Published in final edited form as:

J Happiness Stud. 2017 December ; 18(6): 1799–1813. doi:10.1007/s10902-016-9800-7.

Alexithymia, Defenses, and Ego Strength: Cross-sectional and Longitudinal Relationships with Psychological Well-Being and Depression

Maisa S. Ziadni, Matthew J. Jasinski, Gisela Labouvie-Vief, and Mark A. Lumley

Wayne State University

Abstract

Affect regulation is important to mental health. A deficit in one's ability to identify and express emotions (alexithymia), cognitive styles of regulating emotional conflict (defenses), and the capacity for integrative and complex self-other understanding (ego strength or maturity) need to be studied to understand how they relate to each other as well as to mental health and well-being. A sample of 415 community-dwelling adults from a major metropolitan area in the Midwest U.S., stratified for gender, age, and ethnicity, completed three methodologically different measures of affect regulation along with measures of well-being and depression. Six years later, 49% of the sample again reported their well-being and depression. At baseline, ego strength and the defenses of principalization and reversal correlated negatively with alexithymia and the other defenses (turning against self, turning against object and projection), even after controlling for negative affect. Cross-sectionally, relationships were largely as hypothesized, with low alexithymia, use of mature defenses, and greater ego strength correlating with less depression and greater well-being, although some of these relationships were attenuated after controlling for negative affect. Prospectively, each of the affect regulation measures predicted hypothesized changes in well-being after 6 years, after controlling for baseline well-being, but affect regulation did not predict changes in depression. These findings illuminate similarities and differences among these affect regulation constructs, suggest the importance of differentiating well-being from depression, and reveal that affect regulation uniquely predicts changes in long-term well-being.

Keywords

Alexithymia; ego maturity; defenses; affect regulation; well-being; depression

Mental health is an important determinant of subjective well-being (Bockerman, Johansson, & Saarni, 2011), and both mental health and well-being are influenced by a number of factors. People's capacity for regulating their emotions and cognitions appears to be of fundamental importance, and a number of constructs appear relevant to such regulation. Although some processes, such as coping and appraisal, are conceptualized as more state or situation-dependent, other constructs are viewed as developmentally-based or relatively stable cognitive-emotional patterns of regulation. Three constructs of interest in this study—

alexithymia, psychological defense mechanisms, and ego strength or maturity—have different theoretical lineages, but can be subsumed under the larger concept of affect regulation.

A substantial literature, originally in the field of psychosomatic medicine, has developed on alexithymia (literally, “lacking words for feelings”), which is conceptualized as a deficit in the ability to cognitively regulate emotions due to limited introspective ability and poor ability to identify and describe one’s feelings (Taylor, Bagby, & Parker, 1997). Indeed, since first being described in the 1970s, over 1,500 articles have been published, often linking elevated levels of alexithymia to a host of indices of poor health and adjustment, particularly symptoms of physical and mental health problems (Lumley, Neely, & Burger, 2007).

An affect regulation construct of interest that stems from personality psychology is psychological defenses, or defense mechanisms, which are viewed as relatively stable, automatic or unconsciously organized, cognitive styles of dealing with emotional conflict or impulses. There are various conceptual frameworks of defenses and a range of specific types and labels, but a consensus view is that defenses exist on a continuum of maturity or adaptation (Bond, Gardiner, Christian, & Sigal, 1983; Cramer, 1987). The defenses of intellectualization (or principalization) and isolation of affect are considered relatively mature, whereas repression and reversal are thought of as somewhat less mature, and projection and acting out against self or others are viewed as immature. Studies generally demonstrate that the use of more mature defenses is associated with better mental health (Vaillant, Bond, & Vaillant, 1986).

A third construct of interest is ego strength or maturity, which stems from theory and research in lifespan or self-development, and refers to the degree to which people view the self and others in a complex and integrated versus a simplistic manner (Loevinger, 1966). People who have high ego strength strive towards self-realization and intrapsychic differentiation, and they acknowledge the interdependency of people. They accept conflict, cherish individuality and objectivity, and reject conformity (Labouvie-Vief, 2001). Research indicates that advanced ego strength or maturity helps individuals maintain emotional stability and cope with internal and external stress (Vaillant et al., 1986).

