithymia and relational and mental health.

Affectionate communication

Affectionate communication encompasses those behaviors through which people convey feelings of love, fondness, and appreciation to others. Expressing and receiving affection within the context of personal relationships have been associated with numerous benefits for mental health, physical health, and relational well-being. For example, Floyd (2002) found that individuals who described themselves as highly affectionate were happier, less prone to stress and depression, and were more satisfied with relationships than individuals who described themselves as less affectionate. Later work by Floyd, Hess, Miczo, Halone, Mikkelson, and Tusing (2005) verified that the benefits of expressing affection were independent of those associated with receiving it. Research on physical health has shown that affectionate behavior is inversely related to stress by-products such as cortisol, blood pressure, total cholesterol, and blood glucose (e.g., Floyd, 2006b; Floyd, Hesse et al., 2007; Floyd, Mikkelson, Hesse, & Pauley, 2007), and positively associated with calm-inducing agents such as oxytocin (Grewen, Girdler, Amico, & Light, 2005). Several investigations have also illuminated the positive associations affectionate communication has with closeness, intimacy, and satisfaction in personal relationships (for review, see Floyd, 2006a).

Although research has identified benefits of affectionate communication in the aggregate, less attention has been paid to individual variation in the ability and experience of affection. As we articulate below, however, affection exchange theory provides that person-to-person variance in developmental and non-developmental characteristics will co-vary with individual differences in the benefits of affection. In the present study, we propose that the psychological trait of alexithymia (the inability to feel and communicate emotions) not only affects the overall amount of affection that an individual reports experiencing but also co-varies with mental and relational well-being, partially as a result of its influence on affectionate behavior.

Affection exchange theory

Affection exchange theory (AET: Floyd, 2006a) is a neo-Darwinian theory whose foundational assumption is that individuals are constantly driven toward two superordinate goals – survival and procreation – and that affectionate communication can ultimately serve either or both goals. For example, hugging one's father may not be the direct result of a conscious motivation toward survival, yet a stronger and more affectionate relationship with one's father results in the maintenance and growth of a significant protective pair bond, increasing the overall chance for survival. AET also provides that individuals need not be consciously aware of the evolutionary goals served by affectionate behavior in order for those goals to be operative and influential (Floyd, 2006a). In this section, we will focus on the propositions of the theory that are most directly relevant to the present investigation.

First, AET proposes that individuals are born with the need and the capacity to communicate affection, and that fulfilling this need is adaptive with respect to the superordinate goals of survival and reproduction. Although the general capacity for affection is inborn, AET provides that it is subject to developmental and non-developmental variation between individuals. As examples of the latter, sensory impairments (such as blindness or deafness) or cognitive impairments (such as Asperger's disorder) can limit an individual's capacity for receiving and expressing affection and/or his or her range of behavioral options for doing so. To the extent that affectionate behavior is adaptive for individual well-being, and to the extent that individuals vary in their capacity for experiencing affectionate communication, we would expect individuals to vary in their physical, mental, and relational well-being as a function of variation in their capacity for affection.

To understand affectionate communication, therefore, it is necessary to identify those characteristics that influence a person's capacity for affectionate behavior, and we propose that alexithymia is one such characteristic. As we detail below, alexithymia is a trait characterized by the inability to understand and express emotion, which we propose would lead to a reduced ability to understand and express interpersonal affection, thus mitigating the benefits of affectionate communication.

Alexithymia

Alexithymia is a personality trait characterized by a relative inability to understand, process, and describe emotions. As coined by Sifneos (1973), the term *alexithymia* means, literally, a lack of words for emotions. It has several specific effects: (1) it hinders an individual from recognizing and communicating his or her emotional state; (2) it reduces the capacity to engage in fantasy; (3) it results in an externally oriented cognitive style; and, (4) it creates difficulty in distinguishing between feelings and the bodily sensations of emotional arousal (Luminet, Rime, Bagby, & Taylor, 2004; McCallum, Piper, Ogrodniczuk, & Joyce, 2003). Individuals with alexithymia do not understand their own emotions and regularly seem stone-faced, distant, and unconcerned with others' feelings. Although some have characterized alexithymia as a psychological state simply correlated with depression (Honkalampi, Hintikka, Antikainen, Lehtonen, & Viinamaki, 2001), most researchers conceive of it as a stable personality trait (Bagby & Taylor, 1997; for review, see Taylor & Bagby, 2004; Taylor, Bagby, & Parker, 1997). Research has indicated that alexithymia scores show high test-retest reliability over multiple-year periods (Salminen, Saarijärvi, Toikka, Kauhanen, & Äärelä, 2006) and generalize across cultures (Parker, Shaughnessy, Wood, Majeski, & Eastabrook, 2005).

Although alexithymia is not classified as a mental disorder by the American Psychiatric Association, research has suggested that alexithymics are at elevated risk of personality and anxiety disorders, as well as eating disorders, substance abuse problems, hypertension, dyspepsia, and other problems (Cleland, Magura, Foote, Rosenblum, & Kosanke, 2005; Jones, Schettler, Olden, & Crowell, 2004; Li & Sinha, 2006; for additional review, see Taylor & Bagby, 2004). Other studies have begun to identify its neurological substrates. For instance, Berthoz et al. (2002) used functional magnetic resonance imaging (fMRI) with alexithymic and non-alexithymic men to study patterns of cerebral activation in response to positive and negative emotional stimuli. Results indicated that, compared to non-alexithymic men, men with alexithymia experienced less cerebral activation in the left mediofrontal-paracingulate cortex in response to negative stimuli and greater activation in the anterior cingulate, mediofrontal cortex, and middle frontal gyrus in response to positive stimuli. Several studies have also linked alexithymia to elevated risks for physical and mental health impairments, including chronic pain (Ahlberg et al., 2001; Glaros & Lumley, 2005; Mehling & Krause, 2005), hormonal arousal (Spitzer, Brandl, Rose, Nauck, & Freyberger, 2005), psoriasis (Richards, Fortune, Griffiths, & Main, 2005), a hyperactive left hemisphere of the brain (Bermond, Bleys, & Stoffels, 2005), a tendency for young adults to drink and cause drinking problems (Stewart, Zvolensky, & Eifert, 2002), depression (Ahlberg et al., 2001; Honkalampi et al., 2001; Sexton, Sunday, Hurt, & Halmi, 1998); the fearful attachment style (Wearden, Lambertson, Crook, & Walsh, 2005), and breast cancer and eating disorders (Larsen, van Strien, Eisinga, & Engels, 2006; Wheeler, Greiner, & Boulton, 2005).

Research on the relational effects of alexithymia has been relatively sparse; however, Cooley (2006) reported that marital satisfaction was inversely associated with alexithymia. Relationships with individuals who self-reported the highest degrees of alexithymia reported the lowest level of satisfaction, whereas relationships with individuals who self-reported the lowest degrees of alexithymia reported the highest level of satisfaction. Previously, affectionate communication has been found to be positively correlated to relational satisfaction (Floyd, 2002). This represents one potential link between affectionate communication and alexithymia, as they seem to affect relational satisfaction in opposite ways. There is a positive relationship between affectionate communication and relational satisfaction, and an inverse relationship between alexithymia and relational satisfaction.

The present study focuses specifically on alexithymia's associations with (1) the experience of affectionate communication at the trait level (i.e., not associated with any specific relationship); (2) mental health indices, including stress, depression, and happiness; and, (3) communication in an individual's closest relationship, including closeness and the expression of affection and immediacy.

Hypotheses

We propose that alexithymia hinders the ability to experience the emotion of affection and, by extension, the tendencies to encode affectionate messages and accurately decode affectionate messages received from others. This proposition is derivable from the nature of alexithymia itself, given that alexithymia inhibits the abilities to encode and decode emotion, which should be expected to include affectionate emotion. AET provides, however, that affectionate communication is adaptive with respect to relationship success and individual well-being. If this is true, and if our supposition that alexithymia inhibits the encoding and decoding of affectionate emotion, then it follows that these hindrances should impair the alexithymic individual with respect to mental health and relational interaction.