The research literatures on alexithymia, defenses, and ego strength have evolved largely independently, and very little research has explored how they relate to each other. Several studies have examined relations between alexithymia and defense mechanisms and typically found that high alexithymia is associated with immature (or “primitive”) defenses, whereas low alexithymia is associated with more mature defenses (Bogutyn, Kokoszka, Palczynski, & Holas, 1999; Fukunishi, Numata, & Hattori, 1994; Helmes, McNeill, Holden, & Jackson, 2008; Kooiman, Spinhoven, Trijsburg, & Rooijmans, 1998; Parker, Taylor, & Bagby, 1998). A handful of studies suggest that alexithymia is associated with lower ego strength (Fukunishi, 1996; Fukunishi, Miguchi, & Nishihara, 1996; Parker, Taylor, Bagby, & Acklin, 1993; Taylor, Baby, & Parker, 1990).

There are a number of limitations to the literature on how alexithymia, defenses, and ego strength relate to each other and to mental health and well-being. First, most studies have

examined only a single construct, hindering the ability to determine how these constructs compare in their prediction of criteria. Second, the vast majority of studies relating alexithymia, defenses, and ego strength to mental health have been cross-sectional, and there are well-known limitations in such designs. Prospective studies, particularly over long periods of time, are needed to better understand the role these constructs play in mental health and adjustment. Third, measures of affect regulation often share the same assessment method—usually self-rating scales—with each and with most measures of mental health. For example, the leading alexithymia measure, the Toronto Alexithymia Scale-20 (TAS-20; Bagby, Taylor, & Parker, 1994), obtains self-ratings of one's perceived deficits or preferences, and it routinely correlates positively with other self-report scales of pathology or problems. Similarly, most studies of defenses have participants simply rate items reflecting their usual responses, but without reference to any specific conflict or stressor (Andrews, Singh & Bond, 1993). Similarly, ego strength has been assessed in numerous ways, including self-ratings of perceived ego strength. Response biases, including the influence of negative affect, are inherent in such self-ratings and can artificially inflate correlations among measures, as can shared methods variance. To reduce these biases, one can statistically adjust for negative affect but also assess constructs using measures that are based on performance or responses to scenarios rather than simple self-ratings.

Finally, psychological adjustment has typically been viewed through the lens of pathology, with a focus on outcomes such as depression. There is increasing recognition, however, that positive or adaptive indices of functioning, such as well-being, also need to be assessed because they capture aspects of adaptation, such as purposeful engagement in life, realization of personal talents and capacities, and enlightened self-knowledge, that are distinct from pathology and may be influenced by different psychological processes (Ryff, 2014).

There is a need for prospective research on the predictors of positive mental health and a more expansive concept of flourishing or adaptation than simply a reduction in symptoms (Keyes, Dhingra, & Simoes, 2010). Thus, this study had several aims. First, in a relatively large and representative community sample, we examined interrelationships among three affect regulation constructs: alexithymia, defense mechanisms, and ego strength. Although alexithymia was self-rated, defense mechanisms were assessed as anticipated reactions to specific conflict scenarios, and ego strength was judged by open-ended responses to sentence stems. Second, we related these three affect regulation measures to well-being and depression in cross-sectional associations, and we controlled for the potentially confounding effect of negative affect. Finally, to determine how affect regulation measures predict change in well-being and depression over time, we conducted a 6-year follow-up of a subset of the sample.

We hypothesized that the three affect regulation measures would be largely independent of each other, in part because they tap conceptually different processes of affect regulation, and in part due to the different assessment methods. We also hypothesized that lower alexithymia, use of more mature defenses, and higher ego strength would be related both cross-sectionally and prospectively to greater well-being and lower depression.

Method

Participants and Procedures

Participants were recruited from the community of a major metropolitan area in the Midwest U.S. as part of a larger prospective study on adult cognitive-affective development. The current analyses used data from a cross-sectional (baseline) sample as well as a sub-sample that was followed longitudinally and re-assessed 6 years later. The sample was intended to represent the full adult age range, so male and female participants were recruited in approximately equal numbers from every age decade from adolescence through late adulthood. Recruitment was conducted through community announcements and advertising to obtain volunteers.

The baseline sample consisted of 415 participants: 191 males (46%) and 224 females (54%), who had a mean age of 48.3 years (range: 14 to 92, $SD = 18.8$). The sample was 60.9% European American ($n = 253$) and 39.1% African American ($n = 162$), and relatively well-educated: 6.3% had not finished high school, 33.7% had finished only high school, 7.0% had an associate's degree, 27.6% had a bachelor's degree, and 23.0% had a graduate degree. Less than half (43.5%) were married or living together. The longitudinal subsample was targeted 6 years later; we were able to locate and re-assess 205 (49%) of the original participants: 122 women (59.5%) and 83 men (40.5%), who had a mean age of 54.5 years (range = 22 to 93; $SD = 17.7$), and were 70.2% European American ($n = 145$) and 29.8% African American ($n = 60$). Of demographics and baseline psychological measures, only ethnicity predicted loss to longitudinal follow-up; African Americans were less likely to be located and recruited in the longitudinal sample than European Americans ($p < .001$). Also, self-reported chronic illnesses at baseline (high blood pressure, diabetes, arthritis, and asthma) were not related to attrition from the longitudinal sample.

At both time points, participants provided written informed consent to the protocol. Measures of affect regulation, depression, well-being, and negative affect were completed at baseline; 6 years later, the same measures of depression and well-being were completed again. At baseline, all measures were completed in person, but at 6-year follow-up, those participants who had moved away were sent the measures to be completed at home and returned by mail.

Constructs and Measures

Alexithymia—This was assessed at baseline with the TAS-20 (Bagby et al., 1994), the most commonly used measure of alexithymia. It provides a global alexithymia score which reflects three facets of alexithymia: difficulty identifying feelings, difficulty describing feelings, and externally-oriented thinking. Participants rated items from 1 = *strongly disagree* to 5 = *strongly agree*, which were totaled; higher totals indicate greater alexithymia. The internal consistency of the TAS-20 in this sample was $\alpha = .84$.

Defenses—Five defenses were assessed at baseline with the Defense Mechanisms Inventory (DMI; Ihlwisch & Gleser, 1986). Scores for the defenses were determined from participants' reactions to four age- and sex-specific scenarios or vignettes involving

interpersonal conflict or threat; for example, a passing car splashing mud on you, or someone else getting a promotion that you wanted. For each vignette, participants selected their likely response in each of four categories: how they would actually react, their impulsive reaction, what they would be thinking, and what they would be feeling. Within each response category, there are five options reflecting the five defenses. Participants selected their most and least likely response from the five, and scores were generated for all five defenses. The five defense mechanisms (and internal consistencies in this sample), presented from most to least mature, were: principalization (transforming conflict into a rational or intellectual lesson; $\alpha = 0.64$), reversal (responding to the other person positively or neutrally rather than the expected negatively; $\alpha = 0.78$), turning against object (aggressing against the person perceived as threatening or frustrating; $\alpha = 0.80$), turning against self (blaming or criticizing the self; $\alpha = 0.76$), and projection (attributing malicious intent to an external object without evidence of that intent; $\alpha = 0.69$).

Ego strength—This was assessed at baseline using the short form of Loevinger's Washington University Sentence Completion Test (Hy & Loevinger, 1996). Participants provided written responses to 18 sentence stems, including "Raising a family..." "What gets me in trouble is ..." and "I feel sorry..." For each sentence stem, responses were scored by a trained, experienced rater using a coding manual. Each response was classified from 1 to 9 according to the 9-level system of ego development, ranging from least to most mature: 1 = presocial, 2 = impulsive, 3 = self-protective, 4 = conformist, 5 = self-aware, 6 = conscientious, 7 = individualistic, 8 = autonomous, and 9 = integrated. The total score across the 18 items was calculated; higher scores indicate greater ego strength, maturity, or development. There was acceptable inter-item reliability in this sample ($\alpha = .70$). Inter-rater reliability was determined by having a second trained rater score a random sample of 40 protocols. The correlation between the two raters was very high ($r = .94$).

Negative affect—This was assessed at baseline with the 10-item subscale of the Positive Affect and Negative Affect Scales (PANAS; Watson, Clark, & Tellegen, 1988). Items were rated from 1 = *not at all* to 5 = *extremely* and averaged. The internal consistency of the negative affect scale in this sample was $\alpha = .94$.

Depression—This was assessed at both baseline and 6-year follow-up using the widely used and validated 20-item, self-report Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Respondents rated the frequency of their depressive symptoms from 0 = *rarely or none of the time* to 3 = *most of the time*. Higher total scores reflect greater depression. The internal consistency of the CES-D in this sample was $\alpha = .88$.

Well-being—This was assessed at both baseline and 6-year follow-up using the Ryff Scales of Psychological Well-being (Ryff & Keyes, 1995), which assesses six dimensions of respondents' well-being: (1) the extent to which respondents feel their lives have meaning, purpose and direction (purpose in life); (2) whether they view themselves to be living in accord with their own personal convictions (autonomy); (3) the extent to which they are making use of their personal talents and potential (personal growth); (4) how well they are managing their life situations (environmental mastery); (5) the depth of connection they have

with significant others (positive relations with others), and (6) the knowledge and acceptance they have of themselves, including awareness of personal limitations (self-acceptance). Each scale is composed of 14 items with 6 response options ranging from 1 = *completely disagree* to 6 = *completely agree*; higher total scores indicate greater psychological well-being. The internal consistency for the scales ranged from $\alpha = .82$ to $.90$.