These observations imply several testable hypotheses, the first of which is that alexithymia impairs the ability to experience affectionate communication (either as an encoder or as a decoder):

H1: Alexithymia is inversely related to the experience of affectionate communication.

AET proposes that affectionate communication is profitable for the maintenance of closeness in personal relationships; therefore, if H1 is true, then alexithymia would logically impair the ability to maintain relational closeness, even in one's closest friendship. Thus, we predict:

H2: Alexithymia is inversely related to relational closeness within an individual's closest relationship.

Numerous studies have documented alexithymia's associations with individual well-being, and some have addressed its associations with relational behavior. Due to their diminished ability to articulate, recognize, and process emotions, alexithymic individuals are often at higher risk than their non-alexithymic counterparts of impaired mental and relational health. Based on this observation and on previous research, we propose that alexithymia hinders several mental health indices:

H3a: Alexithymia is directly related to stress.

H3b: Alexithymia is directly related to depression.

H3c: Alexithymia is inversely related to happiness.

We further propose that alexithymia hinders patterns of communication relevant to the maintenance of personal relationships, including immediacy and affection:

H3d: Alexithymia is inversely related to the amount of nonverbal immediacy cues an individual uses in normal interactions.

H3e: Alexithymia is inversely related to the amount of affection communicated in an individual's closest relationship.

Finally, if alexithymia impairs mental and relational well-being whereas affectionate communication facilitates it (Floyd, 2002), then it stands to reason that the experience of affectionate communication mediates the relationship between alexithymia and these outcome variables. That is, we propose that part of the reason why an alexithymic individual experiences more stress and depression, and less happiness, relational affection, and relational immediacy, is that he or she is impaired in the ability to process affectionate communication. Thus, we predict that the experience of affectionate communication mediates the relationship between alexithymia and mental and relational outcomes:

H4a: Affectionate experience mediates the relationship between alexithymia and happiness.

H4b: Affectionate experience mediates the relationship between alexithymia and nonverbal immediacy.

H4c: Affectionate experience mediates the relationship between alexithymia and the amount of affection communicated in an individual's closest relationship.

H4d: Affectionate experience mediates the relationship between alexithymia and relational closeness in an individual's closet relationship.

H4e: Affectionate experience mediates the relationship between alexithymia and depression.

H4f: Affectionate experience mediates the relationship between alexithymia and stress.

Method

Participants

Participants ($N = 349$) were 131 men and 214 women students (and 4 who declined to indicate their sex) ranging in age from 18 to 54 years old ($M = 22.16$ years, $SD = 4.10$). Most of the participants (92.6%) had never been married, whereas 4.9% were married and 1.4% were divorced. A large majority was Caucasian (73.9%), with 4% self-identifying as Black/African-American, 9.2% as Asian, 1.1% as Native American, 10% as Hispanic, and 4.9% as other. (These percentages sum to >100 because some participants identified with more than one ethnic group.)

Procedure

Participants were recruited from undergraduate communication courses in a large university in the south-western United States. Self-report questionnaires were distributed and returned to the class instructor, who put them into an envelope to protect confidentiality. Participants received extra credit for taking part in the study. The questionnaires were then returned to the researchers by the instructors with all identifying information removed.

Measures

Alexithymia was measured using the 20-item Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994). The TAS-20 is a self-report measure that is divided into three sections. Questions in the first section deal with an individual's difficulty identifying feelings, targeting the notion that alexithymia hinders the individual's ability to understand emotions such as affection. Questions in the second section deal with an individual's difficulty describing feelings, while the third set of questions addresses an individual's tendency toward externally-oriented thinking. The TAS-20 has been validated in numerous studies (e.g., Ahlberg, et al., 2001; Culhane & Watson, 2003; for review, see Taylor & Bagby, 2004) and has been used in various cultures, including India, Israel, Lithuania, and Sweden (for review, see Bagby & Taylor, 1997). The TAS-20 exhibited acceptable reliability in this study ($\alpha = .79$).

The *experience of affection* was measured by combining two scales, the 10-item Trait Affection Scale-Given (TAS-G; Floyd, 2002), and the 6-item Trait Affection Scale-Received (TAS-R; Floyd, 2002). The TAS-G asks participants to indicate their level of agreement with several statements dealing with how affectionate an individual is, whereas the TAS-R asks for agreement with statements dealing with how much affection an individual receives. Both measures have been used repeatedly with success in measuring how affectionate an individual is (Floyd, 2002; Floyd et al., 2005). The TAS-G and TAS-R are retained as independent scales in research when there is a theoretically derived reason for analyzing them separately (e.g., to test the effects of expressed affection while the effects of received affection are controlled for, as in Floyd, 2006b). In the present study, however, our interest was in the experience of affectionate communication, writ large.

Because alexithymia impairs both encoding and decoding ability, we elected for the sake of accuracy and parsimony to combine the two scales into one measure indexing the experience of affectionate communication. The combined scale was highly reliable, with an alpha of .95.

Relational closeness was measured with the Inclusion of Other in the Self (IOS) scale (Aron, Aron, & Smollan, 1992). This scale gives the participant several pictures of two circles, one for the self and one for the other person, showing various amounts of integration ranging from complete separation to near overlapping. Participants circle the picture that best describes their relationship with the person they consider themselves closest to. The IOS scale has been extensively validated in correlational and experimental research (see Aron et al., 1992).

Stress was measured using the 14-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), which requests that participants review the past month of their life for any stress-related events. The PSS has been validated in numerous studies (see Cohen et al., 1983), and again showed a high level of reliability in the current study ($\alpha = .83$).

Depression was measured by using the 21-item Beck Depression Inventory II (Beck, Steer, & Garbin, 1998). In this scale, participants self-report on how often they feel such emotions as sadness, pessimism, or guilt, and how often they experience change in appetite, fatigue, or a loss of interest in sex. This is one of the most widely used measures of depression, and thus has been validated in a wide variety of studies, including those dealing with alexithymia (see Beck et al., 1998; Honkalampi et al., 2001). The scale also showed a high level of reliability in the current study ($\alpha = .92$).

Happiness was measured by using the 29-item Oxford Happiness Inventory (Argyle, Martin, & Crossland, 1989), which was created as a counterpart to the Beck Depression Inventory, asking how often the participant feels happy. Research has demonstrated the scale's reliability and validity (see Argyle et al., 1989; Francis, Brown, Lester, & Philipchalk, 1998). The scale showed a high level of reliability in the current study ($\alpha = .91$).

Affectionate communication to a loved one was measured using the factor-based Affectionate Communication Index (ACI; Floyd & Morman, 1998). The scale measures the frequency of affectionate behavior in a specific relationship. Research has evidenced multiple forms of validity and reliability (see Floyd & Mikkelsen, 2005). The scale showed a high level of reliability in the present study ($\alpha = .93$).

Finally, *nonverbal immediacy* was measured using the Nonverbal Immediacy Scale (NIS; Richmond, McCroskey, & Johnson, 2003), which asks how often an individual gestures when they talk to people, or how often they lean towards other people as they talk to them. The scale showed a high level of reliability for the study ($\alpha = .90$).

A comprehensive list of all study variables, including descriptive statistics, alphas, and intercorrelations, appears in Table 1.

TABLE 1
Descriptive statistics, alphas, and intercorrelations for predictor and outcome variables

Variable	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6	7
1. Alexithymia	3.12	0.67	.79							
2. Affection experience	4.98	0.95	.95	-.56**						
3. Happiness	4.50	0.74	.91	-.42**	.49**					
4. Depression	3.17	1.01	.92	.42**	-.33**	-.64**				
5. Stress	3.68	0.87	.83	.43**	-.20**	-.54**	.62**			
6. Immediacy	3.82	0.52	.90	-.48**	.58**	.44**	-.33**	-.24**		
7. Affectionate communication	5.36	1.21	.93	-.23**	.44**	.28**	-.16**	-.09*	.35**	
8. Relational closeness	4.95	1.57	—	-.18**	.32**	.20**	-.08	-.04	.18**	.46**

Notes: All variables were measured on a 1–7 scale wherein higher scores indicate greater levels of the variable.