Data Analyses

Preliminary analyses examined associations of potential covariates (negative affect, age, gender) to affect regulation measures (alexithymia, defense mechanisms, and ego strength) and mental health measures (depression and well-being dimensions). We also determined relationships among the three affect regulation measures, both as zero-order and partial correlations in which confounds were controlled. Next, we examined cross-sectional (baseline only) associations between each affect regulation measure and baseline depression and well-being dimensions, both as zero-order relationships and, using regressions, controlling for potential confounds. Finally, the longitudinal subsample was analyzed to determine how the three baseline affect regulation measures predicted change in depression and well-being dimensions 6 years later, using regressions that controlled for baseline depression or well-being as well as demographics.

Results

Preliminary Analyses

Table 1 shows sample descriptive data on key study measures, and the correlations of the affect regulation measures and mental health measures with potential covariates. As expected, negative affect (sample $M = 16.2$, $SD = 5.6$) was correlated with most other measures; it was positively related to alexithymia, turning against object, and projection; inversely related to principalization and reversal; but unrelated to turning against the self and ego strength. Also, as expected, negative affect had a substantial positive relationship with depression and a moderate inverse relationship with all well-being dimensions. Age was positively correlated with principalization, reversal, turning against self, and several of the well-being dimensions; and inversely correlated with turning against object, projection, and depression. Finally, gender was generally unrelated to most measures, although women reported more personal growth.

Cross-Sectional Relationships Among Affect Regulation Constructs

Table 2 presents the cross-sectional (baseline) associations among the three affect regulation measures. Zero-order correlations are to the left of the slash, and partial correlations controlling for age, gender, and negative affect, are to the right of the slash. As expected, the defenses were clustered, with mature defenses of principalization and reversal being positively associated with each other and negatively associated with turning against the object and projection; the latter two were positively correlated with each other. As hypothesized, alexithymia was associated with greater use of relatively immature defenses (turning against self and against object) and less use of mature defenses (principalization and reversal). Alexithymia was also related to lower ego strength. Finally, ego strength was associated with more principalization and less turning against the object as well as lower

alexithymia. After controlling for negative affect and demographics, most of these associations remained significant, except for alexithymia's relationship with reversal and turning against the object.

Cross-sectional Relationships of Affect Regulation Constructs to Depression and Well-being

We first examined correlations between depression and well-being dimensions. As expected, the six dimensions of well-being were all positively correlated with each other, from $r = .31$ to $r = .69$. Also as expected, depression and well-being dimensions were inversely correlated, from $r = -.17$ to $-.62$.

Table 3 presents cross-sectional relationships of the three affect regulation measures with depression and the well-being dimensions, both as zero-order relationships as well as after controlling for negative affect, age, and gender. As can be seen in the table, there were many significant cross-sectional zero-order relationships. Depression was positively associated with alexithymia and the immature defenses of turning against object, against self, and projection; whereas depression was inversely correlated with principalization, reversal, and ego strength. However, none of the defenses remained associated with depression after controlling for negative affect, age, and gender. Regarding well-being dimensions, alexithymia was consistently inversely related to well-being dimensions, even after controlling for potential confounds. The mature defenses of principalization and reversal were positively related to well-being, and the other three defenses (turning against object, turning against self, and projection) were inversely related to well-being, although many of these relationships (particularly with principalization, turning against the object, and projection) lost significance after considering covariates. Ego strength was positively related to several dimensions of well-being, but with only personal growth in covariance analyses.

Prospective Relationships of Affect Regulation Constructs to Changes in Depression and Well-Being

We first examined the relationships of depression and well-being over time. Depression showed modest stability over the years, with a correlation of $r = .49$, $p < .001$ between baseline and follow-up scores; the mean CES-D scores were unchanged over time ($p = .79$). Regarding well-being dimensions, with the exception of environmental mastery ($r = .29$, $p < .001$), all of the dimensions were generally stable (correlations from $r = .54$ to $r = .73$ from baseline to follow-up). Four of the dimensions showed no mean change, but two increased over time: relations with others (baseline: $M = 63.49$, $SD = 11.95$ to follow-up: $M = 66.07$, $SD = 11.71$, $t = 4.08$, $p < .001$) and self-acceptance ($M = 63.59$, $SD = 11.41$ to $M = 65.95$, $SD = 11.57$, $t = 3.01$, $p < .01$).