* $p < .05$; ** $p < .01$.

Results

Descriptive statistics

Before testing the hypotheses, we used independent samples *t*-tests to check for potential sex differences. Results indicated significant sex differences for several of the variables, including alexithymia, affectionate experience, affectionate communication, relational closeness, and nonverbal immediacy. High and low scores for each variable, plus the means and standard deviations for both men and women, appear in Table 2.

TABLE 2
High/low scores and sex differences for predictor and outcome variables

Variable	High	Low	Male		Female	
			Mean	<i>SD</i>	Mean	<i>SD</i>
1. Alexithymia	4.80	1.25	3.24*	.66	3.01	.67
2. Affection experience	6.94	1.87	4.65**	.86	5.18	.96
3. Happiness	6.17	1.64	4.51	.75	4.48	.73
4. Depression	6.30	1.00	3.13	1.01	3.21	1.01
5. Stress	6.36	1.43	3.60	.88	3.74	.86
6. Immediacy	5.00	1.92	3.60**	.54	3.95	.47
7. Affectionate communication	7.00	1.22	4.97**	1.36	5.60	1.04
8. Relational closeness	7.00	1.00	4.67*	1.79	5.11	1.41

Notes: Asterisks indicate significant sex differences, per independent-samples *t*-tests.

* $p < .05$; ** $p < .01$.

Hypotheses

The first hypothesis predicted an inverse relationship between alexithymia and affectionate experience. The bivariate correlation showed a strong inverse association, $r(347) = -.56, p < .001$. As hypothesized, individuals who showed higher signs of alexithymia experienced less affection. The first hypothesis is supported.

The second hypothesis predicted an inverse relationship between alexithymia and relational closeness. The bivariate correlation showed a significant inverse association, $r(347) = -.18, p < .001$. As hypothesized, individuals who showed higher signs of alexithymia were less close to their closest relationship. The second hypothesis is supported, though it should be noted that the correlation explained a very small amount of the variance.

The third hypothesis predicted an inverse relationship between alexithymia and happiness, nonverbal immediacy, affectionate communication, and relational closeness, while also predicting a direct relationship between alexithymia and both depression and stress. Alexithymia was found to have inverse correlations with happiness, $r(347) = -.42, p < .001$; nonverbal immediacy, $r(347) = -.48, p < .001$; and affectionate communication, $r(347) = -.23, p < .001$. Alexithymia was also directly correlated with both depression, $r(347) = .42, p < .001$; and stress, $r(347) = .42, p < .001$. As predicted, individuals who showed higher signs of alexithymia experienced less happiness, less nonverbal immediacy, communicated less affection to the individual they were closest to, and were not as close to those relationships, while the same individuals experienced both more depression and stress. Hypotheses 3a, 3b, 3c, 3d, and 3e are all supported.

The fourth hypothesis predicted that affectionate experience mediates the relationship between alexithymia and each of the six outcome measures. This was accomplished through running six simultaneous multiple regression analyses (one for each sub-hypothesis) to determine whether affectionate experience fully or partially mediated the relationship between alexithymia and the host of outcome variables. Specifically, we used Baron and Kenny's (1986) mediational model to test H4, which requires four steps. First, the independent variable (in this case, alexithymia) must be shown to affect the dependent variables (happiness, nonverbal immediacy, affectionate communication, relational closeness, depression, and stress). This was shown in the second and third hypotheses, with significant relationships between alexithymia and all dependent measures (see Table 1 for all tests of significance). Step 1 is supported for all outcome measures.

Second, the independent variable (alexithymia) must affect the proposed mediator (affectionate experience). This was shown in the first hypothesis, with a strong negative relationship ($\beta = -.56$) between alexithymia and affectionate experience. Step 2 is supported for all outcome measures.

Third, the researcher must see whether the mediator predicts the dependent variable after controlling for the independent variable. This step was combined with the fourth step, where the researcher must show whether the independent variable (alexithymia) is still a significant predictor of the dependent variable *while controlling for* the mediator (affectionate

experience). Both steps were shown by the usage of a simultaneous regression analysis, where the dependent variable was the outcome measure and both alexithymia and affectionate experience were entered in the same level, thus each controlling for the shared variance of the other. Full mediation is demonstrated if the independent variable is no longer a significant predictor of the dependent variable after controlling for the mediator. Partial mediation is demonstrated if the independent variable is still a significant predictor, but the effect has been reduced with the inclusion of the mediator (Baron & Kenny, 1986).

To test the third and fourth steps of the mediation hypothesis for each outcome measure, we ran one simultaneous regression model, as stated above. We conducted the regressions twice, once with participant sex controlled for and once without, and the findings were identical. Participant sex was found not to be a potential moderating factor in any of the mediation models. Results reported here are from the regressions in which participant sex was not a control variable. Regression results for all outcome variables appear in Table 3.

Happiness. To test steps 3 and 4 in the mediation process, we created a simultaneous regression model with alexithymia and affectionate experience entered at the same level. Overall, the model was significant, explaining 27% of the variance. The relationship between affectionate experience and happiness, after controlling for alexithymia ($\beta = .36$), was still significant.

TABLE 3
Summary of regression models for predicting outcome measures from alexithymia and affectionate experience

Variable	Zero-order <i>r</i>	<i>F</i> (2, 346)	<i>B</i>	SE <i>B</i>	β
Model 1: Happiness ($R^2 = .27$)		64.37**			
Alexithymia	-.42		-.25	.06	-.22**
Affectionate experience	.49		.28	.04	.36**
Model 2: Immediacy ($R^2 = .38$)		103.45**			
Alexithymia	-.48		-.18	.04	-.22**
Affectionate experience	.58		.25	.03	.46**
Model 3: ACI ($R^2 = .20$)		42.05**			
Alexithymia	-.18		.04	.11	.02
Affectionate experience	.32		.58	.07	.45**
Model 4: Closeness ($R^2 = .10$)		19.04**			
Alexithymia	-.23		-.03	.15	-.01
Affectionate experience	.44		.51	.10	.31**
Model 5: Depression ($R^2 = .19$)		40.10**			
Alexithymia	.42		.51	.09	.34**
Affectionate experience	-.33		-.16	.06	-.15*
Model 6: Stress ($R^2 = .19$)		40.64**			
Alexithymia	.43		.61	.08	.47**
Affectionate experience	-.20		.06	.05	.06

* $p < .05$; ** $p < .001$.

Step 3 is supported. The initial relationship between alexithymia and happiness ($\beta = -.42$) found in step 1 of the mediation test was reduced ($\beta = -.22$) and remained significant when controlling for affectionate experience, indicating that affectionate experience partially mediated the relationship between alexithymia and happiness (see Table 3).

Nonverbal immediacy. To test steps 3 and 4 in the mediation process, we created a simultaneous regression model with alexithymia and affectionate experience entered at the same level. Overall, the model was significant, explaining 38% of the variance. The relationship between affectionate experience and nonverbal immediacy, after controlling for alexithymia ($\beta = .46$), was still significant. Step 3 is supported. The initial relationship between alexithymia and immediacy ($\beta = -.48$) found in step 1 of the mediation test was reduced ($\beta = -.22$) and remained significant when controlling for affectionate experience, indicating that affectionate experience partially mediated the relationship between alexithymia and immediacy (see Table 3).