Table 4 presents associations (standardized Betas) between baseline affect regulation measures and 6-year follow-up depression and well-being dimensions, controlling for baseline depression or well-being (that is, predicting residual depression and well-being) as well as age and gender. None of the affect regulation constructs significantly predicted depression over time; however, there were several significant predictions of well-being. Greater baseline alexithymia predicted a decrease in autonomy, environmental mastery, and

self-acceptance; and greater turning against object predicted a decrease in personal growth and positive relations with others. In contrast, greater use of reversal predicted increases in autonomy, and greater baseline ego strength predicted increased self-acceptance.

Finally, the pattern of the prospective relationships may vary by demographic characteristics of the participants. Thus, we tested both gender and ethnicity as potential moderators. Neither variable moderated the relationships between baseline affect regulation constructs and 6-year well-being or depression.

Discussion

This study examined how three important affect regulation constructs—alexithymia, defense mechanisms, and ego strength—are related to each other, and how they predict depression and psychological well-being both cross-sectionally and prospectively, over the course of 6 years. We found that these constructs share some variance, as hypothesized, but the overlap is rather small, suggesting that the constructs tap different aspects or processes of affect regulation. Consistent with our hypotheses, we also found that low alexithymia, more mature defenses, and high ego strength were related to less depression and greater psychological well-being when assessed concurrently, even after accounting for the potentially confounding effect of negative affect. Prospectively, these three affect regulation constructs predicted increases in well-being in the same direction, but not changes in depression, suggesting an important difference between well-being and depression in long-term outcomes.

Our findings revealed that people who lack awareness of and the ability to cognitively regulate their emotions—that is, who have elevated alexithymia—use less mature defenses to deal with psychological conflict. They preferentially engage in blaming or attacking either the self or the other when experiencing psychological conflict, and tend not to use the more adaptive, but cognitively more demanding processes of intellectualization (principalization) or denial (reversal). This pattern is generally consistent with previous literature on the associations between alexithymia and defenses (Bogutyn et al., 1999; Fukunishi et al., 1994; Helmes et al., 2008; Kooiman et al., 1998; Parker et al., 1998). The associations we obtained, however, were relatively small, and smaller than found in some of the other studies. This might stem from our use of a defense measure that has less shared-methods variance with the TAS-20, and our study of relatively healthy community rather than patient samples, which likely reduced the ranges on the measures. Furthermore, our study is unique in controlling for negative affect, which is a common confound, particularly in studies of alexithymia (Lumley et al. 2007), and which was related to both alexithymia and most of the defenses, but not ego strength. These covariance analyses showed that many of these constructs retained their relationships with each other, although alexithymia's association with reversal and turning against the self were eliminated.

We also found that alexithymia is related to having less ego strength, maturity, or development, as reflected in the reduced complexity and integration of self and others in response to interpersonal topics presented as sentence stems. Although this method of assessing ego strength has not been used in other studies of alexithymia, this finding is

generally consistent with others (Fukunishi, 1996; Fukunishi et al., 1996; Parker et al., 1993). It suggests that people with elevated alexithymia not only have a deficit in the cognitive processing of their emotions and use immature defenses, but they have a less complex and integrated sense of self and others, which likely contributes to the relational difficulties that have been noted in alexithymia (Hesse & Floyd, 2011; Humphreys, Wood, & Parker, 2009; Vanheule, Desmet, Meganck, & Bogaerts, 2007). Finally, consistent with theory (Labouvie-Vief, 2001), people with higher ego strength or maturity were more likely to use the mature defense of rationalization and less likely to engage in attacking the other, again supporting the validity of this measure of ego strength as a measure of adaptive function.

The adaptive nature of having low levels of alexithymia, using mature defenses such as principalization and reversal (rather than projection or turning against the self or other), and having higher ego strength was demonstrated by how these affect regulation constructs relate to mental health and well-being. In cross-sectional analyses, these constructs were related to less depression and greater well-being, as hypothesized. Because negative affect was strongly (positively) associated with depression and moderately (inversely) associated with well-being, controlling for negative affect attenuated or eliminated some of the relationships with several defenses.

Cross-sectional analyses have substantial interpretive limitations, so the prospective analyses—following over 200 participants for 6 years to determine how affect regulation constructs predict changes in well-being and depression—are more persuasive. It is noteworthy that none of the affect regulation measures predicted changes in depression, perhaps because depression is more variable and had lower test-retest reliability over 6 years, compared to most of the well-being dimensions. In contrast, changes in well-being were predicted by all of the affect regulation measures. Better psychological well-being on one or more dimensions was predicted by low baseline alexithymia and low use of turning against the object, and by greater use of reversal and higher ego strength. Such prospective studies are rare, but the findings of the predictors of well-being are consistent with previous literature (Ryff, 2014; James & Zarrett, 2006; Bockerman et al., 2011) and demonstrate the adaptive value of developed cognitive-affective regulation processes to long-term psychological well-being.