Affectionate communication (ACI). To test steps 3 and 4 in the mediation process, we created a simultaneous regression model with alexithymia and affectionate experience entered at the same level. Overall, the model was significant, explaining 19% of the variance. The relationship between affectionate experience and affectionate communication, after controlling for alexithymia ($\beta = .45$), was still significant. Step 3 is supported. The initial relationship between alexithymia and affectionate communication ($\beta = -.23$) found in step 1 of the mediation test was reduced to a minimal, non-significant relationship after controlling for affectionate experience ($\beta = .02$), indicating that affectionate experience fully mediated the relationship between alexithymia and affectionate communication (see Table 3).

Relational closeness. To test steps 3 and 4 in the mediation process, we created a simultaneous regression model with alexithymia and affectionate experience entered at the same level. Overall, the model was significant, explaining 10% of the variance. The relationship between affectionate experience and relational closeness, after controlling for alexithymia ($\beta = .31$), was still significant. Step 3 is supported. The initial relationship between alexithymia and relational closeness ($\beta = -.18$) found in step 1 of the mediation test was reduced to a minimal, nonsignificant relationship after controlling for affectionate experience ($\beta = -.01$), indicating that affectionate experience mediated the relationship between alexithymia and relational closeness (see Table 3).

Depression. To test steps 3 and 4 in the mediation process, we created a simultaneous regression model with alexithymia and affectionate experience entered at the same level. Overall, the model was significant, explaining 18% of the variance. The relationship between affectionate experience and depression, after controlling for alexithymia ($\beta = -.15$), was still significant.

Step 3 is supported. The initial relationship between alexithymia and depression ($\beta = .42$) found in step 1 of the mediation test was reduced ($\beta = .34$) and remained significant when controlling for affectionate experience, indicating that affectionate experience partially mediated the relationship between alexithymia and depression (see Table 3).

Stress. To test steps 3 and 4 in the mediation process, we created a simultaneous regression model with alexithymia and affectionate experience entered at the same level. Overall, the model was significant, explaining 19% of the variance. The relationship between affectionate experience and stress, after controlling for alexithymia ($\beta = .06$), was not significant. Step 3 is not supported. The initial relationship between alexithymia and stress ($\beta = .43$) found in step 1 of the mediation test remained significant and increased after controlling for affectionate experience ($\beta = .47$), showing that affectionate experience does not mediate the relationship between alexithymia and stress. Regression results appear in Table 3.

Discussion

Several recent studies have examined the benefits of both expressing and receiving affection. We used affection exchange theory to derive four hypotheses regarding the relationship between the experience of affection, alexithymia, and relational and mental health indices. As predicted, alexithymia was inversely related to affectionate experience, happiness, use of nonverbal immediacy cues, affectionate communication in close relationships, and closeness in close relationships and positively related to depression and stress. We should note that although the expected association was found between alexithymia and closeness in close relationships, the magnitude was not particularly strong. Although this limits the predictive nature of that specific association, we believe that the significant finding is still of interest, especially when considered in concert with the other, stronger associations between alexithymia and the various outcome measures. Again, overall, the findings paint a convincing picture of the impact of alexithymia on mental health and aspects of relational wellbeing. We also predicted that the experience of affectionate communication would mediate the relationship between alexithymia and these outcome variables. As expected, we found that affectionate experience almost completely mediated the relationship between alexithymia and both relational closeness and the amount of affectionate communication expressed in a close relationship. It also partially mediated the relationship between alexithymia and happiness, the use of nonverbal immediacy behaviors, and depression. However, contradictory to the hypothesis, affectionate experience did not mediate the relationship between alexithymia and stress. Considered collectively, these results suggest that individuals who experience a great deal of affectionate communication are advantaged, relative to those who do not, with respect to mental and relational well-being, and that this is one

reason why alexithymia is related to impaired mental health and relationship closeness.

These findings have both theoretical and clinical implications. First, they provide support for affection exchange theory, both by illustrating one source of individual variation in the optimal tolerance for affection and by providing further evidence of the association between affectionate communication and well-being. These results add to a growing literature demonstrating the health benefits of affectionate behavior (for review, see Floyd, 2006a). Most important, however, was neither the demonstration that affection is positively associated with well-being, nor the demonstration that alexithymia impairs it. Most consequential for the theory was the demonstration that the impaired ability to experience affectionate communication was part of the reason *why* alexithymia is negatively associated with mental and relational well-being. This result directly illustrates AET's contention that affectionate communication is adaptive with respect to individual health and relationship quality.