These findings have possible practical implications. With respect to assessment, it appears important to measure different aspects of affect regulation. Measures of alexithymia, defenses, and ego strength are not redundant, and each contributes to further understanding a person's tendencies toward depression and psychological well-being. There is value, therefore, in assessing not only people's self-reported abilities for emotional awareness and expression, but also how they defend against conflict and their capacity for complex, integrative thought. The findings also potentially inform prevention or intervention programs. Interventions that enhance a person's capacity for emotional awareness and expression, that encourage the use of mature defenses, and that support complex thought processes are likely to maintain or increase well-being, not only concurrently, but over the years. Such interventions include psychodynamic, experiential, and existential therapies, which are well-recognized for their focus on these cognitive-affective processes. Educational

and social strategies that promote complex rather than simplistic thought and the awareness of one's psychological processes are also encouraged as promoters of greater well-being.

This study has various limitations. Although the sample reflects a community population across a wide age range and both genders, it was a convenience rather than random sample, included only two ethnicities, was above average in education, and came from only one metropolitan area. All of these factors limit generalizability. The sample was also relatively healthy psychologically, and studying a clinical sample might have led to greater variability on both the affect regulation constructs and outcomes and increased the ability to predict depression. The prospective sample was only about half the size of the cross-sectional sample, due in part to difficulty re-locating participants, particularly African Americans. We did not assess traits or biases that are likely to affect the validity of participants' responses to the self-report measures used in this study. Finally, many of the obtained prospective correlations are rather modest in magnitude, and a number of analyses were conducted, raising the possibility of spurious associations. Nonetheless, the pattern of findings between the affect regulation measures and mental health and well-being measures is consistent both cross-sectionally and prospectively, substantiating their reliability.

Overall then, this study indicates that there are a composite of adaptive cognitive-emotional characteristics associated with adaptive affect regulation. People with greater complexity and integration have greater capacity to be aware of and regulate their emotions, and they tend to use more mature, adaptive defenses. Such people also have less depression concurrently and positive changes in psychological well-being six years later. Furthermore, this study supports the wisdom of distinguishing symptoms of depression from psychological well-being. Although depression and well-being dimensions are related constructs, sharing from 11%–36% of their variance, they are not opposites, but are unique enough that they show different patterns of relationship to baseline affect regulation. As Bockerman and colleagues (2011) note, health care is shifting from the paternalistic reduction of illness to improving the subjective well-being of autonomous people. We believe that our findings contribute to this movement and highlight the important role of affect regulation processes.

Acknowledgments

This research was supported by the National Institute on Aging (R01 AG09203, R01 AG21147).

References

- Andrews G, Singh M, Bond M. The defense style questionnaire. *The Journal of Nervous and Mental Disease*. 1993; 181:246–256. [PubMed: 8473876]
- Bagby RM, Taylor GJ, Parker JD. The twenty-item Toronto Alexithymia Scale—II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research*. 1994; 38:33–40. [PubMed: 8126688]
- Bockerman P, Johansson E, Saarni SI. Do established health-related quality-of-life measures adequately capture the impact of chronic conditions on subjective well-being? *Health Policy*. 2011; 100(1):91–95. [PubMed: 21056504]
- Bogutyn T, Kokoszka A, Palczynski J, Holas P. Defense mechanisms in alexithymia. *Psychological Reports*. 1999; 84:183–187. [PubMed: 10203948]

- Bond M, Gardiner ST, Christian J, Sigal JJ. An empirical examination of defense mechanisms. *Archives of General Psychiatry*. 1983; 40:333–338. [PubMed: 6830412]
- Cramer P. The development of defense mechanisms. *Journal of Personality*. 1987; 55:597–614.
- Fukunishi I. College maladjustment may be related to alexithymia constructs with weakness of ego strength. *Psychological Reports*. 1996; 78:735–738. [PubMed: 8711029]
- Fukunishi I, Miguchi M, Nishihara Y. Influence of ego strength on associations of alexithymia and depression. *Psychological Reports*. 1996; 79:999–1005. [PubMed: 8969108]
- Fukunishi I, Numata Y, Hattori M. Alexithymia and defense mechanisms in myocardial infarction. *Psychological Reports*. 1994; 75:219–223. [PubMed: 7984727]
- Helmes E, McNeill PD, Holden RR, Jackson C. The construct of alexithymia: Associations with defense mechanisms. *Journal of Clinical Psychology*. 2008; 64:318–331. [PubMed: 18302210]
- Hesse C, Floyd K. Affection mediates the impact of alexithymia on relationships. *Personality and Individual Differences*. 2011; 50:451–456.
- Humphreys TP, Wood LM, Parker JDA. Alexithymia and satisfaction in intimate relationships. *Personality and Individual Differences*. 2009; 46:43–47.
- Hy, LX., Loevinger, J. Measuring ego development. Hillsdale, NJ: Lawrence Erlbaum Associates; 1996.
- Ihilevich, D., Gleser, GC. Defense mechanisms: Their classification, correlates, and measurement with the Defense Mechanisms Inventory. Owosso, MI: DMI associates; 1986.
- James JB, Zarrett N. Ego integrity in the lives of older women. *Journal of Adult Development*. 2006; 13:61–75.
- Keyes C, Dhingra S, Simoes E. Change in level of positive mental health as a predictor of future risk of mental illness. *American Journal of Public Health*. 2010; 100:2366–2371. [PubMed: 20966364]
- Kooiman CG, Spinhoven P, Trijsburg RW, Rooijmans HGM. Perceived parental attitude, alexithymia and defense style in psychiatric outpatients. *Psychotherapy and Psychosomatics*. 1998; 67:81–87. [PubMed: 9556199]
- Labouvie-Vief, G. Ego development in adulthood. In: Smelser, NJ., Baltes, PB., editors. *International encyclopedia of the social and behavioral sciences*. Oxford: Elsevier; 2001. p. 4361–4365.
- Labouvie-Vief G, Hakim-Larson J, Hobart CJ. Age, ego level, and the lifespan development of coping and defense processes. *Psychology and Aging*. 1987; 2:286–293. [PubMed: 3268221]
- Loevinger J. The meaning and measurement of ego development. *American Psychologist*. 1966; 21:195–206.
- Lumley MA, Neely LC, Burger AJ. The assessment of alexithymia in medical settings: Implications for understanding and treating health problems. *Journal of Personality Assessment*. 2007; 89:230–246. [PubMed: 18001224]
- Parker JD, Taylor GJ, Bagby RM. Alexithymia: relationship with ego defense and coping styles. *Comprehensive Psychiatry*. 1998; 39:91–98. [PubMed: 9515194]
- Parker JDA, Taylor GJ, Bagby RM, Acklin MW. Alexithymia in panic disorder and simple phobia: A comparative study. *The American Journal of Psychiatry*. 1993; 150:1105–1107. [PubMed: 8317585]
- Radloff LS. The CES-D scale a self-report depression scale for research in the general population. *Applied Psychological Measurement*. 1977; 1:385–401.
- Ryff CD. Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*. 2014; 83:10–28. [PubMed: 24281296]
- Ryff CD, Keyes CLM. The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*. 1995; 69:719–727. [PubMed: 7473027]
- Taylor GJ, Bagby RM, Parker JDA. A preliminary investigation of alexithymia in men with psychoactive substance dependence. *American Journal of Psychiatry*. 1990; 147:1228–1230. [PubMed: 2386256]
- Taylor, GJ., Bagby, RM., Parker, JDA. Disorders of affect regulation: Alexithymia in medical and psychiatric illness. Cambridge: Cambridge University Press; 1997.
- Vaillant GE, Bond M, Vaillant CO. An empirically validated hierarchy of defense mechanisms. *Archives of General Psychiatry*. 1986; 43:786–794. [PubMed: 3729674]

- Vanheule S, Desmet M, Meganck R, Bogaerts S. Alexithymia and interpersonal problems. *Journal of Clinical Psychology*. 2007; 63:109–117. [PubMed: 17016830]
- Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*. 1988; 54:1063–1070. [PubMed: 3397865]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1

Baseline Sample Descriptive Statistics and the Zero-Order Correlations of Affect Regulation and Mental Health Variables with Potential Confound Variables

	<i>M (SD)</i>	Negative Affect	Age	Gender
Alexithymia	45.4 (10.6)	.36***	.00	-.08
Principalization	47.3 (7.0)	-.35***	.22***	.01
Reversal	41.9 (7.8)	-.29***	.36***	.06
Turning against object	35.9 (9.3)	.26***	-.41***	-.07
Turning against self	36.0 (7.4)	.10	.18*	.00
Projection	38.8 (6.2)	.18**	-.29***	-.03
Ego strength	86.6 (7.2)	-.08	.01	.07
Depression	11.1 (8.8)	.63***	-.20***	.05
Autonomy	63.7 (10.4)	-.26***	.07	-.05
Environmental Mastery	62.8 (10.8)	-.60***	.32***	-.05
Personal Growth	71.1 (9.5)	-.22***	-.07	-.13**
Relations with Others	64.7 (11.9)	-.32***	.11*	-.08
Purpose in Life	66.2 (11.5)	-.37***	.02	-.04
Self-Acceptance	63.5 (12.2)	-.54***	.22***	-.09

Note.