Every hypothesis was supported except for Hypothesis 4f, which predicted that affectionate experience mediates the relationship between alexithymia and stress. We suspect this prediction may have failed because alexithymic individuals find it stressful to attempt to understand and communicate emotions, making it a *stress-inducing* event both to communicate and receive affection, even though it may make the individual happier and more satisfied in his or her relationship. Additional research on the associations between alexithymia, affection, and stress would illuminate the merits of this explanation.

Strengths and limitations

Like all studies, this one enjoyed certain strengths and involved certain liabilities. The sample was large enough to provide adequate statistical power (as evidenced by statistically significant results for all hypothesis tests), but it was also young, healthy, and relatively homogenous with respect to education level and ethnicity, limiting our ability to generalize these findings. The sample also evidenced only a moderate average alexithymia score, with minimal variation around that score ($M = 3.12$, $SD = .67$). It will be advantageous for future studies to recruit a sample with greater variance, both to increase statistical power and to determine whether observed associations are operative at low, medium, and high levels of alexithymia.

It should also be noted that, whereas this study found that affectionate experience served as the mediator between alexithymia and both mental and relational health, other interesting alternative explanations were left unexplored. For example, relational satisfaction could also serve as the mediator between alexithymia and the outcome variables, helping individuals feel secure with themselves and improving their access to relational resources, perhaps serving evolutionary goals. Positive and negative affect, also previously shown to be related to alexithymia, could also mediate the role of alexithymia on the outcome variables. Another alternative explanation can be found in the question of whom the participants identified as

their closest relationship. It may be the case that being in a romantic relationship could also be a potential mediator, opening for the alexithymic individual the resources available in a close, intimate relationship. With these alternative explanations left unexplored by the research, it is important to note both the limitations of the current findings and the pressing need for future studies to explore whether these variables substantively affect the findings, especially the mediating aspect of affectionate experience.

The study also had a strong theoretical backing and made use of an independent variable – affectionate experience – that combined the encoding and decoding aspects of affectionate communication. Whereas previous studies testing AET have examined the possible benefits of either received or expressed affection, this study combined the TAS-R (affection received) and the TAS-G (affection given) into one reliable scale. The findings, however, were strictly cross-sectional, precluding inferences about causality and causal direction. Although it is logical to expect that affection would cause alexithymic individuals to be happier and more satisfied in their relationships, it could also be the case that alexithymic individuals who are happier generally communicate more affection. It may also be the case that individuals who are generally less satisfied in their relationships, or who are more depressed, have alexithymic tendencies. Indeed, depression has been found to exacerbate self-reported levels of alexithymia (Honkalampi et al., 2001). Future research could take these findings and develop long-term studies analyzing the change in alexithymic individuals as they are instructed to communicate more affection.

The study was undertaken entirely through self-report data, leaving no capability to manipulate certain variables to test for directionality or strength of the relationships. While observational data should enter into this discussion at some point, especially regarding the specific relational behavior of individuals higher in alexithymia, we argue that trait affection, a very private and unique behavior practice for an individual, is best studied through self-report data. Still, future studies should use experimental methods in order to better ascertain the effect of alexithymia both on the mental health and the interpersonal relationships of an individual.

If causal effects are identified, these findings may contribute to the development of behavioral interventions for alexithymic individuals. For instance, affectionate writing, which has already been shown to improve physiological stress parameters, might be used to help individuals process their own emotions and even be more comfortable with their own thresholds of emotion. This could also be developed for alexithymic individuals suffering from depression, loneliness, or lack of closeness, or really for any psychological or physiological trauma. Obviously the tests of such interventions must wait for future studies, but the current study opens the door to the feasibility of such techniques.

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