*
p < .05,

**
p < .01,

p < .001.

Gender (female = 0; male = 1)

Table 2
Baseline Associations Among Affect Regulation Constructs, Before and After Controlling for Age, Gender, and Negative Affect

	2	3	4	5	6	7
1. Alexithymia	-.26*** -.15**	-.16**/-06	.13*/.04	.18**/.17**	.06/-02	-.29***/- .28***
2. Principalization	--	.46***/.41***	-.60***/- .57***	-.17**/- .11*	-.46***/- .44***	.24***/.22***
3. Reversal		--	-.69***/- .67***	-.08/-03	-.61***/- .60***	.00/.02
4. Turning against object			--	-.35***/- .40***	.45***/.43***	-.15**/-0.15**
5. Turning against self				--	-.35***/- .39***	.03/.04
6. Projection					--	-.04/-05
7. Ego strength						--

Note.

* p < .05,

** p < .01,

*** p < .001.

Zero-order correlations to the left of the slash; partial correlations controlling for age, gender, and negative affect to the right.

Cross-sectional Associations of Affect Regulation Measures to Depression and Psychological Well-being Dimensions, Before and After Controlling for Age, Gender, and Negative Affect

Table 3

	Depressi on r/ β	Autono my r/ β	Environm ental Mastery r/ β	Personal Growth r/ β	Relation s with Others r/ β	Purpose in Life r/ β	Self Accepta nce r/ β
Alexithy mia	.40 ^{***} / ₂	-.32 ^{***} / ₂	-.46 ^{***} / ₂	-.44 ^{***} / ₂	-.46 ^{***} / ₂	-.45 ^{***} / ₂	-.40 ^{***} / ₂
Principaliz ation	-.29 ^{***} / ₇	.16 ^{**} / ₇	.30 ^{***} / ₇	.22 ^{***} / ₇	.21 ^{***} / ₇	.21 ^{***} / ₇	.31 ^{***} / ₁₃
Reversal	-.26 ^{***} / ₆	.26 ^{***} / ₀	.35 ^{***} / ₁₆	.22 ^{***} / ₂	.24 ^{***} / ₁₇	.26 ^{***} / ₀	.30 ^{***} / ₁₄
Turning against object	.21 ^{***} / ₄	-.13 [*] / ₅	-.25 ^{***} / ₅	-.11 [*] / ₁₀	-.16 ^{**} / ₆	-.18 ^{**} / ₁₃	-.19 ^{***} / ₃
Turning against self	.13 [*] / ₄	-.20 ^{***} / ₂₁	-.12 [*] / ₁₀	-.24 ^{***} / ₂₂	-.11 [*] / ₁₂	-.16 ^{**} / ₁₁	-.18 ^{**} / ₁₅
Projectio n	.16 ^{**} / ₆	-.12 [*] / ₆	-.21 ^{***} / ₇	-.08 [*] / ₁	-.17 ^{**} / ₁₁	-.07 [*] / ₁₁	-.20 ^{***} / ₈
Ego strength	-.17 ^{**} / ₁₁	.04 ₂	.04 ₁	.22 ^{***} / ₁	.09 ₇	.11 [*] / ₉	.12 [*] / ₇

Note.

[†] < .10

* p < .05,

** p < .01,

*** p < .001.

Zero order correlations are to the left of the slash. Standardized Betas from regressions controlling for age, gender and negative affect are to the right of the slash.

Table 4

Prospective Relations (Standardized Betas) of Baseline Affect Regulation Measures to (Residual) Depression and Well-being After 6 years, Controlling for Baseline Age, Gender, and Depression or Well-being

	Depressi on	Autono my	Environmen tal Mastery	Person al Growt h	Relatio ns with Others	Purpo se in Life	Self- Acceptan ce
Alexithymia	.04	-.18*	-.15*	-.04	-.03	-.14 [†]	-.21**
Principalizat ion	-.08	.11	.06	.06	.03	.13 [†]	.10
Reversal	-.03	.24**	-.02	.09	.10	.09	.00
Turning against object	.13 [†]	-.12	-.11	-.16*	-.17*	-.14 [†]	-.09
Turning against self	.08	-.14 [†]	.03	-.07	-.05	-.13 [†]	-.10
Projection	-.06	-.10	-.03	.04	.02	.02	.09
Ego strength	-.03	.12 [†]	.03	.02	.01	.11	.19*

Note.

[†] < .10

* p < .05,

** p < .01,

*** p < .001.